



INTER-AGENCY WORKING GROUP
ON REPRODUCTIVE HEALTH IN CRISES



Reproductive Health in the Changing Humanitarian Context

Findings from the IAWG on Reproductive Health
in Crises' 2012-2014 Global Evaluation

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Advancing reproductive health on the humanitarian agenda: the 2012-2014 global review

Introduction

The global landscape for reproductive health in humanitarian settings has changed dramatically since the International Conference on Population and Development (ICPD) in 1994. Mainstreaming of reproductive health into humanitarian health responses has grown, and awareness of the consequences of neglecting reproductive health services, such as maternal and neonatal mortality, HIV transmission, and unsafe abortion, has expanded. Despite these advances, significant gaps remain, and meeting the reproductive health needs of crisis-affected communities is more urgent than ever: the United Nations High Commissioner for Refugees (UNHCR) reported that 51.2 million people remained forcibly displaced due to conflict and persecution by the end of 2013—the largest number since World War II [1]. An additional 22 million were displaced in 2013 by natural disasters [2]. Figure 1.

A concentrated effort to address reproductive health in emergencies commenced in 1995 when a coalition of UN

agencies, national and international nongovernmental organizations (NGOs), government agencies, donors, and academic institutions established the Inter-agency Working Group on Reproductive Health in Crises^a (IAWG), an international network dedicated to improving the reproductive health of communities affected by conflict and natural disaster. IAWG arose from a growing concern with the lack of attention to reproductive health, despite increasing evidence of its need in emergency settings [3]. In its first decade, IAWG made large strides in advancing reproductive health through advocacy, research, standard setting, and guidance development, including the publication of the seminal *Reproductive Health for Refugees: An Inter-agency Field Manual* [4]. The Field Manual was the first technical guidance on implementing reproductive health in emergencies and articulated a minimum standard in reproductive health service delivery—the Minimum Initial Service Package (MISP) for Reproductive Health.^b IAWG also supported the creation of the Interagency Reproductive Health Kits, twelve kits of essential medicines and supplies, to support rapid implementation of the MISP [5].

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Reproductive health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes. Reproductive health therefore implies that people are able to have a satisfying and safe sex life and that they have the capability to reproduce and the freedom to decide if, when and how often to do so. —ICPD Programme of Action, 1994

Figure 1

By the early 2000s, IAWG and its partners—including the Reproductive Health Response in Crises (RHRC) Consortium^c—had achieved substantial gains. A 1999 study documented an increase in evidence, funding, policies, conferences, and new NGOs addressing reproductive health in emergencies, reflecting marked progress in advancing reproductive health on the global humanitarian agenda [6]. From 2002 to 2004, IAWG undertook its first global evaluation to assess progress [7]. The findings confirmed advancements at the policy and implementation levels since the mid-90s, but significant gaps continued across all technical areas, specifically maternal and newborn health, family planning, gender-based violence, and HIV and other sexually transmitted infections (STIs).

IAWG's second decade, from 2004 to 2014, saw the maturation of the coalition and further advancements to institutionalize reproductive health into humanitarian health responses and improve access to services. Members successfully advocated integrating the MISP as a minimum health standard in the 2004 and 2011 revisions of the Sphere Humanitarian Charter and Minimum Standards in Disaster Response and the Inter-Agency Standing Committee Health Cluster Guide[8,9]. Through IAWG's advocacy, the MISP was included as a life-saving activity eligible for Central Emergency Response Fund funding [10]. In 2009, led by the World Health Organization (WHO) and

UN Population Fund (UNFPA), IAWG and partners drafted the Granada Consensus on Sexual and Reproductive Health during Protracted Crises and Recovery, which reaffirmed comprehensive reproductive health as a right in protracted settings and fragile states [11]. The following year IAWG released an updated field-test version of the Field Manual, which included an extra chapter dedicated to comprehensive abortion care—a particularly neglected area in reproductive health service provision—as well as outlined additional priority activities to the MISP [12]. IAWG also served as a platform to spearhead two ground-breaking, complementary programs: the Reproductive health Access, Information and Services in Emergencies (RAISE) Initiative, which focuses on expanding comprehensive reproductive health services in crises, and the Sexual and Reproductive Health Programme in Crisis and Post-Crisis Situations (SPRINT), which works to enhance access to the priority services of the MISP. These initiatives are among the first international efforts to systematically scale up capacity and implementation of reproductive health services in emergencies at the national level.

Membership expanded as IAWG actively sought to decentralize and establish regional networks. By the end of 2014, IAWG had 1,680 individual members representing 124 countries and 450 different agencies—a significant increase from approximately 50 members in 2004. With more members,

IAWG was able to establish regional chapters as well as roughly ten sub-working groups on specialized issues related to reproductive health, such as new technologies, urban displacement, and disaster risk reduction. Indeed, IAWG's disaster risk reduction and emergency preparedness efforts, including the SPRINT Initiative and the reproductive health group within the UN International Strategy for Disaster Reduction, have helped promote a comprehensive approach to reproductive health that considers both pre- and post-crisis phases. IAWG has galvanized the field despite lack of sustained, dedicated funding since the coalition's inception.

From 2012 to 2014, IAWG conducted a second global review to assess progress, document gaps, and determine future directions. Seven complementary studies were undertaken to provide a snapshot of the field. The studies build on those undertaken for the 2004 evaluation and explore key aspects of the field, including new research, changes in funding and institutional capacity, and implementation of both MISP and comprehensive reproductive health services in selected settings. Four studies are presented in this Supplement: a systematic review of peer-reviewed research evaluating reproductive health programs in crises from 2004 to 2013 [13]; an assessment of MISP implementation in two settings hosting Syrian refugees in Jordan [14]; an evaluation of the availability and quality of and access barriers to reproductive health services in crisis-affected settings in Burkina Faso, the Democratic Republic of the Congo (DRC), and South Sudan [15]; and a systematic analysis of reproductive health in humanitarian health and protection funding proposals for 2002 to 2013 [16]. Three

additional studies, not yet published, include a long-term trend analysis study that tracked official development assistance for reproductive health to 18 conflict-affected countries for 2002 to 2011 (unpublished observations, Patel, Dahab, Tanabe, Murphy, Ettema, Guy, Roberts), a retrospective analysis of selected reproductive health indicators from UNHCR's Health Information System across 56 refugee camps in ten countries from 2007 to 2013 (unpublished observations, Whitmill, Tomczyk, Blanton, Doraiswamy, Haskew, Cornier, Schilperood, Spiegel), and a survey of humanitarian and development agencies that explored changes in their capacity to address reproductive health in crises since 2004 (unpublished observations, Tran, Dawson, Meyers, Krause, Hickling). The findings revealed substantial progress since 2004—reproductive health is squarely situated on the humanitarian agenda—but multiple gaps were documented across all technical areas punctuated by overarching issues in commodity security and community engagement. Figure 2.

Progress and gaps

Overall, the studies documented broad progress for reproductive health in humanitarian settings. Tanabe et al. found that of the roughly 11,300 health and protection proposals issued between 2002 and 2013, almost 4,000 contained reproductive health components, more than a third of the issued proposals [16]. The number of proposals including reproductive health increased by an average of 22% per year, while the proportion of health and protection sector proposals containing reproductive health increased by an average

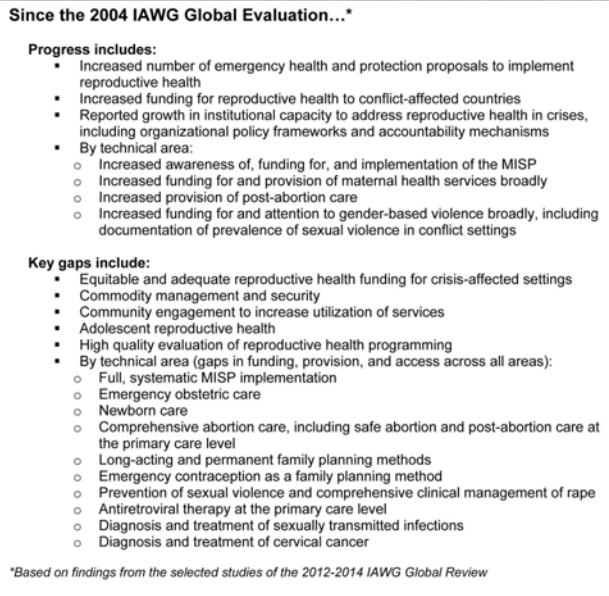


Figure 2

of 10% per year. Preliminary findings from the long-term trend analysis indicate substantial increase in official development assistance for reproductive health for conflict-affected countries from 2002-2011 (unpublished observations, Patel, Dahab, Tanabe, Murphy, Ettema, Guy, Roberts). These studies demonstrate increased awareness among humanitarian actors of the need to implement reproductive health services in a crisis response. The trend is also reflected by the preliminary findings of the institutional capacity survey that documented increased organizational investment in human and financial resources to address reproductive health in humanitarian settings (unpublished observations, Tran, Dawson, Meyers, Krause, Hickling).

At the same time, although requests for

funding and absolute funding received for reproductive health in humanitarian appeals have increased since 2002, Tanabe et al. determined that just 43% of these funding requests were met over the last 12 years, slightly above the health sector average of 41% and well below the total humanitarian sector average of 68% [16]. Preliminary findings from the long-term trend analysis indicate that the bulk of increased overseas development assistance for reproductive health in conflict-affected countries was attributable to HIV-related activities (unpublished observations, Patel, Dahab, Tanabe, Murphy, Ettema, Guy, Roberts). The preliminary findings also show disparity in the disbursement of overseas development assistance for reproductive health between conflict-affected countries and non-conflict

affected countries in the same income category and between countries affected by conflict; for example, the average annual per capita reproductive health overseas development assistance disbursed to least-developed nonconflict-affected countries was 57% higher than to least-developed conflict-affected countries.

MISP

The MISP comprises the priority reproductive health activities to be implemented in an acute emergency and should be built upon with comprehensive programming as soon as possible. In 2004, the first global evaluation found that attention to the MISP was gaining ground, but implementation was not systematic, particularly during the early days of a response, and awareness among health actors remained low [7]. Over the past decade, assessments spearheaded by the Women's Refugee Commission, UNFPA, and other IAWG members have chronicled steady improvement in MISP awareness and implementation globally [17-21]. For the 2014 global review, Krause et al. found services and key elements to support MISP implementation largely in place in two settings serving Syrian refugees in Jordan [14]; preliminary findings from the institutional capacity study show increasing attention to reproductive health coordination by the agencies surveyed (unpublished observations, Tran, Dawson, Meyers, Krause, Hickling). Tanabe et al. determined that, among humanitarian health and protection appeals submitted between 2009 and 2013, proposals that included all of the components of the MISP and those with partial MISP components increased an

average of almost 40% and 2.4%, respectively, per year [16].

The other studies paint a more complex picture. Casey et al.'s research revealed significant gaps in the clinical components of the MISP in three settings well past the acute emergency phase [15]. Similarly, preliminary findings from the analysis of reproductive health indicators from UNHCR's Health Information Systems in 56 stable refugee camps indicate wide variation in condom distribution and provision of post-exposure prophylaxis for HIV as part of clinical management of rape—both key activities of the MISP (unpublished observations, Whitmill, Tomczyk, Blanton, Doraiswamy, Haskew, Cornier, Schilperood, Spiegel). Regarding evaluation of reproductive health programming in humanitarian settings, Casey's systematic review found no peer-reviewed papers that evaluated MISP implementation comprehensively since 2004 [13].

Maternal and newborn health

Progress in maternal and newborn health followed a similar trajectory. In 2004, the global evaluation found that some maternal and newborn health services were available in stable refugee settings, but implementation of antenatal care and emergency obstetric care lagged [7]. The 2014 review documented important progress in advancing maternal and newborn health and its integration into primary health care services. Maternal and newborn care comprised the largest proportion (56%) of all reproductive health components in humanitarian health appeals from 2009 to 2013 [16]. It was also the most funded, receiving 56% of requested funds, and received the most amount of absolute

funds—\$684.8 million USD. Casey's systematic review identified seven papers that described evaluations of humanitarian maternal and newborn health programs since 2004, demonstrating that some evaluation is occurring [13]. Preliminary findings from the study of 56 UNHCR refugee camps across ten countries show that screening for syphilis as part of antenatal care—a significant gap in the 2004 evaluation—increased over time in two countries and was consistently high in a third, although most camps did not meet desired screening levels across settings (unpublished observations, Whitmill, Tomczyk, Blanton, Doraiswamy, Haskew, Cornier, Schilperood, Spiegel).

Despite this progress, gaps remain, particularly regarding emergency obstetric and newborn care. A closer analysis of the trends in humanitarian appeals divulged that antenatal and postnatal activities were more frequently mentioned in proposals than emergency obstetric care [16]. Although Krause et al. found emergency obstetric and newborn care largely in place in the two settings assessed in Jordan [14], Casey et al. determined that only one of five hospitals and one of 58 health centers across three humanitarian settings met the criteria to adequately provide comprehensive and basic emergency obstetric and newborn care, respectively [15].^d These differences across settings likely reflect the relative availability of these services prior to the crisis. Indeed, the availability of this care in Jordan is unsurprising given its advanced health care system as opposed to the weak health systems in Burkina Faso, DRC, and South Sudan. Preliminary findings from the study of 56 refugee camps in ten countries show that none of the countries met the standard

for proportion of live births performed by caesarian section (5% to 15%), and all but two countries were far below the standard of 100% of all births attended by a skilled health worker (unpublished observations, Whitmill, Tomczyk, Blanton, Doraiswamy, Haskew, Cornier, Schilperood, Spiegel). Further, maternal and infant deaths appeared to be underreported across all ten countries.

Comprehensive abortion care

Comprehensive abortion care, which includes postabortion care and safe abortion, is an essential component of reproductive health and is particularly important in settings with limited access to family planning and vulnerability to sexual violence—both of which characterize many humanitarian contexts. Safe abortion saves lives: UNFPA estimates that 25% to 50% of maternal deaths in refugee settings are due to complications of unsafe abortion [22]. Yet abortion-related services have been historically neglected in humanitarian responses, in part due to their highly politicized nature as well as health providers' and communities' misconceptions of the restrictiveness of national law [23,24]. Indeed, the 2004 evaluation found limited post-abortion care available and safe abortion was not assessed [7]. Ten years later, the 2014 review documented some improvements in post-abortion care but a critical dearth of access to safe abortion within the extent of national law remained.

In Jordan, post-abortion care was generally available for Syrian refugees in the two settings assessed [14]. Casey et al.'s three-country study discovered that all assessed hospitals met the criteria to adequately provide post-abortion care, although

availability was variable among health centers [15]. Still, post-abortion care was severely lacking in humanitarian health appeals from 2002 to 2013 [16], and the systematic review found no published studies that evaluated any component of comprehensive abortion care [13]. Further, safe abortion was neglected across all studies in terms of funding, evaluation, and implementation [13-16], although Krause et al. did find abortion available, within Jordan's legal framework, in two hospitals [14].

Family planning

Comprehensive family planning services, which can avert up to 32% of maternal deaths and almost 10% of childhood deaths [12], have also long been overshadowed by other pressing health needs. In 2004, the IAWG evaluation found relatively wide availability of short-acting methods, specifically oral contraceptive pills and injectables [7]. However, long-acting and permanent methods were lacking, despite evidence that a wide choice of methods raises overall contraceptive use and can enhance cost-effectiveness of programming [25,26]. Emergency contraception as a method of family planning was not assessed in the 2004 evaluation.

Despite more concerted efforts to bring family planning to the fore, such as IAWG's 2010 statement highlighting family planning as a life-saving intervention in humanitarian settings [27], most of the studies from the current review reflected limited progress relative to the other components of reproductive health since 2004. Tanabe et al. found that, of the reproductive health components in humanitarian health appeals from 2009 to 2013, only 14.9% contained

family planning, the smallest of all components assessed; long-acting and permanent methods were rarely mentioned [16]. Of the 63 facilities assessed in Burkina Faso, DRC, and South Sudan, many provided pills and injectables, but again, emergency contraception as a method of family planning and long-acting and permanent methods were scarce [15]. Six of the 36 papers identified in Casey's systematic review evaluated family planning programming, although all but one focused on shortacting methods [13]. At the same time, the MISP study in Jordan did find wide availability of IUDs in addition to short-acting methods [14], suggesting these methods are more likely to be provided in settings where they are already commonly used.

Gender-based violence

In 2004, gender-based violence was an emerging area and, unsurprisingly, the weakest of the reproductive health components assessed in the global evaluation [7]. Gender-based violence is a broad field; reproductive health actors are responsible for providing good quality clinical care for survivors of sexual violence and ensuring protection measures are in place so clients can safely access services. The field has matured and expanded significantly over the past decade. Indeed, the 2014 review documented considerable progress in terms of funding, policies, and programming, yet program evaluation, prevention efforts, and systematic, comprehensive clinical management for rape survivors remained limited [13-15].

Preliminary findings from the UNHCR Health Information System study show that, although rape appeared to be underreported,

five of the ten countries consistently met the standard of 100% of eligible survivors receiving post-exposure prophylaxis within 72 hours of an assault to minimize HIV transmission (unpublished observations, Whitmill, Tomczyk, Blanton, Doraiswamy, Haskew, Cornier, Schilperood, Spiegel). Gender-based violence, as related to reproductive health programming, comprised the second highest (46%) of all reproductive health proposals in humanitarian health and protection appeals from 2009 to 2013, a total increase of 34% over five years [16]. This suggests increasing attention to gender-based violence by implementing agencies. Donor support to gender-based violence totaled \$308.9 million USD, a significant amount, although only 37% of the total request was met over the five-year period [16].

The other studies highlighted concerning gaps. The MISP assessment in Jordan found weak protection measures against sexual violence generally and only one assessed site had skilled staff and sufficient supplies to provide clinical care for rape survivors [14]. In the evaluation of reproductive health services across three settings, only three out of 63 total facilities met the criteria to adequately provide selected elements^e of clinical management of rape, and it was unclear whether these three facilities provided all components of the minimum package of post-rape treatment [15]. The systematic review found a plethora of descriptive papers that reported prevalence and types of sexual violence since 2004—which were noticeably lacking a decade ago—but none that evaluated the effectiveness of clinical management of rape services [13]; a 2013 evidence review of

health in humanitarian settings similarly found extremely limited research on gender-based violence programming [28].

HIV and other STIs

While the area of gender-based violence is expanding, HIV in emergencies has long been a field in its own right. HIV has historically received disproportionate more funding and attention relative to other reproductive health areas [29]. Indeed, preliminary findings from the long-term funding trend analysis show that the upsurge in total official development assistance-related reproductive health disbursements was largely due to a substantial increase in HIV funding (unpublished observations, Patel, Dahab, Tanabe, Murphy, Ettema, Guy, Roberts). Examining humanitarian appeals, Tanabe et al., however, reported a leveling of the field: since 2009, proposals that include HIV have declined whereas funding for other reproductive health areas has increased [16].

The 2004 global evaluation found uneven availability of condoms and STI treatment as well as very limited coverage of anti-retroviral therapy for people living with HIV [7]. Now, ten years later, the 2014 review identified some progress in the settings assessed, particularly regarding prevention of mother-to-child transmission and antiretroviral therapy, but gaps generally mirrored those from a decade ago. Krause et al. and Casey et al. found sporadic availability of HIV and other STI services across four settings [14,15]; anti-retroviral therapy was available at large referral hospitals, but rarely at primary care level, despite its inclusion as an addition to the MISP in the 2010 *Field Manual* and as a minimum standard in the

IASC Guidelines for Addressing HIV in Humanitarian Settings [12,30]. Preliminary findings from UNHCR's Health Information System data also showed inconsistent provision of condoms in 56 refugee camps from 2007 to 2013 (unpublished observations, Whitmill, Tomczyk, Blanton, Doraiswamy, Haskew, Cornier, Schilperood, Spiegel). Casey identified an abundance of studies that evaluated anti-retroviral programs, which generally found that patient outcomes in conflict and post-conflict settings are comparable to stable settings [13], suggesting that we know what works but need to do it more systematically. Attention to HIV continued to overshadow other STI services across all studies, even though untreated STIs can lead to complications in pregnancy, infertility, reproductive cancers, and enhanced transmission of HIV.

Additional findings

Preliminary findings from a survey of development and humanitarian organizations mirrored the findings above. The humanitarian and development agencies surveyed reported increased attention to MISP and all technical areas since 2004 as well as more efforts to address disaster risk reduction, accountability, and inter-agency coordination. They also reported, however, limited attention to safe abortion and cervical cancer screening and treatment (unpublished observations, Tran, Dawson, Meyers, Krause, Hickling).

Two notable findings from the 2004 evaluation were the lack of reproductive health services for adolescents and internally displaced, as opposed to refugee, populations [7]. In the 2014 review, some progress was

evident with Krause et al. finding reproductive health services, with the exception of family planning for unmarried adolescents, relatively accessible for adolescent Syrian refugees in Jordan [14]; Casey identified five papers that evaluated adolescent HIV programs in humanitarian settings [13]. Yet few adolescent-friendly services were in place across the three settings assessed by Casey et al. [15], and Tanabe et al. found limited mainstreaming of adolescents in health and protection-related funding proposals [6]. Grey literature also documents limited availability of adolescent reproductive health programs in humanitarian settings [31].

Regarding reproductive health services for internally displaced persons, the 2004 evaluation and other research primarily focused on maternal health, found better reproductive health outcomes in stable refugee camp settings than in neighboring host communities or in refugees' home countries [7,32-34]. In the selected settings for the 2014 review, the studies established that, although services for Syrian refugees in Jordan were markedly more available and accessible than for those internally displaced in DRC, services for refugees in camps in South Sudan were comparatively less available and of poorer quality. Among Malian refugees in Burkina Faso, some reproductive health services, such as STI care and prevention-of-mother-to-child transmission of HIV, were more consistently available at government-run clinics for the surrounding host population than in camp health centers. In the assessed settings, availability and access were contingent on a complex constellation of factors, such as humanitarian space, funding dedicated to the

reproductive health response, the robustness of the setting's health system, and whether services were commonly available before the emergency.

One of the more striking and urgent findings of the 2014 evaluation was that, even when reproductive health services were in place, uptake of many services lagged across all settings. Many affected communities were unaware of existing services or did not know of their benefits. Even those who could identify advantages—such as accessing post-exposure prophylaxis for HIV within 72 hours after rape—reported that communities largely shunned services, citing socio-cultural barriers such as shame and anxieties about possible social sanctions. This finding challenges the “if you build it, they will come” assumption that at times permeates health programming. Reproductive health refracts cultural sensitivities, and effective programming requires community mobilization activities, particularly for services to which the community may not have previously had access. IAWG has made some inroads in recognition of this, such as the inclusion of “ensuring community awareness of available services” as an activity of the MISP [12] and the development of behavior change communication materials [35]. Notably, Casey et al. documented a significant uptake of facility-based delivery services across three settings as a result of outreach by health actors, highlighting that behavior change to increase use of reproductive health services is possible with the appropriate strategy.

Many of the other challenges identified in these studies are long-standing. Poor commodity management and security were

key barriers to good quality care. Negative provider attitudes and behaviors, such as disrespect towards women seeking family planning services, hindered some people from seeking care. Restrictive policies and misinformation about existing policies prevented implementation of critical services, and poor quality data collection undermined service monitoring. Some gaps in care resulted from a dearth of skilled staff. Although integration of reproductive health into comprehensive primary health care was evident in some sites, further efforts are needed for effective integration across all levels of care.

Considerations for future directions

The studies for the 2014 IAWG global review documented considerable progress in the field since the previous evaluation a decade ago. Funding and awareness have increased significantly, and service provision has expanded. However, programmatic needs continue to outweigh financial support, implementation is not systematic and is of variable quality, and evidence for program efficacy remains scarce. The review spotlighted poor commodity management and security, limited availability of comprehensive abortion care, and lack of community mobilization to increase reproductive health service uptake as particularly critical gaps.

The Nobel Prize-winning economist Elinor Ostrom imagined the ideal aid system as one that would “reward people for developing imaginative ideas that draw on the complexity of the real world, that leave people in developing countries more autonomous, less dependent, and more capable of crafting their own future” [36].

She proposed that, in a rapidly evolving global society, the nature of change is non-linear and is achieved not through pre-fabricated solutions but through creating adaptive, dynamic systems. Many of the strategies used by IAWG and other actors advancing reproductive health on the humanitarian agenda align with Ostrom's complexity approach. Their efforts have often been innovative, responsive, and multifaceted, involving local communities up to the highest levels of international bodies and engaging with all phases of the emergency management cycle.

The way forward would benefit from applying dynamic approaches that knit together disparate elements of the emergency management universe, including pre-crisis preparedness and risk reduction efforts, crisis response interventions, and early recovery and rehabilitation activities. Humanitarian response must be integrated as an essential piece of health systems work and reproductive health as an essential component of health. Indeed, the findings from the 2014 review indicate that the relative robustness of the pre-existing health care system and the availability of reproductive health services before an emergency determine the availability and uptake of these services during the response and recovery. Long before a crisis, donors, UN agencies, governments, and international and national NGOs, among others, must support the capacity of Ministries of Health and Disaster Management, national and community-based organizations, health workers, and communities themselves to strengthen health systems with an emphasis on comprehensive reproductive health, accessibility, and resilience-building. This

includes, for example, funders supporting community involvement in the design and delivery of reproductive health services, national governments addressing policy barriers to reproductive health service implementation, and national medical and nursing schools integrating reproductive health into their curricula. Humanitarian and development agencies addressing reproductive health must engage, coordinate, and reinforce each others' work, and donors are called upon to support cohesive programming that integrates both preand post-crisis efforts. With the increasing urbanization of displacement—as demonstrated in Krause et al.'s study—implementing agencies need to adapt and develop appropriate operational frameworks and forge new relationships with municipal authorities and urban service providers. Preliminary findings from the institutional capacity survey indicate that an increasing number of stakeholders are addressing emergency preparedness, disaster risk reduction, and recovery measures related to reproductive health, but much more effort is needed to systematically and sustainably bridge the humanitarian-development divide.

Casey et al. and Krause et al.'s studies highlight the urgent need to address reproductive health commodity security. Ministries of Health and health NGOs must strengthen commodity management processes to prevent stock-outs and provide consistent access to care. At the global level, with donor support, IAWG could link with the Reproductive Health Supplies Coalition and other development actors to spearhead a concerted effort to promote effective reproductive health supply chain management from the onset of a crisis

response throughout recovery.

The significant growth in funding for and implementation of gender-based violence and HIV programming, as found by Tanabe et al., illustrates the expansion of these fields over the past decade. As such, the protection and health clusters/sectors, led by UNHCR and WHO, respectively, as well as the gender-based violence area of responsibility, co-led by UNFPA and UNICEF, must strengthen coordination and delineation of roles to support an aligned approach and integrated interventions. Gender-based violence and HIV focal points ought to maintain linkages with reproductive health actors to ensure a harmonized response by, for example, attending respective coordination meetings in the field. Indeed, the lynchpin for an effective reproductive health humanitarian response is sustained, inter-agency reproductive health coordination with a designated lead agency; funders are obliged to support this type of coordination and not just direct service provision.

Casey et al. and Krause et al.'s studies demonstrate the need to enhance providers' knowledge base and address personal beliefs that affect professional conduct. Service providers should explore competency-based clinical trainings on reproductive health within a rights-based framework. These two studies also show the importance of a coherent transition from MISP to comprehensive reproductive health services, as outlined in the *Granada Consensus* [11]. Preliminary findings from the Health Information System study as well as Casey et al.'s study indicate that UNHCR and implementing agencies must strengthen their data collection and management. To enhance

the weak evidence base as identified in the literature review, academic institutions could spearhead more systematic research and program evaluation to identify better ways to serve the reproductive health needs of crisis-affected communities.

In order to realize Ostrom's vision for aid, UN agencies, donors, and international NGOs must listen to, engage, and work with local, national, and government agencies in a way that addresses power dynamics and promotes ownership and leadership. The 2014 review clearly highlights that humanitarian and development actors must identify and develop effective strategies to meaningfully engage affected communities to increase use of reproductive health services, meet their reproductive health needs, and augment participation in the programs that affect their lives. Implementing agencies can explore contextually appropriate new technologies, such as social media and mobile technologies, to increase two-way communication with communities [37].

The studies also bring to the fore the marked lack of attention to adolescent reproductive health in terms of funding, access to services, programming, and program evaluation; donors and implementing agencies must prioritize adolescents as well as other marginalized groups, such as people with disabilities, sex workers, elderly, and lesbian, gay, bisexual, and transgender persons, to ensure they access and enjoy good quality reproductive health care. In addition, Casey et al.'s research in Burkina Faso, DRC, and South Sudan sheds light on the challenges of providing good quality care in remote settings with limited health providers; more attention to

task-sharing to address human resource gaps and to developing alternative service delivery models can help facilitate the provision of services even in the most hard to reach areas. These and other efforts should be underpinned by humanitarian principles and grounded in a culture that fosters accountability, learning, adaptation, and flexibility. Tanabe et al.'s study as well as preliminary findings from the long-term trend analysis of official development assistance demonstrate the need for increased funding for reproductive health in crises. Donor governments such as Australia, Belgium, and the U.S. have thankfully stepped up in recent years to support humanitarian reproductive health and protection programming, but more donor champions are required to close the funding gap, ensure equitable funding across reproductive health areas, and support fluid, innovative humanitarian programs rather than short-term, quantifiable interventions.

Multi-sectoral efforts to advance reproductive health in crises are also needed at the global level. The architects of the Sustainable Development Goals, for example, should integrate comprehensive reproductive health care for communities affected by humanitarian crises into the post-2015 agenda. Reproductive health and gender issues remain on the periphery of climate change adaptation and mitigation planning, and climate change leaders should ensure reproductive health actors are at the table.

There is no panacea to addressing reproductive health needs in increasingly complex humanitarian crises. But we do know that effective humanitarian action is contingent on the capacity, ability, and desire

of agencies to work together [36]. Collaborative efforts that embrace holistic, adaptive approaches, such as IAWG at the global level and many national and community-based networks at the field level, are critical to continue to effectively move the agenda forward. These partnerships need to be supported and consolidated. Indeed, sustained, dedicated, predictable funding to maintain the coordination of IAWG is essential as it leads the coordinated effort to protect and promote the sexual and reproductive well-being of communities affected by humanitarian crises around the world.

List of abbreviations

DRC: Democratic Republic of the Congo; IAWG: Inter-agency Working Group on Reproductive Health in Crises; ICPD: International Conference on Population and Development; MISP: Minimum Initial Service Package (for Reproductive Health); NGO: Nongovernmental organization; RAISE: Reproductive health Access, Information and Services in Emergencies; RHRC Consortium: Reproductive Health Response in Conflict Consortium; SPRINT: Sexual and Reproductive Health Programme in Crisis and Post-Crisis Situations; STI: Sexually transmitted infection; UNFPA: United Nations Population Fund; UNHCR: United Nations High Commissioner for Refugees; WHO: World Health Organization.

Competing interests

The author is a co-author of one of the studies included in the Conflict and Health Supplement for the 2012-2014 IAWG Global Review: Progress and gaps in reproductive health services in three humanitarian settings: mixed methods case studies by Casey et al.

Authors' information

The author has been a member of the Inter-agency Working Group on Reproductive Health in Crises since 2003.

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Declarations

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- ### Endnotes
- ^a Formerly known as the Inter-agency Working Group for Reproductive Health in Refugee Situations
 - ^b The MISP is a set of priority activities designed to ensure coordination, prevent sexual violence and provide care for survivors, prevent maternal and neonatal morbidity and mortality, and HIV transmission, and plan for comprehensive reproductive health services. Additional priorities include ensuring the availability of contraceptives to meet demand, syndromic treatment of STIs, anti-retrovirals for continuing users, and menstrual hygiene supplies.
 - ^c Formerly known as the Reproductive Health for Refugees Consortium, the RHRC Consortium is comprised of the American Refugee Committee, CARE, Columbia University, International Rescue Committee, JSI Research and Training Institute, Marie Stopes International, and the Women's Refugee Commission.
 - ^d Health centers should provide basic emergency obstetric and newborn care, which includes:
 1. administering parenteral antibiotics;
 2. administering uterotonic drugs;
 3. administering parenteral anticonvulsants (e.g., magnesium sulphate);
 4. performing manual removal of placenta;
 5. performing removal of retained products of conception (e.g., manual vacuum aspiration);
 6. performing assisted vaginal delivery (e.g., vacuum extraction);
 7. performing neonatal resuscitation (with bag and mask). Hospitals should provide comprehensive emergency obstetric and newborn

care, which includes the seven functions outlined above as well as: 8. performing blood transfusion; and 9. performing surgery (e.g., Caesarean section).

- ° The selected elements of clinical management of rape assessed were the availability of emergency contraception, post-exposure prophylaxis for HIV, and antibiotics for prevention of sexually transmitted infections; the provision of these drugs in the previous three months; and at least one staff trained to provide clinical management of rape. The full minimum package of clinical management of rape for low-resource settings includes 25 elements [38].

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RESEARCH

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Evaluations of reproductive health programs in humanitarian settings: a systematic review

Abstract

Provision of reproductive health (RH) services is a minimum standard of health care in humanitarian settings; however access to these services is often limited. This systematic review, one component of a global evaluation of RH in humanitarian settings, sought to explore the evidence regarding RH services provided in humanitarian settings and to determine if programs are being evaluated. In addition, the review explored which RH services receive more attention based on program evaluations and descriptive data. Peer-reviewed papers published between 2004 and 2013 were identified via the Ovid MEDLINE database, followed by a PubMed search. Papers on quantitative evaluations of RH programs, including experimental and non-experimental designs that reported outcome data, implemented in conflict and natural disaster settings, were included. Of 5,669 papers identified in the initial search, 36 papers describing 30 programs met inclusion criteria. Twenty-five papers described programs in sub-Saharan Africa, six in Asia, two in Haiti and three reported data from multiple countries. Some RH technical areas were better represented than others: seven papers reported on maternal and newborn health (including two that also covered family planning), six on family planning, three on sexual violence, 20 on HIV and other sexually transmitted infections and two on general RH topics. In comparison to the program evaluation papers identified, three times as many papers were found that reported RH descriptive or prevalence data in humanitarian settings. While data demonstrating the magnitude of the problem are crucial and were previously lacking, the need for RH services and for evaluations to measure their effectiveness is clear. Program evaluation and implementation science should be incorporated into more programs to determine the best ways to serve the RH needs of people affected by conflict or natural disaster. Standard program design should include rigorous program evaluation, and the results must be shared. The papers demonstrated both that RH programs can be implemented in these challenging settings, and that women and men will use RH services when they are of reasonable quality.

Introduction

Increased attention to the reproductive health (RH) needs of people affected by armed conflict or natural disaster began in the mid-1990s with a few key events. The *Lancet* published an editorial identifying family planning as a complete gap in services

for refugees [1]. The groundbreaking report *Refugee Women and Reproductive Health Care: Reassessing Priorities* highlighted how the health of refugee women fleeing war was further threatened by near absence of reproductive health services [2]. The 1994 International Conference on Population and Development in Cairo specifically recognized the rights of displaced populations to RH [3]. This led to the formation in 1995 of the Inter-Agency

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Working Group on RH in Crisis (IAWG), a consortium of non-governmental organizations (NGO), donors and United Nations (UN) agencies, to advance RH services in humanitarian settings. In 1999, the IAWG developed the *Inter-Agency field manual on reproductive health in humanitarian settings* to provide technical and program guidance to field staff [4]. In 2004, the IAWG completed a global evaluation of RH in humanitarian settings at field, agency and global levels. The evaluation found that more RH services were available

than a decade earlier, although major gaps remained in most of the technical areas, with gender-based violence as the least developed technical area. Although RH services were somewhat more available for refugees living in camps, they were largely absent for internally displaced (IDP) and non-camp populations [5]. Adolescents were underserved, and safe abortion was not even assessed. The global evaluation identified a need to improve RH data collection to ensure that useful data were collected and properly interpreted, as well as for more rigorous program evaluations.

From 2012-2014, another ten years on, the IAWG conducted a second global evaluation of RH in humanitarian settings. This systematic review, one component of the 2014 global review, sought to explore the evidence regarding RH services provided in humanitarian settings. Are RH programs in these settings being evaluated? Do the programs work? What is the quality of the evaluations? Which RH services receive more programmatic and financial attention based on program evaluations and descriptive data?

Methods

Search strategy

This literature review summarized peer-reviewed papers published since the last global evaluation (between 2004 and 2013) that were identified via the Ovid MEDLINE database, followed by a PubMed search to pick up more recent papers not currently indexed. In addition, references for included papers were cross-checked to ensure that all relevant literature was identified and included. A combination of terms describing conflict and natural disasters were used with terms describing RH under the broad categories from the *Inter-agency field manual on reproductive health in humanitarian settings* of maternal and newborn health, family planning (FP), gender-based violence (GBV), HIV/AIDS and other sexually transmitted infections (STIs), safe abortion and adolescent reproductive health. Searches were limited to papers published in English. This initial search was broad and intended to capture all papers on RH in humanitarian settings. Papers on quantitative evaluations of RH programs, including experimental and non-experimental designs that reported outcome

data were included. Descriptive quantitative studies with no specific health intervention identified and no outcomes or outputs reported (e.g., studies that reported only descriptive or baseline data) as well as purely qualitative papers were excluded. Studies were not excluded on the basis of their quality. Other inclusion and exclusion criteria are detailed in Table 1. Papers excluded under these criteria but that reported descriptive or prevalence data were logged to permit comparison of the sectoral spread of

Table 1 Inclusion/exclusion criteria

	Included	Excluded
Topic	Papers that described RH programs to address maternal and newborn health, FP, HIV and other STIs and/or GBV (sexual violence including rape, sexual abuse and sexual exploitation, and intimate partner violence)	Papers that reported on other reproductive health topics (e.g., female genital mutilation, forced or early marriage, reproductive cancers)
Types of Papers/ Data	Quantitative evaluations of RH programs or services, including experimental and non-experimental designs that report outcome data	Descriptive quantitative papers with no specific health intervention and no outcomes (e.g., reporting only descriptive or baseline data); purely qualitative papers
Settings	Humanitarian crises in conflict, post-conflict or natural disaster settings in lower or middle income countries	Papers in locations that were not affected by armed conflict or natural disaster; that were more than ten years post-conflict; disaster settings in higher income countries
Types of publications	Papers in peer-reviewed journals	Letters, editorials, commentaries; grey literature; review papers (although these were screened for references)
Language	English	Study titles and abstracts in languages other than English
Publication date	January 2004 – December 2013	Papers published before 2004 or after 2013

evaluation papers (the focus here) and broader prevalence or descriptive papers.

Quality assessment of the papers

The quality of each included study was assessed using criteria from the STROBE checklist for observational studies or the CONSORT checklist for clinical trials [6,7]. Papers were assigned a rating of high, medium or low quality based on the number of met criteria in a list adapted from these checklists.

Results

The search strategy yielded 5,669 papers after duplicates were removed; 5,310 were excluded based on a review of the title. Of the 359 papers for which abstract or fulltext review was conducted, 323 papers were excluded, leaving 36 papers describing 30 programs (Figure 1). Of the 36 papers, 25 described programs in sub-Saharan Africa, six in Asia, two in Haiti and three reported data from multiple countries and continents. Some RH technical areas were better represented than others: seven papers reported on maternal and newborn health

(including two that also covered FP), six on FP, three on GBV, 20 on HIV and other STIs and two on general RH topics (Table 2). None of the papers described safe abortion or post-abortion care programs, and five of the papers described HIV prevention programs targeting adolescents. Only six papers were classified as high quality while the majority was classified as medium quality or low quality. Fewer than half (16) of the papers reported comparison data, either in the form of pre- and post-intervention measures or intervention and comparison groups. Table 3 provides a summary of the included papers.

Of the 323 papers reviewed and excluded, 93 papers reported descriptive or

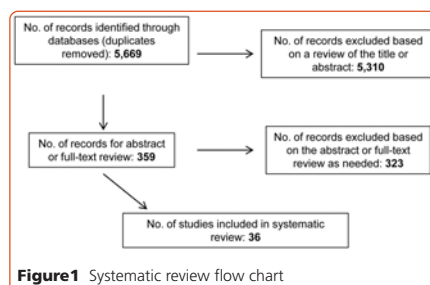


Figure 1 Systematic review flow chart

prevalence data on RH in crisis settings. Again, some RH technical areas were better represented than others: 20 papers on maternal and newborn health (including one that also reported on FP and one that also looked at GBV), four on FP, 32 on GBV, 27 on HIV or other STIs (only six of which mentioned other STIs), seven papers on general RH and five on adolescent RH (specifically HIV, GBV or FP) (Table 2).

Maternal and newborn health

Seven of the 36 papers described evaluations of maternal and newborn health programs, including two programs that also addressed family planning. The papers covered a range of topics including emergency obstetric and newborn care (EmONC), antenatal care (ANC) and the training of traditional birth attendants or community health workers (CHWs) to improve maternal health outcomes.

Two papers described the outcomes of programs to improve EmONC services, the first for Afghan refugees in Pakistan [8] and the second in humanitarian settings in nine countries [9]. Although not all supported facilities met the WHO criteria of fully functional EmONC facilities [10], the papers reported greater availability post-intervention of EmONC services 24 hours a day and subsequent increased use of those services in most facilities. The authors of both papers described challenges in calculating the UN process indicators for EmONCa at baseline [10], primarily due to the absence of key data from delivery registers; however, both reported these indicators at endline.

Other program approaches to improve maternal and newborn health involved training mobile health workers to provide

elements of basic EmONC plus blood transfusion and ANC in eastern Burma [11]; seconding refugee health workers to health facilities serving the refugee population and training refugee women to promote RH in the community in Guinea [12]; and training CHWs in Afghanistan to strengthen the link between the community and formal health services [13]. All three papers reported increased use of skilled birth attendants postintervention. The Afghanistan study, however, found that only the presence of a female CHW was associated with increased skilled birth attendance; the association was absent with male CHWs. One paper assessing the effectiveness of baby tents (clean spaces to support mothers to practice healthy infant feeding) established in Haiti found that 70% of babies less than six months old were exclusively breastfed and 10% of non-exclusively breastfed infants moved to exclusive breastfeeding while enrolled [14]. Finally, an evaluation of a home-based lifesaving skills training for traditional midwives in Liberia found that midwives' knowledge improved from pre to post training and remained stable one year later [15].

Family planning (FP)

Six papers described FP programs, including two that also described maternal and newborn health outcomes. Programs used different strategies to improve FP use: providing the full range of FP methods, including longacting and permanent methods, via mobile clinics and strengthening health centers' provision of short- and long-acting FP in northern Uganda [16]; training mobile health workers to provide short-acting methods in eastern

Table 2 Number of papers by RH technical component

	Number (%) of program evaluation papers (n=36*)	Number (%) of descriptive papers for comparison (n=93*)
Maternal and newborn health	7 (19%)	20 (22%)
Family planning	6 (17%)	4 (4%)
Gender-based violence	3 (8%)	32 (34%)
HIV and other STIs	20 (56%)	27 (29%)
Adolescent RH	5 (14%)	5 (5%)
General RH	2 (6%)	7 (8%)

*The sum of the RH components is greater than the total number of papers as some papers reported on multiple components.

Burma [11]; seconding refugee providers to health facilities serving refugees to provide FP and training female CHWs to promote FP use in Guinea [17]; and training CHWs to conduct FP education and provide short acting methods in Afghanistan [18]. All four papers reported that contraceptive prevalence increased from baseline or was higher than national levels. Additional papers found that the presence of a female CHW was associated with higher FP use in Afghanistan [13], and that contraceptive use was higher among Afghan refugee women in Pakistan who received subsidized health services than among those with access to unsubsidized services [19].

Gender-based violence (GBV)

Although the literature search included broader terms related to GBV, all three included papers focused specifically on care for survivors of rape. Two papers reviewed the effectiveness of psychosocial interventions for survivors. A randomized controlled trial in the Democratic Republic of the Congo (DRC) on the effectiveness of group cognitive processing therapy versus individual support to female survivors of rape found that those who received group psychotherapy showed greater improvement in depression, anxiety and post-traumatic stress disorder (PTSD) symptoms six

months after treatment compared to those in the control group [20]. The second paper found that the global functioning of survivors in the Republic of Congo improved following post-rape psychological care, and improvement was maintained one to two years later although high loss to follow up weakened these results [21]. The third paper reviewed the effects of a multi-media training tool for clinical care for rape survivors on the knowledge, attitudes and practices of health providers in four conflict settings [22]. The authors found that although negative attitudes towards survivors did not significantly change, respect for patient rights increased and provider practice improved from pre-training to three months post-training.

HIV and other sexually transmitted infections (STIs)

More papers (20) focused on HIV and other STIs than any other RH component; however only three of these reported on STIs other than HIV. Three papers reported results of retrospective record reviews to evaluate programs to prevent mother to child transmission of HIV (PMTCT), two in northern Uganda and one in a refugee camp in Tanzania. One program found that higher proportions of HIV-positive pregnant women identified in ANC used anti-

retroviral prophylaxis in northern Uganda compared with the national average [23]. The other two programs reported high numbers lost to follow-up before completing infant HIV testing at 18 months. In one study, this was primarily due to a lack of understanding of its importance and infant death; incomplete or no ARV prophylaxis, early weaning and prolonged breastfeeding were associated with increased risk of loss to follow-up and infant death [24]. In the final study, more than two-thirds of the HIV-infected women were repatriated to their home country before delivery; among those who delivered in the camp, nevirapine uptake was 98% [25].

Eight papers reported the outcomes of anti-retroviral therapy (ART) programs for HIV-positive adults or children in East Africa, Haiti and globally. Three papers found that ART patients in northern Uganda had mortality rates and adherence comparable to or better than ART patients in stable settings or who were not displaced [26-28]. Similarly, a review of the data from 24 ART programs in conflict or post-conflict settings found that patient outcomes were comparable to those in stable settings [29]. Five papers examined the effect of a crisis on ART programs: the post-election violence in Kenya in early 2008 [30-32], acute conflict in DRC in 2004 [33] and the earthquake in Haiti in 2010 [34]. Notably, although the papers found higher rates of treatment interruption immediately post-disaster, generally services were quickly re-established and patient attendance and adherence rebounded soon after.

Eight papers reported HIV and/or STI knowledge, attitudes and behavior results following HIV prevention programs. Two

papers reported on a group randomized controlled trial to evaluate the impact of an evidencebased HIV prevention intervention on sexual risk behaviors of in-school 6th graders in Liberia [35,36], and six used post-intervention surveys to assess program effectiveness in four African countries [37-42]. All of the papers reported mixed results of their prevention programs regarding some elements of knowledge and behavior change; however, the four that follow reported more positive results. A comparison of pre- and post-intervention survey data in Sierra Leone found that HIV-related knowledge and condom use increased among adolescents [37], commercial sex workers and military personnel [38] following an HIV prevention program including intensive IEC activities and distribution of free condoms. Two papers on refugee camps in Guinea reported that exposure to program peer educators was associated with improved HIV and STI knowledge and changed behavior to prevent HIV [39,40].

General RH

Two papers reported on unique efforts related to reproductive health. A program to improve and measure the quality of RH services at a clinic serving Burmese refugees and migrant workers on the Thailand-Burma border improved the quality of care, and also increased staff skills and motivation to collect and use data to make program decisions [43]. An evaluation of a literacy program that used RH content in Guinea found that refugee women who completed the program reported high knowledge on maternal and newborn health, HIV and STIs; increased use of FP; and a marked increase in feelings of empowerment [44].

Discussion

This review found that some RH programs in crisis settings have been evaluated although most evaluations were medium in quality, suggesting limitations in study design and analysis. Most of the papers reported generally positive results suggesting that these programs are likely well-designed and reasonably well-implemented. The papers demonstrated both that RH programs can be implemented in these challenging settings and that women and men will use RH services when they are of reasonable quality. In comparison to the program evaluation papers identified, three times as many papers were found that reported RH descriptive or prevalence data in humanitarian settings. While data demonstrating the magnitude of the problem are crucial and were previously lacking, the need for RH services and for evaluations to measure their effectiveness is clear [45,46]. It is critical to more directly link research to interventions and increase the evidence base for RH service delivery strategies in humanitarian settings. This includes not only the research but also publication and sharing of results. An increased focus on implementation science is needed to explore how best to improve delivery and use of RH services as well as the use of research to improve practice [47].

Although published articles are not representative of RH programs implemented in humanitarian settings as most programs do not publish their results, they may reflect relative attention, both programmatic and financial, to particular areas. A preponderance of papers reported on HIV/AIDS programs although few mentioned other STIs. While GBV was under-represented among program

evaluations, one-third (32) of the descriptive papers reported prevalence and types of sexual violence perpetrated in humanitarian settings. This suggests that GBV does, in fact, receive attention in research, although perhaps less in programming which when implemented may be only rarely evaluated. FP, on the other hand, was under-represented among both program evaluations and descriptive papers suggesting that FP overall receives less attention than the other RH components. Adolescents often face additional barriers to meeting their RH needs [48], but only four HIV prevention programs targeted adolescents and no papers evaluated adolescent-friendly RH services. No papers mentioned safe abortion which remains virtually unavailable in humanitarian settings [49], nor post-abortion care.

Programs requiring long-term follow-up faced specific challenges introduced by the instability of crisis settings and associated population movements. Some of these challenges, such as brief interruptions to treatment that arose during incidents of crisis, can and should be managed or prevented with planning, as demonstrated in the response to post-election violence in Kenya [30,32] and an upswing in violence in DRC [33]. Training refugee or IDP health workers, who would likely move with their community, may be a potential strategy for ensuring continued access to care for displaced people after they return home. Additional challenges to the implementation of RH programs were identified in the papers. For example, highly trained health workers are needed to provide RH services, and they may require updated competency-based training, particularly for EmONC,

longacting and permanent FP and clinical care for survivors of rape. The evaluation of a training tool for providers suggested that although attitudes are challenging to change, care for survivors of rape can be improved [22].

Proven evidenced-based strategies should be adapted and implemented in humanitarian settings. For example, EmONC is crucial to reduce maternal morbidity and mortality, and is thus a component of the minimum standard in humanitarian RH service delivery (the Minimum Initial Service Package) [4]. Yet, only three of the seven maternal and newborn health programs that were evaluated aimed to improve the availability of these critical services. Only one of the evaluated programs improved the availability of long-acting or permanent FP methods; the other programs were generally limited to short-acting methods, despite evidence that a broad choice of methods is an essential component of good FP programming and also associated with increased use [50-52]. Although a foundation in social change theory has been shown to be important for behavior change [53], only one of the HIV prevention programs appears to have had such a base [35,36]. Behavior change communication efforts implemented in humanitarian settings should adapt such proven evidence-based strategies. Moreover, it is critical that best practices be shared across the humanitarian and development fields. While the humanitarian field has adapted strategies that have been successful in development settings for many RH components, response to sexual violence is one area where the humanitarian field may be in advance of the development field, and

it is crucial that these programs be implemented, rigorously evaluated and published. Further, it would be useful for programs (and journals) to publish results of programs that were unsuccessful so others may learn from those experiences.

Fewer than half of the papers used any kind of comparison, either between pre- and post- measures or between intervention and comparison groups. This is not a call for more randomized controlled trials, however, since randomizing clients is not often appropriate, due to the fundamental principle of client choice in FP and GBV programming [54]. Evaluations using pre- and post-intervention measures or quasi-experimental designs may be appropriate, particularly where a program strategy is implemented in phases and a group that has not yet received the intervention serves as a comparison for a group in an earlier phase of the program. In addition, the challenges to collecting data in humanitarian settings are well-recognized [55,56], and population-based surveys may be particularly challenging in these unstable and insecure settings [57]. Therefore, other rigorous measures of program quality that are feasible to collect should be explored. For example, the UN process indicators of EmONC were developed to monitor interventions proven to reduce maternal mortality without the limitations and expense of a maternal mortality survey by using information available at health facilities [10,58]. What similar practical approximations could be used to measure the success of FP and GBV programs? It is plausible that evaluations of clinical HIV programs were in the majority because program quality could be measured using clinical data (patient adherence and

outcomes) that were routinely collected. Challenges to collecting appropriate data have been noted [5,9]; increased effort should be put into routine data collection to ensure that good quality data to measure standard indicators are collected, and shared. This may mean adapting registers to capture data on, for example, obstetric complications or to record new, continuing and switching FP clients.

Limitations of this review include its restriction to quantitative methodologies and to papers published in English, which may have excluded relevant publications. The selected search parameters may have missed papers that did not explicitly refer to conflict or humanitarian settings or natural disasters, or the general RH topics that were searched in the title, abstract or key words. While the included papers may be representative of peer-reviewed published literature, they are not representative of RH programming in humanitarian settings: humanitarian agency staff may not have time to write up results for publication and negative or null findings may be difficult to publish.

Program evaluation and implementation science should be incorporated into programs to determine the best ways to serve the RH needs of people affected by conflict or natural disaster. Standard program design should include rigorous program evaluation [59] and improved routine data collection. The results must be shared so that proven evidence-based strategies for RH are implemented in humanitarian settings. These papers demonstrated both that RH programs can be implemented in these challenging settings, and that women and men will use RH services when they are of reasonable quality.

List of abbreviations used

ANC: antenatal care; ART: anti-retroviral therapy; CHW: community health worker; DRC: Democratic Republic of the Congo; EmONC: emergency obstetric and newborn care; FP: family planning; GBV: gender-based violence; IAWG: Inter-Agency Working Group on Reproductive Health in Crisis; NGO: nongovernmental organization; PMTCT: prevention of mother to child transmission of HIV; PTSD: post-traumatic stress disorder; RH: Reproductive health; STIs: sexually transmitted infections; UN: United Nations.

Competing interests

The author declares that she has no competing interests.

Authors' information

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Endnotes

^a The eight UN process indicators for EmONC were developed to monitor progress in the prevention of maternal and perinatal deaths:

1. Availability of EmONC: at least 5 EmONC facilities (including at least one comprehensive facility) for every 500,000 population
2. Geographical distribution of EmONC facilities
3. Proportion of all births in EmONC facilities
4. Met need for emergency obstetric care:

proportion of women with major direct obstetric complications who are treated in EmONC facilities (acceptable level is 100%)

5. Caesarean sections as a proportion of all births (acceptable level between 5 and 15%)
6. Direct obstetric case fatality rate (acceptable level is less than 1%)
7. Intrapartum and very early neonatal death rate
8. Proportion of maternal deaths due to indirect causes in emergency obstetric care facilities

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Table 2 Number of papers by RH technical component

Author (Year)	Country	Intervention	Evaluation design	Key findings	Quality
Maternal and newborn health					
Ayoya et al (2013) [14]	Haiti	Established baby tents in five cities to promote and sustain optimal infant feeding practices: breastfeeding and nutrition support, infant growth monitoring, assessment of nutritional status of mother-infant pairs and pregnant women	Program data review (February 2010-June 2012) from nutritional cluster database (n=193 baby tents)	70% of infants less than 6 months old were exclusively breastfed. 10% of "mixed feeders" less than 6 months changed to exclusive breastfeeding while enrolled.	Low
Howard et al (2011) ¹ [12]	Guinea	Seconded refugee health workers to health facilities serving refugees, provided free RH services and trained refugee women as lay health workers	Cross-sectional post-intervention multi-stage cluster survey in intervention area of women (n=444) and men (n=445) of reproductive age (Liberian and Sierra Leonean refugees) living in one of 48 refugee camps in Guinea in 1999.	Higher odds of facility delivery for those exposed to intervention education activities (OR=2.03, 95% CI 1.23-3.01), formally educated (OR=1.93, 95%CI 1.05-3.92), or grand multipara (OR= 2.13, 95%CI 1.21-3.75). No significant differences found in maternal health knowledge or attitudes.	Medium
Krause et al (2006) [9]	Global (9 countries)	Improved availability of basic and comprehensive EmONC services in 12 conflict affected settings in 9 countries, Jan 2001-Apr 2005	Pre and post intervention facility assessments (n=31 health facilities)	Increased availability of EmONC 24 hours a day. CEmONC facilities increased from 3 facilities at baseline to 10 at endline; BEmONC facilities increased from 2 at baseline to 10 at endline. The number of signal functions available increased in all 31 facilities.	Medium
Lori et al (2010) [15]	Liberia	Trained traditional midwives in maternal care using the home-based life-saving skills series in 2006	Pre- & immediate post-training assessments (n=412 traditional midwives), 1-year follow up assessment (n=389)	Mean scores in 4 topic areas: 1) first actions, 2) post-partum hemorrhage 3) woman referral, 4) baby referral, improved from pre- to post-test and remained stable one year later (p<.001 for all 4 topics)	Medium
Purdin et al (2009) [8]	Pakistan	Established EmONC facilities, trained Afghan refugee community members on safe motherhood, linked primary health care with education on danger signs of pregnancy and the importance of skilled birth attendance, and improved the health information system.	Program data review 2000-2007	Maternal mortality ratio improved from 291 per 100,000 live births in 2000 to 102 in 2004. Case fatality rate for obstetric complications=0.2%. Skilled birth attendance increased from 5% in 1996 to 67% in 2007. Complete ANC coverage increased from 49% in 2000 to 90% in 2006; post-natal coverage increased from 27% in 2000 to 85% in 2006.	Medium
Maternal and newborn health and family planning					
Mullany et al (2010) [11]	Burma	Trained community-based skilled health workers in basic EmONC, evidence-based ANC and FP in Shan, Mon, Karen, and Karenni regions of Burma	Pre (2006) & post (2008) intervention cross-sectional two-stage cluster surveys in intervention areas of ever married women of reproductive age: n=2,889 at baseline, n=2,442 at endline	Use of modern FP methods increased from 24% to 45% (PRR 1.88, 95%CI 1.63-2.17). Unmet need for FP decreased 35% (95%CI 28%-40%). Skilled birth attendance increased from 5% to 49% (PRR=9.55, 95%CI 7.21-12.64).	High
Viswanathan et al (2012) [13]	Afghanistan	Deployed CHWs to promote use of RH services in community and at health facilities	Data derived from the Afghanistan Health Survey 2006: multistage cluster survey in 29 provinces (n=8,281 women)	Presence of female CHW in community is associated with increased use of FP (OR=1.61, 95% CI 1.21-2.15), ANC (OR=2.71, 95%CI 1.87-3.92) and skilled birth attendant at last delivery (OR=1.75, 95%CI 1.18-2.58). These associations were not significant with a male CHW.	Medium

Table 2 Number of papers by RH technical component (Continued)

Family planning					
Casey et al (2013) [16]	Northern Uganda	Provided short-acting, long-acting and permanent FP methods via mobile outreach teams and strengthened public health center provision of short and long acting FP methods	Baseline (2007) and post-intervention (2010) cross-sectional multi-stage cluster surveys in intervention area of women of reproductive age: n=905 at baseline, n=873 at endline	Current use modern FP methods increased from 7.1% to 22.6% (OR=3.34, 95%CI 2.27-4.92); use of LAPM increased 1.2% to 9.8% (OR=9.45, 95%CI 3.99-22.4). Unmet need for FP decreased from 52.1% to 35.7% (OR=0.47, 95% CI 0.37-0.60).	High
Howard et al (2008) ¹ [17]	Guinea	Refugee health workers seconded to health facilities provided free RH services and trained refugee women as lay health workers	Cross-sectional post-intervention multi-stage cluster survey in intervention area of women (n=444) and men (n=445) of reproductive age (Liberian and Sierra Leonean refugees) living in one of 48 refugee camps in Guinea in 1999.	Approval of FP was high, but more than 40% had not discussed FP with partner. Current use of modern FP (17%) was higher than in country of origin (3.9%) or host country (4.1%). Perceived service quality was most important determinant in choice of where to get FP.	Medium
Huber et al (2010) [18]	Afghanistan	Improved access to FP using CHWs and community-based distribution of short acting methods	Baseline (2004) and endline (2006) cross-sectional surveys using lot quality assurance sampling; verification of FP use via home visits of 150 FP users per CHW	Current FP use increased by 24-27%, with injectables contributing most to the increase.	Low
Raheel et al (2012) [19]	Pakistan	Provided subsidized or unsubsidized health care to Afghan refugees in Karachi	Cross-sectional study in 2008 using systematic random sampling of 2 comparison groups: married Afghan women of reproductive age receiving subsidized care (n=325) and unsubsidized care (n=325)	Refugee women receiving subsidized care were more likely to have heard of FP (OR=10.12, 95%CI 6.7-15.31) and currently use FP (OR=3.65, 95%CI 2.61-5.10).	High
Gender-based violence					
Bass et al (2013) [20]	Democratic Republic of the Congo (DRC)	Adapted group cognitive processing therapy (1 individual session and 11 group sessions) provided by paraprofessionals supervised by psychosocial staff and clinical experts	Random assignment of 16 villages to intervention group (8) or individual support (8) for female sexual violence survivors in 2011	65% in intervention group and 52% in control group completed all 3 measures. Improvements in all 3 sets of symptoms were significantly greater in therapy group than in individual support group. Mean scores for combined depression and anxiety improved significantly more in the therapy group compared to the individual support group (p<0.001 for all comparisons).	High
Hustache et al (2009) [21]	Republic of Congo	Provided medical care and psychological support to women raped by an unknown perpetrator in military clothing	Initial assessment January 2002-April 2003 (n=159 female survivors of rape); follow-up 1-2 years post-treatment, June-July 2004 (n=70)	56 women were evaluated using the Global Assessment of Functioning (GAF) scale at both time periods, and global functioning significantly improved (p=.04); this improvement was maintained 1-2 years later	Medium
Smith et al (2013) [22]	DRC, Ethiopia, Kenya, Jordan	Multimedia training tool for health providers to encourage competent, compassionate, and confidential clinical care for rape survivors	Assessment pre-training and 3 months after, medical record review, in-depth interviews (November 2010 to June 2012)	Although negative attitudes did not significantly decrease, respect for patient rights increased (p<.05), and provider practice improved from before the training to 3 months post-training (p<.01).	Medium
HIV/AIDS and other STIs					
Ahoua et al (2010) [24]	Northern Uganda	PMTCT program including either short-course AZT or single dose nevirapine and follow-up for 18 months post-partum including infant HIV testing	Retrospective record review of all mother-infant pairs enrolled July 2000-July 2005 (n=517). Cross-sectional survey of infant status at 18 months following tracing of mother-infant pairs who were lost to follow up (n=327 women and 368 babies).	53% of mother-infant pairs were lost to follow-up before completing infant testing at 18 months; the risk of death or being lost to follow-up was higher among infants with no or incomplete intrapartum ARVs (OR=1.9, 95%CI 1.07-3.36) and of weaning before age 6 months (OR=2.55, 95%CI 1.42-4.58).	Medium

Table 2 Number of papers by RH technical component (Continued)

Atwood et al (2012) ³ [35]	Liberia	Evidence-based HIV prevention curriculum adapted for in-school Liberian youth. The 8-modules promoted positive condom attitudes and increased skills and self-efficacy to refuse sex, negotiate condom use and use condoms effectively.	Attention-matched, group RCT: 4 matched pairs of schools randomly assigned to HIV prevention curriculum or general health curriculum. Students completed baseline, immediate post-test, 3- and 9- month follow-up surveys to assess program efficacy (n=740 completed all measures)	The intervention significantly improved protective peer norms (p<.05) and positive condom attitudes (p<.05) at the 9 month follow-up. Among those who were sexually active at baseline, the intervention group used condoms more consistently in the last 3 months (p<.05) at the 9-month follow-up. The intervention did not impact sexual initiation or multiple sex partnerships.	Medium
Atwood et al (2012) ³ [36]	Liberia	Evidence-based HIV prevention curriculum adapted for in-school Liberian youth. The 8-modules promoted positive condom attitudes and increased skills and self-efficacy to refuse sex, negotiate condom use and use condoms effectively.	Attention-matched, group RCT: 4 matched pairs of schools randomly assigned to HIV prevention curriculum or general health curriculum. Students completed baseline, immediate post-test, 3- and 9- month follow-up surveys to assess program efficacy (n=714 who responded to questions about transactional sex)	Risk behaviors for adolescents who engaged in transactional sex were no different in the intervention or control groups.	Medium
Bannink-Mbazzi et al (2013) [23]	Northern Uganda	PMTCT program including couple VCT, care and treatment for HIV+ individuals, home-based care, partner involvement, follow-up at 18 months post-partum including infant HIV testing	Retrospective record review of PMTCT program data 2002-2011	Of 140,658 women starting ANC, 94.4% received HIV testing. Testing of male partners increased from 5.9% in 2002 to 75.8% in 2011 (p=.001) compared to 15.5% nationally. 79% of HIV+ women started ARVs, compared to 52% nationally. HIV prevalence among exposed infants tested by 18 months decreased from 10.3% in 2004 to 5.0% in 2011 (p=.001).	Medium
Casey et al (2006) ² [37]	Sierra Leone	HIV/AIDS and STI prevention program comprised of intensive outreach education by peers including a focus on improving negotiation skills and distribution of free condoms targeting youth	Baseline (2001) and post intervention (2003) cross-sectional surveys using purposive quota sampling of youth: n=244 female, 293 male (baseline); n=250 female, 299 male (endline)	Respondents able to name 3 effective means of avoiding AIDS increased from 4% to 36% among female youth and from 4% to 45% among male youth; reported condom use at last sex increased from 16% to 46% (female) and from 16% to 37% (male) (p<.01 for all comparisons).	Medium
Chen et al (2008) ¹ [39]	Guinea	Refugee health workers seconded to health facilities provided free RH services and trained refugee women as lay health workers	Cross-sectional post-intervention multi-stage cluster survey in intervention area of women (n=444) and men (n=445) of reproductive age (Liberian and Sierra Leonean refugees) living in one of 48 refugee camps in Guinea in 1999.	Self-reported STI symptoms were common: 30% among women and 24% among men. Only 25% correctly named key STI symptoms. Respondents citing program facilitators as sources of information were more likely to correctly name key STI symptoms (OR=5.2, 95% CI 1.9-13.9 (men)) and identify effective means of protecting against STIs (OR=2.9, 95% CI 1.5-5.8 (men)) and (OR=4.6, 95%CI 1.6-13.2 (women)).	Medium
Ciccio and Sera (2010) [41]	Northern Uganda	HIV/AIDS prevention activities with youth including media campaigns, peer counseling, life skills training, and activities for youth in particularly vulnerable circumstances to spread prevention messages and help them develop the skills necessary to protect themselves.	Cross-sectional post-intervention survey using lot quality assurance sampling in intervention area (n=1,781 youth age 15-24) in 2008	29% had comprehensive HIV prevention knowledge (knew 3 main means of prevention and rejected common misconceptions). 86% knew where to get tested for, but only 51% had been tested and received their result in the last 12 months. Gender, geographical location, marital status and education were associated with this knowledge (p<.001)	Medium

Table 2 Number of papers by RH technical component (Continued)

Galbert et al (2007) [33]	DRC	Voluntary counseling and HIV testing (VCT), care and treatment for HIV+ individuals, HIV prevention activities	Program data review: May 2002- Jan 2006	11,076 people received VCT, of whom 19% were HIV+; 94% of these received follow-up care in the HIV clinics. 12-month mortality among ART patients was 7.9% (95%CI 3.6-12.1), and 12-month loss to follow-up was 5.4% (95%CI 3.2-7.5), both comparable to stable low resource settings. Only 5 of 66 ART patients experienced treatment interruption during violent period of May-June 2004.	Medium
Garang et al (2009) [26]	Northern Uganda	Care and treatment for HIV+ individuals	Cross-sectional study using systematic sampling of self-reported adherence over 4-day period in February 2008 (n=200 adults on ART)	Mean 4-day adherence (self-reported) was 99.5%, with no difference between IDPs and non-IDPs. Being on a 1st line ART regimen (OR=22.2, 95%CI 1.5-333.3), feeling facility staff were condemning (OR=22.2, 95%CI 1.5-333.3), and lack of privacy at facility (OR=9.7, 95%CI 0.9-111.1) were associated with non-adherence.	High
Kiboneka et al (2008) ^a [28]	Northern Uganda	Care and treatment for HIV+ individuals, facility and home-based care, mobile clinics to IDP camps	Prospective cohort study using program data June 2005 - Feb 2008 (n=57 HIV+ children receiving combination ART)	Adherence was consistently excellent in 92% of patients. No deaths and no major opportunistic infections were recorded after initiation of ART.	Medium
Kiboneka et al (2009) ^a [27]	Northern Uganda	Care and treatment for HIV+ individuals, facility and home-based care, mobile clinics to IDP camps	Prospective cohort study using program data, June 2005 - Jan 2008, (n=1,625 HIV+ adults receiving combination ART)	The mortality incidence rate was 3.48 (95%CI 2.7-4.3) per 100 person years. Of patients with adherence data, 92% had adherence greater than 95%. 4.3% of patients died during follow-up, a mortality rate comparable to ART patients in stable settings. Lower mortality was associated with female sex, higher baseline CD4 count and ≥95% adherence. IDP camp residence and age were not associated with mortality outcomes.	Medium
Larsen et al (2004) ² [38]	Sierra Leone	HIV/AIDS and STI prevention program comprised of intensive outreach education by peers including a focus on improving negotiation skills and distribution of free condoms targeting commercial sex workers (CSW) and military men	Baseline (2001) and post intervention (2003) cross-sectional surveys using purposive quota sampling: n=201 sex workers, 202 military men (baseline); n=202 sex workers, 205 military men (endline)	Those able to name 3 effective means of avoiding AIDS increased from 5% to 70% among CSWs and from 11% to 75% among military men. Reported condom use at last sex increased from 38% to 68% (CSW) and from 39% to 68% (military) (p<.01 for all). Although the proportions of both CSWs and military men who believe HIV+ people should be treated or counselled increased, the proportions believing they should be isolated or reported did not change.	Medium
O'Brien et al (2010) [29]	Global	Programs of care and treatment for HIV+ individuals in conflict and post-conflict settings	Program data review 2005-2009 (n=20 programs with complete data and n=4,145 HIV+ adults on ART with complete data)	64% of ART patients remained on ART, 10% died, 11% were lost to follow-up. Median 12-month mortality and loss to follow-up were 9% (95%CI 8.8-9.1) and 11% (95%CI 9-12) respectively. Median 6-month CD4 gain was 129 cells/mm ³ .	Medium

Table 2 Number of papers by RH technical component (Continued)

Pyne-Mercier et al (2011) [30]	Kenya	Care and treatment for HIV+ individuals	Retrospective record review for clients on ART during post-election violence, Dec 30, 2007 - Feb 28, 2008, and same time period 1 year earlier (n=2,534 HIV+ adults)	The odds of treatment interruption were 71% (95%CI 34-118) higher during the post-election violence period compared to 1 year earlier. Men (OR=1.4, 95%CI 1.1-1.8) and those traveling ≥3 hours to clinic (OR=1.9, 95%CI 1.3-2.7) were more likely to experience treatment interruption.	High
Rutta et al (2008) [25]	Tanzania	2-year pilot PMTCT program in refugee camp: community education, training providers, VCT, infant feeding, counseling, administration of nevirapine	Program data review Oct 2002 - June 2004 (n=6 health facilities)	92% of ANC clients were tested for HIV. 93% of HIV+ women agreed to take nevirapine at 34 weeks of gestation. 36% of the HIV+ women were repatriated before delivery, but 98% of those remaining took nevirapine at the start of labor and their infants received nevirapine within 72 hours. Only 15% of HIV-exposed infants were tested at 18 months due to repatriation, death or refusal of testing.	Medium
Tanaka et al (2008) [42]	Tanzania	HIV/AIDS prevention including youth peer education, VCT, free condom distribution in Nyarugusu refugee camp	Post-intervention survey of systematically selected Congolese refugees of reproductive age (n=570 male and 570 female) living in the refugee camp in 2005	HIV risk increased after displacement due to increased transactional sex and forced sex (p<.001). Condom use at last sex with a non-regular partner was 14% and associated with citing the program health teams as a leading source of influence regarding HIV prevention	Medium
Vreeman et al (2009) ³ [31]	Kenya	Care and treatment for HIV-infected children	Retrospective cohort analysis of HIV+ children under 14 years seen from Oct-Dec 2007 in 18 clinics (n=2,585), and then followed from Dec 2007 until April 2008.	93% of HIV-infected children returned to care in the 4 months after the violence, and 98% of children on ART reported perfect adherence during last 7 days (p<.001). Children on ART were more likely to return than those not on ART (OR=1.4, 95%CI 1.2-1.6). Orphan status and sex were not associated with return to clinic.	Medium
Walldorf et al (2012) [34]	Haiti	HIV/AIDS clinical services including VCT, PMTCT, care and treatment for HIV+ individuals	Program data Oct 2008-May 2010 comparing pre-earthquake (prior to Dec 2009) to post-earthquake outcomes (n=126 facilities)	Mean monthly enrollment for VCT, PMTCT and ART services were from 41-46% of baseline levels in Jan 2010 but rose to 79-89% of baseline levels in May 2010. Current ART patients rose 3.6% Jan - May 2010 compared to a 9.8% increase during the same period in 2009.	Medium
Woodward et al (2011) ¹ [40]	Guinea	Refugee health workers seconded to health facilities provided free RH services and trained refugee women as lay health workers	Cross-sectional post-intervention multi-stage cluster survey in intervention area of women (n=444) and men (n=445) of reproductive age (Liberian and Sierra Leonean refugees) living in one of 48 refugee camps in Guinea in 1999.	HIV knowledge was high. Participants exposed to program peer education had higher odds of reporting changes in sexual behavior to avoid HIV (OR=2.5, 95%CI 1.5-4.1). Exposed participants were less likely to report staying faithful (OR=0.6, 95%CI 0.4-0.9) and more likely to report fewer sex partners (OR=1.7, 95%CI 1.05-2.85).	Medium
Yoder et al (2012) ³ [32]	Kenya	HIV/AIDS care and treatment for HIV-infected children	Retrospective cohort analysis for 3 time periods: pre-election, Oct 26-Dec 25 2007; immediately post-election, Dec 26, 2007 - Apr 15, 2008; and long-term post-election, Apr 16-Dec 31, 2008 (n=2,549 HIV+ children)	Children on ART had less initial loss to follow-up (p<.01) and less complete loss to follow-up (p<.0001) than children not on ART. Immediately post-election, 8.2% of children on ART had imperfect medication adherence, and 9.0% long-term post-election.	Medium

Table 2 Number of papers by RH technical component (Continued)

General RH					
McGinn & Allen (2006) [44]	Guinea	Literacy training using RH information as the content and participatory adult education techniques for Sierra Leonean and Liberian women living in refugee camps	Post-intervention cross-sectional survey of RH literacy program students who participated in 1999, 2000 and 2001 RH literacy courses and were still in the area in 2002 (n=549)	The proportion of women who reported communication with their partners on RH topics increased to 87% (p<.001). Current use of FP was 50%. The proportion of women who reported feeling more empowered than other women increased from 32% (based on recall) to 82% after the program (p<.001).	Medium
Sullivan et al (2004) [43]	Thai-Burma border	Program to improve quality of RH services and build health providers' capacity in monitoring and evaluation	Pre- and post-intervention facility audits, observations of client-provider interactions during ANC and FP visits, client exit interviews (2001-2003)	Improved program readiness contributed to improved quality of information given to clients, technical competence and integration of services, although some contradictory findings from client exit interviews warrant further exploration.	Low

^{1,2,3,4,5}These articles refer to the same program.

RESEARCH

Open Access

Tracking humanitarian funding for reproductive health: a systematic analysis of health and protection proposals from 2002-2013

Abstract

Background: The Inter-agency Working Group on Reproductive Health in Crises conducted a ten-year global evaluation of reproductive health in humanitarian settings. This paper examines proposals for reproductive health activities under humanitarian health and protection funding mechanisms for 2002-2013, and the level at which these reproductive health proposals were funded.

Methods: The study used English and French health and protection proposal data for 2002-2013, extracted from the Financial Tracking Service (FTS) database managed by the United Nations Office for the Coordination of Humanitarian Affairs. Every project was reviewed for relevance against pre-determined reproductive health definitions for 2002-2008. An in-depth analysis was additionally conducted for 2009-2013 through systematically reviewing proposals via a key word search and subsequently classifying them under designated reproductive health categories. Among the relevant reproductive health proposals, counts and proportions were calculated in Excel based on their reproductive health components, primarily by year. Contributions, requests, and unfunded requests were calculated based on the data provided by FTS.

Results: Among the 11,347 health and protection proposals issued from 345 emergencies between 2002 and 2013, 3,912 were relevant to reproductive health (34.5%). The number of proposals containing reproductive health activities increased by an average of 21.9% per year, while the proportion of health and protection sector appeals containing reproductive health activities increased by an average of 10.1% per year. The total funding request over the 12 years amounted to \$4.720 billion USD, of which \$2.031 billion USD was received. Among reproductive health components for 2009-2013 proposals, maternal newborn health comprised the largest proportion (56.4%), followed by reproductive health-related gender-based violence (45.9%), HIV/sexually transmitted infections (37.5%), general reproductive health (26.2%), and lastly, family planning (14.9%).

Conclusion: Findings show that more agencies are responding to humanitarian appeals by proposing to implement reproductive health programs and receiving increased aid over the twelve year period. While such developments are welcome, project descriptions show comparatively limited attention and programming for family planning and abortion care in particular.

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Background

Access to reproductive health services is a human right [1]. Yet, lack of access to reproductive health information and services continues to cause excess morbidity and mortality for displaced women and girls in humanitarian settings [2]. The causes of poor reproductive health for conflict-affected populations are complex and multifold, including insufficient attention that certain components of reproductive health continue to receive despite concerted advocacy [3]. A 2009 study published by Patel *et al.* found that among total official development assistance (ODA) disbursed to 18 conflict-affected countries in 2003-2006, only 2.4% was allocated to reproductive health-related activities and services, of which a mere 1.7% was dedicated towards family planning activities [4]. Another study by Hsu *et al.* in 2013 found a slight increase in aid for reproductive health for 2009-2010 and a steady contribution overall; yet, due to discrepancies in funding across reproductive health activities, the authors note the need to examine resource allocations across activities and to encourage donors to target aid to those most in need [5].

One complementary way of tracking reproductive health assistance in humanitarian settings is through reviewing project and funding data that are reported to the United Nations Office for the Coordination of Humanitarian Affairs' (UN OCHA) Financial Tracking Service (FTS); a database that contains up-to-date project and donor information. The FTS is a global, realtime database that records all reported international humanitarian aid from UN agencies, non-governmental organizations (NGOs), the Red Cross/Red Crescent

Movement, bilateral aid, in-kind assistance, and private donations to crises where appeals have been launched. Appeals are primarily launched when needs exceed the ability of the government and any one agency to respond adequately to a conflict, natural disaster, or prolonged crisis [6]. The FTS primarily focuses on flash and consolidated appeals [7]: the Flash Appeal is a tool for structuring a coordinated humanitarian response to address urgent life-saving needs in the first three to six months of an emergency. If the emergency continues beyond six months, the Flash Appeal may be developed into a Consolidated Appeal (CAP) of up to 12 months. The CAP includes the Common Humanitarian Action Plan (CHAP), which is a strategic plan for humanitarian response in a specific country or region [8]. During appeal development, cluster/sector coordinators are responsible for gathering project proposals. They lead the peer review process of vetting proposals; issued and listed appeals therefore only include approved proposals, although agencies can modify projects as needs evolve [7]. FTS data are provided by donors and recipient organizations and include 1-2 page project summaries that are publicly available [9].

In 2012, the Women's Refugee Commission (WRC) used FTS data to examine the extent to which appealed health projects included reproductive health services for adolescents aged 10-19 years. Findings showed that less than 3.5% of all health proposals in any given year included a component of adolescent reproductive health, and among them, only 32% received any related funding [10]. Such methods of analysis are invaluable to tracking progress

and measuring the impact of reproductive health-related advocacy.

As part of the Inter-agency Working Group (IAWG) on Reproductive Health in Crises' ten-year global evaluation of reproductive health in humanitarian settings, the WRC embarked on an analysis to examine for 2002-2013: 1) the extent to which humanitarian and development agencies, as well as local actors, have proposed to implement various reproductive health activities in humanitarian health and protection appeals; and 2) the level at which these reproductive health proposals were funded. This study complements a follow-up study undertaken by Patel *et al.* that examines longer-term trends in patterns of ODA for reproductive health activities in conflict-affected countries for the years 2002-2011 [11]. The FTS study was undertaken since ODA analysis of funding towards gender-based violence (GBV) programs is not possible due to a lack of a purpose code in the Creditor Reporting System (CRS) to which ODA is mandatorily reported by bilateral donors under pre-set aid categories. In addition, while the CRS provides conflict-affected countries as the unit of analysis, the FTS presents the ability to determine projects and funds that are directly availed to specific emergencies within countries, albeit reported by implementing agencies and donors in a voluntary manner [12]. This enables a closer examination of projects and funding that directly targets emergencies, overcoming assumptions that all ODA to a conflict-affected country in fact reaches the conflict-affected location. Despite several articles that employed CRS data to track funding flows to health and other relevant humanitarian topics [13,14], the authors

found only one article in the literature that systematically analyzed FTS data for mental health and psychosocial support initiatives [15]. In the gray literature, CARE International has conducted a review of FTS appeals from 17 countries to examine donor spending on gender in emergencies as indicated by scores from the gender marker [16]. Our study therefore aimed to contribute to the literature on programming and funding for reproductive health in humanitarian settings, through conducting a comprehensive and systematic analysis of health and protection proposals for the years 2002-2013.

Methods

Data source

All data used in this study were extracted from OCHA's FTS (<http://fts.unocha.org/>). More specifically, in August 2013, the WRC extracted health and protection project data from every conflict, natural disaster, or protracted crisis where a Flash, CAP, or other appeal was launched between 2002 and 2012 from FTS' country-specific excel spreadsheets: "E. List of Appeal Projects (grouped by Cluster) with funding status of each" (Spreadsheet E). This was further supplemented by custom tables that could be created through following the FTS's "Funding and Requirements by Project" tool where necessary [17]. Appeals from 2013 were extracted in March 2014. Appealed projects included those published in both English and French; the two languages for which appeals are available.

The data points from all emergencies over the 12 year period were compiled into a master Excel file where only appeals from Health and Protection were kept for

analysis.^a In addition to Spreadsheet E, for 2009–2013, the study team downloaded all hyperlinked pdf “Project Descriptions” (project proposals) accessible from Spreadsheet E’s “Project Code” column. Since not all project descriptions were publicly available from years prior to 2009, the study retrieved OCHA’s accompanying comprehensive narrative appeals for 2005–2008 in lieu of the project proposals. For 2002–2003, only Spreadsheet E was extracted given the lack of availability of project descriptions and narratives. Spreadsheet E was thus the common data source for all 12 years.

Analysis

Two WRC staff (KS and SR) analyzed the health and protection proposals; one of whom analyzed those from 2009 to 2010; the other the remaining ten years. They conducted in-depth analysis of health and protection proposals for 2009–2013 since all pdf proposals were available. The team assessed the content of each proposal by clicking the hyperlinked pdf “Project Descriptions” and conducting systematic key word searches within the activities and indicators sections of each proposal.^b Terms used included “repro,” “MISP,” “maternal,” “preg,” “family planning,” “condom,” “sex” (for sexual violence, etc.), “gender” (for gender-based violence, etc.), “STIs” (for sexually transmitted infections), “adolesc” (for adolescents/adolescence), “youth,” among others. Where seemingly relevant proposals were identified, the team read the proposals to ensure that key words were nuanced appropriately and related activities were not missed if other terms were used to address possible political sensitivities. If key

words were only mentioned in the background or needs sections, the proposals were omitted from the tallies since they were considered less likely to actually implement relevant activities than those that contained key words as part of their activities or indicators.

For each relevant proposal, the analysis team categorized activities according to pre-determined definitions of reproductive health components. The definitions modeled distinctions made between the Minimum Initial Service Package^c (MISP) for reproductive health—the international minimum standard of care for reproductive health in emergencies—and more comprehensive reproductive health per the *Inter-agency Field Manual on Reproductive Health in Humanitarian Settings* (IAFM) [18]. Activities were further categorized into thematic components; namely: maternal newborn health; family planning; sexually transmitted infections (STIs), including HIV; gender-based violence (GBV); and general reproductive health. GBV findings were additionally categorized as reproductive health-related activities and non-reproductive health-related activities. Reproductive health-related GBV activities included clinical interventions, as well as those outlined in the IAFM to be within the scope of reproductive health. Non-reproductive health-related GBV activities included legal justice, protection, security, livelihoods, and gender, among other complementary interventions. A detailed categorization of reproductive health activities is listed in Table 1.

As each proposal was 1–2 pages, some discretion was made on the part of the analysis team on how to categorize activities.

In general, if the “MISP” was mentioned, it was assumed for categorization purposes that agencies implemented the standard in its entirety. While in reality, many reproductive health activities overlap in terms of their thematic categories—such as the prevention of mother-to-child transmission of HIV (PMTCT) as part of HIV and maternal newborn health services—to prevent inflated and duplicative counts, activities were categorized mutually exclusively into the five thematic reproductive health components per the MISP and comprehensive reproductive health (minus the MISP). A pictorial representation of the five reproductive health categories is noted in Figure 1.

For 2002-2008 appeals, given limited availability of publicly accessible information on FTS, a more cursory analysis was conducted to determine the projects’ relevance to reproductive health. Projects funded from 2005 to 2008 were deemed relevant if their titles or accompanying comprehensive narrative reports—generated by OCHA on behalf of the humanitarian system—mentioned reproductive health components or related activities. For 2002-2005, due to the additional lack of accessible comprehensive narratives, projects were coded as relevant if titles—which were the only specific column available on Spreadsheet E—mentioned reproductive health components or related activities. Taking into account the documented relative lack of attention to reproductive health in the earlier years as compared to later years [2], the study team included the earlier years despite some possibility of under-identification of relevant projects where only Spreadsheet E was available.

Among the relevant reproductive health proposals, counts and proportions were calculated in Excel based on their manual categorizations, primarily by year. Contributions, requests, and unfunded requests were calculated based on the data provided in Spreadsheet E. The total request per year was determined by summing spreadsheet E’s “Revised requirements USD” column. The total request funded was found by summing “Funding USD,” and the total unfunded request was calculated by summing “Unmet requirements USD”. For 2009-2013, funds from these columns were further divided by the number of reproductive health components that were encompassed in each proposal and then summed to calculate total request, total request funded, and total unfunded request per reproductive health component.

Among the projects analyzed, duplicate proposals in the context of revised appeals were included to take into account program evolution over time. Duplicate proposals arising from multiple agency requests for the same project were also included given the impossibility of delinking projects without additional information and verification processes with appealing agencies. Withdrawn or blank proposals were additionally included for analyses; however, this had no impact on funding calculations since those columns from FTS were blank.

In order to complement Patel *et al.*’s ODA analysis, this study similarly grouped proposals according to the 18 conflict-affected countries and all other countries where appeals were launched. The 18 countries included Afghanistan, Angola, Burundi, Central African Republic, Chad, Colombia, Democratic Republic of Congo,

Table 1 Categorization of reproductive health activities per the IAFM [18]

Topic	MISP	Comprehensive reproductive health (excluding MISP activities)	Non-reproductive health
Maternal newborn health	<ul style="list-style-type: none"> • Emergency obstetric and newborn care services, including post-abortion and safe abortion care. • 24/7 referral system for obstetric and newborn emergencies. • Clean delivery packages to visibly pregnant women and birth attendants. • Informing communities about services. 	<ul style="list-style-type: none"> • Antenatal care (ANC). • Post-natal care. • Breastfeeding promotion. • Training skilled attendants (midwives, nurses, doctors) in performing EmOC and newborn care. 	<ul style="list-style-type: none"> • Nutrition outside of ANC.
Family planning	<ul style="list-style-type: none"> • Contraceptives to meet demand, such as condoms, pills, injectables, and intrauterine devices. 	<ul style="list-style-type: none"> • Comprehensive family planning programming, including provision of long-term and permanent methods. • Community education. • Contraceptive supply chain management. • Staff training for family planning. 	N/A
STIs/HIV	<ul style="list-style-type: none"> • Safe and rational blood transfusion practice. • Adherence to standard precautions. • Free condoms. • Syndromic treatment for STIs. • Antiretroviral (ARV) treatment for patients already taking ARVs. • Prevention of mother-to-child transmission. 	<ul style="list-style-type: none"> • Comprehensive STI prevention and treatment. • STI surveillance systems. • Comprehensive HIV prevention, care, and treatment. • Staff training for HIV/AIDS. 	N/A
GBV	<ul style="list-style-type: none"> • Sexual violence coordination within health sector/cluster mechanisms. • Physical protection and strategies for safe access to health facilities, including lighting and locks on latrines; prevention of sexual exploitation and abuse; codes of conduct; standard operating procedures. • Clinical care for survivors of sexual violence, including emergency contraception, post-exposure prophylaxis, etc. Forensic evidence is also included if applicable. • Other response services including psychosocial and mental health services. • Referrals to sexual violence services. • Informing communities about services. 	<ul style="list-style-type: none"> • Prevention of domestic violence, forced early marriage, female genital cutting/mutilation. • Engaging men and boys, primarily to enhance access to RH for women and girls. • Staff training for clinical GBV. 	<ul style="list-style-type: none"> • Multi-sectoral GBV coordination. • Legal justice • Protection • Child protection • Livelihoods • Security • Education • Empowerment • Gender • Trafficking • Unspecified "protection" activities • GBV Information Management System
General reproductive health	<ul style="list-style-type: none"> • RH coordination, including identifying an RH officer; holding coordination meetings; reporting back to the health cluster/sector. • Procurement of RH kits and supplies. • Planning for comprehensive RH, including collecting MISP and background data; identifying sites for future delivery of comprehensive RH; assessing staff capacity and planning trainings; and procuring RH supplies. • Disaster risk reduction. • Menstrual hygiene; dignity kits. 	<ul style="list-style-type: none"> • General staff trainings for unspecified topics. • Routine RH procurement for unspecified topics. • Routine data collection beyond MISP indicators. • Cervical cancer screening and treatment. • Fistula repair. • Treatment of female genital mutilation/cutting complications. • Other gynecological services. • Unspecified RH activities. 	N/A

Eritrea, Iraq, Liberia, Myanmar, Nepal, Sierra Leone, Somalia, Sri Lanka, Sudan, Timor-Leste, and Uganda. As Patel et al.'s study included South Sudan as part of the "Sudan" category, this study also added South Sudan to the list of 18 original countries from 2011 when distinctions between Sudan and South Sudan were made in the FTS. Where regional appeals were launched—West Africa in particular—as country-specific activities and

funds could not be extracted, these appeals were excluded from the 18 country count.

Results Findings

Overall findings for 2002-2013

In total, 11,347 health and protection proposals from 345 emergencies were issued between 2002 and 2013. The major

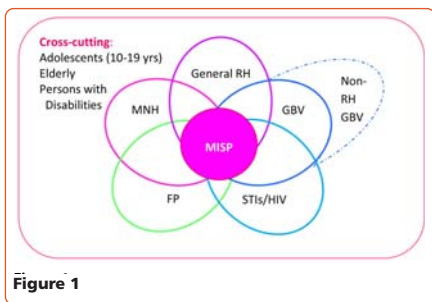


Figure 1

humanitarian emergencies during this time included: crises in the Southern African region (2002-2003), Indian Ocean earthquake and tsunami (2005), earthquake in Haiti (2010), floods in Pakistan (2011), the Syria conflict (2012-2013), and food insecurity in Sub-Saharan Africa throughout the decade. Among the 11,347 proposals, the study identified 3,912 proposals that were relevant to reproductive health, which amounted to 34.5% of all health and protection proposals combined.

From 2002 to 2013, there was a 136.4% increase in the number of proposals requesting funding under Health and a 200.8% increase in the number of proposals requesting funding under Protection. This amounted to an average annual increase of 9.8% and 13.3%, respectively. By contrast, during the two time intervals, the number of health and protection proposals that addressed some component of reproductive health increased by 336.8% and 1,166.7%, respectively. This reflected a combined average annual increase of 21.9%, or 17.9% for Health and 43.6% for Protection over the 12 year period. In terms of proportions, reproductive health accounted for 34.5% of health and protection sector proposals, with an average annual increase of 10.1% per year. In terms of absolute counts, 2002 marked

the lowest number of relevant reproductive health projects, with 87 identified for Health and 15 for Protection. On the other hand, while a drop was observed in 2012, the general trend showed progressive increases, with 2013 marking the highest number of relevant reproductive health proposals (570). In 2013, 380 health and 190 protection proposals were identified as relevant to reproductive health (53.4% of total health and protection proposals). See Figures 2 and 3 for details .

Funding requests from the relevant reproductive health projects over the 12 years amounted to \$4.720 billion USD. From this, \$2.031 billion USD was received, with an unfunded request of \$2.689 billion USD (57.0%). Hence, 43.0% of the total request was funded, with an average of 39.6% of the request funded per year. Reproductive health projects were least funded in 2006 (19.5%), and most funded in 2008 (56.5%). The overall change in funding requests from 2002 to 2013 was 771.5%, with a 17.9% average annual increase in the proportion of requests received per year. Absolute amounts further showed that funding towards reproductive health projects increased from approximately \$38.3 million in 2002 to \$498.3 million in

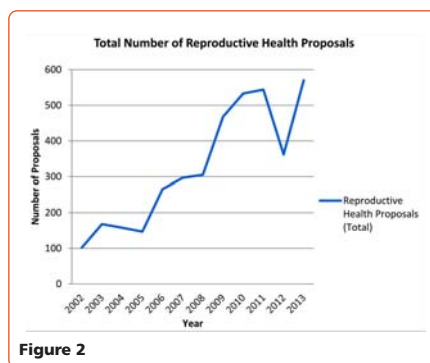


Figure 2

2013, which was 35.0% and 52.3% of the funding request in 2002 and 2013, respectively. See Figure 4 for more information.

In-depth analysis for 2009-2013

For the five year period from 2009 to 2013, a total of 5,636 proposals were filed for the two sectors, which comprised 3,358 health and 2,278 protection proposals. Among these, 2,477 were relevant to reproductive health (43.9%). From 2009 to 2013, a decrease in the number of issued health and protection proposals was observed by 15.5% and 34.4%, respectively. This translated to an average annual decrease of 2.8% and 9.3% for health and protection proposals, respectively. On the contrary, the share of relevant reproductive health proposals increased for both sectors, with overall and average annual increases of 19.9% and 7.4%, and 25.8% and 18.5%, for Health and Protection, respectively. Indeed, the proportion of reproductive health proposals among both health and protection proposals increased from 33.6% in 2009 to 53.4% in 2013, which translates to a 15.3% average increase in the number of relevant reproductive health proposals per year. Table 2 notes this information.

A closer examination of the types of reproductive health projects appealed during the five year period showed that activities within maternal newborn health comprised the largest proportion (56.4%), followed by GBV (45.9%), HIV/STIs (37.5%), general reproductive health (26.2%) and lastly, family planning (14.9%). As shown in Figure 5, the proportion of reproductive health proposals addressing maternal newborn health was 49.1% in 2009, 64.1% in 2012 and dropping

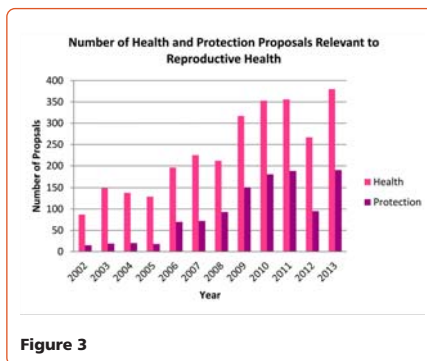


Figure 3

to 59.1% in 2013. Family planning and general reproductive health activities showed a similar trend, at 9.8% and 23.7%, respectively in 2009. They both peaked at 27.9% and 39.8% in 2012, before decreasing to 11.1% and 17.4% in 2013, respectively. The proportion of proposals addressing HIV/STIs steadily decreased over the five year period, from 45.7% in 2009 to 26.7% in 2013. This marked an average annual decrease of 12.4% in proportions. The share of proposals that included reproductive health components as relevant to GBV grew marginally (average annual increase of 2.7%), with proportions ranging between 41.9% and 48.7% in 2009 and 2011 before decreasing to

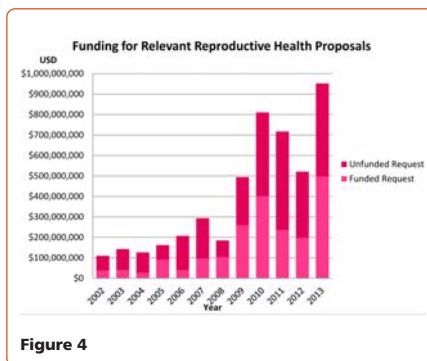


Figure 4

44.5% and 46.1% in 2012 and 2013.

While a substantial number of proposals appealed to implement more than one component of reproductive health, when funding trends for the five reproductive health components were analyzed for the five year period, findings showed that maternal newborn health (55.7%) received the most funds as a proportion of requested funds, followed by general reproductive health (47.4%), family planning (47.4%), HIV/STIs (38.5%), and GBV (37.0%). In terms of absolute amounts, this translated to maternal newborn health receiving \$684.8 million USD, general reproductive health \$180.0 million USD, family planning a mere \$76.3 million USD, HIV/STIs \$227.6 million USD, and GBV \$308.9 million USD. Hence, family planning received the least dollar amount among the reproductive health components. See Figure 6 for trends.

In terms of objectives and priority activities that comprise the MISP standard, the proportion of reproductive health proposals that noted complete MISP implementation (via explicit mention or a compilation of activities) increased from 3.0% in 2009 to 5.4% in 2010. This proportion jumped to 11.9% in 2012 before decreasing to 4.7% in 2013. Proposals that contained MISP activities in their partial form followed similar trends over the five year period, starting at 46.6% in 2009, jumping to 53.3% and 69.1% in 2011 and 2012, respectively, before decreasing to 44.6% in 2013. Figure 7 shows these trends. Overall, full MISP and partial MISP proposals comprised 5.6% and 50.3% of reproductive health proposals, respectively, with an average increase of 39.5% and 2.4% per year across the five years.

For GBV specifically, findings showed that 73.8% (1,136) of all GBV-related health and protection proposals (1,540) were relevant to reproductive health as defined by the IAFM. Non-reproductive health-related GBV proposals were those that solely appealed to implement non-health-related or broader GBV interventions (see Table 1). Proposals containing reproductive health-related GBV among all GBV proposals ranged from 64.5% (2010) to 89.2% (2013), with an average annual increase in share of 9.0%.

Trends from 18 conflict-affected countries

In total, 3,988 health and 2,218 protection proposals were issued to aid the 18 conflict-affected countries between 2002 and 2013. This amounted to 54.7% of all issued sector proposals within the 12 year period. Among the 6,206 total proposals, 2,303 (37.1%) contained reproductive health activities. This marked an overall 400.0% increase from 2002 to 2013, with an average annual increase of 21.1%. In 2002, the proportion of health and protection proposals containing reproductive health activities was 22.5%, and in 2013, this was 59.5%.

Within the 2009-2013 five year period where in-depth analysis was conducted, maternal newborn health activities comprised the majority of reproductive health proposals (59.4%), which increased from 47.3% of reproductive health proposals in 2002 to 65.1% in 2013. HIV/STI activities (40.2%) were second most mentioned, followed by reproductive health-related GBV (38.8%) and general reproductive health (23.0%), with family planning mentioned least (12.3%). Similar to

Table 2 Relevant reproductive health proposals, 2009-2013

	Annual Average	Overall change	Average change	Total	2009	2010	2011	2012	2013
Number of health proposals	672	-15.5%	-2.8%	3,358	814	712	600	544	688
Number of protection proposals	456	-34.4%	-9.3%	2,278	578	551	406	364	379
Number of relevant RH proposals	495	21.8%	10.0%	2,477	468	533	544	362	570
RH proposals (Health)	335	19.9%	7.4%	1,673	317	353	356	267	380
RH proposals (Protection)	161	25.8%	18.5%	804	151	180	188	95	190
Proportion of RH proposals among total sector proposals	44.6%	58.9%	15.3%	43.9%	33.6%	42.2%	54.1%	39.9%	53.4%
Proposals with full MISP implementation	28	92.9%	31.2%	139	14	29	26	43	27
Proposals with partial MISP implementation	249	16.5%	4.8%	1,246	218	234	290	250	254
Proportion of full MISP proposals among total relevant RH proposals	6.0%	58.3%	39.5%	5.6%	3.0%	5.4%	4.8%	11.9%	4.7%
Proportion of partial MISP proposals among total relevant RH proposals	51.5%	-4.3%	2.4%	50.3%	46.6%	43.9%	53.3%	69.1%	44.6%
RH proposals addressing MNH	279	46.5%	13.2%	1,397	230	292	306	232	337
RH proposals addressing FP	74	37.0%	18.0%	370	46	86	74	101	63
RH proposals addressing HIV/STIs	186	-29.0%	-3.0%	930	214	240	211	113	152
RH proposals addressing RH-related GBV	227	34.2%	14.4%	1,136	196	251	265	161	263
RH proposals addressing general RH	130	-10.8%	0.0%	648	111	150	144	144	99
Proposals solely addressing non-RH GBV	81	-67.0%	-13.9%	404	97	138	65	72	32
Proposals addressing any type of GBV	308	0.7%	3.7%	1,540	293	389	330	233	295
Proportion of MNH proposals among total relevant RH proposals	56.7%	20.3%	5.1%	56.4%	49.1%	54.8%	56.3%	64.1%	59.1%
Proportion of FP proposals among total relevant RH proposals	15.7%	12.4%	23.3%	14.9%	9.8%	16.1%	13.6%	27.9%	11.1%
Proportion of STI/HIV proposals among total relevant RH proposals	37.5%	-41.7%	-12.4%	37.5%	45.7%	45.0%	38.8%	31.2%	26.7%
Proportion of RH-related GBV proposals among total relevant RH proposals	45.7%	10.2%	2.7%	45.9%	41.9%	47.1%	48.7%	44.5%	46.1%
Proportion of general RH proposals among total relevant RH proposals	27.1%	-26.8%	1.7%	26.2%	23.7%	28.1%	26.5%	39.8%	17.4%
Proportion of GBV-RH relevant proposals among total GBV proposals	74.0%	33.3%	9.0%	73.8%	66.9%	64.5%	80.3%	69.1%	89.2%

the overall trends, all components were increasingly mentioned other than HIV/STIs, which dropped by an average of 9.2% per year. See Figure 8 for more information.

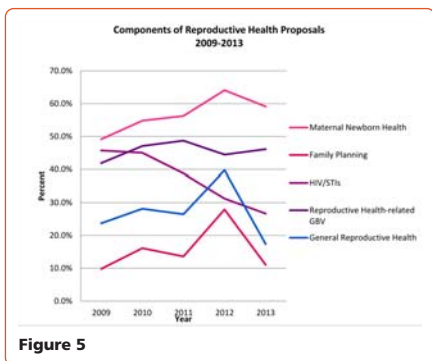
In terms of funding, the total request for reproductive health-related projects in the 18 conflict-affected countries was \$2.777 billion USD for the 12 year period. The amount received was \$1.165 billion; roughly 41.9% of the total request. The combined unfunded request was \$1.612 billion USD. In 2002, the request to funding received was \$77.3 million USD to \$30.7 million USD (39.7%), while in 2013, this was \$512.4 million USD to \$265.8

million USD (51.9%). Similar overall proportions were observed across the 2002-2011 years of Patel *et al.*'s study: the total funding request was \$1.933 billion USD, with \$775.0 million USD received. This comprised 40.1% of the total request, leaving a total unfunded request of \$1.158 billion USD [11]. Figure 9 contains additional information.

Discussion

Overall trends

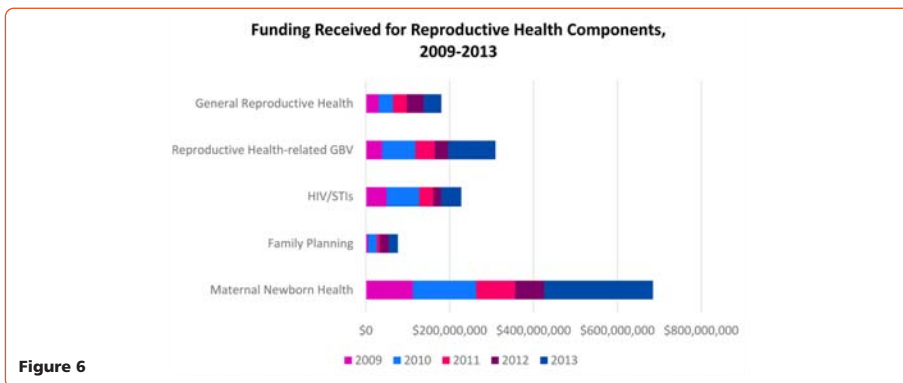
Findings show increases in the number of proposals issued, proportion of proposals addressing reproductive health, and the



amount of requested and received funds for reproductive health during the 12 year period examined: 2002-2013. An average annual increase of 21.9% in absolute numbers of proposals that include reproductive health and an average annual increase of 10.1% in the proportion of health and protection proposals that include reproductive health marks great strides in recognition of reproductive health needs in emergencies. When the type of appealing agencies are examined, they include the UN Population Fund and large humanitarian organizations, as well as local NGOs, Ministries of Health, and non-traditional reproductive health actors that are increasingly participating in

appeals processes and are including reproductive health activities in their proposed programs. Such progress reflects the increasing participation of non-traditional actors in interagency funding mechanisms; awareness around the integration of reproductive health into global standards and guidance—such as the 2010 Sphere Standards, the 2009 Inter-agency Standing Committee Health Cluster Guide, and numerous other global policies and guidelines—as well as concerted advocacy that was undertaken by IAWG members over the last decade to ensure MISP implementation at the onset of an emergency in particular [3,18-22].

The total funding request over the 12 years amounted to \$4.720 billion USD, of which \$2.031 billion USD was received. While only 43.0% of the request was met, trends still show a 17.9% average annual increase in the proportion of requests received per year. Further, as a broader comparison over the 12 year period, total health sector proposals averaged 40.7% in funds received per total CAP requests and total protection sector proposals averaged 36.5%. Despite the data limited to the CAP,



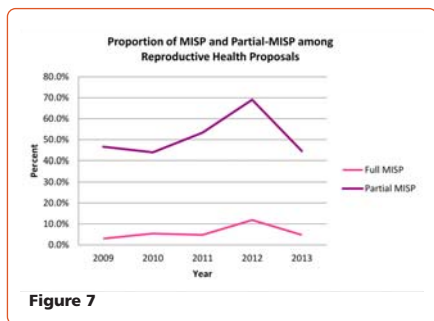


Figure 7

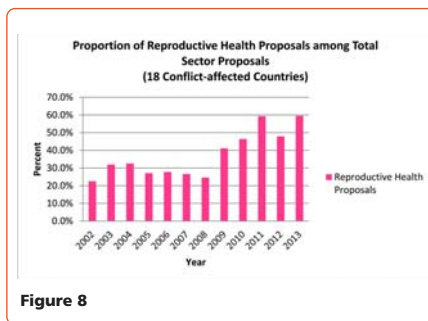


Figure 8

this shows that reproductive health in fact fared above Health and Protection averages, and was funded at only a slightly lower proportion than Water and Sanitation (averaging 44.1%). Overall, total sector proposals averaged 67.7% funding, with Health and Protection ranking fifth and tenth out of the eleven sectors (excluding “Sector Not Yet Specified”), respectively. Highest funded sectors were Food (averaging 85.7%), Coordination and Support Services (averaging 71.9%), and Multi-sector (averaging 68.9%) [23].

In-depth analysis for 2009-2013

The proportion of reproductive health proposals appealing to implement maternal newborn health, family planning, and general reproductive health for 2009-2013 mirrors other IAWG global evaluation findings [22]. This shows increasing awareness towards the need to address reproductive health in humanitarian settings. However, when examining funds received, maternal newborn health received the most funding at \$684.8 million USD, while family planning received the least, at \$76.3 million USD. While family planning received comparable proportions of funding per request as compared to several other reproductive health

components, it is important to emphasize the small number of proposals that in fact included family planning activities. Moreover, most proposals embedded family planning with other maternal newborn health or HIV prevention activities, possibly leading to an over-estimation of projects that substantially addressed family planning needs. Indeed, among the reproductive health components, proposals were least specific about the types of family planning services offered, and long-acting and permanent methods were seldom mentioned. All of these observations reflect the limited attention towards family planning in humanitarian settings, although possible caveats exist and are explained in further depth below.

Further, studies have shown that HIV has received substantial implementation and donor attention relative to other reproductive health components [4]. It is important to note that proposals with HIV/STI components tended to emphasize PMTCT as their primary focus versus comprehensive treatment and prevention activities. The five year analysis shows that proposals addressing HIV/STIs steadily decreased over the five year period, from 45.7% in 2009 to 26.7% in 2013. The proportion of received funds (38.5%) and absolute amounts (\$227.6

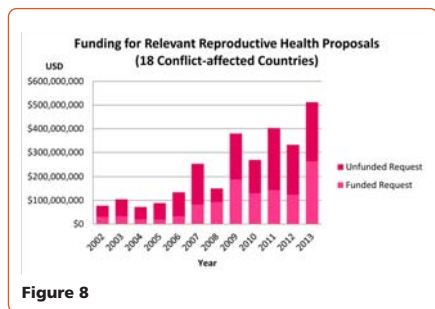


Figure 8

million USD) were similarly less than those received for proposals that included maternal newborn health activities (55.7% and \$684.8 billion USD). When examining reproductive health components via information available in Spreadsheet E for earlier years however, other observations are noteworthy. Health and protection proposals with HIV-related activities in fact comprised the largest share of reproductive health components from 2002-2008; only in 2009 did maternal newborn health proposals outrank HIV/STI proposals. In terms of funds received, HIV/STI proposals were most funded in 2003; however, the frequency with which antenatal and post-natal care was mentioned is the likely reason behind skewed funding to the maternal newborn health component. While prior year information was not included as part of the in-depth analysis given probable under-identification of proposed reproductive health activities where they were not noted in Spreadsheet E, the steady decline of HIV/STI proposals over 2009-2013 may thus be a result of changing need, integrated programming, or an equilibration of funding towards other reproductive health components. Alternative explanations may be a result of expanded programming by the Global Fund to Fight

AIDS, Tuberculosis and Malaria (Global Fund) in fragile states, which may have contributed to HIV being considered a lower priority in humanitarian response [24,25]. Further, despite due emphasis on the continued need to ensure access to HIV prevention, care, and treatment, recognition that conflict and forced displacement does not necessarily lead to increased HIV prevalence may have also had its effects [26].

Indeed, the steady decline in the proportion of proposals containing HIV/STI activities (12.4% average decrease) was met with an increase in the absolute number of proposals containing reproductive health-related GBV activities (14.4% average increase). Increased attention to reproductive health-related GBV programming is also reflected in the larger requested and received amounts of funding for 2010-2013 where such funds exceeded those for HIV/STIs, family planning, and general reproductive health (aside from 2012) activities. The increase in proposals containing GBV could be the result of strong emphasis and collective advocacy to flag GBV as a salient and prevalent issue in crises, especially through UN Security Council Resolutions on Women, Peace and Security; the UN Secretary-General's "UNiTE to End Violence against Women" campaign; and the work of the GBV Area of Responsibility, Gender Standby Capacity Project advisors, and other initiatives such as the gender marker [27-30].

In 2012, a major dip was observed in the proportion of sector proposals that included reproductive health. Absolute numbers of health and protection proposals decreased in 2012, as did the share of reproductive health, with a 33.5% reduction in the number of

relevant sector proposals identified from the previous year. Among the relevant reproductive health proposals however, the share of maternal newborn health, family planning, and general reproductive health increased by 13.9%, 105.1%, and 50.3%, respectively. Further, 2012 showed the highest proportion of proposals noting full or partial MISP implementation (11.9% and 69.1%, respectively). Hence, the decrease in the absolute numbers of relevant proposals may possibly be explained by the fact that individual proposals addressed multiple reproductive health components or pledged to deliver a wider set of services. While the true reason is unknown, an important point to note is the value of examining the proportion of sector proposals with reproductive health components and the proportion of specific reproductive health components within relevant reproductive health proposals, rather than the mere absolute count that does not reflect the breadth and depth of programming.

Indeed, among relevant proposals, some activities were more often mentioned than others, even as proposals became increasingly detailed over the years. This presumably shows growing recognition and understanding of what a reproductive health response entails in emergencies, including appreciation of the MISP standard [22]. For MISP activities, among maternal newborn health services, emergency obstetric care (EmOC) and clean delivery kits were frequently mentioned. Despite reference to EmOC, abortion care of any kind was rarely mentioned; where it was mentioned in 13 proposals (two were withdrawn) was in the context of post-abortion care. Family planning as a component was least described

although mentioned (as noted above); for HIV/STIs, PMTCT and safe transfusions were commonly mentioned in proposals where HIV activities were included. Clinical care for survivors of sexual violence and psychosocial care were most often mentioned for the reproductive health-related GBV component. Hygiene kits that encompassed menstrual hygiene were often listed for the general reproductive health component. The frequency that antenatal and post-natal care—neither a part of the MISP—were mentioned further contributed to the large share of maternal newborn health proposals overall, despite EmOC being more effective at reducing maternal morbidity and mortality [18]. In addition, nutrition was frequently mentioned in both health and protection proposals in 2013; specifically, the intersections between maternal newborn health and nutrition that skewed proposals and funded amounts for this component.

The lack of specification of family planning services and mention of abortion-related services may have been a result of agencies' concerns over political and donor sensitivities, or legal restrictions in the case of the latter. Similarly, seemingly benign umbrella terms such as "maternal health" or even "emergency obstetric care" may have been used to denote more sensitive and specific services, or certain populations such as adolescents omitted, so that such services could be provided discreetly. The inability to accurately comprehend the services that are in fact provided at the field level is a major limitation of a key word search-based method. However, while projects for the Middle East North Africa region for instance, often did not mention reproductive

health and GBV activities per se, a closer read of the project descriptions and names of the appealing agency could often shed light on the project scope, and where such information could be garnered, the proposals were marked under the relevant five reproductive health components. A further noteworthy observation is that while Marie Stopes International is a critical provider of abortion-related care and is increasingly responding in emergencies, the agency was only listed for seven projects over the 12 year period, reflecting a likely under-estimation of such service provision. While traditionally “development” actors are progressively responding in emergencies, there appears to remain a time lag in their participation in the FTS process, especially. Hence, the limited references to family planning and abortion-related services likely reflects a multitude of factors, although other IAWG global evaluation studies have indeed documented the disproportionate lack of availability of long-term and permanent methods of family planning and abortion services in particular [31].

In terms of cross-cutting populations, adolescents and persons with disabilities were mentioned across years, but in very few proposals. These proposals were typically entirely dedicated to the specific population, showing limited mainstreaming. Trends from 18 conflict-affected countries Patel’s study found that the average annual ODA disbursed for reproductive health to 18 conflict-affected countries from 2002 to 2011 was \$747.0 million USD. While this study calculated the total amount at \$775 million USD for the same time period, the discrepancies are explainable from the different units of analyses, as well as several

classification differences in what constituted reproductive health activities. Key differences between the 18 countries and the overall trend are the proportions of specific reproductive health components within relevant proposals for 2009-2013: HIV/STIs proposals held a higher share among proposals appealed for the 18 countries, ranking second overall. Family planning however, mirrored overall trends and was mentioned in a mere 12.3% of relevant reproductive health proposals.

Limitations

Several limitations exist in this study. First, the analysis is solely based on desk research of proposals submitted through the FTS. Hence, the analysis is only as accurate in-so-far as agencies voluntarily report their planned activities. Some of the Gulf States and Islamic charities are yet to actively participate in the FTS, which misses their relevant efforts [32]. Some reproductive health-related activities may have also been missed due to human error; if activities were not mentioned in the proposal or were subsumed under vague descriptions due to political sensitivities; or if modifications were made beyond what was captured in appeals revision processes. This study looked at projected programming and funding for reproductive health as addressed in health and protection proposals submitted to the FTS. Thus, findings indicate practitioner and donor recognition of the need for reproductive health in emergencies and cannot speak to actual implementation or the quality of services provided. Limitations of the desk research further apply to the amount of received funds; if contributions were not reported through the FTS, the

information was not captured in this study.

Second, duplicate appeals are included in the context of revised appeals to account for evolving programming with time. Duplicate programs have also been included where an umbrella organization—typically a UN agency—has appealed for the same project that is in fact implemented by international and national partners. Their inclusion, however, brings about discrepancies in funds received. While appeals include multiple agency requests for the same project—especially where partnership arrangements have been made—when funds are received, they are most likely reflected as received by the umbrella agency, and not by all of its sub-grantees [33]. The unfunded request will thus be systematically overestimated across years.

Third, and related to duplicate counts, since it was not possible to untangle the amount of money that was distributed across different reproductive health components where proposals appealed to implement multiple components, the study assumed that agencies proportionally allocated requested and received funds across the number of mentioned reproductive health components for the 2009-2013 analysis. This may contribute some inaccuracies if proposals focused on certain components over others that they addressed; however, the authors deemed that this would be more accurate than not weighting the proposals at all.

Fourth, while originally, all proposals across 2002-2008 were planned for an in-depth review, full narrative appeals were only available from 2005, and all project descriptions (proposals) from 2009. Hence, to conduct a consecutive 5-year analysis, the study team added data from 2013 for analysis of 2009-2013.

Fifth, to prevent inflated and duplicative counts within reproductive health thematic areas, activities were categorized into five thematic areas per the MISP and comprehensive reproductive health (minus the MISP) for the 2009-2013 in-depth analysis. The counts for each thematic area are therefore likely to be under-represented.

Sixth, as only health and protection proposals were analyzed, any relevant activities appealed in other sectors/clusters would have been missed. These include large-scale infrastructural improvements that could support EmOC transfers, menstrual hygiene as included under non-food item distributions, related projects under Water and Sanitation, or multi-sectoral projects that were not mentioned in Health/Protection. However, protection proposals were analyzed to minimize underrepresentation of GBV-related projects.

Seventh, given challenges to linking donor contributions to exact appeals through the FTS, only aggregate funding was examined. This limits comparisons with the ODA analysis where the type of donor was examined in-depth.

Conclusions

This study is the first in-depth analysis that reviewed commitments to reproductive health through project and funding data reported to the FTS. Findings show that more agencies are appealing to implement reproductive health programs in terms of the number of issued proposals and funding requested over the 12 year period. The absolute amounts received by agencies to implement relevant reproductive health activities also increased during this time. While such developments are welcome,

based on project descriptions and the scope of this analysis, proposals show comparatively limited attention and programming for family planning services and to abortion care in particular. At the intersections of the International Conference on Population and Development plus 15 and the Post-2015 Agenda, the timing is opportune to scale-up attention and access to such critical, life-saving services in humanitarian response.

List of abbreviations used

ANC: Antenatal care; ARV: Antiretroviral ; CAP: Consolidated Appeals Process; CHAP: Common Humanitarian Action Plan; CRS: Creditor Reporting System; EmOC: Emergency obstetric care; FTS: Financial Tracking Service; GBV: Gender-based violence; IAFM: *Inter-agency Field Manual on Reproductive Health in Humanitarian Settings*; IAWG: Inter-agency Working Group on Reproductive Health in Crises; MISP: Minimum Initial Service Package; OCHA: Office for the Coordination of Humanitarian Affairs; ODA: Official Development Assistance; PMTCT: Prevention of mother-to-child transmission; RH: Reproductive Health; STI: Sexually transmitted infection; UN: United Nations; USD: United States dollar; WRC: Women's Refugee Commission.

Competing interests

The authors declare no competing interests.

Authors' contributions

MT developed the study methodology, with contributions from PP. KS primarily conducted the data analysis, with help from SR. MT conceptualized the paper and was principal author; KS, PP, and SKK contributed to the writing process. All authors reviewed and approved the final text.

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Declarations

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Endnotes

- ^a Columns from FTS' spreadsheets that were retained included: year; country/region; country/region code; appeal type; appeal title; project code; title; appealing agency; original requirements USD; revised requirements USD; funding USD; % covered; unmet requirements USD; and uncommitted pledges USD.
- ^b Overall, the analysis team spent between 30 seconds and 10 minutes to assess and categorize each proposal, depending on their relevance to reproductive health. The principal investigator conducted periodic, random comparison checks to ensure consistency in data analysis across the two analysts and over time.
- ^c The objectives of the MISP are to: 1) ensure effective coordination; 2) prevent sexual violence and manage its consequences; 3) reduce HIV transmission; 4) prevent excess maternal and neonatal morbidity and mortality; and 5) plan for comprehensive reproductive health services.

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Tracking official development assistance for reproductive health in conflict-affected countries: 2002–2011

Abstract

Objective: To provide information on trends on official development assistance (ODA) disbursement patterns for reproductive health activities in 18 conflict-affected countries.

Design: Secondary data analysis.

Sample: 18 conflict-affected countries and 36 non-conflict-affected countries.

Methods: The Creditor Reporting System (CRS) database was analyzed for ODA disbursement for direct and indirect reproductive health activities to 18 conflict-affected countries (2002–2011). A comparative analysis was also made with 36 nonconflict-affected countries in the same 'least-developed' income category. Multivariate regression analyses examined associations between conflict status and reproductive health ODA and between reproductive needs and ODA disbursements.

Main outcome measures: Patterns of ODA disbursements (constant U.S. dollars) for reproductive health activities.

Results: The average annual ODA disbursed for reproductive health to 18 conflict-affected countries from 2002 to 2011 was US \$ 1.93 per person per year. There was an increase of 298% in ODA for reproductive health activities to the conflict-affected countries between 2002 and 2011; 56% of this increase was due to increases in HIV/AIDS funding. The average annual per capita reproductive health ODA disbursed to least-developed nonconflict-affected countries was 57% higher than to least-developed conflict-affected countries. Regression analyses confirmed disparities in ODA to and between conflict-affected countries.

Conclusions: Despite increases in ODA for reproductive health for conflict-affected countries (albeit largely for HIV/AIDS activities), considerable disparities remains.

Keywords: Aid, conflict, ODA, reproductive health, war.

Tweetable abstract: Study tracking 10 years of aid for reproductive aid shows major disparities for conflict-affected countries.

Introduction

Reproductive health problems remain a leading cause of mortality and morbidity for women and girls of childbearing age worldwide.¹ Impoverished women, especially those living in low- and middle-income countries, suffer disproportionately from

unintended pregnancies, maternal death and disability, sexually transmitted infections (STIs) including HIV, and other problems related to their reproductive system and sexual behaviour.¹ There is strong evidence of increased mortality and morbidity caused by poor access to reproductive health care in

all resource-poor countries but these tend to be worse in countries currently experiencing armed conflict or recovering from it.^{2,3} It is estimated that 170 000 maternal deaths occur yearly during humanitarian emergencies.⁴ The majority of the top ten countries with the highest maternal mortality ratios globally are experiencing or emerging from conflict.⁵ Higher rates of maternal mortality are also recorded in areas with recent conflict.⁶ In the Democratic Republic of Congo, for example, the contrast between the conflict-affected eastern part of the country and the relatively peaceful western part of the country is stark, with maternal mortality ratios of 1174 and 881 deaths per 100 000 live births, respectively.⁷ In many low- and middle-income countries, including conflict-affected countries, women of reproductive age are the main carers for children and elderly relatives, and so mortality and morbidity associated with poor reproductive health outcomes have profound long-term consequences for families and communities.⁸

Ensuring access to comprehensive health information and services, including reproductive health, is endorsed by United Nations Security Council Resolutions 1820, 1888, 1889, 1960 and 1325, which are aimed at protecting women in conflict and post-conflict situations.^{9,10} These important resolutions include targeting gender-based violence, which is often an intentional strategy of war as well as a consequence of increasing impunity in conflict-affected countries.¹¹ Essential reproductive health services and activities agreed by key governmental, inter-governmental and non-governmental agencies are contained in leading humanitarian guidelines (summarised in Box 1).^{12–15}

Box 1. Key definitions

Reproductive Health follows the definition given in the International Conference on Population and Development in 1994.³⁰ It refers to the constellation of methods, techniques, and services that contribute to reproductive health and wellbeing by preventing and solving reproductive health problems.³¹ Reproductive activities for conflict-affected populations such as refugees and internally displaced persons include family planning, HIV/AIDS and sexually transmitted diseases, maternal and newborn health, comprehensive abortion care, and sexual and gender-based violence.¹² Note: the revised version of the Inter Agency Field Manual (2010) includes the following components in reproductive health: family planning, maternal and newborn health, comprehensive abortion care, preventing and responding to consequences of gender-based violence, STIs, HIV and adolescent reproductive health.

Official development assistance (ODA) is defined as flows of official financing administered with the promotion of the economic development and welfare of developing countries as the main objective, including humanitarian aid. ODA receipts comprise disbursements by bilateral donors and multilateral institutions.³²

Humanitarian aid is assistance designed to save lives, alleviate suffering, and maintain and protect human dignity during and in the aftermath of emergencies and disasters. To be classified as humanitarian, aid should be consistent with the humanitarian principles of humanity, impartiality, neutrality and independence.³³

Conflict-affected countries include those that are currently engaged in war or those that are defined as post-conflict countries. Conflict-affected countries were selected as having been in 'war' at a point in the period 2000–2009 based upon the Uppsala University Conflict Database, with additional information used from the World Bank.^{34,35} Conflict or War refers to violent armed

struggle between hostile groups; there are over 1000 battle-related deaths in 1 year in our definition of conflict.³⁶ Post-conflict is highly difficult to conceptualise and may refer to the period following a formal surrender, negotiated end of hostilities, or peace talks.³⁷ It is a period with increased security and peace, although there may be violence and insecurity in certain regions; political and economic reforms and the influx of large-scale private investment and development aid.

Some countries are described as post-conflict for up to two decades or more after the end of hostilities; however, this tends to be very context-specific depending on the typology of conflict. Post-conflict peace is typically fragile: nearly half of all civil wars are due to post-conflict relapses.³⁸

Investment in reproductive health is one of the most effective ways to improve health outcomes, promote equitable and sustainable development and help alleviate poverty across generations.^{2,16,17} Most reproductive health interventions, such as family-planning services, are extremely cost-effective in improving health outcomes and preventing maternal mortality and HIV.^{18,19} The disruption caused by conflict and displacement reduces women's and men's access to family planning services.³ Recent studies have shown that the provision of comprehensive family planning services is widely accepted among conflict-affected populations.^{20,21}

Official development assistance (ODA) is a major source of the global financial response for health in low- and middle-income countries, including those currently affected by armed conflict and those which are defined as post-conflict (see definitions in Box 1). Evidence has shown that ODA for reproductive health activities, including

family planning, remains low globally.²² In a previous study we analysed ODA disbursed for reproductive health activities in 18 conflict-affected countries between 2003 and 2006.²³ Our findings indicated that ODA was increasing for reproductive health to conflict-affected countries but this was largely attributable to increased funding for HIV/AIDS activities, whereas ODA for other reproductive health services was very limited. The findings also showed lower absolute reproductive health ODA per capita to conflict-affected countries than comparable non-conflict-affected countries despite generally higher levels of reproductive health needs. The study was useful for informing subsequent donor policies on reproductive health in conflict-affected countries.^{16,24–26} Further evidence of long-term trends in reproductive health ODA distribution is useful in understanding how responsive aid is to levels of reproductive health needs and to address issues of donor accountability and transparency.^{27–29}

The overall objective of this follow-up study is to provide information on longer-term trends on ODA disbursement patterns for reproductive health activities in 18 conflict-affected countries. The specific objectives are: 1) to measure the absolute and per capita amount of reproductive health ODA to conflict-affected countries; 2) to compare reproductive health ODA disbursements to conflict-affected countries and non-conflict-affected countries; 3) to analyse disbursement patterns of ODA disbursement for different reproductive health-related activities; 4) to analyse disbursement patterns of reproductive health ODA by donors.

Methodology

Data source

Aid data was extracted for 2002–2011 from the open-access Creditor Reporting System (CRS) database, available at <http://stats.oecd.org/Index.aspx?datasetcode=CRS1>. CRS is maintained by the Development Assistance Committee (DAC) of the Organisation of Economic Cooperation and Development (OECD). CRS data was determined to be the most comprehensive source of information on ODA for health and has been widely used for research on tracking aid across different health sectors to all developing countries, including those affected by conflict.^{39–46} CRS covers an estimated 100% of aid disbursements from 2007, around 90% since 2002.⁴⁷ It ensures that there is little or no double-counting; data are validated by a peer-review process. Reporting is mandatory for donors that use standard criteria, allowing for comparability between donors and over time.^{47,48} Other databases such as AidData offer less standardised data than CRS, which uses the same data collection procedure across all donor agencies and is therefore considered to be the best data source for studying trends in ODA from the same set of donors over time.⁴⁹

The 18 countries selected for the study were those which met the definitions of conflict-affected and/or post-conflict (Box 1) and were the same as those used in the first study so as to ensure continuity of analysis and to study longterm patterns of aid for reproductive health for these countries. The CRS includes ODA from 26 bilateral donors and 18 multilateral agencies including UN programmes and funds, World Bank groups, regional banks, and global

health initiatives such as the Global Fund to fight AIDS, Tuberculosis and Malaria (GFATM) and the US President's Emergency Plan for AIDS Relief (PEPFAR). All bilateral and multilateral donors were included in this study, as were all types of funding approaches. The CRS includes humanitarian aid; longer-term developmental programmatic or project funding; pooled funding such as common humanitarian funds for recipient countries; Sector-Wide Approaches (SWAps) and basic packages of health services; and general budget support. Bilateral and multilateral aid are recorded separately in the CRS to avoid double-counting.

This study did not include data from the Financial Tracking System (FTS) to avoid double-counting, as it does not provide additional data to that already included in CRS. We contacted a number of specialists on humanitarian funding from CRS, FTS and Global Humanitarian Assistance to verify that CRS analysis would cover all aid to conflict-affected countries including non-earmarked funding allocated by donor countries to recipient countries, and contributions to the Central Emergency Respond Fund (CERF), Common Humanitarian Fund (CHF) and Emergency Response Fund (ERF). These emergency funds are reported in CRS by the donor countries to the recipient country and channelled through the United Nations Office for the Coordinator of Humanitarian Affairs (UN OCHA), which is specified as an aid channel flow.⁵⁰

Analysis

The methodology of analysing CRS follows that used in our previous study.²³ CRS-

labelled aid activities were selected that contributed either directly or indirectly to reproductive health (Box 2). In the analysis, 100% of ODA disbursements for direct reproductive health activities were included: population policy and administration management; reproductive health care (includes reproductive health promotion, prenatal/postnatal/delivery care, safe motherhood, fertility treatment, abortion related care); family planning; personnel development for population and reproductive health; social mitigation of HIV/AIDS; and STD control, including HIV/AIDS. For the indirect activities, proportions of ODA disbursements for the following activities were allocated for inclusion in the analysis: education; basic nutrition; general health; general budget support; humanitarian material relief assistance and services; and reconstruction relief and rehabilitation (Box 2). This follows the previously used approach.^{23,39,51,52} Donor contributions include both earmarked and non-earmarked grants (non-earmarked funding means that the multilateral agency has freedom to decide how the money is used). All estimates were based on 2009 constant US dollars, using CRS deflator rates to adjust for changes in the exchange rate and inflation in the currency in which the flow occurred between the year of the flow and the base year.

All ODA data for each recipient country selected for the study were downloaded from the CRS and analysed in EXCEL and STATA databases. Each of the CRS-labelled aid activities is accompanied in the CRS database by a numeric ‘purpose-code,’ which was used for the data analysis. The absolute and per capita amounts of ODA (constant

US\$) were analysed for each of the 18 recipient countries for individual direct and indirect reproductive health activities and for combined reproductive health.

A comparative analysis of the total reproductive health ODA was also made with ODA disbursed to comparable non-conflict-affected countries. Of the 18 conflict-affected countries, only three countries were not in the OECD/DAC category of least-developed countries: Colombia, Iraq and Sri Lanka. We therefore compared the 15 conflict-affected countries which were in the OECD/DAC category of least-developed countries with the remaining 36 non-conflict-affected countries in the least-developed country category.⁵³ The methods described above for descriptively analysing the data for conflict-affected countries were used for the 36 non-conflict-affected countries. We also examined the association between a country’s conflict status and receiving RH ODA disbursement through a series of multivariate linear regression analyses. The outcomes related to mean 2002–2011 per capita US\$ RH ODA. The exposure of interest was a binary variable of ‘conflictaffected’ (i.e. the 15 conflict-affected least-developed countries) compared with non-conflict-affected (i.e. the 36 nonconflict-affected least-developed countries). We modelled conflict status against mean per capita RH ODA received per disbursement in five separate regression models using the following dependent variables: mean per capita overall RH ODA;³ mean per capita direct RH ODA (see Box 2);³ mean per capita HIV/AIDS only ODA (purpose codes 13040 and 16064, see Box 2);⁴ mean per capita reproductive health care ODA (purpose code 13020, see Box 2);

Box 2. Creditor reporting system activities included in the analysis

Activities (purpose code)	% Allocation	Basis for allocation
Direct activities*		
Population policy & administration management (13010)	100	Estimates based on calculations by the Netherlands Interdisciplinary Demographic Institute (NIDI) and developed in the OECD 54th meeting of the Working Party on Statistics, June 2005***
Reproductive health care (13020)**	100	
Family planning (13030)	100	
Personnel development for population & reproductive health (13081)	100	
Social mitigation of HIV/AIDS (16064)	100	
STD control, including HIV/AIDS (13040)	100	
Indirect activities		
Primary education (11220)	10	Estimates based on calculations by NIDI and developed in the OECD 54th meeting of the Working Party on Statistics, June 2005***
Basic skills for youth and education (11230)	10	
Early childhood education (11240)	10	
Secondary education (11320)	10	
Health policy & administrative management (12110)	10	
Basic health care (12220)	25	
Basic health infrastructure (12230)	25	
Basic nutrition (12240)	75	
Health education (12261)	25	
Health personnel development (12281)	25	
General budget support (51010)	2.11	Estimate based on average government expenditure on health for the 18 sampled countries (8.42%). **** 25% of this 8.42% was then allocated for RH based on NIDI estimates.
Material relief assistance and services (72010)	1.94	Estimate based upon calculation of 7.76% of humanitarian ODA being allocated to the health sector using Financial Tracking Service data for 2003–2009. ***** 25% of this 7.76% was then allocated for RH, based on NIDI estimates.
Reconstruction relief and rehabilitation (73010)	1.94	

*Direct RH categories based on categories defined in the 1994 ICPD and subsequently used in van Dalen H, Reuser M, Assessing size and structure of worldwide funds for population and AIDS activities, UNFPA/UNAIDS/NIDI Resource Flows Project, 2005, www.resourceflows.org/index.php?module=uploads&func=download&fileid=99 (accessed 17 March 2015).

**Reproductive health care includes promotion of reproductive health; prenatal and postnatal care including delivery; prevention and treatment of infertility; prevention and management of consequences of abortion; safe motherhood activities.

***de Bruijn & Horstman.⁵²

****Source: WHO (2007). World Health Statistics. Geneva: World Health Organization.

*****Source: UNOCHA (2012). The Global Humanitarian Aid Database: Financial Tracking System. <http://fts.unocha.org/> (accessed 17 March 2015).

and⁵ mean per capita family planning ODA (purpose code 13030, see Box 2). To adjust for the potential confounding effect of variables related to health outcomes, economic status and governance, we used a step-wise multivariate regression model. First, we included the following independent variables in our model: key reproductive health indicators (HIV prevalence rate, maternal mortality, and total fertility rate), key economic data (GDP per capita) and governance (government effectiveness and control of corruption) for each recipient country – see Supporting Information Table

S1 for these data and the sources. These were all entered as categorical variables. Using backward stepwise elimination, we eliminated variables that were not statistically significant ($P < 0.01$) associated with our outcome, until we reached a model where every variable included was significantly associated. Our final multivariate models are adjusted for categories of HIV prevalence rate, GDP per capita, government effectiveness and control of corruption. We present here the association coefficients reflecting the unit decrease/increase in the continuous RH ODA outcomes according to

conflict status per disbursement.

The pattern of reproductive health ODA distribution and reproductive health needs to the individual conflict-affected countries were explored descriptively through the use of scatter plots for specific reproductive health indicators (indicator data taken from the sources in Table S1) and the average annual (2002–2011) per capita ODA specifically for their most closely related CRS purpose code activity (see Box 2 for the purpose codes): HIV/AIDS prevalence and HIV/AIDS and STD control and social mitigation of HIV/AIDS (purpose codes 16064 and 13040 combined), maternal mortality rates and reproductive health care ODA (purpose code 13020); and total fertility rate and family planning ODA (purpose code 13030).

We also ran three multivariate linear regression models further to examine the association between reproductive ODA disbursements and reproductive health needs among all the conflict-affected countries combined while adjusting for potential confounders. The first model examined the association of a dependent continuous variable of mean 2002–2011 per capita US\$ ODA per disbursement for HIV/AIDS (purpose codes 13040 and 16064) and HIV prevalence, with HIV prevalence data categorised into equal distribution quartiles to aid interpretation. The second model examined the association of mean 2002–2011 per capita US\$ ODA per disbursement for reproductive health care (purpose code 13020) with maternal mortality, with maternal mortality ratios categorised equally into tertiles. The third model examined the association of mean 2002–2011 per capita US\$ ODA per disbursement for family planning (purpose code 13030) with total

fertility rate which was again categorised equally into tertiles. We used stepwise regression for each of these models, beginning first with the full range of possible confounders noted above and eliminating those that were not statistically significantly associated with the outcome of interest ($P < 0.01$). The confounders controlled for in each final multivariate model are listed in Table 3.

Results

The distribution of ODA for reproductive health to the 18 conflict-affected countries is shown in Table 1. ODA for reproductive health to the 18 conflict-affected countries increased by 298%, from US\$ 303.5 million in 2002 to US\$ 1,208.9 million in 2011 (compared with a 178% increase in all ODA), with an annual average of US\$ 747.0 million disbursed to conflict-affected countries for reproductive health activities during the study period. This equates to US\$ 1.93 in reproductive health ODA per person per year to conflict-affected countries, 3% of all ODA during the study period (annual average all ODA of US\$ 24,568.5 million; US\$ 63.2 per capita; see Supporting Information Table S2). The conflict-affected countries receiving the highest annual average per capita reproductive health ODA were Uganda (US\$ 8.1), Timor-Leste (US\$ 6.7) and Liberia (US\$ 5.4); and the countries receiving the lowest were Colombia (US\$ 0.2), Myanmar (US\$ 0.4), and Sri Lanka (US\$ 0.7).

The distribution of reproductive health ODA disbursed to the 15 of the 18 conflict-affected countries which were classified as 'least developed countries' was compared with equivalent non-conflict-affected least

Table 1. ODA disbursement to conflict-affected countries, 2002–2011

Country	RH ODA (US \$ million)											Mean 2002–2011	% from direct RH ODA**	Mean All ODA 2002–2011 (US \$ Million)*	Annual average ODA per capita (US \$)	RH as % of all ODA
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2011					
Afghanistan	24.6	42.0	53.6	67.0	78.4	99.0	112.7	171.5	159.3	185.4	99.3	50.9	3910.7	3.7	144.7	2.5
Angola	26.1	30.9	25.8	40.8	42.5	37.6	21.7	22.9	18.5	32.7	29.9	78.4	483.5	1.9	31.3	6.2
Burundi	9.9	11.8	18.5	24.5	30.9	29.2	15.0	23.2	33.2	47.6	24.4	71.5	584.6	2.8	67.3	4.2
CAR	7.0	7.8	13.4	11.4	15.4	7.5	2.6	4.9	6.0	16.4	9.2	74.3	245.8	2.0	54.4	3.8
Chad	18.4	21.0	22.9	30.1	19.8	14.0	7.6	7.8	8.6	33.9	18.4	73.0	423.3	1.9	43.7	4.4
Colombia***	4.2	5.3	3.6	7.0	11.1	7.4	5.0	3.8	4.6	18.3	7.0	57.2	891.2	0.2	21.1	0.8
DRC	44.5	42.2	48.6	73.0	76.4	83.3	69.5	92.8	112.9	172.2	81.5	58.2	3512.6	1.3	55.3	2.3
Eritrea	16.7	24.0	28.9	28.6	16.6	19.6	9.1	6.3	6.1	13.4	16.9	74.3	206.5	3.2	39.2	8.2
Iraq***	1.8	20.1	45.6	137.9	100.7	62.9	21.7	25.3	16.6	12.7	44.5	2.3	7152.4	1.6	263.3	0.6
Liberia	2.9	4.6	9.2	10.4	11.2	20.0	15.6	26.1	26.9	46.3	17.3	67.4	541.1	5.4	168.5	3.2
Myanmar	12.0	21.7	22.5	34.9	17.8	24.3	16.3	9.8	13.7	44.3	21.7	74.7	233.6	0.4	4.5	9.3
Nepal	35.5	43.0	41.8	48.8	65.2	47.7	48.6	56.0	53.5	67.1	50.7	72.6	650.4	1.8	23.5	7.8
Sierra Leone	8.5	9.8	15.3	19.9	15.7	18.7	12.5	29.5	36.2	40.3	20.6	68.0	535.1	4.3	110.2	3.9
Somalia	4.3	4.2	4.8	13.2	16.1	18.5	8.2	19.6	8.1	35.2	13.2	44.9	436.6	1.5	48.2	3.0
Sri Lanka***	8.3	8.1	7.4	16.1	24.2	16.0	11.0	14.3	16.4	15.6	13.7	43.4	1002.2	0.7	49.1	1.4
Sudan	12.2	12.5	21.3	56.4	63.3	50.6	36.2	49.7	64.3	54.6	42.1	49.4	1514.1	1.4	49.1	2.8
Timor-Leste	2.2	3.4	5.9	5.8	8.1	7.2	6.1	4.9	12.1	12.7	6.8	59.1	271.8	1.7	267.9	2.5
Uganda	64.3	99.5	178.8	205.8	218.5	298.1	258.5	295.6	314.1	360.5	229.4	88.2	1973.0	8.1	69.7	11.6
All Conflict****	303.5	412.0	567.9	831.7	891.7	861.6	677.7	864.0	911.3	1208.9	747.0	66.2	24 568.5	1.9	63.2	3.0
LDC Conflict*****	289.1	378.4	511.3	670.6	695.8	775.2	640.1	820.6	873.7	1162.3	681.7	71.0	15 522.7	2.3	53.4	4.4
Non-Conflict LDCs*****	740.6	1028.3	1286.7	1486.4	1709.3	2135.6	1741.7	1939.0	2068.3	3136.2	1727.4	78.9	24 635.1	3.6	51.3	7.0

CAR, Central Africa Republic; DRC, Democratic Republic of the Congo; GDP, gross domestic product; LDC, least-developed countries; NA, not available; ODA, official development assistance; RH, reproductive health; US \$, US dollars.

All data are in constant US\$ with 2011 as the base year, using deflator rates used by CRS to incorporate donor exchange rate differences and inflation during the period in question. Population data from: US Census Bureau (www.census.gov/population/international/data/idb/informationGateway.php).

**See Table S1 for All ODA disbursements by year.

***Proportion (%) of mean RH ODA (2002–2011).

****Non-LDC conflict-affected countries.

*****Total for all 18 conflict-affected countries (both LDC and non LDC).

*****Total for 36 non-conflict-affected countries in the LDC category.

Data in bold represent total amounts for the different combined country groupings.

Table 2. Regression analyses on association between countries being conflict-affected and mean per capita RH ODA (2002–2011)

RH ODA category model	Bivariate models			Multivariate models*		
	Coefficient	95% CI	P	Coefficient	95% CI	P
All RH ODA model						
Non-conflict LDC	Ref			Ref		
Conflict-affected LDC	-0.0018626	-0.00249; -0.00123	<0.001	-0.00021	-0.00043; -0.0000005	0.056
Direct RH ODA model						
Non-conflict LDC	Ref			Ref		
Conflict-affected LDC	-0.0021908	-0.00296; -0.00142	<0.001	-0.00030	-0.00056; -0.00004	0.024
HIV/AIDS ODA model						
Non-conflict LDC	Ref			Ref		
Conflict-affected LDC	-0.0019187	-0.00299; -0.00084	<0.001	-0.0000199	-0.00095; -0.000909	0.967
Reproductive health care ODA model**						
Non-conflict LDC	Ref			Ref		
Conflict-affected LDC	0.0011517	-0.00167; 0.003972	0.423	0.00205	0.00617; 0.00349	0.005
Family planning ODA model						
Non-conflict LDC	Ref			Ref		
Conflict-affected LDC	0.0003792	-0.0003; 0.001062	0.276	0.00119	0.00041; 0.00200	0.003

LDC, least developed country; ODA, official development assistance; Ref, reference category.

*Each of the five multivariate regression models run separately after stepwise elimination of non-significant variables. All final models adjusted for HIV prevalence rate, GDP per capita, government effectiveness and control of corruption.

**Reproductive health care includes reproductive health promotion, prenatal/postnatal/delivery care, safe motherhood, fertility treatment, abortion related care (see Box 2).

developed countries (Table 1).⁵³ The data show that the annual average per capita reproductive health ODA disbursed to non-conflict-affected least developed countries (US\$ 3.60) was 57% higher than to least developed conflict-affected-countries (US\$ 2.30). In addition, 4.4% of all ODA disbursed to conflict-affected least developed countries was for reproductive health activities, compared with 7.0% in non-conflict-affected least developed countries.

The relation between countries being conflict-affected and levels of reproductive health ODA disbursements was investigated through the multivariate regression analysis (Table 2). After adjustment for the potential confounders, our findings suggest that being a conflict-affected least developed country (compared with a non-conflict-affected least developed country) is associated with receiving lower per capita all reproductive health ODA per disbursement (B = 0.00021; P = 0.056), lower per capita direct

reproductive health ODA per disbursement (B = 0.00030; P = 0.024), lower HIV/AIDS-specific ODA per disbursement (B = 0.00002; P = 0.967), but increased reproductive health care ODA per disbursement (B = 0.00205; P = 0.05) and increased family planning ODA per disbursement (B = 0.00119; P = 0.005).

The activities to which the reproductive health-related ODA to conflict-affected countries was disbursed are given in Box 2 (and detailed in Supporting Information Table S3). Of the US\$ 747 million disbursed on average per year to conflict-affected countries for reproductive health activities, two-thirds (66.2%) was for direct reproductive health activities. The data show that an annual average of US\$ 322.69 million was disbursed for HIV/AIDS activities (purpose codes for ‘HIV/AIDS and STD control’ and ‘Social mitigation of HIV/AIDS’). This represents 43.2% of the US\$ 747 million in ODA average annual

Table 3. Regression analyses on association of reproductive health ODA with reproductive health needs among conflict-affected countries

RH ODA category model*	Bivariate			Multivariate**		
	Coefficient	95% CI	P	Coefficient	95% CI	P
Model 1: HIV/AIDS ODA						
≤1.0% prevalence	Ref			Ref		
1.01–2.0% prevalence	0.00070	–0.0012; 0.00261	0.469	0.003150	–0.0000009; 0.006309	0.051
2.01–10.0% prevalence	0.00184	0.00053; 0.00315	0.006	0.0000653	–0.002126; 0.00226	0.953
>10.0% prevalence	0.00484	0.00195; 0.00773	0.001	–0.00100	–0.01576; –0.00413	0.001
Model 2: Reproductive health care ODA***						
MMR ≤650	Ref			Ref		
MMR 651–1000	–0.00306	–0.00481; –0.0013	0.001	0.01911	0.0133; 0.02491	<0.001
MMR >1000	–0.00081	–0.00221; 0.00058	0.252	–0.01701	–0.02195; –0.01208	<0.001
Model 3: Family planning ODA						
TFR ≤4.50	Ref			Ref		
TFR 4.51–5.9	–0.00018	–0.01098; –0.01062	0.974	–0.01027	–0.02286; 0.00232	0.110
TFR >6.0	0.00477	0.00059; 0.00895	0.025	0.01839	0.00138; 0.03540	0.034

MMR, maternal mortality ratio; ODA, official development assistance; Ref, Reference category; TFR, total fertility rate.

*Mean 2002–2011 per capita US\$ ODA for: HIV/AIDS only ODA (model 1); RH care only ODA (model 2); and family planning ODA (model 3).

**Each of the three multivariate regression models run separately after stepwise elimination. Final Model 1 adjusted for maternal mortality ratio, fertility rate and government effectiveness. Final Model 2 adjusted for HIV prevalence, fertility rate, GDP per capita and government effectiveness. Final Model 3 adjusted for HIV prevalence, maternal mortality ratio, GDP per capita and government effectiveness.

***reproductive health care includes reproductive health promotion, prenatal/postnatal/delivery care, safe motherhood, fertility treatment, abortion related care (see Box 2).

disbursements for reproductive health (direct and indirect). The average annual ODA disbursed for direct reproductive health activities, excluding HIV/AIDS activities, was \$172.2 million, or 23.0% of the average annual ODA disbursed for all reproductive health activities. The most significant disbursements for the non-HIV reproductive health activities were for reproductive health care (purpose code 13020) (13.3%) and basic health care (10.5%) (purpose code 12220). Over half (56.3%) of the 298% increase in total reproductive health disbursements during the study period was due to the substantial increase in HIV/AIDS funding. Reproductive health care activities accounted for 19.3% of the 298% increase.

The dominance of HIV/AIDS funding as a proportion of total reproductive health funding (direct and indirect) is greater in the conflict-affected least developed countries (53.2%) than in the non-conflict-affected least developed countries (39.5%) despite the

latter generally appearing to have higher prevalences of HIV/AIDS and lower levels of other types of reproductive health needs (Supporting Information Tables S1 and S4).

These relationships between mean per capita reproductive health ODA disbursements (2002–2011) and reproductive health needs are shown in the regression analyses in Table 3. The findings suggest a general lack of response of reproductive health ODA to reproductive health needs, and in some categories of need for conflict-affected countries. Indeed, countries with a high maternal mortality ratio category of >1000 had a negative association (B = 0.01701; P < 0.001) with reproductive health care ODA (purpose code 13020) when compared with those with a lower maternal mortality ratio category of ≤650. Similarly, countries with a higher HIV prevalence of >10% had a negative association (B = 0.00100; P = 0.001) with HIV/AIDS ODA (purpose codes 16064 and 13040 combined)

when compared with those with a lower prevalence category of <1.0%. However, ODA for family planning appeared to be more responsive to need ($B = 0.01839$; $P = 0.03$), with a higher total fertility rate category (>6.0) associated with higher family planning ODA (purpose code 13030) compared with a lower fertility rate category of ≤ 4.50 . The unadjusted patterns between per capita reproductive health ODA disbursements and reproductive health needs for individual countries are given in the scatter plots in Supporting Information Figure S1. These show that a number of countries (e.g. Chad, Somalia, Central Africa Republic, and the Democratic Republic of Congo) with high reproductive health needs receive considerably less per capita ODA than other conflict-affected countries with lower reproductive health needs.

The disbursement patterns by donor are provided in Supporting Information Table S5. The donors disbursing the highest amount of absolute bilateral reproductive health-related ODA were the USA (with increases in US ODA in 2008 and 2009 largely accounting for the substantial increase in all reproductive health ODA to the conflict-affected countries – albeit mostly for HIV/AIDS), Japan, Germany and the UK. The bilateral donors disbursing the highest proportion of their ODA to reproductive health were Ireland (9.3%), Denmark (5.1%) and Iceland (4.2%). Newer bilateral donors such as Czech Republic, South Korea and the United Arab Emirates reported ODA for reproductive health in CRS, but not in very significant amounts. Multilateral donors disbursing the highest amount of absolute reproductive health-related ODA were the World Bank and the European Union.

Discussion

Main findings

There was a substantial increase (298%) in ODA funding for reproductive health activities to the 18 conflict-affected countries between 2002 and 2011. This includes recent increases in ODA for previously neglected topics such as family planning in 2008 and 2009. Similarly, ODA for the reproductive health care category purpose code increased in 2008, 2009, 2010 and 2011, which addresses critical interventions such as maternal health care. This perhaps reflects increasing advocacy and engagement in reproductive health humanitarian programming.^{13,54–56} However, the majority of the increase in overall reproductive health funding during the review period is explained by increased ODA for HIV/AIDS activities.

This study also shows that non-conflict-affected least developed countries received 57% more reproductive health ODA per capita compared with the conflict-affected least developed countries during the decade reviewed, supporting findings from other studies.⁵⁷ After adjustment for potential confounding factors, the disparity largely remained. The new findings also show considerable aid disparity between conflict-affected countries, with certain countries with extremely high reproductive health needs (such as those with high maternal mortality and other health needs as shown in Table S1) receiving considerably fewer funds compared with other countries with lower reproductive health needs. The regression analysis provides additional evidence of this disparity between reproductive health needs and ODA among conflict-affected countries, with the exception of family planning. Potential explanations for the disparity in

reproductive health funding towards conflict-affected countries include concerns over security, absorptive capacity and governance in the recipient countries, and varying media and policy attention. The findings suggest there remains a substantial shortfall in ODA to meet reproductive health needs, which are estimated to be \$70 billion annually in 2015 globally.^{58,59} Resource requirements for sustaining the current use of contraception by 260 million women in the 69 poorest countries is estimated to be approximately US\$ 10 billion over 8 years from 2012 to 2020.⁶⁰ However, there are no current reliable estimates of reproductive health needs and related funding for reproductive health activities in conflict-affected countries. Also, estimates of resource requirements for reproductive health ODA in resource-poor countries are thought to be misleadingly low, as they do not take into account crucial service delivery costs, which are likely to be higher in conflict-affected countries because of logistical challenges.⁶¹

Strengths

This study provides evidence of long-term trends in reproductive health ODA distribution for conflict-affected countries using the CRS reporting system. Analysis presented in this study shows that there is considerable disparity in the disbursement of reproductive health ODA between conflict-affected and non-conflict-affected countries (as well as between conflict-affected countries). The findings are useful in understanding how responsive aid is to levels of reproductive health needs in conflict-affected countries.

Limitations

There are a number of administrative limitations with the CRS reporting system. Our aid data review period (2002–2011) does not capture recent significant donor commitments for reproductive health such as the Global Strategy for Women's and Children's Health to mobilise US\$ 40 billion to save the lives of 16 billion women and children over 5 years, and other significant donor pledges for family planning including for post-conflict countries.^{60,62–64} However, complete disbursement data relating to these pledges will not yet show in CRS.

The CRS database does not include a purpose code for gender-based violence (GBV). Aid activities related to gender-based violence (GBV) are often also included in larger projects under human rights activities, protection, elections and post-conflict peace-building activities. It is not possible to apportion a percentage for GBV from these more general and large-scale projects. A separate purpose code for GBV would enhance significantly understanding of patterns of aid allocations for this crucial issue.²³

For the CRS purpose code on 'STD control, including HIV/AIDS', it is not possible to disaggregate funding for HIV from other STDs and so we cannot examine funding for other STDs. We are also not able to disaggregate funding for the 'Reproductive Health Care' purpose code (for example, for delivery care or comprehensive abortion care).

This study was limited to estimating donor aid disbursements at national levels, so it is not possible to know what proportion of aid disbursement is spent on the ground and with which populations. We could not

therefore determine how ODA was disbursed to conflict-affected regions and populations within each of the conflict-affected countries. This is especially relevant in conflict-affected countries as conflicts tend to occur in geographically distinct areas (e.g. Sudan, Sri Lanka and northern Uganda). A related limitation is that South Sudan has not yet been included as a separate country by CRS after becoming an independent state in 2011, and so aid disbursements to South Sudan are included under Sudan.

It is difficult to estimate what percentage of a country's population is affected by conflict and how that may have changed over the study period. In addition, as rigorous and representative reproductive health data are insufficiently recorded with conflict-affected populations, we have been forced to use national-level data for our models. There is a critical need for more reproductive health data specifically from conflict-affected populations. There is also a need for in-depth, country- and local region-specific research to investigate the ground-level disbursement of reproductive health ODA.

Countries affected by natural disasters and/or undergoing political conflict, such as Syria, or transition, such as other Arab Spring countries, have also been excluded from this study in order to maintain a distinctive focus on countries affected by major armed conflict during the study period from 2002 to 2011. Several reports have described the challenges of reproductive health in disaster-affected countries and the Arab Spring countries.^{65,66} Further studies are necessary to track ODA for these groups of countries.

Aid from other bilateral donors such as the BRICS (Brazil, Russia, India, China, and South Africa) and Turkey (which provides

significant amounts of humanitarian assistance), is not currently included in CRS. Studies suggest that the aid flows of such donors have nearly quadrupled, from an estimated 8.1% of total development assistance in 2000 to 30.7% of the total in 2009.^{67,68} Aid from private, philanthropic and non-governmental organisations is also excluded from our study, as most of these organisations do not currently report their aid disbursements to CRS. The Bill and Melinda Gates Foundation has been reporting some of its funding to CRS since 2009 under a private grants category. This has not been analysed in this study as it does not constitute ODA and is not comprehensive or standardised enough to offer sufficiently reliable data on disbursements to conflict-affected countries.⁶⁹ Contributions from these emerging and large private donors have become an increasingly relevant source of financing in recent years, with some major private donors rivalling many traditional multilateral and bilateral donors in terms of the scale of their funding. Global Humanitarian Assistance provides analysis of funding from private organisations but it is not possible to disaggregate their data into sectors such as reproductive health.⁶⁸ Increased aid reporting by private organisations to a centralised data repository such as CRS would significantly enhance the efficiency and effectiveness of this important sector.³⁹

Finally, although we used multivariate regression analysis to adjust for potential confounders when examining the relationships between conflict status and reproductive health ODA and also between reproductive health needs and reproductive

health ODA, it is probable that there are unobserved confounders which may have a significant influence on these relationships.

Interpretation

The findings suggest reproductive health aid disparities to and between conflict-affected countries. In-depth, countryspecific research is required to investigate the supply and demand characteristics of reproductive health ODA. The findings from such research can help inform advocacy initiatives to improve donor accountability and co-ordination, and ensure more equitable distribution of ODA to meet the reproductive health needs of populations affected by conflict.

Conclusion

The evidence presented in this study tracking 10 years of reproductive health aid disbursements suggests that although there is some room for optimism from the increase in ODA for reproductive health for conflict-affected countries from 2002 to 2011, the bulk of the increased funding is attributable to HIV/AIDS activities, and other reproductive health activities have not benefited from such increases. Importantly, there is also a disparity in the disbursement of reproductive health ODA between conflict-affected and non-conflict-affected countries (as well as between conflict-affected countries). The funding inequities presented in this study remain substantial obstacles for conflict-affected countries which remain highly dependent on ODA and are the furthest away from achieving the MDGs.^{70,71}

Disclosure of interests

None declared. Completed disclosure of interests form available to view online as supporting information.

Contribution to authorship

PP conceptualised the paper and developed the study methodology, with contributions from BR, MD and MT. MD and BR primarily conducted the data analysis, which was reviewed by AM. PP wrote the first draft of the paper with contributions from BR. MT, SG, LE contributed to the writing process. All authors reviewed and approved the final text.

Details of ethics approval

No ethical approval was required for this study as all data used for the study is available in the public domain.

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Supporting Information

Additional Supporting Information may be found in the online version of this article: Figure S1. Maternal mortality and reproductive health care ODA

Table S1. Key reproductive health and socio-economic indicators for conflict- and non-conflict-affected least developed countries

Table S2. All ODA (US \$ million) to conflict-affected countries, by year

Table S3. Distribution of reproductive health ODA 2002-2011 to conflict-affected countries, by activity (US \$ million)

Table S4. Comparison of HIV only disbursements versus disbursements for all other direct and indirect reproductive health activities, by conflict status

Table S5. Donor disbursement of reproductive health ODA for sampled conflict-affected countries (US \$ million)

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RESEARCH

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Progress and gaps in reproductive health services in three humanitarian settings: mixed-methods case studies

Abstract

Background: Reproductive health (RH) care is an essential component of humanitarian response. Women and girls living in humanitarian settings often face high maternal mortality and are vulnerable to unwanted pregnancy, unsafe abortion, and sexual violence. This study explored the availability and quality of, and access barriers to RH services in three humanitarian settings in Burkina Faso, Democratic Republic of the Congo (DRC), and South Sudan.

Methods: Data collection was conducted between July and October 2013. In total, 63 purposively selected health facilities were assessed: 28 in Burkina Faso, 25 in DRC, and nine in South Sudan, and 42 providers completed a questionnaire to assess RH knowledge and attitudes. Thirty-four focus group discussions were conducted with 29 members of the host communities and 273 displaced married and unmarried women and men to understand access barriers.

Results: All facilities reported providing some RH services in the prior three months. Five health facilities in Burkina Faso, six in DRC, and none in South Sudan met the criteria as a family planning service delivery point. Two health facilities in Burkina Faso, one in DRC, and two in South Sudan met the criteria as an emergency obstetric and newborn care service delivery point. Across settings, three facilities in DRC adequately provided selected elements of clinical management of rape. Safe abortion was unavailable. Many providers lacked essential knowledge and skills. Focus groups revealed limited knowledge of available RH services and socio-cultural barriers to accessing them, although participants reported a remarkable increase in use of facility-based delivery services.

Conclusion: Although RH services are being provided, the availability of good quality RH services was inconsistent across settings. Commodity management and security must be prioritized to ensure consistent availability of essential supplies. It is critical to improve the attitudes, managerial and technical capacity of providers to ensure that RH services are delivered respectfully and efficiently. In addition to ensuring systematic implementation of good quality RH services, humanitarian health actors should meaningfully engage crisis-affected communities in RH programming to increase understanding and use of this life-saving care.

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Background

Reproductive health (RH) problems are a leading cause of death and ill-health among women and girls of childbearing age globally [1]. During conflict and natural disasters, access to health services often decreases [2] while RH needs increase [3]. By the end of 2013, an estimated 51.2 million people remained forcibly displaced within their own country or as refugees [4]. As an essential component of humanitarian health response, addressing RH is critical to saving lives and improving the wellbeing of these crisis-affected populations.

From 2002 to 2004, the Inter-agency Working Group on Reproductive Health in Crises (IAWG) conducted a global evaluation of RH in humanitarian settings [5]. The evaluation included a qualitative study on the availability, quality, and utilization of RH services in three humanitarian settings.^a Findings demonstrated that although RH was clearly on the agenda at a policy level, the quality of services was variable. Researchers documented gaps in family planning (FP) services, emergency obstetric and newborn care (EmONC), as well as services for HIV and other sexually transmitted infections (STI). Response to gender-based violence (GBV) was the weakest area assessed, and internally displaced persons (IDPs)—as compared to refugees—were found to lack critical access to RH care. Since 2004, some components of RH have been studied in different humanitarian settings, but research remains limited [6].

From 2012 to 2014, IAWG undertook a second global evaluation of RH in humanitarian settings. The present article describes one component of this project: a cross-sectional, mixed methods case study on

RH services for conflict-affected communities in Burkina Faso, Democratic Republic of the Congo (DRC), and South Sudan. The purpose of the study was to document the current availability, quality, utilization of, and access barriers to RH services in selected humanitarian settings in order to contribute to the evidence base informing humanitarian health-related policy and programming.

Methods

Study setting

The assessment sites included: the Seno, Soum, and Oudalan provinces of the Sahel Administrative Region in Burkina Faso, the Masisi Health Zone in North Kivu Province in DRC, and Maban County in South Sudan.^b Countries met at least three of the following criteria: defined as low income by the World Bank classification in 2012; classified as “Warning” in the Failed States Index; experienced conflict during 2010-2012 per the Uppsala University Conflict Database; defined as “Stressed,” “Crisis” or “Emergency” on the Famine Early Warning System; or had experienced a major natural disaster that warranted the launch of a flash appeal during 2011 or 2012. Within each country, site selection criteria included a robust humanitarian health response and accessibility.

Although the study settings are all in sub-Saharan Africa, they reflect different types of humanitarian crises. The Sahel Region in Burkina Faso represents a more traditional displaced setting in which the majority of refugees (from Mali) reside in three UNHCR-managed camps in an impoverished yet stable rural setting [7]. In volatile North Kivu, however, only 6% of

the IDPs live in camps [8]; both IDPs and host communities are affected by ongoing conflict. Maban County in South Sudan is a mixture of the two: the majority of refugees fleeing fighting in Sudan reside in four UNHCR-managed camps, and the host community itself is fragile with exceptionally poor infrastructure and episodic violence [9].

Study design

This cross-sectional, mixed methods case study improved on the 2004 evaluation by employing both a quantitative approach that included assessments of health facilities purposively selected from those providing services to crisis-affected populations as well as an assessment of a convenience sample of providers' knowledge and attitudes, and a qualitative approach using focus group discussions (FGDs). The goal of the quantitative component was to document the availability, quality, and utilization of RH service provision in the three settings. The purpose of the qualitative component was to explore access barriers.

Data collection tools were adapted from existing tools by an IAWG working group and translated into French. Ethical approval was obtained through the Columbia University Institutional Review Board as well as the Ministries of Health (MOH) in each setting. Informed verbal consent was obtained from all respondents.

Quantitative component

The quantitative component assessed health facilities with regards to availability, quality, and utilization of FP services, EmONC, comprehensive abortion care, as well as key aspects of clinical management of rape (CMoR), and HIV and other STI services.

Data on general infrastructure, financial support, and human resources were also collected. The facility assessments used interviews with key staff, clinical register review, and room-by room inventory of essential supplies and equipment. A facility was designated as capable of providing the specific service based on the following criteria: services were provided in the preceding three months (as self-reported by providers), skilled staff were in place (a mid-level provider or doctor who self-reported training received), and minimum essential equipment and supplies (described in the respective sections) necessary to provide the services were in evidence on the day of the assessment. The specific criteria for each service are detailed in the appendices.

If a service had not been provided in the three prior months, facility staff were asked to identify the primary reason from one of three categories: 1) lack of staff or untrained staff; 2) lack of supplies, equipment, or drugs; or 3) lack of authorization (by MOH or facility director) to provide the service. Utilization of services was measured via service statistics from the six previous months. However, many of these data were missing due to poor registers or the absence of key data points and were therefore excluded from this paper.

In addition, self-completed close-ended questionnaires were used to assess providers' knowledge and attitudes about RH service provision to help determine quality of care. These findings are described in the text whereas the data from the facility assessments are presented in the tables.

Qualitative component

The qualitative component helped to identify

barriers to accessing care. The purpose of the FGDs with community members was to gather data on attitudes related to RH, knowledge of existing services, and challenges to accessing RH services.

Data collection and analysis

The assessments took place between July and October 2013. Data collectors participated in a two-day training prior to data collection.

For the quantitative data collection, a list of all available health facilities serving both host and displaced populations (health center-level and above) was generated in each setting with the assistance of the respective MOH and UNHCR country offices. Facilities inaccessible due to insecurity and physical barriers, such as poor roads, were excluded. All remaining facilities (63) were assessed in each setting (Table 1). A convenience sample of 42 providers at a selection of facilities completed a questionnaire to assess knowledge and attitudes.

For the qualitative component, a total of 34 FGDs were held with 273 displaced persons and 29 members of the host communities in groups of married women, married men, unmarried women and unmarried men. Consecutive translation was used; multiple facilitators took notes to enhance triangulation (Table 1).

Quantitative data were entered into CS

Pro version 5.0 and analyzed using SPSS version 21 (IBM Corp., Armonk, NY, USA); qualitative data were analyzed using thematic analysis [10].

Findings

For each technical component of RH, we first describe the facility assessment findings, including provider knowledge and attitudes. We then describe the perceptions and responses from the FGDs.

General infrastructure

General infrastructure of health facilities was assessed in terms of functioning power and water supplies, supplies for minimum infection prevention, as well as the availability of at least one provider at night and on the weekends (Table 2). Most of the hospitals had these elements in place whereas availability at health centers varied. Supplies for minimum infection prevention were inconsistent across settings: two out of four hospitals assessed and 50% or fewer of the health centers had all supplies in evidence at the time of the assessment (Additional file 1: Appendix A). Few facilities (none in DRC; two in South Sudan, and ten in Burkina Faso) had at least one provider trained to provide adolescent friendly RH services.

Despite this, focus groups with refugees residing in camps in Burkina Faso and South Sudan reported satisfaction with the health

Table 1 Data collection by method

	Facility assessments	Provider assessment	FGD: No. unmarried women	FGD: No. married women	FGD: No. unmarried men	FGD: No. married men
Burkina Faso	28	11	21	20	16	20
DRC	26	13	29	38	28	38
South Sudan	9	18	20	31	21	20
Total	63	42	70	89	65	78

Table 2 General infrastructure (n=63 health facilities)

	Mean catchment population ¹	Mean number of beds	At least 1 qualified health provider available 24/7	Functioning power supply	Functioning water supply	Minimum infection prevention supplies ²
Burkina Faso (n=28)³						
Hospital (n=3)	608,320	89	2 (66.7%)	3 (100%)	3 (100%)	1 ND* (1)
Camp health center (n=4)	18,452	6	3 (100%) ND* (1)	2 (66.7%) ND* (1)	4 (100%)	0 ND* (1)
Non-camp health center (n=21)	6,782	10	13 (61.9%)	13 (76.5%) ND* (4)	16 (80%) ND* (1)	5 (23.8%)
DRC (n=26)⁴						
Hospital (n=1)	378,000	171	1	1	1	1
Health center (n=25)	12,870	8	18 (75%)	10 (40%)	14 (56%)	4 (16%)
South Sudan (n=9)⁵						
Hospital (n=1)	209,700	60	ND*	1	1	0
Health center (n=8)	ND*	16 (range 2-67)	1 (12.5%)	4 (50%)	8 (100%)	4 (50%)

*ND = no data

¹ Mean catchment population includes both host and displaced populations with the exception of the camp health facilities in Burkina Faso which served primarily refugees.

² See Additional file 1: Appendix A for details on minimum infection prevention supplies.

³ The MOH manages three hospitals and 21 non-camp health centers while the four camp health centers are NGO-managed. The non-camp health centers primarily serve the host community whereas the camp facilities serve refugees. The hospitals serve both populations.

⁴ All facilities from DRC are MOH-managed, but the hospital and 15 health centers received some NGO support for health.

⁵ The hospital and one health center are MOH-managed, six health centers are NGO-managed, and one health center is managed by a religious mission.

services. They commented that facilities were within 30 minutes walking distance or transport was available for emergencies. In DRC, however, focus group participants provided mixed feedback including some complaints about the quality of care, such as clinic staff privileging people they know and stock-outs of medicine and supplies. Access was variable; non-camp focus groups reported the longest distance to a health facility, with one group reporting that the nearest health center was two to three days' walk. Focus groups with displaced communities in all settings said health care was free of charge.

Family planning (FP)

Functioning FP service delivery points included the ability to adequately provide a minimum method mix: intra-uterine device (IUD), implant, oral contraceptive pill

(OCP), and injectable. Data on permanent FP methods and emergency contraception (EC) after unprotected sex were also collected. Functioning FP service delivery points were limited in Burkina Faso and DRC and nonexistent in South Sudan (Table 3).

In South Sudan, five facilities reported providing OCPs and four reported providing injectables in the previous three months, yet only one met the criteria to adequately provide these contraceptives; lack of supplies at the time of the assessment was the primary reason for facilities failing to meet the criteria (Additional file 2: Appendix B). Permanent and long-acting methods were not available at any facilities, although one health center reported having provided implants in the previous three months. Providers cited all possible reasons: lack of authorization, supplies, and trained staff.

Table 3 Functioning family planning (FP) service delivery point (n=63)

	Oral contraceptive pill (OCP)	Injectable contraceptive	IUD	Implant	Functioning FP service delivery point ¹
Burkina Faso (n=28)					
Hospital (n=3)	3 (100%)	3 (100%)	3 (100%)	3 (100%)	3 (100%)
Camp health center (n=4)	3 (100%) ND* (1)	3 (100%) ND* (1)	1 (25%)	1 (25%)	1 (25%)
Non-camp health center (n=21)	17 (81%)	17 (81%)	1 (4.8%)	8 (40%) ND* (1)	1 (4.8%)
DRC (n=26)					
Hospital (n=1)	1	1	1	1	1
Health center (n=25)	12 (48%)	10 (40%)	9 (36%)	5 (20%)	5 (20%)
South Sudan (n=9)					
Hospital (n=1)	0	ID**	0	0	0
Health center (n=8)	1 (12.5%)	1 (12.5%)	0	0	0

*ND = no data

**ID = incomplete data. The hospital met all the indicators but data on availability of injectables at the time of the assessment were missing.

¹ Defined as a facility able to provide IUDs, implants, OCPs, and injectables. A facility was classified as able to provide each method if the following criteria were met: self-reported provision of the service in the previous 3 months, at least one provider trained in FP service provision, and presence of minimum essential supplies and equipment on the day of the assessment. See Additional file 2: Appendix B for details.

Three facilities reported providing EC in the previous three months; scarce supplies and lack of authorization were the primary reasons given for not providing EC. Questionnaires revealed that some providers felt personal discomfort with FP services and had personal beliefs that may have influenced their professional conduct.

In Burkina Faso and DRC, the four hospitals met the requirements for a functioning FP delivery point (Table 3). Among health centers in both settings, short-acting methods were more available than long-acting. In Burkina Faso, all camp facilities and 81% of non-camp health centers sufficiently provided short-acting methods, yet only one of each met the criteria to provide IUDs and less than half adequately provided implants (Additional file 2: Appendix B). Among health centers in DRC, coverage was variable with 48% adequately providing OCPs and less than half meeting the criteria to provide injectables; 36% and 20% adequately provided IUDs and implants, respectively. Insufficient supplies were a significant barrier

in both settings. For example, although all camp facilities and 90% of non-camp facilities in Burkina Faso reported providing implants in the previous three months, only one and 40%, respectively, had the minimum essential supplies at the time of the assessment, mainly due to lack of forceps. In DRC, 72% of health centers reported providing injectables in the three months prior but only 54% had injectables in evidence at the time of the assessment. Lack of trained staff was also a challenge to providing FP in DRC, while the large majority of facilities in Burkina Faso had at least one staff trained in each method. Some permanent methods were available: the hospital in DRC reported having performed tubal ligation and one hospital in Burkina Faso performed vasectomy in the previous three months. Emergency contraception had reportedly been provided at 42% and 36% of facilities in DRC and Burkina Faso, respectively, in the three months prior. Questionnaires found that some providers in all three settings maintained negative attitudes toward women using contraception

without their husbands' consent (Additional file 8: Appendix H).

FGDs in all settings revealed significant socio-cultural barriers and misconceptions regarding FP. Participants reported that large families were socially valued, and contraception was associated with sex work or sex outside of marriage, which were viewed negatively. Further, awareness of available services was limited in all settings. In DRC, some women reported that they were required to present an authorization letter or be accompanied by their husband to access FP services, although no such policy was in place. Participants in Burkina Faso and DRC said that unmarried and adolescent women had the most difficulty accessing FP services, while in South Sudan, unmarried women were generally unaware of family planning methods.

Emergency obstetric and newborn care (EmONC)

A functioning basic or comprehensive EmONC service delivery point was defined as being able to provide the applicable signal functions,^c or life-saving obstetric interventions, as recommended by WHO [11]; availability of partographs, blood pressure cuff, and stethoscope, which are essential to provide good delivery care, were also required. In general, health centers should provide basic EmONC (BEmONC) and referral hospitals comprehensive EmONC (CEmONC). Across settings, all hospitals except for one in Burkina Faso (which had not provided assisted vaginal delivery) reported providing all elements of CEmONC in the previous three months. Yet only one hospital in Burkina Faso met the criteria for a functioning CEmONC delivery

point when supplies and equipment were assessed (Table 4). Of the health centers, only one in South Sudan could be defined as a functioning BEmONC delivery point. In DRC, the only adequately functioning BEmONC service delivery point was the hospital. Per WHO guidance, the minimum acceptable level of coverage is five functioning health facilities providing EmONC, at least one of which provides CEmONC, per 500,000 population [11]. None of the settings met this benchmark for minimum BEmONC or CEmONC coverage, although BEmONC coverage in South Sudan was unknown because the population was too transient to establish a reliable mean health center catchment population. Facilities located in camps reported functioning referral systems for obstetric emergencies; however, non-camp facilities reported weaker or non-functional referral mechanisms.

Across settings, assisted vaginal delivery was particularly limited: of the health centers, one in DRC, three in South Sudan, and none in Burkina Faso were able to adequately provide this signal function, primarily due to lack of authorization and absence of supplies (Additional file 3: Appendix C).

In Burkina Faso, the large majority of facilities had at least one provider trained to provide BEmONC. Parenteral drugs were more available at non-camp health centers than camp centers, although the availability of removal of retained products was minimal at both with only one of each adequately providing this signal function. In DRC, CEmONC was not fully available and adequate BEmONC was extremely limited: of the 26 health facilities, the hospital was the only adequately functioning EmONC

delivery point, and it only met the criteria as a BEmONC facility due to missing supplies for blood transfusion. In South Sudan, most health centers sufficiently provided manual removal of the placenta yet only two adequately provided parenteral anticonvulsants; the referral hospital lacked elements to sufficiently provide assisted vaginal delivery and did not have partographs. Providers across settings reported a dearth of equipment and drugs as the primary barrier to providing adequate basic and CEmONC followed by shortages of trained staff; some providers also reported that their facility lacked authorization to provide certain signal functions.

Data on additional essential elements of newborn care were also collected, including

having provided neonatal resuscitation in the previous three months, the availability of skilled staff trained to provide breastfeeding support, newborn infection management, thermal care, cord care, kangaroo care, delivery practices for prevention of mother-to-child transmission of HIV (PMTCT), as well as drugs for infection management. Availability of adequate newborn care was limited across settings (Table 4). Of the health centers that failed to provide adequate neonatal resuscitation in Burkina Faso and DRC, the majority reported lack of supplies as the main reason for not providing the service: two-thirds did not have a resuscitation bag and infant face mask in DRC and 80% lacked corticosteroids in Burkina Faso (Additional file 4: Appendix D). In addition, providers in many facilities

Table 4 Functioning EmONC and post-abortion care (PAC) delivery points, additional elements of newborn care, and induced abortion (n=63)

	Functioning BEmONC service delivery point ¹	Functioning CEmONC service delivery point ¹	Essential elements of newborn care ²	Functioning PAC service delivery point ³	Induced abortion ⁴
Burkina Faso (n=28)					
Hospital (n=3)	1 (33.3%)	1 (33.3%)	2 (66.7%)	3 (100%)	0**
Camp health center (n=4)	0	NA	1 (25%)	1 (25%)	0
Non-camp health center (n=21)	0	NA	2 (9.5%)	0	0
DRC (n=26)					
Hospital (n=1)	1	0*	1	1	0**
Health center (n=25)	0	NA	0	11 (44%)	0**
South Sudan (n=9)					
Hospital (n=1)	0	0	0	1	0
Health center (n=8)	1 ND (1)	NA	2 (25%)	1	0

* Minimum criteria for all CEmONC signal functions met except for blood transfusion

**Health facility assessments found that none of the facilities provided induced abortion. However, some providers reported that they had performed induced abortion in the previous three months.

¹ Defined as a facility able to provide all nine (comprehensive) or seven (basic) EmONC signal functions. A facility was classified as able to provide each signal function if the following criteria were met: self-reported provision of EmONC services in the previous three months, at least one provider trained in basic or CEmONC, presence of minimum essential supplies and equipment for each signal function on the day of the assessment. See Additional file 3: Appendix C for details. Hospitals that met the criteria for a CEmONC facility are not included in the BEmONC data.

² Defined as having at least one skilled staff trained to provide neonatal resuscitation, breastfeeding support, newborn infection management, thermal care, cord care, kangaroo care, delivery practices for PMTCT and presence of minimum essential equipment and supplies for neonatal resuscitation and infection management. See Additional file 4: Appendix D for details.

³ Defined as having provided PAC services in the previous three months (self-reported), offering FP to all PAC clients, presence of minimum essential equipment and supplies for PAC using MVA or misoprostol. See Additional file 5: Appendix E for details.

⁴ Self-reported provision of the service in the previous three months

across settings lacked training in newborn infection management.

Provider questionnaires revealed varied knowledge of EmONC. For example, on average across settings, providers could name most of the nine key observations for labor monitoring but fewer than half of the eight essential activities to manage post-partum hemorrhage (Additional file 8: Appendix H).

Despite the significant gaps in good quality EmONC services, focus groups and community leaders reported positive experiences with maternal health services. Notably, all groups—including men—in the three settings were aware of the advantages of women delivering in a health facility. Remarkably, whereas childbirth had previously occurred at home with a traditional birth attendant, respondents reported that facility births had now become a norm. They attributed their attitude and behavior changes to education campaigns and outreach by health providers. In all settings refugees and IDPs said that they were aware of the existing maternal health services and that care was free. One FGD in DRC reported that distance impeded access to delivery care.

Comprehensive abortion care

Comprehensive abortion care included the provision of post-abortion care (PAC) as well as safe induced abortion according to national law [12]. Of the five hospitals assessed, all met the requirements for a functioning PAC service delivery point, defined as being able to adequately provide manual vacuum aspiration (MVA) or misoprostol and offering at least one FP method to post-abortion clients (Table 4). Among health centers, almost half in DRC

met the criteria to adequately provide PAC. Fewer health centers in Burkina Faso and South Sudan sufficiently provided PAC, with providers reporting they were unauthorized to do so. Providers in all settings also cited scarce supplies followed by dearth of trained staff as barriers to service provision. MVA was the most common means of uterine evacuation; and two facilities in Burkina Faso and three in both DRC and South Sudan had misoprostol for PAC available at the time of the assessment (Additional file 5: Appendix E.)

Although induced abortion is legally permitted under certain circumstances^d in all settings [13], the facility assessments found that none of the facilities provided this service. However, interviews with providers and the questionnaires suggested that abortion may be available at some health facilities in DRC and Burkina Faso, although this remains unclear. Providers in all settings reported that their facility lacked authorization to perform induced abortions and few staff were trained. Across settings, FGDs revealed negative attitudes toward abortion, which they said conflicted with religious beliefs. However, all reported that some women and girls in their communities resorted to unsafe abortion.

Clinical management of rape (CMoR)

While the minimum package of CMoR for low-resource settings includes 25 elements [14], selected key elements of CMoR were assessed, including the availability of EC, post-exposure prophylaxis for HIV (PEP), and antibiotics for STI prevention, the provision of these drugs in the previous three months, as well as at least one staff trained to provide CMoR.

Table 5 Facilities with essential drugs and at least 1 qualified staff to provide clinical management of rape (CMoR) (n=63)

	At least 1 provider qualified to provide CMoR	Post-exposure prophylaxis (PEP) ¹	Emergency contraception (EC) ¹	Antibiotics to prevent STI ¹	Facilities with essential drugs and ≥1 qualified staff for CMoR
Burkina Faso (n=28)					
Hospital (n=3)	2 (66.7%)	2 (66.7%)	0	2 (66.7%)	0
Camp health center (n=4)	1 (33.3%) ND* (1)	0	2 (67.7%) ND* (1)	2 (50%)	0
Non-camp health center (n=21)	10 (47.6%)	0	6 (28.6%) ND* (1)	9 (42.9%)	0
DRC (n=26)					
Hospital (n=1)	1	1	1	1	1
Health center (n=25)	18 (72%)	10 (40%)	12 (48%)	2 (8%)	2 (8%)
South Sudan (n=9)					
Hospital (n=1)	0	0	0	0	0
Health center (n=8)	1 (25%) ND* (4)	1 (14.3%) ND* (1)	1 (14.3%) ND* (1)	2 (28.6%) ND* (1)	0 ND* (2)

*ND = no data

¹ Self-reported provision of the service in the previous three months and presence of supplies on the day of the assessment. See Additional file 6: Appendix F for details.

Across settings, only three facilities, all in DRC, had these selected elements in place (Table 5). Some availability of this care in DRC—as opposed to the other two settings—was not surprising given the international attention to the widespread sexual violence in DRC’s conflict-affected areas [15]. Yet three of 26 facilities still constituted limited coverage, and it was unclear whether these three facilities provided all components of the minimum package of CMoR [14]. A paucity of drugs was the primary barrier reported in DRC. For instance, more than 80% of facilities reported providing presumptive STI treatment for CMoR in the previous three months, but only 8% had all necessary antibiotics for STIs available on the day of the assessment (Additional file 6: Appendix F).

A dearth of supplies was found in the other two settings as well. In Burkina Faso, all four camp facilities reported having

provided EC and antibiotics for STIs as part of CMoR in the previous three months; three of the four reported providing PEP. In South Sudan, two health centers reported providing all drugs—EC, PEP, and antibiotics for STIs—for CMoR in the prior three months. Yet, at the time of the assessment, all lacked supplies. In Burkina Faso, PEP was not available at any health centers; of the health centers that did not provide PEP in the previous three months, half reported that they were not authorized to do so.

Regarding staff, almost three quarters of health facilities in DRC had at least one provider trained in CMoR. Trained providers were less available in Burkina Faso and South Sudan. Questionnaires demonstrated that, on average, providers across settings could identify fewer than half of the eleven key CMoR activities (Additional file 8: Appendix H).

Responses from FGD participants about

sexual violence varied. Participants in DRC were the most knowledgeable about where to seek services and were generally aware of the importance of seeking care within 72 hours after rape. Informants in South Sudan and Burkina Faso were unaware of existing services or reasons to seek health care. However, across settings, the FGDs reported that most rape survivors would not come forward due to fears of stigma and rejection as well as concerns about confidentiality. All said that young unmarried women were at risk of sexual assault. Women in DRC reported that sexual violence was widespread, including at home and by armed groups. Women in Burkina Faso and South Sudan described marital rape as commonplace; they reported that sexual violence outside of marriage did occur, primarily perpetrated by members of the refugee or host communities, but was rare.

HIV and other STIs

Adequate provision of STI services (syndromic or laboratory testing and treatment) and PMTCT included self-reported provision of the service in the preceding three months and the availability of essential drugs on the day of the assessment. Data were collected on self-reported provision of anti-retroviral therapy (ART) for people living with HIV (PLHIV), voluntary counseling and testing for HIV (VCT), and condoms in the previous three months.

Adequate STI and HIV services were available at the hospital in DRC and two of three hospitals in Burkina Faso, but nonexistent at the hospital in South Sudan (Table 6). Most facilities across settings reported having provided STI care in the

previous three months, yet, apart from non-camp facilities in Burkina Faso, the majority failed to meet the criteria to adequately provide these services due to lack of antibiotics (Additional file 7: Appendix G). In South Sudan, ARVs for PMTCT and ART had not been provided at any health facility in the previous three months; six of the nine health facilities reported that they lacked authorization to administer ARVs and others reported they lacked supplies. In DRC, none of the health centers adequately provided PMTCT due to lack of supplies as well as lack of trained staff. In Burkina Faso, most services were available in non-camp facilities; however, ART outside of the hospitals was rarely available, primarily due to policy barriers, with 18 of the 25 health centers reporting they were not authorized to provide ART to PLHIV. Questionnaires revealed that, on average across settings, providers could name half of five key elements of care for someone presenting with symptoms of an STI (Additional file 8: Appendix H).

Most FGD participants had heard about HIV yet stigma and misconceptions abounded. Condom knowledge and use, which focus group participants often associated with sex workers, was low. Although condoms were provided at roughly half of the health facilities in South Sudan and DRC and more than three quarters in Burkina Faso, only in Burkina Faso were the majority of FGD participants aware of their availability. In all sites, young unmarried women were the least knowledgeable of HIV, STIs, and ways to minimize transmission; some young women in DRC had never heard of HIV or AIDS. Participants in Burkina Faso and DRC cited

Table 6 HIV and other sexually transmitted infection (STI) services (n=63)

	Syndromic or laboratory diagnosis and treatment of STIs ¹	ARVs for HIV+ mothers and newborns in maternity ¹	ART for people living with HIV ²	Voluntary HIV counseling and testing ²	Condom provision ²
Burkina Faso (n=28)					
Hospital (n=3)	2 (67%)	3 (100%)	3 (100%)	3 (100%)	3 (100%)
Camp health center (n=4)	1 (25%)	1 (25%)	1 (25%)	4 (100%)	3 (75%)
Non-camp health center (n=21)	21 (100%)	18 (90%) ND* (1)	3 (14.3%)	19 (90.5%)	18 (85.7%)
DRC (n=26)					
Hospital (n=1)	1	1	1	1	1
Health center (n=25)	2 (9%) ND (2)	0	1 (4%)	6 (25%)	12 (48%)
South Sudan (n=9)					
Hospital (n=1)	0	0	0	0	0
Health center (n=8)	3 (38%)	0	0	1 (12.5%)	4 (50%)

*ND = no data

¹ Self-reported provision of the service in the previous three months and presence of essential equipment and supplies on the day of the assessment. See Additional file 7: Appendix G for details.

² Self-reported provision of the service in the previous three months

lack of confidentiality as a key barrier to seeking HIV/AIDS services.

Discussion

A decade has passed since the availability, quality, and barriers to RH services have been assessed across crisis-affected settings. Although poor data quality prevented analysis of utilization data, the mixed methods approach allowed us to estimate quality of care through the availability of a minimum standard of RH services and provider knowledge and attitudes, as well as understand access barriers.

The assessment criteria held facilities to a strict minimum standard of care, based on international guidance, requiring them to have provided the service recently as well as have trained staff and specific essential supplies in place. Findings revealed a striking inconsistency between the self-reported provision of RH services and the availability of the minimum supplies and trained staff

to adequately provide them: many facilities reported having recently provided a number of RH services, yet—apart from the hospitals in DRC and Burkina Faso—the availability of a minimum standard of quality RH services was generally limited. A service cannot be considered available when minimum essential elements to provide the service are not present or face regular stock-outs. Further, many providers lacked critical RH knowledge and some exhibited biases that weakened good quality care.

Compared to findings from other research in humanitarian settings, [5,6,16] positive developments were evident in all settings: some health facilities are meeting minimum standards. Among those that did not meet minimum standards for specific RH components, all facilities reported recent, albeit inadequate, provision of some RH services, indicating RH programming is being implemented but facilities need assistance to meet standards. Low-income

settings with weak or limited RH services before the crisis can benefit from humanitarian interventions. The three countries for this study have consistently ranked low on the Human Development Index: South Sudan (as part of Sudan) was ranked 171 out of 186 in 2013, Burkina Faso was 183, and DRC tied for last [17]. Their weak health systems suggest that many RH services are not available to the general population, and humanitarian agencies have contributed to decentralizing services to rural areas that may otherwise take decades to receive such support. For example, an assessment in North Kivu in 2002 found that condoms were generally not available at health facilities and only one facility assessed offered VCT for a fee [18]. Now the hospital and some health facilities in the Masisi Health Zone provide free VCT and condoms. Further, displaced communities in all sites reported significant changes in delivery practices: previously women had given birth at home whereas they now sought facility-based care. These positive behavioral developments resulted largely from outreach by humanitarian actors.

The study also found a number of critical gaps in service provision, which are particularly worrying when situated against the backdrop of the RH needs in the three settings. Only three of the 25 health centers assessed in DRC provided all assessed elements of CMoR, despite extensive sexual violence documented in the area [19-22]. In South Sudan, 2,054 women die of pregnancy-related causes per 100,000 live births and have an average of 6.7 children, among the worst maternal mortality and highest fertility rates in the world [23]. The South Sudan county hospital—among other

serious gaps—did not meet the criteria for even a basic EmONC facility nor did it offer any FP methods, including condoms. Misconceptions and cultural barriers regarding FP were widespread, and many providers avoided discussing the topic with clients. In sub-Saharan Africa generally, an estimated 97% of abortions are unsafe [24]. Concurrently, findings show that safe abortion was not systematically available in any assessment sites, and availability of PAC and a full package of FP services were limited in health centers. This deadly combination of high RH needs, limited and poor quality care, lack of knowledge, and cultural barriers that thwart health-seeking behavior demands urgent attention.

The findings highlight that, in addition to expanding RH service provision, attention is needed to ensure services are of good quality and meet minimum standards; sociocultural access barriers to all RH components also need addressing. The poor availability of utilization data (e.g., service statistics) underscores the importance of using data to improve services. When services are introduced, attention must be paid to ensure that key data are collected in facility registers so staff can monitor progress. Among other recommendations outlined below, health actors must prioritize and support RH programming and ensure RH is integrated into their primary health care activities.

Community engagement

Findings from FGDs highlighted the importance of community engagement. Across settings, many refugees and IDPs reported being unaware of existing RH services or lacking information as to why

they should seek care. For example, many FGD participants did not know that medicine to decrease risk of pregnancy or HIV transmission than half of the eleven key CMoR activities (Additional file 8: Appendix H).

Responses from FGD participants about sexual violence varied. Participants in DRC were the most knowledgeable about where to seek services and were generally aware of the importance of seeking care within 72 hours after rape. Informants in South Sudan and Burkina Faso were unaware of existing services or reasons to seek health care. However, across settings, the FGDs reported that most rape survivors would not come forward due to fears of stigma and rejection as well as concerns about confidentiality. All said that young unmarried women were at risk of sexual assault. Women in DRC reported that sexual violence was widespread, including at home and by armed groups. Women in Burkina Faso and South Sudan described marital rape as commonplace; they reported that sexual violence outside of marriage did occur, primarily perpetrated by members of the refugee or host communities, but was rare.

HIV and other STIs

Adequate provision of STI services (syndromic or laboratory testing and treatment) and PMTCT included self-reported provision of the service in the preceding three months and the availability of essential drugs on the day of the assessment. Data were collected on self-reported provision of anti-retroviral therapy (ART) for people living with HIV (PLHIV), voluntary counseling and testing for HIV (VCT), and condoms in the previous three

months.

Adequate STI and HIV services were available at the hospital in DRC and two of three hospitals in Burkina Faso, but nonexistent at the hospital in South Sudan (Table 6). Most facilities across settings reported having provided STI care in the previous three months, yet, apart from non-camp facilities in Burkina Faso, the majority failed to meet the criteria to adequately provide these services due to lack of antibiotics (Additional file 7: Appendix G). In South Sudan, ARVs for PMTCT and ART had not been provided at any health facility in the previous three months; six of the nine health facilities reported that they lacked authorization to administer ARVs and others reported they lacked supplies. In DRC, none of the health centers adequately provided PMTCT due to lack of supplies as well as lack of trained staff. In Burkina Faso, most services were available in non-camp facilities; however, ART outside of the hospitals was rarely available, primarily due to policy barriers, with 18 of the 25 health centers reporting they were not authorized to provide ART to PLHIV. Questionnaires revealed that, on average across settings, providers could name half of five key elements of care for someone presenting with symptoms of an STI (Additional file 8: Appendix H). Most FGD participants had heard about HIV yet stigma and misconceptions abounded. Condom knowledge and use, which focus group participants often associated with sex workers, was low. Although condoms were provided at roughly half of the health facilities in South Sudan and DRC and more than three quarters in Burkina Faso, only in Burkina Faso were the majority of FGD

participants aware of their availability. In all sites, young unmarried women were the least knowledgeable of HIV, STIs, and ways to minimize transmission; some young women in DRC had never heard of HIV or AIDS. Participants in Burkina Faso and DRC cited lack of confidentiality as a key barrier to seeking HIV/AIDS services.

Discussion

A decade has passed since the availability, quality, and barriers to RH services have been assessed across crisis affected settings. Although poor data quality prevented analysis of utilization data, the mixed methods approach allowed us to estimate quality of care through the availability of a minimum standard of RH services and provider knowledge and attitudes, as well as understand access barriers.

The assessment criteria held facilities to a strict minimum standard of care, based on international guidance, requiring them to have provided the service recently as well as have trained staff and specific essential supplies in place. Findings revealed a striking inconsistency between the self-reported provision of RH services and the availability of the minimum supplies and trained staff to adequately provide them: many facilities reported having recently provided a number of RH services, yet—apart from the hospitals in DRC and Burkina Faso—the availability of a minimum standard of quality RH services was generally limited. A service cannot be considered available when minimum essential elements to provide the service are not present or face regular stock-outs. Further, many providers lacked critical RH knowledge and some exhibited biases that weakened good quality care.

Compared to findings from other research in humanitarian settings, [5,6,16] positive developments were evident in all settings: some health facilities are meeting minimum standards. Among those that did not meet minimum standards for specific RH components, all facilities reported recent, albeit inadequate, provision of some RH services, indicating RH programming is being implemented but facilities need assistance to meet standards. Low-income settings with weak or limited RH services before the crisis can benefit from humanitarian interventions. The three countries for this study have consistently ranked low on the Human Development Index: South Sudan (as part of Sudan) was ranked 171 out of 186 in 2013, Burkina Faso was 183, and DRC tied for last [17]. Their weak health systems suggest that many RH services are not available to the general population, and humanitarian agencies have contributed to decentralizing services to rural areas that may otherwise take decades to receive such support. For example, an assessment in North Kivu in 2002 found that condoms were generally not available at health facilities and only one facility assessed offered VCT for a fee [18]. Now the hospital and some health facilities in the Masisi Health Zone provide free VCT and condoms. Further, displaced communities in all sites reported significant changes in delivery practices: previously women had given birth at home whereas they now sought facility-based care. These positive behavioral developments resulted largely from outreach by humanitarian actors.

The study also found a number of critical gaps in service provision, which are particularly worrying when situated against

the backdrop of the RH needs in the three settings. Only three of the 25 health centers assessed in DRC provided all assessed elements of CMoR, despite extensive sexual violence documented in the area [19-22]. In South Sudan, 2,054 women die of pregnancy-related causes per 100,000 live births and have an average of 6.7 children, among the worst maternal mortality and highest fertility rates in the world [23]. The South Sudan county hospital—among other serious gaps—did not meet the criteria for even a basic EmONC facility nor did it offer any FP methods, including condoms. Misconceptions and cultural barriers regarding FP were widespread, and many providers avoided discussing the topic with clients. In sub-Saharan Africa generally, an estimated 97% of abortions are unsafe [24]. Concurrently, findings show that safe abortion was not systematically available in any assessment sites, and availability of PAC and a full package of FP services were limited in health centers. This deadly combination of high RH needs, limited and poor quality care, lack of knowledge, and cultural barriers that thwart health-seeking behavior demands urgent attention.

The findings highlight that, in addition to expanding RH service provision, attention is needed to ensure services are of good quality and meet minimum standards; sociocultural access barriers to all RH components also need addressing. The poor availability of utilization data (e.g., service statistics) underscores the importance of using data to improve services. When services are introduced, attention must be paid to ensure that key data are collected in facility registers so staff can monitor progress. Among other recommendations

outlined below, health actors must prioritize and support RH programming and ensure RH is integrated into their primary health care activities.

Community engagement

Findings from FGDs highlighted the importance of community engagement. Across settings, many refugees and IDPs reported being unaware of existing RH services or lacking information as to why they should seek care. For example, many FGD participants did not know that medicine to decrease risk of pregnancy or HIV transmission after rape or intercourse existed. Even those who knew about the existing services—and the importance of accessing care—disclosed that they were unlikely to seek care at a health facility. Cultural norms, such as the relationship between social status and number of children, as well as social sanctions against PLHIV, rape survivors, and women who use FP methods undermined health-seeking behavior. Some FGDs also expressed concerns about confidentiality and the quality of existing RH services.

Some providers did not recognize the need to expand specific RH services, and only provided care—particularly FP methods—to clients who specifically requested it. Low use of RH services does not reflect a true lack of demand but indicates a need for education and engagement as well as integration of RH with other health services. Provider training and awareness-raising of service availability are good first steps but insufficient. Meaningful community participation and engagement, grounded in a rights-based approach and evidence-informed

programming, are necessary to increase access to and use of RH services. Indeed, the beneficial changes in community norms and behaviors regarding facility-based delivery resulted from systematic outreach by health actors. A small yet robust body of evidence suggests that community participation in primary health care is associated with increased utilization as well as improved health outcomes [25]. These findings provide support that community engagement is not just desirable but essential for successful RH service implementation.

Commodity security

Poor commodity security and supply chain management obstructed good quality service delivery in all settings. Providers overwhelmingly reported a paucity of drugs as the primary barrier to providing adequate RH care. Further, many facilities reported providing RH care yet lacked sufficient equipment and supplies to adequately do so. Action to address commodity security and management is urgently needed. As a starting point, a comprehensive logistical audit, including evaluation of policy and protocols, budgetary constraints, forecast accuracy, storage conditions, and staff capacity would benefit RH provision in the three settings. Capacity development of national and international staff at every point in the supply chain as well as improved logistics management information systems can help strengthen the delivery system. Where feasible, respective MOHs should establish or strengthen contingency stocks of RH supplies to prevent stock outs. Evidence-based advocacy may be required to integrate RH commodity security into national policies and programs. Finally, sustained funding is

necessary to realize these recommendations. The establishment of a functioning commodity management system is essential to ensure consistent access to care.

Capacity development

Gaps in RH care resulted from a dearth of skilled staff as well. Primary training gaps included long-acting and permanent FP methods, newborn infection management, adolescent-friendly services, induced abortion, and assisted vaginal delivery. Few staff in Burkina Faso and South Sudan had training in CMoR. Further, questionnaires revealed that, even when trained providers were in place, many lacked essential knowledge and skills. An effective, good quality humanitarian health response requires skilled staff with an up-to-date knowledge and skills base. Health staff providing RH services need competency-based clinical trainings on RH as well as health systems broadly. Shortcomings in health service provision result not only from weak clinical competence but also from lack of non-technical skills such as poor situation awareness, decision-making, and interpersonal skills including communication and teamwork. These social and cognitive skills can increase patient safety and streamline service delivery; moreover, these skills can be taught and learned [26]. Clinical trainings should integrate these important elements as well as reinforce humanitarian principles, professional ethics, and accountability to affected communities—cornerstones of good quality health care. Supportive supervision should be practiced to help providers improve and maintain these skills and address gaps in service provision.

Policy

Restrictive national policies as well as providers' lack of knowledge of supportive policies and protocols undermined RH service provision. Providers at health centers reported that lack of authorization significantly restricted the provision of assisted vaginal delivery, CMoR, and ART, especially in Burkina Faso. Mid-level providers should be allowed to provide many RH services, such as all elements of BEmONC, to expand service availability at the health center level [27]. As far as we could determine, health centers in the three countries are mandated to provide all assessed RH services except for surgery, blood transfusion, safe abortion, and in some cases initiation of ART, suggesting incorrect knowledge of MOH policies by those who cited a lack of authorization for many services.

Safe abortion was an alarming gap across all facilities. In the three countries, abortion is legally permitted when the woman's life is at risk; Burkina Faso has additional legal indications for abortion [13]. Yet almost all providers reported that abortion was unauthorized in their facility. Although international guidance on RH in emergencies includes safe abortion to the extent of the law [12,28,29], abortion has largely been ignored by humanitarian health actors [30,31]. An estimated 13% of all maternal deaths are caused by unsafe abortion globally; more than 98% occur in the world's poorest countries, where the majority of humanitarian emergencies occur [32]. Respective MOHs as well as international humanitarian health actors must prioritize comprehensive abortion care in crisis-affected settings as well as identify and

address restrictive policies and discrepancies between policy and practice.

Adolescent RH

Across settings, few facilities had at least one provider trained to provide adolescent-friendly RH services. Focus groups revealed that young unmarried women were least knowledgeable about HIV, STIs, and condom use compared to unmarried men, married men, and married women. They were the least likely to seek FP services, and FGDs reported that young women were among the most vulnerable to sexual assault. Communities expressed fears that making contraceptives available to adolescents would increase sexual activity outside of marriage.

Adolescents in developing countries are more likely to marry younger, resort to unsafe abortion, and die in childbirth than their counterparts in wealthier nations [33]. Adolescents in crisis-affected settings have additional vulnerabilities, risks, and needs [34]. In North Kivu, for example, only 9% of women and girls aged 15-24 reported using a condom the last time they had sexual intercourse with a casual partner [35]. According to a review of adolescent RH programs in humanitarian settings, successful programs ensure adolescent participation in programming, work to build community trust and adult support, and secure qualified and dedicated staff [34]. Findings demonstrate need for adolescent-specific interventions in the three settings.

Limitations

This study faced a number of limitations. Due to missing and poor quality service statistics, utilization could not be assessed. Insecurity and physical obstacles, such as

poor roads and rain, were significant barriers across settings and prevented visits to some health facilities. Time pressures, high workloads, and coordination challenges among assessment team members resulted in missing data. Translation error was a possibility, particularly in South Sudan and Burkina Faso where the responses had to be translated from a local language to Arabic or French and then to English (in South Sudan). The respective assessment teams addressed the translation challenges through daily debriefings and group discussions to clarify findings.

Conclusion

Access to RH services, even in the midst of war or natural disaster, is a human right that saves lives, preserves health, and can enhance physical and mental well-being. Despite the many obstacles to service delivery, communities affected by crises deserve high quality RH care. Progress in advancing and improving the quality of RH in emergencies has been made at the global level in terms of policies, guidelines, and funding [3,36,37]. While it is promising that many health facilities are providing some RH services, there remains an urgent need to address gaps in implementation—in particular safe abortion services—as well as the quality of care, utilization of RH services, and monitoring and evaluation. Minimum quality standards must be met to meet the health needs of affected populations. Yet, only expanding RH service availability is not sufficient. Gaps in management and knowledge, as well as the biases of some providers continue to impede the provision of RH services in humanitarian settings. Though these may be less quantifiable

investments for donors and policy makers, merely providing supplies will not result in necessary quality improvements in RH service delivery.

Further, the remarkable changes in health-seeking behavior for pregnancy care warrant further exploration. Indeed, the identification of effective strategies for increasing demand for and use of skilled attendants is at the forefront of the humanitarian neonatal research agenda [38]. Behavior change to increase use of RH services is possible and necessary; improved integration of different RH services within facilities would capitalize on already strong pregnancy-related health-seeking behavior. In addition to ensuring systematic implementation of good quality RH services, humanitarian health actors should—to the extent possible—meaningfully engage crisis-affected communities, especially adolescents, in RH programming to augment access to this life-saving care.

Additional material

Additional file 1: Appendix A
Additional file 2: Appendix B
Additional file 3: Appendix C
Additional file 4: Appendix D
Additional file 5: Appendix E
Additional file 6: Appendix F
Additional file 7: Appendix G
Additional file 8: Appendix H

List of abbreviations

AIDS: Acquired immunodeficiency syndrome; ARV: Antiretroviral; ART: Antiretroviral therapy; BEmONC: Basic emergency obstetric and newborn care; CmONC: Comprehensive emergency obstetric and newborn care; CMoR: Clinical management of rape; DRC: Democratic Republic of the Congo; EC: Emergency contraception; EmONC: Emergency obstetric and newborn care; FP: Family planning; FGD: Focus group discussion; GBV: Gender-based violence; HIV: Human immunodeficiency virus; IAWG: Interagency Working Group on Reproductive Health in Crises; IDP: Internally displaced person; IV: Intravenous; IUD: Intra-uterine contraceptive device; MOH: Ministry of Health; MVA: Manual vacuum aspiration; NGO: Nongovernmental organization; OCP: Oral contraceptive pill; PLHIV: People living with HIV; PAC: Post-abortion care; PEP: Post-exposure prophylaxis; PMTCT: Prevention of mother-to-child transmission; RH: Reproductive health; STI: Sexually transmitted infection; UN: United Nations; UNHCR: United Nations High Commissioner for Refugees; VCT: Voluntary counseling and testing; WHO: World Health Organization.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

SEC, NC, and MCG led the study conceptualization and design. SKC conceptualized the paper and was the principle author. SEC provided remote technical assistance during data collection; NC participated in the data collection in DRC. SEC and EEW led the quantitative data analysis; SKC conducted the qualitative data analysis. SEC, EEW, NC, and MCG provided substantial feedback. All authors reviewed and approved the final text.

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Declarations

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Endnotes

- ^a The three countries included in the 2004 IAWG evaluation were Republic of Congo, Uganda, and Yemen.
- ^b The data pertain to the assessment settings only. However, for ease of reading, the countries are referred to throughout the article.
- ^c The basic EmONC signal functions include: 1. administer parenteral antibiotics; 2. administer uterotonic drugs (e.g., parenteral oxytocin); 3. administer parenteral anticonvulsants for pre-eclampsia and eclampsia (e.g., magnesium sulphate); 4. perform manual removal of placenta; 5. perform removal of retained products of conception (e.g., manual vacuum aspiration); 6. perform assisted

vaginal delivery (e.g., vacuum extraction); 7. perform neonatal resuscitation (with bag and mask). A comprehensive EmONC facility must provide the above signal functions as well as the following two: 8. perform blood transfusion; and 9. perform surgery (e.g., Caesarean section) [11].

- ^d Abortion is permitted in Burkina Faso, DRC, and South Sudan when the woman's life is at risk. In Burkina Faso, abortion is also allowed in cases of rape, incest, and fetal impairment [13].

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RESEARCH

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Reproductive health services for Syrian refugees in Zaatri Camp and Irbid City, Hashemite Kingdom of Jordan: an evaluation of the Minimum Initial Services Package

Abstract

Background: The Minimum Initial Services Package (MISP) for reproductive health, a standard of care in humanitarian emergencies, is a coordinated set of priority activities developed to prevent excess morbidity and mortality, particularly among women and girls, which should be implemented at the onset of an emergency. The purpose of the evaluation was to determine the status of MISP implementation for Syrian refugees in Jordan as part of a global evaluation of reproductive health in crises.

Methods: In March 2013, applying a formative evaluation approach 11 key informant interviews, 13 health facility assessments, and focus group discussions (14 groups; 159 participants) were conducted in two Syrian refugee sites in Jordan, Zaatri Camp, and Irbid City, respectively. Information was coded, themes were identified, and relationships between data explored.

Results: Lead health agencies addressed the MISP by securing funding and supplies and establishing reproductive health focal points, services and coordination mechanisms. However, Irbid City was less likely to be included in coordination activities and health facilities reported challenges in human resource capacity. Access to clinical management of rape survivors was limited, and both women and service provider's knowledge about availability of these services was low. Activities to reduce the transmission of HIV and to prevent excess maternal and newborn morbidity and mortality were available, although some interventions needed strengthening. Some planning for comprehensive reproductive health services, including health indicator collection, was delayed. Contraceptives were available to meet demand. Syndromic treatment of sexually transmitted infections and antiretrovirals for continuing users were not available. In general refugee women and adolescent girls perceived clinical services negatively and complained about the lack of basic necessities.

Conclusion: MISP services and key elements to support implementation were largely in place. Pre-existing Jordanian health infrastructure, prior MISP trainings, dedicated leadership and available funding and supplies facilitated MISP implementation. The lack of a national protocol on clinical management of rape survivors hindered provision of these services, while communities' lack of information about the health benefits of the services as well as perceived cultural repercussions likely contributed to no recent service uptake from survivors. This information can inform MISP programming in this setting.

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Background

Minimum initial services package

The need for reproductive health (RH) services is a continuing concern in humanitarian settings, response agencies are increasingly under pressure to document the consequences and outcomes of those programs and services they provide to reduce avoidable morbidity and mortality, particularly among women and girls. Over the years, a variety of claims have been made by the humanitarian response community regarding the direct and indirect benefits of coordinated, high quality RH services, and donors are beginning to ask to see the evidence supporting implementation of those services. The evidence exists but is often of uneven quality, focusing on certain aspects of RH service impacts over others [1].

The Minimum Initial Service Package

(MISP) for reproductive health has been a guideline for care in emergencies since the Inter-agency Working Group (IAWG) on Reproductive Health in Crises' Reproductive Health in Refugee Situations: An Inter-agency Field Manual (IAFM) was published in 1996 [2]. The MISP is a coordinated set of priority RH services designed for the onset of an emergency to prevent excess morbidity and mortality, particularly among women and girls. The MISP supports building the foundation for comprehensive RH services that should be initiated as soon as the situation stabilizes (see Table 1). The 1996 IAFM and the MISP standard have undergone revisions in 1999 and 2010. In the 2010 revision of the IAFM, Additional Priorities to the MISP were added to the MISP objectives and priority activities. The Additional Priorities to the MISP include ensuring: contraceptives are available to meet

Table 1 MISP Standard

The major objectives and priority activities that comprise the MISP include [2]:

ENSURE the health sector/cluster identifies an agency to lead implementation of the MISP. The lead RH organization:

- RH Officer in place
- Meetings to discuss RH implementation held
- RH Officer reports back to health cluster/sector
- RH kits and supplies available and used

PREVENT AND MANAGE the consequences of sexual violence:

- Protection system in place especially for women and girls
- Clinical care available for survivors of rape
- Community aware of services

REDUCE HIV transmission:

- Ensure safe blood transfusion practice
- Facilitate and enforce respect for standard precautions
- Make free condoms available

PREVENT excess maternal and newborn morbidity and mortality:

- Emergency obstetric and newborn care services available
- 24/7 referral system established
- Clean delivery kits provided to birth attendants and visibly pregnant women
- Community aware of services

PLAN for comprehensive RH services, integrated into primary health care (PHC)

- Collect existing background data
- Identify suitable sites for future service delivery of comprehensive RH services
- Coordinate ordering RH equipment and supplies based on estimated and observed consumption
- Assess staff capacity to provide comprehensive RH services and plan for training/retraining of staff

ADDITIONAL priority activities

- Ensure contraceptives are available to meet the demand
- Syndromic treatment of sexually transmitted infections (STIs) is available to patients presenting with symptoms
- Antiretrovirals (ARVs) are available to continue treatment for people already on ARVs, including for prevention of mother-to-child transmission.
- Ensure that culturally appropriate menstrual protection materials are distributed to women and girls.

the demand; syndromic treatment of sexually transmitted infections (STIs) is available to patients presenting with symptoms; antiretrovirals are available to continue treatment for people already on antiretrovirals, including for prevention of mother-to-child transmission; and, that culturally appropriate menstrual protection materials are distributed to women and girls. The MISP is also a standard of care in the Sphere Minimum Standards in Disaster Response and is therefore part of the standard of care in humanitarian emergencies [3].

To facilitate MISP implementation, the IAWG designed a pre-packaged set of 13 kits containing drugs and supplies for a three-month period. The United Nations Population Fund (UNFPA) leads the development, assembly and delivery of the Inter-agency Reproductive Health Kits contents that are noted in the Inter-agency Reproductive Health Kits for Crisis Situations[2]. Previous MISP assessments were conducted in Pakistan (2003), Chad (2004), Indonesia (2005), Kenya (2007) and Haiti (2010) [4-8]. Over the years findings showed gaps in implementation; poor overall coordination including a lack of standard protocols and procedures, lack of donor support, inadequate knowledge of MISP priorities and activities, poor quality and/or availability of referral services, and inadequate monitoring of service delivery. Assessments also revealed variations with regard to the availability of trained staff and supplies needed to prevent excess maternal/neonatal morbidity and mortality, and sexual violence and human immunodeficiency virus (HIV) prevention activities [4-8]. Lastly, findings showed that

the MISP remained largely unknown by humanitarian actors for over a decade, but increasing awareness was observed in Haiti [8].

Syria crisis

Civil unrest in Syria that started in March 2011 resulted in four million persons in need of humanitarian assistance at the time of the assessment, including two million persons who were internally displaced. In addition, just over one million refugees had fled the violence and its aftermath to neighboring countries including: The Hashemite Kingdom of Jordan (Jordan), Lebanon, Iraq, Turkey and countries in North Africa [9]. The social, economic, and health costs of the conflict has disproportionately affected women and girls. An estimated 200,000 pregnant women, including 22,000 women who gave birth every month, and of those almost 15% were at risk of poor outcomes. There were reports that Caesarean sections within Syria had increased from 19% to 45% between 2011 and 2013, respectively [10]. Incidents of gender-based violence, such as sexual harassment and rape, had been reported [11].

Syrian refugees in Jordan

There were an estimated 355,493 Syrian refugees living in Jordan with 298,025 registered by the United Nations High Commissioner for Refugees (UNHCR) and 57,468 awaiting registration at the time of the assessment. An overwhelming majority of the unregistered refugees were residing in urban areas. The majority (55.2%) of registered refugees were residing in Zaatri camp, with an additional 133,660 refugees residing in urban areas including 47,087

(15.2%) and 39,339 (13.2%) residing in Irbid and Amman governates, respectively. The largest refugee camp Zaatri hosted 164,365 refugees [12]. As relief agencies ensured that the specific needs of women and girls were factored into humanitarian health response, they relied on the Jordanian Ministry of Health's (MOH) established guidelines on maternal, newborn care and post abortion care; HIV prevention and treatment; and family planning [13]. Abortion in Jordan is legally permitted to preserve a woman's physical and mental health or because of fetal impairment [14]. Regarding HIV, Jordan is characterized by a low prevalence epidemic. Of note is that Jordanian law states that foreigners staying in Jordan beyond three months who are HIV positive can be deported [15]. The reproductive health indicators prior to the crisis in Syria are important to note for agencies in Jordan implementing the MISP. For example, Syria also has low HIV prevalence. A skilled medical staff attends 96% of pregnant women during their births and the Cesarean section rate was 26%. Abortion in Syria is legally permitted only to save a woman's life. The contraceptive prevalence rate is 54%. Maternal and neonatal mortality rates are 65 deaths per 100,000 live births and 8 deaths per 1000 live births, respectively [16].

Purpose of the evaluation

This study, one of the six components of the 2012-2014 IAWG global evaluation of RH in humanitarian settings, a decade follow-up to the 2002-2004 IAWG global evaluation, aimed to determine to which extent the MISP was established in an emergency setting. The purpose of this evaluation was to examine to what degree MISP services

were in place for Syrian refugees living in Irbid City and Zaatri Camp as an example to highlight factors that both support and hinder the availability and use of MISP services, and to make recommendations towards improved response and scaling-up of services [17].

Methods

Site selection

At the time of the evaluation Zaatri Camp had a refugee population of 164,365 and Irbid City 47,087, respectively. Irbid City was included as an urban non-camp refugee site.

Study design

This was a formative evaluation using three methods; (1) key informant interviews (KIIs), (2) health facility assessment (HFAs), and (3) focus group discussions (FGDs). It was conducted from March 17-22, 2013. The global evaluation team was supported by seven local study staff.

Domains of evaluation

In order to assess the main variables of interest we examined the domains listed below:

- MISP awareness and knowledge including activities related to MISP response, training of responders in the MISP, awareness of funding allocation for RH including MISP kits, and knowledge of the five MISP objectives.
- Coordination of the MISP including whether regular coordination meetings are held with all relevant stakeholders and how effective coordination meetings were in facilitating MISP coverage.
- Prevent and manage the consequences of sexual violence comprising safe access to

and use of health facilities and the availability of clinical care for survivors of sexual violence.

- Reduce HIV transmission including ensuring safe blood transfusion; facilitating and enforcing the implementation of standard precautions at health facilities to prevent the spread of infections; and , making free condoms available.
- Prevent excess maternal and neonatal morbidity and mortality including the availability of emergency obstetric and new born care services and an emergency referral system 24 hours per day 7 days per week; the distribution of clean delivery kits; and, community awareness of existing services.
- Plan for comprehensive RH services, integrated into primary health care including the collection of existing background data; identification of suitable sites for future service delivery of comprehensive RH services; coordination on ordering RH equipment and supplies based on estimated and observed consumption; and, assessing staff capacity to provide comprehensive RH services and planning for training of staff.
- Additional priorities to MISP comprising the availability of contraceptives to meet demand; syndromic treatment of sexually transmitted infections (STIs) to patients presenting with symptoms; antiretroviral medicines to continue treatment for people already on antiretrovirals including for prevention of mother to child transmission; and, culturally appropriate menstrual protection materials for women and girls.
- Assessment of disaster risk reduction and emergency preparedness to determine if

these initiatives were undertaken and the extent that the MISP was integrated.

Sampling

Sampling procedures for KIIs involved a purposeful selection based on a February 2013 mapping of health partners (n=36). Sampling of health facilities included obtaining a list of health facilities that provided RH services in Zaatri Camp (n=15) and Irbid City (n=6). Participants in FGDs were recruited by partner agencies that selected a purposive sample of female youth (18-24 years of age) and older women (aged 25-49 years). In Zaatri Camp, the groups included those that lived near and farther away from health facilities, and newly arrived refugees (arrival within the past two months). In Irbid City, the groups were allocated based on refugee registration status.

Data collection procedures and analysis

The KIIs questionnaire was modified from one used in past MISP studies [6-8] to integrate the emerging importance of disaster risk reduction and emergency preparedness initiatives and to quantify awareness and knowledge of MISP objectives, activities and the availability of services. Three pilot-tests of the KII tool were undertaken. Invitations to participate in a KII were sent via email to the partners. A member of the study team obtained written consent, conducted the interviews in English with, managers, physicians and nurses and recorded handwritten notes during the interview.

Selected health facilities were visited beforehand by members of the study team to review the HFA evaluation procedure. One relevant staff assisted the assessment

teams and oral consent was obtained. The HFA consisted of semi-structured interviews with physicians, managers and nurses conducted in English and use of a standardized check list of equipment and supplies [18].

The FGD tool was modified from a tool used in prior MISP evaluations to accommodate cultural and age appropriate issues among Syrian refugees. The tool was translated into Arabic and back-translated to English. The FGD tool was piloted in Zaatri Camp with two groups of female youth and two groups of older women. FGDs were held in private rooms within health clinics in the camp and in private rooms hosted by local organizations in Irbid City. Verbal informed consent was obtained from all participants.

Data were reviewed across questions and study sections to discern themes and patterns in the information collected in the KIIs. The KIIs interview data were compared across the data from the FGDs to examine similarities and differences. Data from the HFAs were entered into tables and presented as simple numeric data providing descriptive analysis and results; as the number of facilities visited in each setting (Zaatri camp, Irbid city and Mafraq hospital) were too small to use percentages. Quantitative data entry from the HFA was also done in an Excel spreadsheet. Following the completion of the FGDs, the study team member reviewed each question with the facilitator and note takers. At the end of each day, a debriefing was held with all FGD team members to assess any methodological issues, such as translation congruence or questions that were not understood by participants. Notes from the FGDs were

translated while in the field. The team coded text into broad themes and sub-topics, and discerned patterns emerging from the information. A question-by-question approach was used to summarize participant comments into multiple themes. During the coding process, data were continuously reviewed, emerging patterns noted and relationships between constructs and themes identified. Data were compared across sites, age groups and registration status. The two study team members who coded the FGD information met routinely to review the themes and gain consensus on interpretation of the results.

Ethical review

The evaluation protocol was reviewed and cleared by the Centers for Disease Control and Prevention (CDC), UNFPA and United Nations High Commissioner for Refugees (UNHCR) Jordan.

Results

Respondents and health facilities

The study team conducted 11 KIIs with agency staff. Five of 15 health facilities run by national and international organizations and militaries were visited in Zaatri Camp. Study sites included three health clinics, one camp hospital, one maternity hospital and the MOH Mafraq referral hospital located outside of Zaatri camp in Mafraq. Six health facilities were visited in Irbid City, two health centers, two clinics, and two hospitals. The team conducted 14 FGDs among refugee women, in Zaatri Camp there were 101 women and in Irbid City there were 58 women, respectively.

MISP awareness and knowledge

All but one of eleven key informants (KIs) was aware of the MISP, and nearly half knew all five MISP objectives. However, approximately two-thirds of KIs were not aware of the additional priorities of the MISP.

Coordination of the MISP

Nine KIs reported that UNFPA hosted RH coordination meetings weekly in Zaatri Camp and monthly in Amman. Participants reported that coordination mechanisms, health indicator collection issues (although there was greater emphasis on Zaatri Camp indicators) and MISP implementation was discussed. A KI also said that non-governmental organizations that are not funded are missing from coordination meetings. In addition, several respondents said that RH coordination for urban areas was lagging behind camp coordination because the coordination meetings in Amman tended to focus on the more visible daily refugee influx and refugees concentrated in the camp setting in Zaatri whereas refugees in urban areas, disbursed within host communities were less visible.

The majority of KIs reported that MOH and/or World Health Organization protocols were available to support MISP implementation and funds were available for a MISP response. Three quarters of respondents reported that RH Medical Kits were available and adequate for this response. In both settings, all groups reported that clean home delivery kits were not distributed. One KI explained that given facility-based deliveries were available in Zaatri camp and the urban setting, and the norm among the populations in Jordan and Syria, there was a

concern that the distribution of clean delivery kits could encourage home deliveries.

All facilities in Zaatri Camp were open and convenient for adolescent females, but none of the facilities had an appropriate entrance for clients with disabilities. None of the five facilities visited provided RH outreach services. In the FGDs, the majority of women in the Zaatri groups agreed that agencies had not communicated directly with the refugees about the emergency response. Across the groups in Irbid City, most women reported that they were not contacted by agencies and learned about services through their community.

Prevent and manage the consequences of sexual violence

Seven key informants reported knowledge about measures to prevent sexual violence and treat survivors. However, measures to prevent sexual violence were insufficient and only one site had the human resource capacity and supplies to provide clinical care for rape survivors.

In Zaatri Camp, women expressed concerns about the lack of lighting and their fears of using the toilets at night. In Irbid City, women reported feeling unsafe sending their daughters to school on public buses. Women said that they were fearful of telling their families of sexual violence due to fears of honor killing, or being disowned by family. The women discussed what they perceived as more cases of domestic violence in the camp than what they observed while living in Syria but were fearful of negative consequences if they reported experiencing violence. The women voiced a desire mostly for psychosocial

services, in addition to prevention and medical care but were unaware of service availability. Nearly all women across the groups in Irbid City agreed that they would not feel comfortable attending health services for reasons including no benefits from receiving health care and family stigmatization. Additionally, all groups with young women said that they would not tell anyone if they experienced violence. Regarding incidents of sexual violence that are usually reported to UNHCR protection, the Moroccan Field Hospital had not received any sexual violence survivors, although Mafraq Hospital had received one. Treatment and forensic evidence collection was available at Prince Hamza or Mafraq hospitals but they did not have standard protocols. Jordan Health Aid Society (JHAS) clinic was the only facility visited that has a protocol to manage sexual violence survivors in the camp. In Irbid City, there was a formal referral protocol for sexual violence survivors from the health centers to the Family Protection Unit including a standard incident reporting form. Partners stated the MOH was developing a national protocol for clinical management of rape survivors.

Reduce HIV transmission

Three of nine key informants had essential knowledge on how to reduce HIV transmission. When asked about HIV transmission, all FGDs from Zaatri Camp and five groups in Irbid City stated that they knew about HIV and acquired immunodeficiency syndrome (AIDS). Also, refugee women did not trust the blood supply and had a greater fear of contracting HIV through blood than sexual contact.

Safe blood was available for transfusion

in both Zaatri Camp and in Irbid City from a blood bank. Most facilities enforced standard precautions, including use of disposable needles and syringes and sharps disposal boxes. In an event of a health worker's occupational exposure to HIV, limited occupational post-exposure treatment was available in Amman.

Eight of ten key informants reported that condoms were available through clinics and in women's safe places. In Zaatri Camp, male condoms were in stock, but female condoms were unavailable. In Irbid City health facilities, most clinics did not supply condoms to non-married women. Men could buy condoms from pharmacies. FGD participants showed very limited knowledge of where they could obtain condoms in Zaatri Camp but participants in Irbid City understood that condoms were available through pharmacies.

Prevent excess maternal and newborn morbidity and mortality

Approximately half of the key informants could identify all of the priority activities within the objective to prevent maternal and newborn morbidity and mortality. In Zaatri Camp, normal deliveries, basic emergency obstetric care and newborn care functions were conducted at the Gynécologie Sans Frontières maternity clinic. Obstetric emergencies requiring comprehensive emergency obstetric care including post-abortion care and management of newborn complications were referred to the Moroccan Field Hospital. A few women in Zaatri Camp described deterioration in the quality of services over time, including a lack of physical examinations and drugs and unqualified health providers. The

deterioration in services may be linked to the large influx of refugees that had been experienced in the months prior to and during the evaluation.

At two Irbid City referral hospitals services for normal deliveries, basic and comprehensive emergency obstetric care, comprehensive abortion care within the law, and post-abortion care were available. FGD participants stated that a UN registration card resulted in free services for pregnant women. Despite free services, women showed reluctance to use them as they were perceived to be “bad” quality due to the lack of privacy and female providers.

A referral system to facilitate transport and communication from the community to health facilities was available in the camp and in Irbid City, with ambulance transportation the most common mode of transport in both settings. Due to traffic congestion, referrals could take 30 minutes or more in the camp, while referrals in Irbid City took 10-45 minutes. In all of the health facilities in Zaatri Camp and Mafraq Hospital, qualified medical personnel were present 24 hours a day, seven days a week but staff complained about an increased case load and insufficient human resources since the onset of the crisis.

Plan to integrate comprehensive RH services into primary health care

Just over half of the key informants were aware of activities to plan for comprehensive RH services such as assessing and addressing staff capacity to provide comprehensive RH services. Seven of eight respondents reported informing the community of the health benefits to seeking RH services. The majority stated that this was undertaken

through health education campaigns. In Zaatri Camp, most reproductive health indicators were collected, but the quality of the indicators was questioned. For example, one report showed a hospital occupancy rate of 120%. Facilities in Irbid City separately reported refugee and non-refugee indicators to the MOH. In terms of planning future sites for delivery of services, UNFPA had recently opened a new maternal and child health center in Zaatri Camp, while planning was also underway to establish more obstetric services for normal deliveries at Primary Health Clinics, at one per 5,000 persons. UNHCR pays health care costs for refugees referred to Mafraq hospital from Zaatri Camp. In Irbid City health facilities, registered refugees did not have to pay for clinical services as they are covered by the MOH. In most government clinics, unregistered refugees, unless they were referred by JHAS and UNHCR covered the cost, paid similar fees to uninsured Jordanians.

In the camp, there were many complaints from FGDs about lack of medications, while in Irbid City, complaints focused on the cost of medications. In Zaatri Camp, requests were made to increase services for special needs populations and vulnerable community members. In Irbid City, the main reasons for not seeking health care among refugees were the disrespect shown to the women by providers, limited or inappropriate medicine and long wait times for care. One KI said that inter-agency service guides on health and protection services had been developed for Syrian refugee-impacted governorates of Jordan. A KII reported that information and education was provided to new arrivals through service booklets, given

to JHAS who subsequently distributed them to refugees, including unregistered refugees. In addition, a UNHCR help desk was available.

Additional priorities of the MISP

An array of family planning methods, including oral contraceptive pills, injectable contraceptives, and intrauterine devices were available. According to Jordanian guidelines emergency contraception can be provided through combined oral contraceptives although a dedicated emergency contraception product was only available for post rape care in one setting. There were provider barriers in access to family planning including emergency contraception. For example, one provider stocked contraceptives but reported that “women did not want them” while another provider reported they would not give emergency contraception to a rape survivor or an unmarried woman. There were cost barriers in the urban context. Although focus group participants expressed a strong need for family planning, half of the participants in Zaatri Camp and almost all in Irbid City were unaware of the locations for free family planning services. Most women in Zaatri Camp and Irbid City mentioned that they would try to self-abort through lifting heavy objects if they had an unwanted pregnancy. Both providers and service users indicated uneven and inadequate availability of services and supplies related to STIs and HIV, as well as menstrual hygiene. Syndromic management of STIs was not mentioned by representatives of the facilities visited in Zaatri Camp. Most providers said that STI cases were rarely seen. In Irbid City settings providers were not familiar with standard

protocols for syndromic management of STIs. None of the facilities at Zaatri Camp provided antiretroviral therapy, including the referral hospital in Mafraq. Those needing antiretroviral therapy were referred to facilities in Amman. It was reported in the FGDs that women in Zaatri Camp received a single distribution of hygiene products upon their arrival but staff at the distribution sites were rude to them. Half of the women had heard about distributions at registration but, when they returned for additional hygiene supplies, they were told that none were available.

Integration of reproductive health into disaster risk reduction and emergency preparedness

Just over half of KIs reported that there was a national disaster risk reduction agency in Jordan. Mixed responses were received in terms of whether a health risk assessment had been undertaken and whether disaster risk reduction health policies or strategies were in place.

In terms of Zof agency preparedness, approximately two-thirds of respondents reported that their organization undertook preparedness for this crisis. Preparedness trainings included a national training on the MISP in June 2011; the MISP regional training of trainers in Cairo in December 2012; MISP training in Zaatri Camp; and gender-based violence training for police.

Regarding the prepositioning of supplies, while four out of nine KIs reported that RH supplies were procured and pre-positioned, a representative from the agency responsible for this process said that supplies were not pre-positioned.

In summary facilitating factors to MISP

implementation are Jordan's pre-existing health care infrastructure and willingness to address RH among Syrian refugees. Other factors included: the identification of a dedicated agency within the health sector to lead RH coordination; available funding for RH; relative concentration of people in Zaatri Camp; prior MISP training; and, highly skilled and dedicated work force. In contrast, reported barriers to MISP implementation included insufficient funding for the urban response; a lack of female staff; and the absence of a national protocol on clinical management of rape. Other perceived barriers included: limited supplies distribution despite availability; the crisis occurring before Jordan implemented its MISP contingency plan; and the large urban caseload.

Discussion

MISP coordination

The importance of coordination in humanitarian crisis has been articulated in global initiatives such as the Interagency Standing Committees humanitarian reform process [19]. The IAWG advocates coordination of RH interventions within the broader humanitarian response to be situated within the health sector. Jordan's status as an upper middle income country [20], and the regional support it received from other countries to address the Syrian crisis created a solid foundation for the improved MISP policy environment. Appointing a RH lead early in an emergency indicates strong commitment to the issue by the MOH. In comparing urban to camp implementation of MISP, the key difference was that coordination meetings held in Amman, an urban area, were reported to focus on Zaatri

camp and had limited attention on Amman or other cities, despite the larger number of refugees in the urban areas. As compared to previous MISP assessments, this MISP assessment shows attention by donors and humanitarian actors to address reproductive health in emergencies as reflected in the leadership by the MOH, UNHCR and UNFPA as well as donor funding for RH and largely sufficient supplies.

Prevention and response to sexual violence

There appeared to be a lack of priority in the humanitarian response on measures to prevent sexual violence in addition to the challenges to establishing clinical care for rape survivors where the later could be related to the lack of a national clinical management of rape survivor protocol with challenges around the use of emergency contraception and post-exposure prophylaxis. The infrequency of survivors reporting for treatment is possibly related to: Syrian women's lack of knowledge about the benefits and availability of health care; taboos around talking about sexual violence in the community; and an inadequate number of trained providers/service delivery points. Women are unlikely to weigh the benefits of seeking services against their fears of retribution and cannot make an informed choice about seeking care without knowledge on how medical care can prevent health consequences.

HIV prevention

In terms of HIV prevention, priority activities were mostly in place, likely due to the existing Jordanian HIV policy and accessible and stocked blood banks. Cultural

sensitivities may have inhibited providers from making free condoms visible and readily attainable.

Prevention of maternal and newborn morbidity and mortality

In order to prevent maternal and newborn morbidity and mortality resulting from obstetric complications, skilled birth attendants, emergency obstetric care and newborn resuscitation should be available and of high quality [21]. These MISP activities were largely in place and facilitated by existing MOH standards, systems and structures for health facility deliveries. In the urban context, the MOH had the benefit of the experience from addressing the needs of the Iraqi refugee population. Despite the availability of services however, many women were displeased with the quality of care that was perceivably impacted by the ongoing surge in refugee influx and the subsequent demands on service providers, as well as the limited number of primary health clinics in Zaatri Camp. A key difference between camp and non-camp based refugees was the use of UNHCR registration card to receive health services outside of the camp, which was repeatedly expressed as a barrier to seeking RH care among refugees. Access to high quality RH services is known to improve health outcomes.

Information, education and communication about the benefits of seeking care and location of services

Strategies are needed in order to improve acceptance of services and uptake of positive health behaviors. Communication of health information is essential to improve people's knowledge and acceptance of health

services [22]. This form of outreach is important particularly in an emerging crisis setting if prevailing attitudes of the population are negative towards the health care system. Another issue that affects service uptake is stock-out of RH supplies. In both Irbid City and Zaatri Camp delays and gaps persisted in expanding some comprehensive RH services. In light of the ongoing influx of refugees, access to health resources will need to be monitored and maintained despite the changing humanitarian situation. Previous MISP assessments conducted in Haiti (2011) and Indonesia (2005) presented similar gaps in service delivery areas such as care for survivors of sexual violence, in particular, informing communities about the benefits and location of services as well as treatment for rape [8,6].

Planning for comprehensive reproductive health services

Good collection of RH indicators for monitoring of services brings together relevant partners to ensure that users of health information have access to reliable, authoritative, useable, understandable and comparative information [23]. While the camp and urban contexts are by nature different context, the MOH, UNHCR and UNFPA were all responsible for health including reproductive health. However, in the urban context, health services were largely the responsibility of the MOH with support from local non-governmental organizations whereas services provided in Zaatri camp included external organizations and non-traditional organizations such as the military. A quality health information system takes resources, but it is worth the effort to

address obstacles, including poor quality, limited flow, and lack of standardized indicators across agencies. These challenges can be addressed through applying basic surveillance principles and training of staff [24].

Additional priorities of the MISP

The four additional priorities to the MISP were not very well known by key informants and partially established. The lack of knowledge about the additional priorities to the MISP may be due to the fact that they are relatively new guidelines as they were first put forth in the revised for field testing version of the IAFM in 2010. This evaluation found that some of these services were in place, while others were not. For example, contraceptives were available in both sites, although primarily for married women. Awareness of locations where contraceptives could be obtained was limited. Health care provider biases limited the availability of emergency contraception for Syrian refugees: until a dedicated product is available, providers and refugees can benefit from information and education around the use of oral contraceptive pills as emergency contraception for unprotected intercourse and after rape.

Syndromic treatment of STIs was not available, likely due in part to the absence of a national protocol on treatment of STIs or lack of health seeking for symptoms. In this setting the prevalence of HIV is low but although there was little demand for antiretrovirals there may be a time where this may change and drugs will need to be procured. Lastly, the lack of hygiene, including for menstruation, was upsetting to women and challenging to their sense of

dignity. They may have fear due to increased risk of sexual abuse and exploitation as they seek ways to obtain materials.

Comparison to previous MISP assessments

This MISP assessment showed key informants had more awareness and knowledge about the specific objectives and activities of the MISP as a standard of care in humanitarian emergencies than previous MISP assessments building on the growing awareness noted in the Haiti MISP assessment in 2010 [8]. The greater awareness may be the result of UNFPA and Sexual and Reproductive Health Programme in Crisis and Post-crisis Situations (SPRINT) national and regional training's on the MISP for Ministry of Health and NGOs over the past several years. Maternal and newborn services were largely in place unlike MISP assessments in Haiti and Pakistan [8,4]. This is likely due to the pre-existing level of maternal and newborn care in Jordan available to urban refugee populations and national and regional partners support of health facilities offering advanced maternal and newborn care in Zaatri camp. Similarly, in this more developed context the availability of safe blood for transfusion and the practice of standard precautions is a standard part of practice pre-crisis while the distribution of condoms is a culturally sensitive issue. However, gaps in prevention of sexual violence and clinical care for survivors of sexual violence are consistent with previous MISP assessments. This could be due to provider's ongoing lack of commitment to preventing sexual violence and the lack of national protocols for clinical care for survivors of sexual violence. In

addition, while key informants in previous MISP assessments reported gaps in funding and supplies as barriers to MISP implementation [4-8], there were very limited to no reports of gaps in funding and supplies to support MISP implementation in Jordan. This could be due to overall funding levels for the Syrian refugee crises and the commitment of MOH, UNFPA and UNHCR to ensure the MISP was integrated in the health sector response [25].

Limitations

There were several limitations to this evaluation conducted in an ongoing and rapidly evolving emergency that resulted in a large influx of refugees each day. Time and security constraints limited information gathering, especially in the camp. Time constraints for the HFA resulted in the interviewers changing some of the questions and their order to maximize responses from busy informants. For example, the team simply noted that surgery packs for Cesarean sections were available, rather than providing an accurate inventory of all individual items of equipment and supplies. Regarding FGDs, limited time also impacted the team's ability to probe, which constrained in-depth understanding of some issues. Translation error may also be present, which was countered through daily debriefings with the field team to confirm meanings of words and phrases, and ensure maximum transcription.

Conclusion

While significant progress has been made in MISP policy and guidelines at the global level, and awareness has grown at the field level, gaps exist in the systematic availability

and use of the MISP. The overall availability of MISP services for Syrian refugees in Jordan are consistent with other studies in the IAWG global evaluation showing growing awareness and commitment to the MISP [26,27]. The authors hope that the upward trend to implement the MISP continues in new emergencies, with a focus on enhancing quality of care and an efficient and smooth transition to comprehensive reproductive health services. Still, as is often the case, considerable uncertainty attends any major humanitarian response. Therefore, an important strategy to enhance MISP implementation is to remain focused on the tangible public health lifesaving interventions that women and girls so desperately need in crises.

List of abbreviations

AIDS: Acquired immunodeficiency syndrome; CDC: Centers for Disease Control and Prevention; FGD: Focus group discussion; HFA: Health facility assessment; HIV: Human Immunodeficiency Virus; IAWG: Inter-agency Working Group on Reproductive Health in Crises; JHAS: Jordanian Health Aid Society; KI: Key informant interviews; MISP: Minimum initial service package; MOH: Ministry of Health; RH: Reproductive Health; STI: Sexually transmitted infection; UNFPA: United Nations Population Fund; UNHCR: United Nations High Commissioner for Refugees; WRC: Women's Refugee Commission.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

BT developed the study protocol and process evaluation methodology with input from SK and MO. BT, HW, SS, MO, WD revised the study tools; SK, HW, SS, MO, WD implemented the study in Jordan; SK and BT led the drafting of the article; SK, BT, HW, SS, MO, WD were co-contributors,

with NG and ES contributing to the literature review. All authors reviewed and approved the final text.

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Declarations

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Retrospective analysis of reproductive health indicators in the United Nations High Commissioner for Refugees post-emergency camps 2007–2013

Abstract

Background: The United Nations Refugee Agency's Health Information System issues analytical reports on the current camp conditions and trends for priority reproductive health issues. The goal was to assess the status of reproductive health by analyzing seven indicators and comparing them to standards and host country estimates.

Methods: Data on seven indicators were extracted from the database during a seven-year period (2007 through 2013). A standardized country inclusion criterion was created based on the year of country implementation and the percentage of missing reports per camp and year. The unit of analysis was monthly camp reports by year within a country. To account for the lack of independence of monthly camp reports, the variance was computed using Taylor Series Linearization methods in SAS.

Results: Ten of the 23 eligible countries met the inclusion criterion. The mean camp maternal and neonatal mortality rates, except for two country years, were lower than the host country estimates for all countries and years. There was a significant increase in the percent of births attended by a skilled birth attendant ($p < 0.0001$), and 8 of 10 countries did not meet the standard of 100 % for all reporting years. The percent of births performed by Caesarian section ($p < 0.001$), were below the recommended minimum standard for nearly half of the countries every year. There was a significant increase in the percent of women screened for syphilis across years ($p < 0.0001$) and the percent of women who received post HIV exposure prophylaxis ($p < 0.0001$) and 10 % reached the standard for all reporting years, respectively.

Conclusion: Comprehensive, consistent and comparable statistics on reproductive health provides an opportunity to assess progress towards indicator standards. Despite some improvements over time, this analysis confirms that most countries did not meet standards and that there were differences in reproductive health indicators between countries and across years. Consequently, the HIS periodic monitoring of key reproductive health indicators at the camp level should continue. Data should be used to improve intervention strategies.

Keywords: Reproductive health, Refugees, Health information system, Health indicators

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Background

Reproductive health (RH) indicators are used by the United Nations High Commissioner for Refugees (UNHCR) and its health partners to ensure resources are correctly targeted to those who need them, respond quickly to public health problems, monitor trends, and evaluate the effectiveness of interventions and service coverage [1]. The RH indicators collected are essential to describe the burden of RH among refugee women of reproductive age. The global distribution of RH indicators can show differences in prevalence between countries or regions that will help inform policy or advocacy but may have very little impact on camp and refugee specific lifesaving interventions. Without timely, and accurate data refugee women could be at increased risk of mortality and morbidity. In general more emphasis needs to be placed on the tools and resources that are needed to collect data to ensure the indicators are of high quality [2].

In January 2013, there were 15.4 million refugees worldwide—approximately 48 % of these refugees were women and girls [3, 4]. As shown in a recent global evaluation of reproductive health (RH) in humanitarian settings from 2012 to 2014, refugee women and children are the most vulnerable to the consequences of displacement [5]. A positive finding in the study showed the number of health proposals with an RH component increased by an average of 10 % per year from 2002 to 2013 [6]. Other positive findings showed significant progress in maternal and newborn health as evidenced by an increase in funding and program evaluations, an increase in funding of gender-based violence (GBV) programs,

improvements in mother-to-child-transmission programs and family planning commodities. In contrast, disparities in emergency obstetric care and newborn care services remained unchanged [7] and clinical components of the Minimum Initial Service Package (MISP) were lacking in three settings well beyond the emergency phase [8]. Post-abortion care is still behind compared to other RH interventions due to lack of funding and systematic evaluations. In addition GBV programs showed a lack of prevention efforts against sexual violence and staff trained in the clinical management of rape. Other problem areas found were the inconsistent availability of antiretroviral for HIV and the lack of prevention, testing and treatment of other sexually transmitted infections (STIs). Lastly, an assessment of family planning programs showed a gap in funding and commodities such as intrauterine devices (IUDs), permanent methods and emergency contraception [9]. As humanitarian actors gain experience to solve RH issues, this information will be useful to improve services to populations affected by a crisis.

Since 2006, UNHCR and its health partners have been using a unified health information system (HIS) to monitor refugee public health and HIV programs in camps and urban settings. At the start of 2010, HIS provided services to 1.5 million refugees operating in 18 countries, 85 refugee camps, and through 24 different partners [10]. Past published studies have used the HIS data to evaluate camp nutrition programs, the utilization of outpatient services, the burden of malaria, and under five morbidity and mortality [11-14]. Important contributions of these papers included recommendations

to modify nutritional indicators, and the accuracy of population indicator estimates (number of women of reproductive age and children under five). In addition, there were policy and advocacy issues identified such as the need to support equitable and higher quality malaria eradication programs in refugee and host populations. Lastly, through these studies awareness was turned towards the importance of the HIS unified systems utility to analyze and disseminate health information.

To monitor RH services in camps, the HIS uses RH indicators to measure and determine progress in achieving the UNHCR predetermined standards. This study was part of the Interagency Working Group in Reproductive Health Global Evaluation of RH in humanitarian settings. The purpose of this study was to conduct a retrospective review of selected HIS RH indicators of refugees by country to examine trends over time and assess if the indicators meet the UNHCR standards.

Methods

This analysis used data from RH indicators obtained from UNHCR's HIS Microsoft Access™ (Redmond, WA) database over a seven-year period (2007 through 2013). Data selected for this analysis were abstracted from the HIS Access database by the HIS supervisor at UNHCR headquarters in Geneva and converted into Excel spreadsheets. The variables included continent, name of country, name of camp, and date of report, and the numerator and denominator values to calculate the indicator. Analysis was conducted from November 2013–July 2014. The US Centers for Disease Control and Prevention (CDC) conducted

the data analysis and determined the study was surveillance activity and not human subject research. All analysis was done using SAS software, Version 9.3 of the SAS Institute, Inc.© (Cary, NC) [15].

Country and camp inclusion criteria

Using HIS data taken from operating refugee camp health facilities from 2006 to 2013, we reviewed HIS data from a total of 23 countries. A country was included in the analysis if it had at least one acceptable camp with monthly reporting data from no later than 2008 and had no more than two unacceptable camps. A camp was considered acceptable for inclusion into the analysis if it met the following two criteria:

1. **Completeness:** A camp had completed 90 % of its monthly reports per year (≤ 10 % missing monthly reports).
2. **Total Reporting Months:** A camp had at least 6 months of reporting data. Camps that did not meet the inclusion criteria were not included in the analysis. Data analysis started in 2007 or 2008, depending on the availability of the monthly reports.

RH indicator inclusion criteria

Fifty-seven RH indicators are included in the HIS system. For this analysis, seven indicators were chosen after screening the RH indicators for usability, plausibility, and relevancy of the reported indicator data. Usability was defined as those indicators identified as high priority by the Inter-agency Working Group on Reproductive Health in Crises [16]. For plausibility, if more than 10 % of the monthly estimates had proportions above 1 prior to cleaning, the data were

considered implausible and that indicator was not recommended for analysis. To avoid redundancy, relevancy was determined based on HIS indicators that have been previously analyzed and published.

After reviewing the three criteria, the final selection of seven indicators was determined by consensus of RH senior staff at UNHCR and CDC epidemiologists. The seven indicators chosen for the analysis were the following:

1. Maternal mortality ratio (MMR):
 $\text{Number of pregnancy-related deaths} / \text{Total number of live births in a year} \times 100,000$ in a given year.
2. Neonatal mortality rate (NNMR):
 $\text{Number of neonates who died before reaching 28 days of age} / \text{Total number of live births} \times 1,000$ in a given year.
3. Proportion of births attended by a skilled birth attendant (SBA) (defined as doctors or midwives who can diagnose and manage obstetrical emergencies and normal deliveries):
 $\text{Number of deliveries attended by skilled birth attendant} / \text{Number of deliveries} \times 100$.
4. Proportion of live births performed by a caesarian section:
 $\text{Number of live births performed by Caesarian section} / \text{Number of live births} \times 100$.
5. Proportion of antenatal care (ANC) mothers who were screened for syphilis during pregnancy:
 $\text{At the time of delivery, Number of pregnant women who had been screened for syphilis during the antenatal period} / \text{Total number of live births} \times 100$.
6. Rate of condom distribution within the entire population:
 $\text{Number of condoms distributed per month} / \text{Total population}$.
7. Proportion of rape survivors who receive

HIV postexposure prophylaxis (PEP) within 72 h of an incident occurring:
 $\text{Number of rape survivors who receive PEP within 72 h of an incident} / \text{Total number of rape cases reported}$.

Data analysis

Data cleaning

Within each country, the selected monthly HIS camp indicator variables (numerator and denominator) were assessed for quality and cleaned. Quality was assessed for each of the indicator variables by identifying monthly outliers by camp. For each indicator variable year, outliers were identified for each camp if they varied by more than three standard deviations from the yearly camp mean. If the flagged outlier was considered erroneous after a review, a new value was imputed using average value of the month before and the month after the outlier. Imputing for obvious erroneous values versus setting them to missing allowed us to retain the monthly observations in the data set by giving it a more probable value. Indicators were then created from the cleaned numerators and denominators. The indicators with proportions greater than 1 were recoded to equal 1.

Statistical analysis

For five of the indicators (syphilis screening, skilled birth attendant, cesarean sections, PEP use and condom distribution), the unit of analysis was the monthly camp reports by year within a country. To take into account the lack of independence of camp monthly reports, the variance was computed using Taylor Series Linearization methods. Specifically, the SAS complex sampling procedures SURVEYMEANS,

SURVEYFREQ, SURVEYREG were used for the analysis to account for nonindependence. The yearly country indicator point estimates were computed by taking the mean of the monthly camp estimates, and 95 % confidence limits were calculated to estimate precision. To test for linear trends across years within a country, linear regression was used for continuous variables. A p -value < 0.05 was considered significant for this analysis.

Due to the small number of the camp deaths per month, the unit of analysis within each country for the two mortality indicators was the aggregated yearly camp reports. To calculate these indicators, the number of maternal or neonatal deaths and the number of live births from each camp was summed on a country level for each year.

Population and live birth data was averaged across years by country. Population data were used to compute the rate of condom distribution within the entire population. We used the number of live births to compute the maternal and neonatal mortality rates, proportion of live births performed by a caesarian section and proportion of ANC pregnant women who were screened for syphilis during pregnancy. For all other indicators, the proportions for each month were created from the camp monthly reported values before the analysis at a year and country level began.

We included maternal and neonatal mortality rates obtained from the World Bank development indicators by host country but not country of origin of the refugee in our analysis. All rates were country aggregate rates. Data for neonatal mortality rates were available for every year of the analysis; however, host country data were

only available for maternal mortality ratios in 2010 and 2013 [17, 18].

Results

A total of 23 countries representing 145 camps were evaluated for inclusion in the analysis. Ten countries met the eligibility criteria and were included in the analysis. Nine countries were not included because they did not collect HIS data as early as 2008. Four countries were not included because three or more camps had more than 10 % of their monthly data missing. The ten eligible countries, representing a total population of 268,329, were the following: Bangladesh, Chad, Djibouti, Kenya, Nepal, Tanzania, Thailand, Uganda, Yemen and Zambia. Tanzania and Djibouti were an exception, because they had only one camp reporting during the analysis period but the camp was considered acceptable. Within each country, camps varied in size and number. The number of camps within a country may vary by month because camps may be missing a monthly report or may have opened or closed during the seven year time frame. Three camps were dropped from analysis (2 from Chad, 1 from Kenya) because they had more than 10 % of monthly data missing. The population in each camp could also vary widely during the analysis period (Table 1).

Mortality indicators

Maternal mortality

Figure 1 shows the mean camp MMR for each country and the host country MMR for 2010 and 2013. Three live birth indicator estimates out of 3566 (0.08 %) were imputed for the number of live births and used for calculations in which live births was used; this included the neonatal mortality rate,

Table 1 Summary of population data and camps by country, 2007–2013

Country	No. of camps	No. of months of data	Year HIS began implementation in country	Monthly camp population ^a				Monthly camp live births ^b				
				Mean	Std Dev	Median	IQR ^c	Mean	Std Dev	Median	IQR ^c	
<i>N</i> = 10	<i>N</i> = 56	<i>N</i> = 3566										
Bangladesh	2	154	2007	14,529	3,037	14,510	6,018	43.1	12.8	43	21	
Chad	16	994	2007	17,953	7,960	17,362	9,505	57.1	47.6	53.5	49	
Djibouti	1	71	2008	13,565	4,031	13,133	8,240	23.1	7.3	22	10	
Kenya	5	412	2007	81,723	33,470	48,529	48,529	185.9	83.9	186.5	113	
Nepal	2	105	2007	19,291	8,961	18,236	14,854	29.8	17.3	26	19	
Tanzania	1	96	2007	57,850	8,262	60,591	12,320	177.8	35.6	174.5	45	
Thailand	9	648	2008	15,907	11,474	15,825	10,274	36.4	27.7	33	26	
Uganda	13	740	2007	15,333	16,884	8,302	16,380	39.2	51.8	15	51.5	
Yemen	3	197	2008	20,314	7,307	21,770	7,965	40.3	17.8	39	17	
Zambia	4	149	2008	11,864	4,245	10,687	5,335	49.2	109.2	31	31	

^aMean of monthly camp data for all years (2007–2013)

^bMean of monthly camp live births for all years (2007–2013)

^cInterquartile range

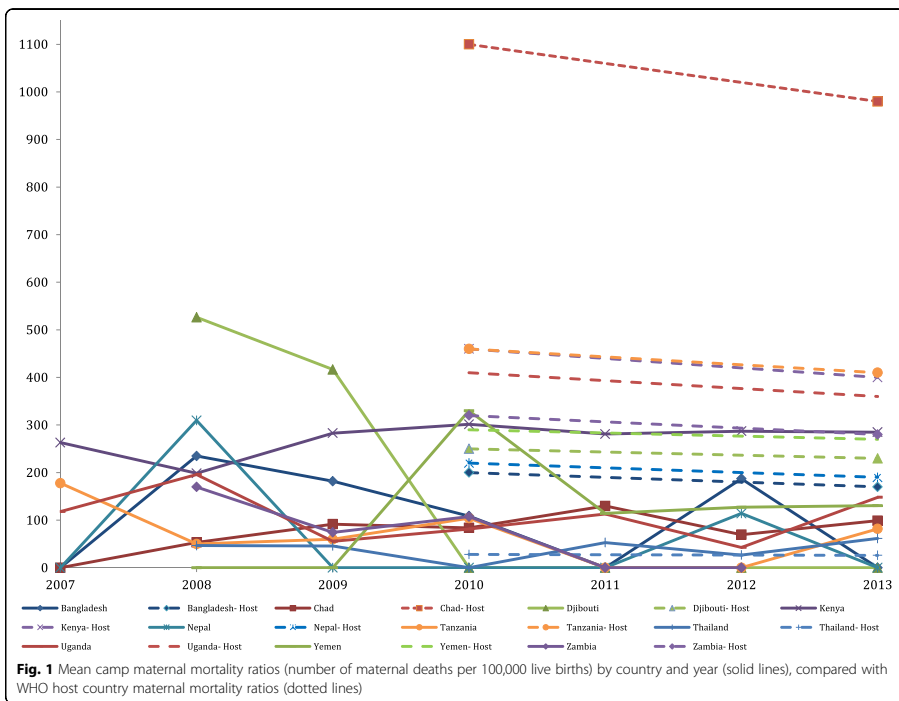
maternal mortality rate, proportion of births performed by Caesarian section, and proportion of ANC women who were screened for syphilis. There were no imputations for the number of maternal deaths. The mean camp MMR was lower than the host country MMR for all years and all countries, except for Yemen in 2010 and Thailand in 2013. Despite this trend, camp mortality rates varied by country and year. Djibouti reported 526.3 and 416.7 maternal deaths per 100,000 live births in 2008 and 2009, respectively, but did not report a maternal death after 2009. Kenya's mean MMR was high from 2007 through 2013 with a range across years of 198.5 through 301.5 maternal deaths per 100,000 live births. Chad and Uganda had lower MMRs than many countries in the analysis, ranging between 53.3 and 129.8 and 42.8 and 195.9, respectively. In 2013, the biggest absolute difference between the refugee camp maternal mortality rate and host maternal mortality rate were in Chad (881), Tanzania (−410), and Djibouti (−230). The smallest difference was in Thailand.

Neonatal mortality

The mean yearly camp neonatal mortality rates (NNMR) by country and the WHO NNMR by host country are shown in Fig. 2. No values were imputed for the number neonatal deaths. The mean camp NNMR was lower than the country NNMR in every country for every year. The Nepal camp 2010 NNMR of 15.1 per 1,000 live birth rate was the highest of all country camp data over the course of the study period. Yemen the second highest camp NNMR over the study period, 14.9 in 2010. Zambia's mean camp NNMR was the lowest of all countries with 0 in 2011 and 2013 and 0.3 and 0.9 in 2008 and 2009 respectively. In 2013, the biggest absolute difference between the refugee camp neonatal mortality rates and host neonatal mortality rates were in Chad (−38), Djibouti (−28), and Yemen (−21). The smallest difference was in Thailand (−1).

Other reproductive health indicators

The graphs below show the remaining five indicators with the mean and the UNHCR



target values for each indicator. The text describes significant trends.

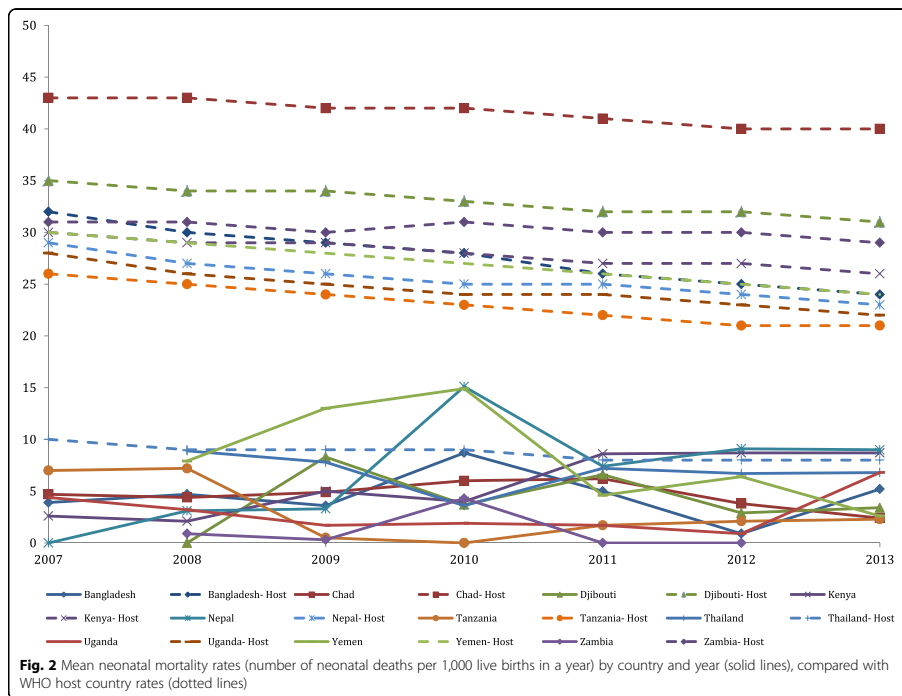
Proportion of births attended by a skilled birth attendant

The plots in Fig. 3 show the yearly average of the monthly camp births attended by a skilled birth attendant for each country along with the UNHCR target number of 100 % coverage. Eight of the 3,566 (0.22 %) skilled attendant birth monthly values were outliers and imputed prior to creating the indicator. The percentage was above 100 % for this indicator in 270 out of 3566 (7.6 %) of the monthly reports. On average most (8 of 10) countries did not meet the target of 100 % for all reporting years. The overall test for a

linear trend showed a significant increase over time ($p < 0.001$). The percent of births attended by a skilled birth attendant increased significantly in 6 of 10 countries: Bangladesh ($p < 0.001$), Kenya ($p = 0.0005$), Djibouti ($p < 0.0001$), Tanzania ($p < 0.0001$), Uganda ($p = 0.0051$) and Yemen ($p = 0.010$). Nepal experienced no change, and met the target indicator 100 % of the time over the study period. There was no significant linear trend in 3 of 10 countries: Chad, Thailand, and Zambia.

Proportion of live births performed by caesarian section

Figure 4 shows the country-level results for the average percentage of live births performed by caesarian section by year. Nine

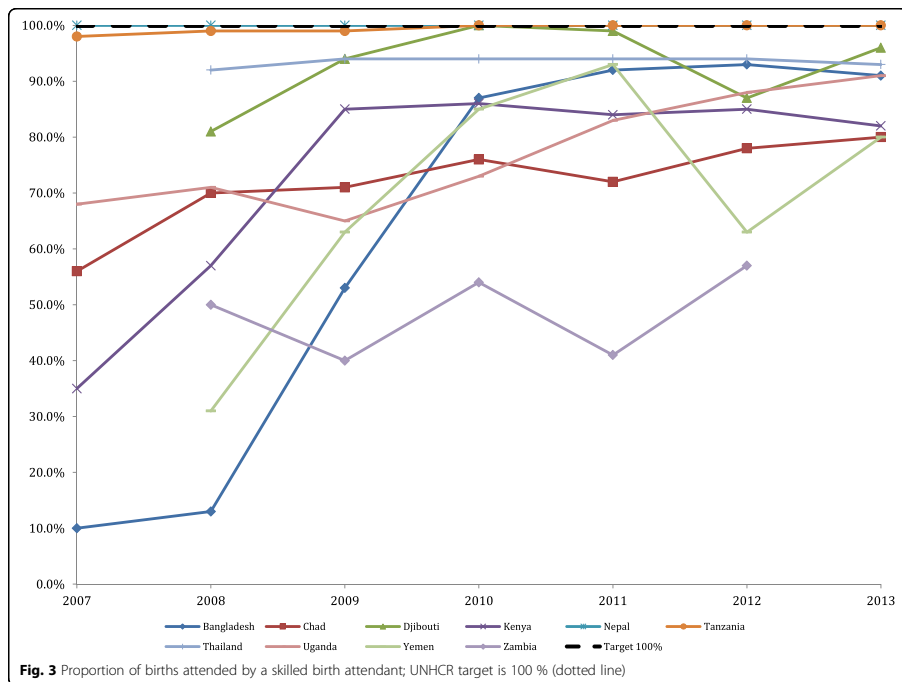


of the 3566 (0.25 %) monthly values for this variable were imputed before analysis. The WHO recommends to have between 5 % and 15 % of live births delivered through caesarian section. The average monthly caesarian section rates within refugee camps were below the recommended minimum for nearly half of countries every year (4 of 10 countries), and an additional 2 countries only met the minimum once over the study period, Djibouti and Yemen, respectively. However, there was a significant linear trend over time ($p < 0.001$), driven by two countries Nepal and Tanzania, with a larger increase in the percentage of caesarian section deliveries. Seven of 10 countries had a significant increase in proportion of live

births performed by caesarian section over the study period: Bangladesh ($p < 0.0001$), Djibouti ($p < 0.0001$), Kenya ($p = 0.033$), Nepal ($p < 0.0001$), Thailand ($p = 0.029$), Tanzania ($p < 0.0001$) and Uganda ($p = 0.007$). Zambia had a significant decrease in percent of caesarian section births over the study period ($p = 0.038$). Chad and Yemen did not have any significant change.

Percentage of ANC mothers who were screened for syphilis during pregnancy

The yearly average of monthly camp syphilis screening by country is presented in Fig. 5. Nine of the 3,566 (0.25 %) monthly camp values for the number of women who

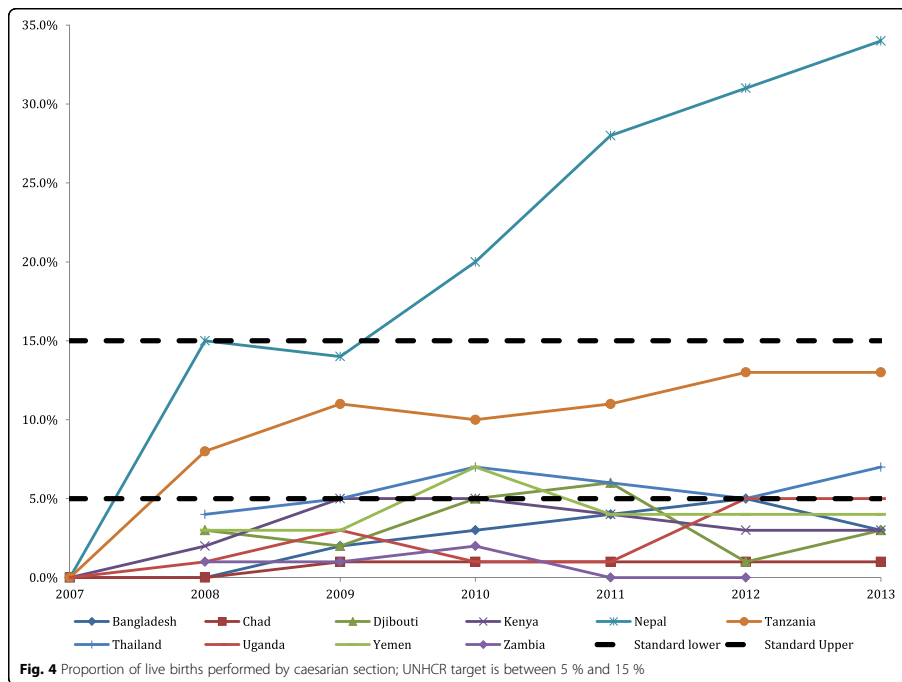


received syphilis screening were imputed before the screening indicator was created. There were 731 out of 3,566 (20.5 %) camp monthly reports equal to zero for the antenatal syphilis screening, and 359 out of 3,566 (10.1 %) of the monthly report proportions were over 1. According to the UNHCR target, 100 % of women who come for antenatal care should be screened for syphilis. Only 10 % of all countries for all reporting years reached the standard. There was a significant increase in the yearly percentage of women screened within the refugee camps in this analysis ($p < 0.001$). Five out of 10 countries significantly increased the percentage of ANC mothers screened for syphilis: Bangladesh ($p = 0.008$), Chad ($p < 0.0001$), Djibouti ($p < 0.0001$),

Nepal ($p < 0.0001$), and Thailand ($p = 0.003$). Two countries experienced a significant decrease over the study period, Tanzania ($p < 0.0001$) and Zambia ($p = 0.007$). The remaining 3 did not have a significant change in syphilis screening.

Rate of condom distribution among the population

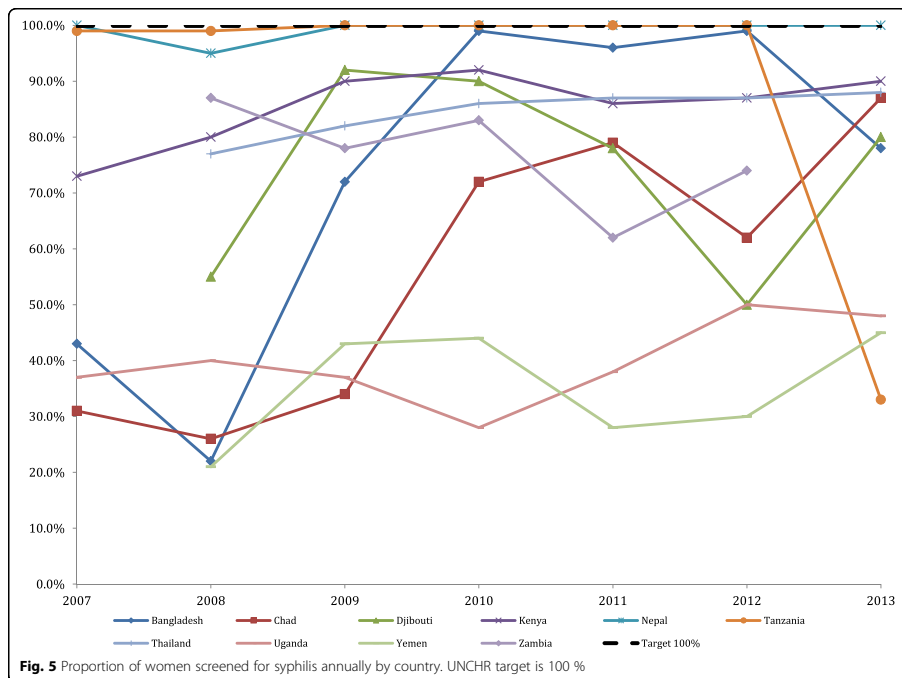
The average yearly rate of camp condom distribution per person per month can be found in Fig. 6. Six variables were used to create the numerator for the condom distribution indicator, and 491 values were imputed of 21,396 (2.3 %). In the denominator, 22 of 3566 (0.62 %) of the total population values were imputed prior to the creation of the condom distribution



indicator. There were 658 out of 3,566 (18.5 %) monthly camp values equal to zero for the condom distribution indicator, meaning that during those months there were either no condoms available for distribution and/or no condoms were distributed. Overall, the trend for condom distribution was not significant ($p = 0.109$). There was a significant increase in the rate of condoms distributed in 2 of 10 countries: Bangladesh ($p < 0.0001$) and Nepal ($p < 0.0001$). Three of 10 countries experienced a significant decrease in the rate of condom distribution over time: Djibouti ($p < 0.0001$), Tanzania ($p < 0.0001$) and Zambia ($p < 0.010$), and 5 of 10 had no significant change over time: Chad, Kenya, Thailand, Uganda and Yemen.

Proportion of reported rape survivors who receive PEP within 72 h of an incident occurring

Figure 7 displays the proportion of rape survivors who were given PEP within 72 hours of a rape incident. Eight of 3566 (0.22 %) monthly values for women who received PEP and eight of 3566 (0.22 %) of the women who reported rape were imputed before the PEP indicator was created. There were 2971 missing values of 3566 (83.3 %) camp monthly reports for the PEP indicator because there were no reported rapes within camps during those months. Only 10 % of all camps for all reporting years reached the standard, but there was a significant increase in the percentage of women receiving PEP



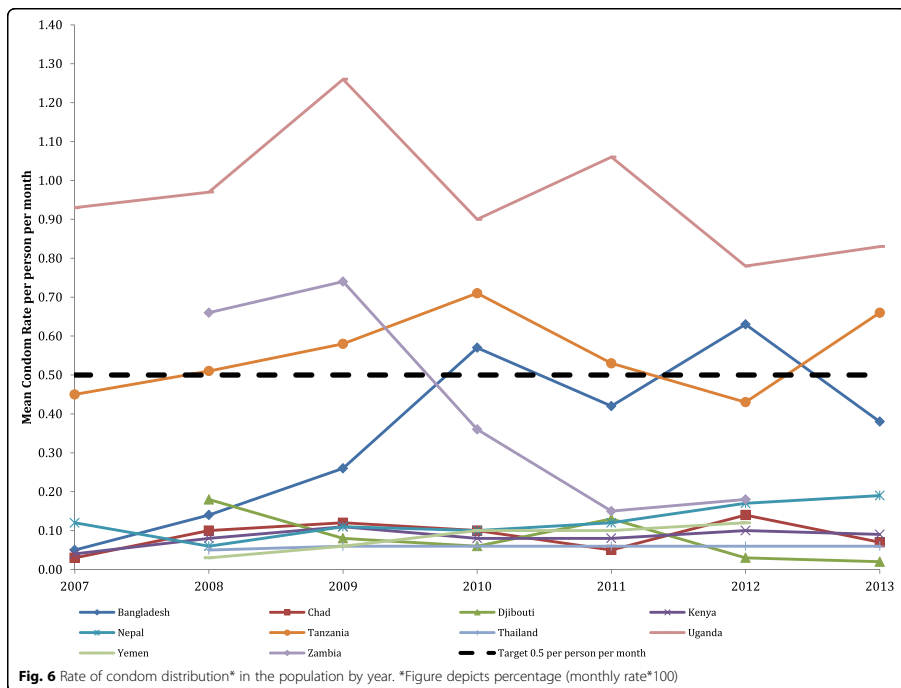
globally ($p < 0.001$). One out of 10 countries had a significant increase over the study period, Uganda ($p = 0.0001$). Six out of 10 countries experienced no significant change over time: Bangladesh, Chad, Kenya, Nepal, Thailand, and Yemen.

Discussion

This analysis provides an overview of important RH trends over the seven-year study period. For some indicators (births attended by a skilled birth attendant, caesarian section, syphilis screening, and PEP), improvement from 2007 is clear. For other indicators (MMR, NNMR, and condom distribution), more information is needed to explain current trends and why or if improvement is lacking. In several

instances standards were not met. Regardless of improvements made in each country for each indicator studied, this analysis demonstrates that more needs to be done to ensure women in refugee camp settings are receiving high quality RH care, as this will decrease morbidity and mortality within the study population. It is often thought that analysis from the HIS is complete, reliable, and of high quality. This analysis demonstrates a need for improved reporting, as many countries were dropped from the study. To close this gap UNHCR and its health partners need to improve strategies and programs to derive maximum benefit from the HIS.

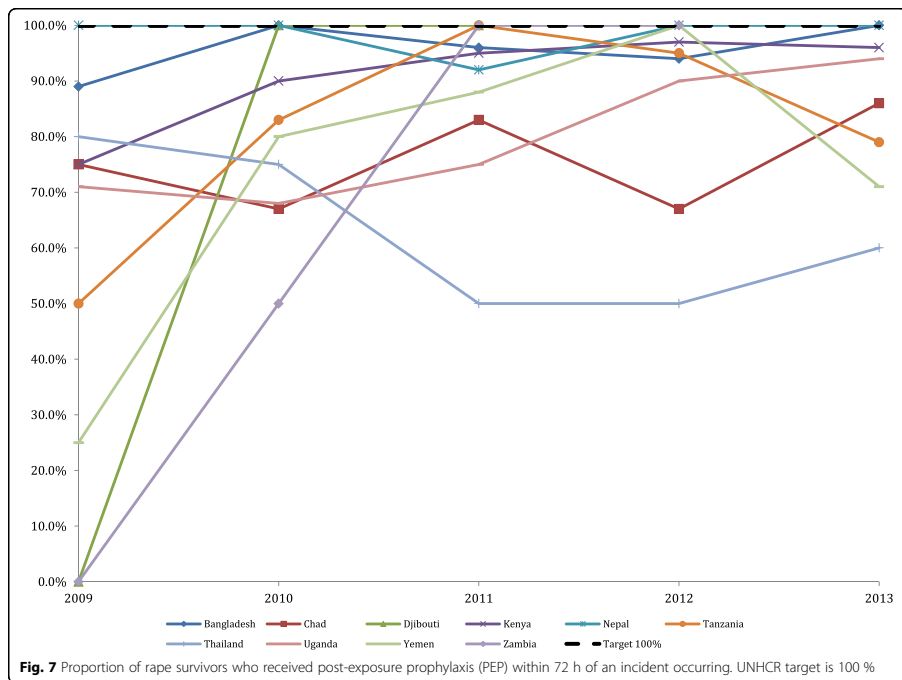
We suspect that HIS is not capturing some of the maternal and neonatal deaths of



the camp populations rather than over reporting live births or consistently achieving very low maternal and neonatal mortality in these refugee camp settings. Several previous studies on maternal and infant mortality in refugee camps discussed underreporting of maternal and neonatal mortality [19]; two recent studies that examine the extent of underreporting of neonatal deaths have been completed in camps in Tanzania and Chad [Idowu R, Morof D, Blanton C, Tappis H, Cornier N, Tomczyk B. Using capture-recapture methods and verbal autopsy to understand the incidence of neonatal mortality, stillbirths and live births in UNHCR refugee camps in Chad 2013. Unpublished report.]. Both neonatal and maternal mortality can fluctuate within

refugee camps, particularly when influxes of refugees due to an acute emergency occur during a protracted setting. An outbreak such as Hepatitis E that occurred in Dadaab, Kenya disproportionately affected pregnant women [20]. The maternal death audit system is a UNHCR strategy that has been implemented successfully in Dadaab and includes community sensitization to report deaths that occur at home [21]. Other interventions were also included such as improvement of infrastructure, transport, supplies, skilled staffing and mother incentives. This strategy could be replicated in other camps.

Ensuring SBA at delivery is efficacious in contributing to the reduction in maternal and perinatal mortality and helping to reach the



post 2015 MDGs 4 and 5 targets [22, 23]. Overall, the significant increase across countries in this study is encouraging. Some refugee camps in this study had a low use of SBAs; this may be due to a lack of SBAs at the facility level. Additionally, the proportions may have exceeded 100 % in some instances because the live births were inaccurately recoded in the monthly reports or because host community women came to deliver and were misclassified as refugees, but more information is needed to determine the root of the inaccuracies. An important consideration for maternity wards at all camps is that they are staffed, 24 h a day, with a professional midwife capable of responding to common obstetric emergencies. It is also important that

UNHCR and its partners provide refresher training and supportive supervision, as needed.

Caesarian section was introduced in emergency obstetric care as a lifesaving procedure both for the mother and baby. Overall, there is a positive trend toward meeting the UNHCR standard of caesarean section rates. It is known that the global picture indicates an uneven distribution of caesarian section that shows underuse in low income settings and adequate or even unnecessary use in middle and high income settings [24], and our analysis shows an uneven distribution depending upon the country. The findings from Nepal are counterintuitive since it showed caesarian section rates that would reflect a high income

setting. Two studies have shown an inverse association at population level between caesarian section rates and maternal and infant mortality in low income countries where large sectors of the population lack access to basic obstetric care [25, 26], making this indicator an important morbidity and mortality measure. In refugee camps where health care is provided and access to emergency obstetric care may be disproportionately available, this study indicates there are still gains to be made in maternal and infant mortality by increasing access to and use of improved birth technologies, including cesarean delivery. In addition, concerted actions need to be taken to offer timely caesarian section to women who need it and to advocate for a rationale use of caesarian section in camps with a surplus. In Chad and Zambia where caesarian section rates were low more detailed field assessments would help to contextualize the issue and determine the best course of action. Lastly, other important contributing factors that may increase caesarian rates such as previous caesarian sections, and maternal or fetal causes if captured by the HIS could help to interpret this indicator.

Several factors could decrease the syphilis screening rate in refugee camps. For instance, syphilis screening although a routine part of ANC in refugee settings may be missed due to a lack of supplies, equipment and trained staff. Broader ANC may also be lacking, which indirectly leads to women not being screened for syphilis as regularly as they should be. Finally, health care providers may not be prepared in syphilis prevention, and how to prevent re-infection during pregnancy by promoting condom use. Commodities may be in short

supply for testing and laboratories require appropriately trained staff for testing [27, 28]. Improvements in UNHCR syphilis screening programs have included implementation of a decentralized program of syphilis screening involving nurses trained in education, counselling and the provision of on-site testing using the Rapid Plasma Reagin test and partner tracing [29].

Condom distribution was inadequate for the majority of camps (6 of 9 camps were less than 50 % in 2013). When looking more directly at the data, condom distribution was sporadic and indicated months with high condom distribution and months with very low to no condom distribution. This indicator may not provide distinct value as a measurement because distribution does not necessarily equate to use, especially where the product is given away free of charge. Refugee populations may also have a varying proportion of children and/or females, making comparisons across refugee countries difficult without adjusting for the number of people who do not need condoms [30]. Logistical difficulties in obtaining and delivering of supplies due to camp location do occur are major obstacles.

Refugee women who have experienced sexual violence should be referred for health services as soon as possible after the incident. The large number of missing data in this analysis points to the fact that either very few women reported a rape in refugee settings or the rapes were reported but not recorded in the HIS, or women are not willing to report a rape as a majority of the monthly reports did not indicate any rapes. The number of rapes reported in each country fall far below global statistics on sexual violence [31]. Legal reforms,

protection policy and high quality services available to rape victims have been influential in increasing the likelihood that women will report. Therefore, a multi-sectoral approach is needed in each refugee setting in order to improve services.

There were a number of limitations in this analysis [32]. Underreporting, lack of representativeness, lack of timeliness, and inconsistency of case definitions are four of the most common limitations of many surveillance systems. The HIS has been implemented since 2006 and the quality and completeness of data is known to be somewhat variable during the first months of using the system and may be variable depending on conditions in the individual camps and availability of human resources. A number of countries were excluded from this analysis because the data was too variable. Camps from countries that were not included in the analysis had a higher variance of reporting variability. Some camps rarely reported and other camps within the same country reported fairly regularly. Another limitation is that data quality may be influenced by a number of factors that we did not measure such as newly opened camps versus long term camps, size of camps, availability of RH services and staffing. The inclusion criteria were designed to limit the amount of poor quality data, but they do not ensure that all the monthly reports for 56 camps were of high quality. It also should be noted that we present the average monthly camp estimates by year within a country, but there is variation within a camp and between camps within a country. Sensitive subjects, such as sexual violence may not be reported accurately.

The UNHCR HIS in this study was

limited to refugee camps and is facility-based. It may be biased because populations that do not seek care are excluded (survivors of sexual violence, certain RH patients, and deaths occurring outside of health facilities). It is recognized that in refugee camp settings, women may have better access to quality RH care than is available in their country of origin. The Global Evaluation of RH Services for Refugees and Internally Displaced People, conducted in 2004 found that internally displaced persons had worse access to RH services than refugees [33]. Thus we may anticipate that the results may suggest more positive findings than we might find among the surrounding host population or internally displaced persons [34]. Ideally it would have been potentially helpful to have information on how the data were collected in each health facility in each refugee camp in order to improve our understanding of the HIS RH data from this analysis to provide context to the results.

Conclusion

Many of the refugee RH indicators have been improving over time and most are better than those of host countries, but more can be done to improve the interventions to meet the UNHCR standards. More information is needed on the RH data collection cycle to determine why there was uneven distribution of indicators between countries. In general comprehensive, consistent and comparable statistics on RH provides an opportunity to assess progress towards indicator standards. Despite some improvements over time, this analysis confirms that most countries did not meet standards and that there were differences in RH indicators between countries and across

years. Consequently, the HIS periodic monitoring of key reproductive health indicators at the camp level should continue.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

JW, NC, CB and BT conceived of the study and designed the protocol. JW and MS led implementation phase data collection; JW led the data cleaning. JW and CB provided the data analysis; JW, CB, PS and BT led the interpretation of the results and drafting of the paper. All authors have read, provided input, and approved the final manuscript.

Disclaimer

The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention/the Agency for Toxic Substances and Disease Registry.

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RESEARCH ARTICLE

Developing Institutional Capacity for Reproductive Health in Humanitarian Settings: A Descriptive Study

Abstract

Introduction: Institutions play a central role in advancing the field of reproductive health in humanitarian settings (RHHS), yet little is known about organizational capacity to deliver RHHS and how this has developed over the past decade. This study aimed to document the current institutional experiences and capacities related to RHHS.

Materials and Methods Descriptive study using an online questionnaire tool.

Results: Respondents represented 82 institutions from 48 countries, of which two-thirds originated from low- and middle-income countries. RHHS work was found not to be restricted to humanitarian agencies (25%), but was also embraced by development organizations (25%) and institutions with dual humanitarian and development mandates (50%). Agencies reported working with refugees (81%), internally-displaced (87%) and stateless persons (20%), in camp-based settings (78%), and in urban (83%) and rural settings (78%). Sixtyeight percent of represented institutions indicated having an RHHS-related policy, 79% an accountability mechanism including humanitarian work, and 90% formal partnerships with other institutions. Seventy-three percent reported routinely appointing RH focal points to ensure coordination of RHHS implementation. There was reported progress in RHHS-related disaster risk reduction (DRR), emergency management and coordination, delivery of the Minimum Initial Services Package (MISP) for RH, comprehensive RH services in post-crisis/recovery situations, gender mainstreaming, and community-based programming. Other reported institutional areas of work included capacity development, program delivery, advocacy/policy work, followed by research and donor activities. Except for abortion-related services, respondents cited improved efforts in advocacy, capacity development and technical support in their institutions for RHHS to address clinical services, including maternal and newborn health, sexual violence prevention and response, HIV prevention, management of sexually-transmitted infections, adolescent RH, and family planning. Approximately half of participants reported that their institutions had experienced an increase in dedicated budget and staff for RHHS, a fifth no change, and 1 in 10 a decrease. The Interagency RH Kits were reportedly the most commonly used supplies to support RHHS implementation.

Conclusion: The results suggest overall growth in institutional capacity in RHHS over the past decade, indicating that the field has matured and expanded from crisis response to include RHHS into DRR and other elements of the emergency management cycle. It is critical to consolidate the progress to date, address gaps, and sustain momentum.

Introduction

Approximately 51 million people are displaced by conflict and persecution [1]. Another nearly 22 million are internally displaced due to the sudden onset of a natural disaster [2]. As the majority of countries with the highest maternal and neonatal mortality are affected by crises [3,4], addressing the sexual and reproductive health needs and rights of affected women, men and adolescents is critical to ensuring their wellbeing, achieving the Millennium Development Goals (MDGs) 4,5, and 6, and the post-MDG agenda. Following the Balkan crisis and since the mid-1990s, reproductive health in humanitarian settings (RHHS) has been progressively mainstreamed into international standards [5]. The Inter-Agency Working Group on Reproductive Health in Crises (IAWG) was formed in 1995 with the mission to expand and strengthen access to quality RH services for people affected by conflicts and natural disasters. The IAWG established the global cornerstones for implementing RHHS: the Minimum Initial Service Package for Reproductive Health (MISP), the Inter-Agency Field Manual on Reproductive Health in Humanitarian Settings (IAFM), and the Inter-Agency Reproductive Health Kits [6–8]. Over the past decade, the MISP has been included in key global health governance and funding processes that have given RHHS higher priority. These include the “cluster approach” put forward by the 2005 Humanitarian Reform to enhance leadership, accountability and predictability in humanitarian response [9], and the Central Emergency Response Fund (CERF) of which the MISP meets the life-saving criteria [10].

In 2004, the IAWG conducted a ten-year global evaluation of RHHS through a series of nested studies to identify gaps and constraints to inform resource planning and interventions for partners [11]. Findings showed that RH services were generally favorable for refugees in stable settings but were lacking for the internally displaced. The 2004 Global Evaluation studies included an assessment of organizational changes since 1995, focusing on agencies involved in RHHS. The major areas covered by that study included RH program components; organizational operations and policies; RH training and capacity building; technical assistance; resource tools; financial and staff resources; and collaboration between agencies. An important objective of the assessment was to document the level of commitment that organizations gave to the following five objectives of the MISP and the different types of work they undertook to support these objectives: 1) ensure effective coordination; 2) prevent sexual violence and provide clinical care for survivors; 3) reduce HIV transmission; 4) prevent excess maternal and neonatal morbidity and mortality; and 5) plan for comprehensive RH services [6]. In addition to the MISP, the study reviewed the components of comprehensive RH based on the 1999 version of the IAFM, which included safe motherhood, gender-based violence (GBV), sexually-transmitted infections (STIs), family planning (FP), and HIV [7]. Since 2004, the demonstrated trend of growth in capacity for technical expertise, collaboration, program activities, and institutionalization of the RHHS agenda has continued in many organizations, and the number of tools and resources to guide

RHHS programming has increased over the last decade [12,13]. Greater attention has also been given to building national resilience to and preparedness for emergencies [14]. The aid architecture, as emphasized by the Paris Declaration and Accra Agenda of Action, has shifted toward country ownership and empowerment [15]. The new RHHS developments in disaster risk reduction (DRR) including emergency preparedness, early recovery, and protracted crises indicate IAWG's growing efforts to bridging the humanitarian and development divide to ensure a more holistic, sustainable, and effective approach to health emergency management and health system strengthening efforts (emergency preparedness is a component of DRR; it is mentioned separately in this study as DRR/emergency preparedness as many countries have addressed it, but not the other components of DRR, which are referred to as DRR/other components) [14,16]. Anecdotal evidence suggests that more agencies have institutional policies related to RHHS, which also encompass broader entry points for RHHS, including DRR, emergency response, and during protracted crises or early recovery. However, little is known about the extent of institutional capacity and commitment to RHHS since the 2004 Global Evaluation. Therefore, as part of the 2013–2014 global evaluation of RHHS, the IAWG designed this study. It aims to gain insight into the overall state of RHHS over the past decade from an institutional perspective, by describing the capacity of government, non-government, United Nations, humanitarian, and development institutions to address RHHS.

Materials and Methods

We undertook a descriptive study using a questionnaire tool with open and closed questions. The purpose of the questionnaire was to capture data about and gain insight into institutional capacity for RHHS along the emergency to development continuum including DRR, crisis response, early recovery and re-development, with trends in organizational changes over time. The questionnaire employed a structured theoretical framework based on Kaplan's theoretical capacity building model [17]. Capacity, for the purpose of this study, is defined as the ability of an organization to function as a resilient, strategic, and autonomous entity [18]. The six elements of the capacity building model include institutional policy, accountability mechanisms, delivery strategy, and financial, human and technical resources related to RHHS (Fig 1). These components of institutional capacity can serve as proxy indicators of the overall state of RHHS and be helpful in illustrating how new approaches to addressing RHHS and institutional commitment to capacity development have been addressed at the field level. This study interpreted Kaplan's conceptual framework as an institutional framework, which could comprise policies, guidelines, or other official supporting documents for RHHS. According to Kaplan, organizations are more likely to enable capacity building if they focus on developing an appropriate institutional framework that is driven by a concordant organizational attitude, vision, strategy, and supportive structures.

Therefore, the questionnaire tool was comprised of the following major components: purpose of the survey and

1. A *conceptual framework* that reflects the institution's sense of purpose about the critical importance of the issue at stake — here, RHHS.
2. *Accountability mechanisms* that reflect the acceptance of responsibility to perform and deliver according to international standards and guidelines. The questions related to accountability were directly drawn from the accountability section of the IAFM and asked whether institutions were abiding by humanitarian standards, such as those defined in the Sphere Humanitarian Charter and Minimum Standards in Disaster Response and other Inter-agency Standing Committee (IASC) Guidelines [7]. In addition, the questionnaire asked whether key steps to foster accountability were taken by institutions, such as engaging the beneficiary participation in all programming steps, or enforcing systems within an organization to respond to improper conduct by staff
3. A *delivery strategy* that flows out of the recognized responsibility and reflects how and what will be delivered over a specific period of time, such as coordination, partnership, areas of work in RHHS, and components of RH services.
4. Defined and differentiated organizational *structures and procedures* that reflect and support the strategy, such as human resources for health, financial resources, or standard operating procedures.
5. Relevant *individual skills, abilities and competencies*, such as workforce competencies.
6. Sufficient and appropriate *material resources*, such as guidelines, protocols, RH supplies, and kits.

Fig 1. The six elements of the theoretical framework on institutional capacity applied in this research, based on Kaplan [17]

consent, institutional characteristics, institutional policy, accountability mechanisms, program delivery strategy, structures and procedures, workforce competencies, and most useful material resources. The questionnaire tool was field-tested with selected institutions working at country and global level, and modifications were made based on this feedback. Ethical approval to carry out the study was obtained from the Faculty of Health of the University Technology, Sydney Australia (Nil/Neg Risk—UTS HREC 2013000209). The final questionnaire can be viewed online [19]. The English version was translated into French and back-translated into English to ensure veracity. Both English and French versions were administered online from April to August 2013 using the Smart-Survey software. A hard-copy of the questionnaire was made available to respondents with limited internet access. A quantitative descriptive design was adopted in order to gain a broad yet critical insight into the phenomenon of organizational capacity development in RHHS [20]. The target population comprised humanitarian institutions working in health or institutions working in RH and/or RHHS. Criterion sampling was used with organizations selected according to their membership of key groups involved in RHHS [21]. Therefore, the questionnaire was sent to the listservs of the IAWG (n = 1292, representing 723 institutions), CORE Group (n = 1875, representing 354 institutions) [22] and Global Health Cluster (n = 118, representing 46 institutions) [23]. It was assumed that some institutions may be represented in more than one of the three listservs. But due to confidentiality concerns,

it was not possible to obtain the detailed list of institutional names of each listerv to exclude double entries, and therefore calculate the total number of unique institutions that were invited to participate in the survey and determine the corresponding response rate. As this is a descriptive study design using an online questionnaire tool, our hope was to receive at least a similar number of responses from institutions as the number in the 2004 global evaluation ($n = 30$) and that participating institutions would not originate mostly from the global level as it was the case in 2004 but also come from country and field levels. We invited all organizations to complete a questionnaire and analysed the results using descriptive statistics. Based on the IAWG experience, institutions with the same name and working at different levels (national, regional, global) and in different countries often have different capacities and were assumed in this study to differ in their capacities and were handled as independent units of analysis. Therefore, each institution was invited per questionnaire instructions to select the most competent individual to represent their organization at the respective national, regional and international levels and participate in the research from the perspective of the level where they worked only. Consent was obtained from participants at the beginning of the questionnaire and respondents had the option to exit it at any time. Targeted follow-up by email was carried out to encourage responses from members of institutions in countries that had experienced humanitarian emergencies over the past decade but that had not yet answered the questionnaire. The data was extracted and transferred for analysis onto

IBMSPSS Statistics 21. Data validation was done manually and through frequency checks and cross-tabulations. Descriptive statistical analysis was undertaken on all variables. Chi squared tests were undertaken on cross tabulations. Responses to the open questions were collated and summarised.

Results

Characteristics of respondents

Eighty-two institutions from 48 countries participated in the study (Fig 2), of which two thirds originated from low- and middle-income countries from Sub-Saharan Africa and Asia Pacific, and, to a lesser extent, the Middle East and Northern Africa, Eastern Europe and Central Asia, and Latin America and the Caribbean. Results indicate that most respondents held high-level management positions, as suggested by their job titles: head, director, coordinator, specialist, manager, representative, professor or assistant-professor, focal point, and others (Table 1). Fifty percent of institutions were NGOs, 34% United Nations agencies, 9% governmental institutions, and 7% academic institutions, with 71% of them working primarily at field and country levels. A large proportion of institutional respondents reported being members of the IAWG (85%). Chi-squared tests on cross-tabulations of variables in this section and all the other sections did not show any significance.

Nature of work

Twenty-five percent of institutional respondents reported the nature of their work to be primarily humanitarian, 25% primarily development, and 50% had an equal dual focus (Table 1). The majority of respondents reported that their institutions

worked primarily at field or country level (71%), 7% at the regional level, and 22% at the global level, with 93% dealing with capacity development (e.g. technical assistance, training), 85% with program delivery (e.g. coordination, clinical delivery), 81% with advocacy and policy work, 54% with research, and 39% with donor activities. Respondents said their institutions operated not only in camp-based settings (78%), but also urban (83%) and rural settings (78%); with the affected populations they served being not just primarily refugees (81%), but also internally displaced persons (IDPs) (87%) and stateless persons (20%).

Institutional framework

Two thirds of respondents (68%) reported their institution having an RHHS-related policy or guideline, or other official support document, such as a Board mandate, 23% reported not having such a document, and the remainder did not know. Although most respondents from institutions with a

humanitarian focus reported having a RHHS-related document (82%), respondents from development institutions also indicated that they were supported by an RH policy (61%). Emergency response was the most commonly reported policy content (91%), followed by DRR/emergency preparedness (72%), recovery (63%), DRR/other components (42%), and research policies (25%).

Accountability

Seventy-nine percent of respondents reported that their institution had an overall accountability mechanism that also covered humanitarian work, 13% did not have one and the remainder did not know. A vast majority of respondents stated that their institutions had policies and systems in place to comply with global standards, such as the IASC Guidelines for Gender-based Violence Interventions in Humanitarian Assistance and others [5,7,24–31]. In addition, respondents noted that their institutions had

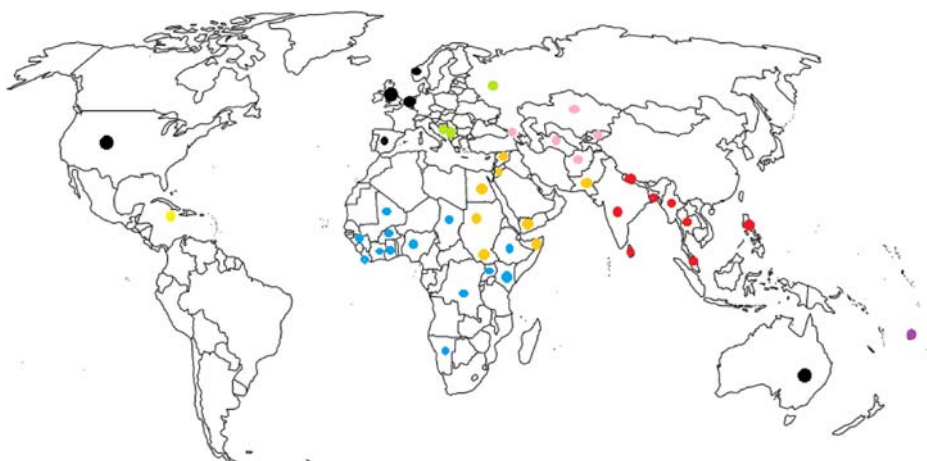


Fig 2. Map of the 48 countries from where the 82 institutional respondents originated

Table 1. Characteristics of respondents (n = 82) and nature of work

Distribution of respondents by geographical region (%)

Australia, Western Europe countries, USA	33
Sub-Saharan Africa	29
Asia Pacific	24
Middle East and Northern Africa	7
Eastern Europe and Central Asia	5
Latin America and Caribbean	1

Types of institution (%)

Non-governmental organisation	50
United Nations	34
Government	9
Academia	7

Membership to IAWG (%)

Yes	85
No	9
Don't know	5

Level of work (%)

Primarily global level	22
Primarily regional level	7
Primarily field/country level	71

Nature of work (%)

Primarily humanitarian	25
Primarily development	25
Both humanitarian and development	50

Types of settings where institutions work (%)

Camp	78
Rural	83
Urban	83

Crisis-affected populations institutions work with (%)

Refugees	81
Internally displaced persons (IDPs)	87
Stateless	20

Areas of reproductive health in humanitarian settings addressed by institutions (%)

Capacity development (e.g. technical assistance)	93
Program delivery (e.g. coordination, clinical services)	85
Advocacy/policy	81
Research	54
Donor activities	39

mechanisms in place to ensure that a number of steps were taken with regard to accountability. These include: RH indicators collected as part of the institutional health information system and/or monitoring and evaluation system (86%); engagement of beneficiaries in all programming steps—assessing, planning, implementing and monitoring the project (70%); compliance with systems within the organization to respond to improper conduct by staff (69%); the establishment of ongoing communication with affected populations about the institution and its project plans and work (69%); and the institution of mechanisms for beneficiaries to contact organizational representatives, lodge complaints and seek redress (49%).

Program delivery strategies

Partnerships and coordination. A majority (90%) of respondents reported that their institution participates in RH coordination mechanisms or working groups and 73% reported that their institutions routinely invested in an RH focal point or officer to ensure effective coordination of the MISP. The leading coordinating institutions were the UN (85%), government agencies (62%), and NGOs (58%). Institutions reported to hold formal partnerships with the following other institutions working in RHHS: UN agencies (71%), government institutions (62%), international NGO (62%), national NGO (56%), community-based organizations (41%), and private sector (15%).

Areas of work. Results indicate that from 2004, almost all of the areas of work related to RHHS were reported by participants to have experienced an increase

in institutional coverage, with the most activity occurring in relation to MISP implementation, capacity development, and technical assistance, with approximately half of the institutions having started such activities in 2004 or after (Fig 3). Growth was also reported in RHHS-related DRR/emergency preparedness, emergency management and coordination, delivery of comprehensive RH services in post-crisis/recovery situations, recovery, gender mainstreaming, DRR/other components, advocacy and policy work, and community-based programming (most notably in the areas of FP, GBV, and maternal and newborn health).

RH services. The results show increased activity over the past decade in almost all clinical areas of work in the institutions from where participants were drawn (Fig 4). These clinical areas were not exclusive to service provision and could involve guideline development, service delivery, technical assistance, training, advocacy, or research. Increases in the institutional coverage of a number of areas were noted by respondents including MISP-related services and some comprehensive RH services: maternal and newborn health, sexual violence prevention and response and broader GBV prevention, HIV prevention, management of sexually-transmitted infections (STIs) or reproductive tract infections (RTIs), adolescent RH, and FP, including emergency contraception. Results indicate that respondents felt that institutions had increased the delivery of HIV care and support including ARV interventions since 2004, but overall, the findings show that this area of activity had less institutional coverage than other components of RH care, despite

the fact that the MISP recommends the provision of ARVs for individuals already taking them and for PMTCT. According to respondents, institutions were less active in terms of abortion-related services, which are part of the MISP, cervical cancer screening and treatment, and permanent methods of FP, which are components of comprehensive RH services. With regard to abortion-related services, half of all respondents (49%) reported that their institutions did not conduct activities related to induced abortion, and approximately a third did not address post-abortion care (29%), or referral to safe abortion or post-

abortion services (35%). As for FP, institutions reported providing not only short-term methods (88%, e.g. pills, condoms, injectables), but also emergency contraception (77%), longacting FP methods (79%), and postpartum FP (70%). Permanent FP methods were reportedly addressed by 53% of institutions. With regard to cervical cancer screening, approximately half of respondents said their organizations did not undertake screening (46%) or provide treatment (52%).

Financial resources

The 2004 Global Evaluation reported an

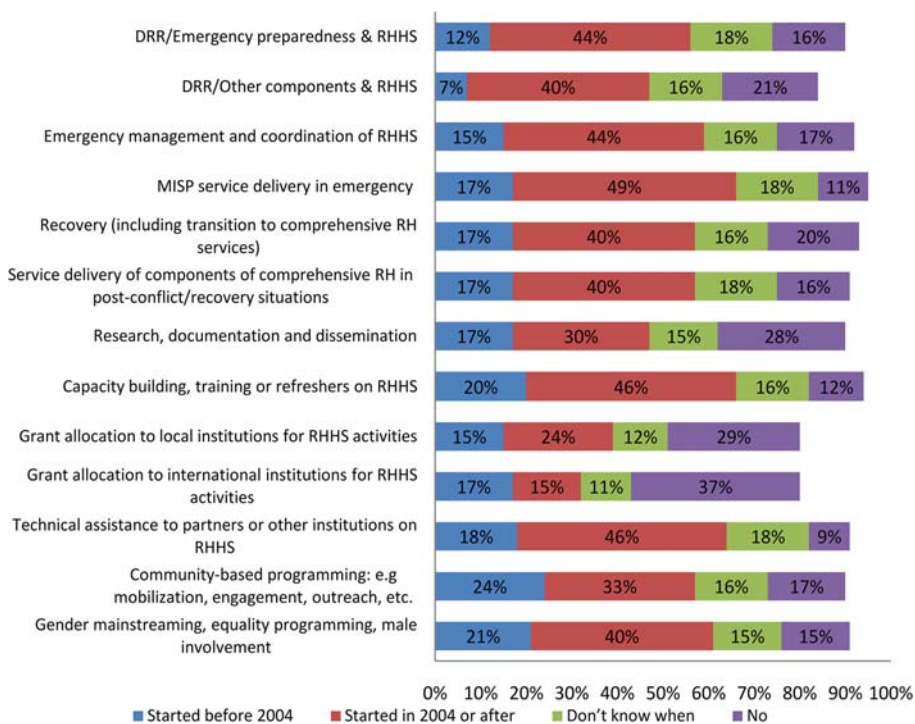


Fig 3. Areas of work in reproductive health in humanitarian settings addressed by institutions before and since 2004 (n = 82)

increase in the overall organizational expenditure for RHHS over the previous decade though it did not reflect an overall global increase in funding for RHHS. The 2013 results show that the overall trend in organizational expenditure has continued after 2004 for half of the respondents (49%) and concerned DRR, response, recovery,

advocacy/policy work, and to a lesser extent research, while 20% did not report substantial change and 13% reported a decrease (Fig 5).

Human resources

Although 22% of respondents reported no change in the number of dedicated staff to

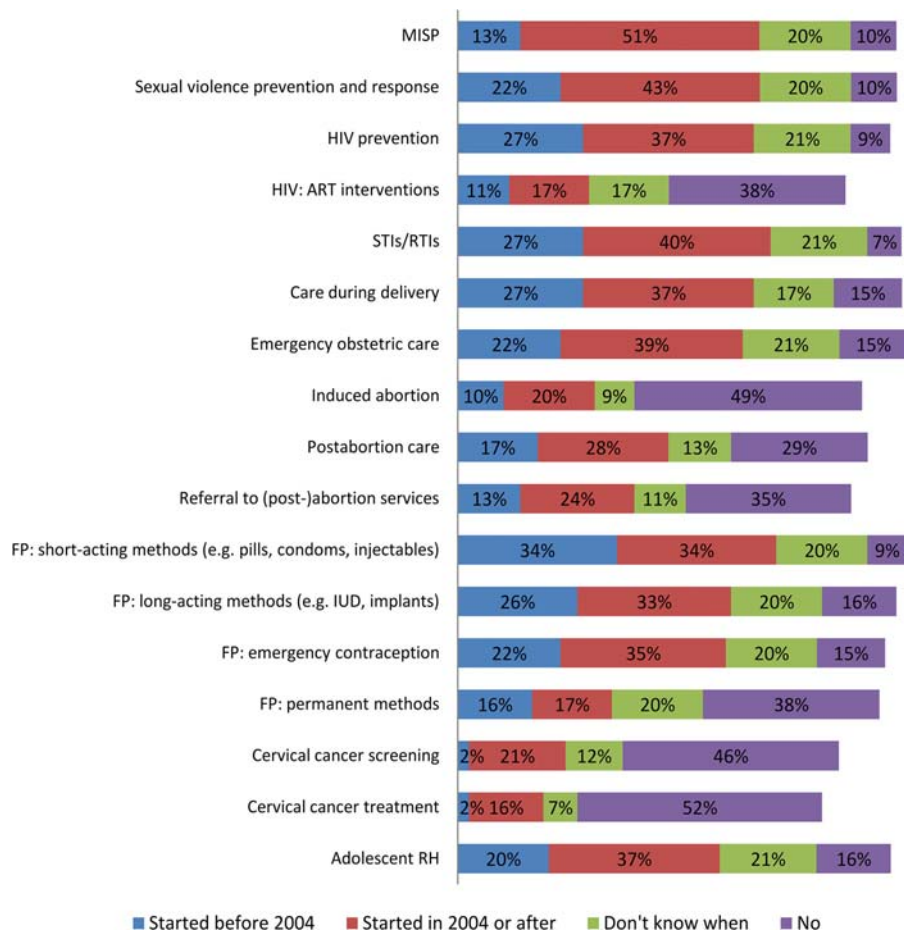


Fig 4. Clinical reproductive health in humanitarian settings services addressed by institutions before and since 2004 (n = 82)

RHHS over the past decade, and 15% a decrease, 50% reported an increase, with a growing number of staff having moderate to high levels of competencies (Fig 6). These competencies include the MISP, gender-mainstreaming and other components of the emergency management cycle such as DRR and recovery.

Guidance

There is a wealth of materials related to RHHS [12,13]. Among the 21 publications that institutional respondents had to rank, the landmark IAFM stood out as the most useful publication. This document and the other top five most useful publications support the field implementation of the MISP [6,7,8,32,33]. Except for the Sphere Handbook [5], the publications ranked six to ten focus on a specific topic, including GBV and adolescent RH [24,34,35,45]. With regard to guidance that institutional respondents wished that the IAWG develops to support their RHHS work and workforce in the next five years, monitoring and evaluation, research, documentation and dissemination on RHHS came on top, along with DRR/emergency preparedness, advocacy and policy work, and emergency management and coordination. Commodities Respondents noted that institutions concerned with service delivery and/or the procurement of RHHS commodities reported using the Interagency Reproductive Health Kits (65%), which are designed and regularly updated by the IAWG and directly support MISP implementation [8]; local or regional supply chains (51%); their institution's supply chain (34%); and the Interagency Emergency Health Kits (23%), which include some RH supplies, but not all

that are needed to support MISP implementation. In the previous five years, respondents indicated experiencing the following challenges with regard to the procurement of RH supplies: delay in obtaining or distribution of Interagency RH Kits (81%), difficulty in sourcing quality RH supplies (56%), delay in identifying suppliers for RH commodities (49%), and stock out of RH supplies (21%).

Discussion

The results suggest an overall picture of growth in institutional capacity in RHHS over the past ten years. This progress is illustrated across a number of areas, including: involvement of institutions that are not primarily humanitarian; inclusion of other beneficiaries and in new contexts, such as IDPs, stateless persons, and urban settings; establishing institutional frameworks for RHHS; setting up accountability mechanisms supporting RHHS; and working through partnerships and broadening program delivery strategies to integrate DRR and the emergency management cycle (Table 2). Additional areas include: improving the quality and comprehensiveness of clinical services, although key services are still not sufficiently prioritized, such as abortion-related services; and reinforcing investments in dedicated human and financial resources for RHHS. However, the results of this research need to be carefully interpreted as they only allow us to glean some insight into self-reported organizational capacity, which does not reflect quality of or access to services on the ground.

It is worth noting the global reach of the study although only a few responses came from the Middle-East and North Africa

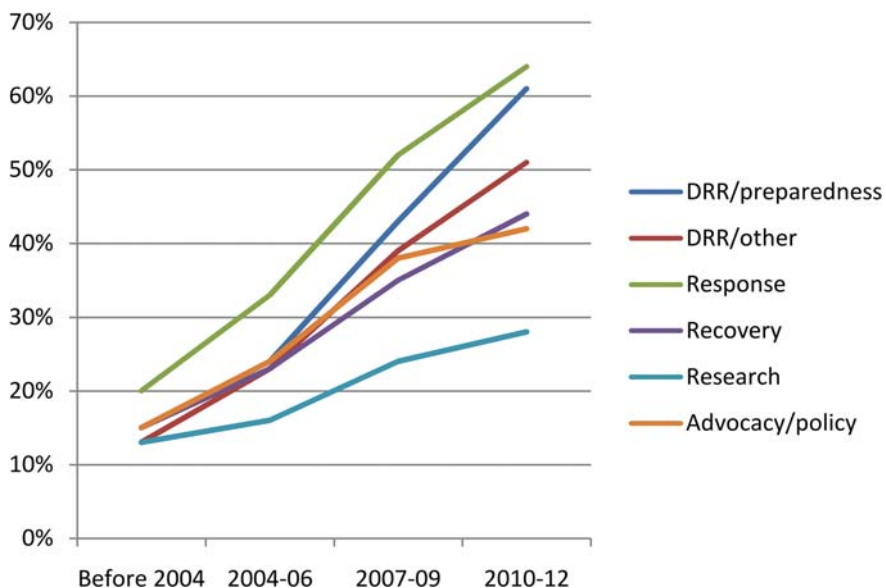


Fig 5. Proportion of institutions with dedicated budget for areas of work related to reproductive health in humanitarian settings by time period (n = 82)

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region. This is less than what would be expected in light of the several crises in that region over the past years, and may be due to the fact that the questionnaire tool was only available in English and French. The high proportion of institutional respondents with IAWG membership may reflect the IAWG's successful outreach and scaling up efforts over the past decade to strengthen country and regional capacity and ownership in RHHS.

With regard to the nature of work of institutions, results suggest that RHHS is no longer a sole domain for humanitarian institutions. This may reflect a shift in the landscape of RHHS where increased emphasis has been placed on a holistic

approach to addressing RHHS within the emergency management cycle in which humanitarian and development institutions alike have a joint role to play [14]. The inclusion of programs involving not only refugees, but also IDPs and stateless persons contrasts with the 2004 results, which indicated that services for IDPs were severely lacking, and where there was no mention of stateless persons.

Adopting an institutional framework for RHHS can serve as a roadmap and help catalyze the prioritization and implementation of RHHS activities within an organization. The findings indicate that over the past decade, and in particular during the 2010–2012 period, there has been an

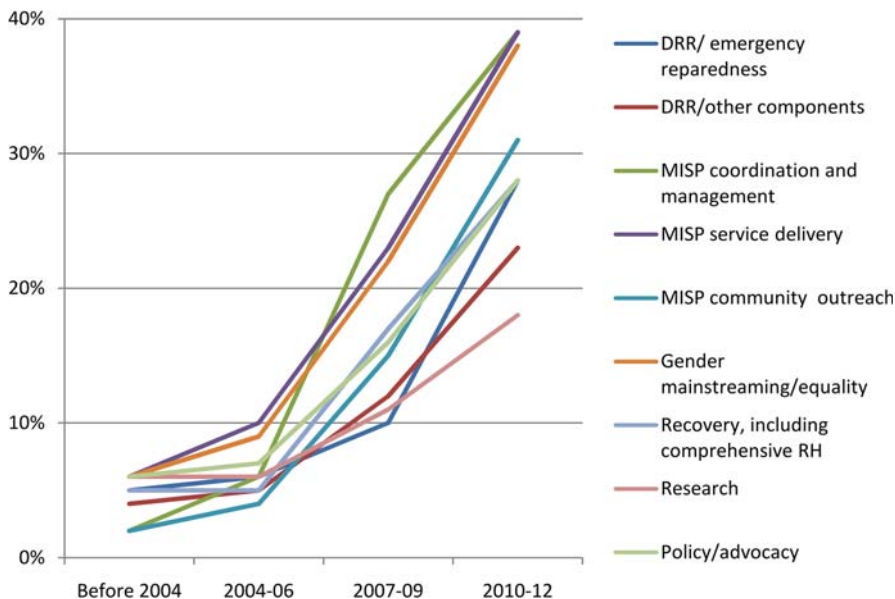


Fig 6. Proportion of institutions reporting high-level workforce competencies in different areas of reproductive health in humanitarian settings by time period (n = 82)

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increase in the number of institutions, either primarily humanitarian or development, supported by an RHHS-related policy, guideline or other official support documents, such as a Board mandate. This suggests progress in institutionalizing RHHS considering that in 1995, when the IAWG was formed, only one institution had an RHHS policy, and in 2004, 43% of those surveyed had an RHHS policy [11].

There has been a movement in the humanitarian community towards ensuring accountability to recipients of assistance, as illustrated by the development of international standards, especially the Inter-Agency Standing Committee (IASC) guidelines and the Sphere Handbook and other major principles of accountability. Our

results suggest that this movement has also been reaching many institutions working in RHHS, with a majority of them having mechanisms in place to abide by such principles. Institutions with a presence at the field and regional level may rely on the accountability mechanisms established by their headquarters; the extent to which these mechanisms actually inform field-level programming require in-depth assessments that were not part of the scope of this study. Therefore, further research is needed to examine the nature and extent of accountability mechanisms adopted by institutions and how they actually influence program implementation in the field.

In terms of program delivery strategies, results indicate that partnerships and

Table 2. Institutional capacity for RHHS in the 2004 and 2013 global evaluations: summary of key findings.

	2004 global evaluation	2013 global evaluation
Participating institutions	Mostly humanitarian institutions from the “global North” (n = 30).	Humanitarian and development institutions with a majority of them based at field/country level (n = 82).
Institutional policies supporting reproductive health in RHHS	Less than half of institutions (43%).	A majority of institutions (68%).
Accountability mechanisms related to RHHS	Not assessed.	A majority of institutions (79%).
Target populations	Mainly refugees.	Refugees, internally displaced persons, stateless persons.
Main services focused upon	More than half reported a focus on safe motherhood including emergency obstetric care, GBV, HIV, STIs, FP; and youth programs.	MISP within a wider disaster risk reduction and emergency preparedness framework; STIs and adolescent RH.
Main gaps in services	Half or less reported to focus on MISP, female genital mutilation, sexual violence including sexual exploitation and abuse, domestic violence, ART including PMTCT, and emergency contraception.	Post-abortion care and comprehensive abortion care services, permanent methods of contraception, and cervical cancer screening and treatment.
Institutional budget for RHHS	Overall growing investment.	Overall growing investment.
Institutional human resources for RHHS	Overall growing investment (86% of respondents reported increase).	Continued investment (50% of respondents reported increase, 22% no change, and 15% reported a decrease).

ART: antiretroviral therapy, FP: family planning, GBV: gender-based violence, MISP: minimum initial service package for reproductive health, PMTCT: prevention of mother-to-child transmission of HIV, RHHS: reproductive health in humanitarian settings, STIs: sexually-transmitted infections.

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coordination remain critical, reflecting the findings of the 2004 survey where formal partnerships and interagency coordination were found to be key elements. As for the areas of work, institutions appear to keep an emphasis on core activities, such as MISP implementation, capacity development, and technical assistance while results also suggest the development of work in emerging areas, such as DRR. Increased commitment to implementing the MISP is also reflected in the MISP assessment and funding studies

of the 2012–2014 IAWG global evaluation [36, 37].

Service delivery appears to be hampered by challenges with timely access to RH supplies which is also consistent with the IAWG field study in three humanitarian settings [38]. Respondents’ views on their institutional capacity to make other FP methods, such as emergency contraception, long-acting and postpartum methods, increasingly available in RHHS programs are encouraging and show increased activity

compared with the results of the 2004 Global Evaluation, which highlighted gaps related to the availability of methods [11]. However, other global evaluation studies show emergency contraception and long-acting FP methods a gap [38], which may reflect agencies focus in these areas on advocacy and capacity development with a time-lag between what agencies are aiming to implement and what they are actually managing to do. As expected, components of comprehensive RH that are more complex in terms of programming or that were recently included in the IAFM, such as safe abortion care, ARV provision, PMTCT, cervical cancer screening and treatment, and permanent FP methods, received less reported institutional coverage and are consistent with other global evaluation studies [36, 38]. These findings highlight the needs for the IAWG to develop a well-planned and well-resourced strategy to tackle these gaps. In particular, emphasis needs to be given to the delivery of safe abortion care as part of MISP implementation. The inclusion of a new Comprehensive Abortion Care chapter in the 2010 revision of the IAFM is a remarkable step forward. Other RH services that were found to receive less focus, such as the provision of ARVs for continuing users or for PMTCT, cervical cancer screening and treatment, and permanent FP methods, also need to be addressed. Overall, however, these findings suggest progress towards building institutional capacity with regard to RHHS services.

The positive development of institutional capacity globally is also suggested by the overall trend in organization expenditure which has continued after 2004

or did not change substantially for a majority of institutions. This is a positive finding in spite of the global financial crisis of 2008 and its aftermath, and demonstrates the importance and commitment given to RHHS by institutions, including donors [39]. The fact that almost three quarters of institutions reported routinely investing in an RH focal point or officer is also encouraging since past MISP implementation assessments have frequently highlighted weak coordination that was partially due to the lack of a dedicated RH focal point [40]. The 2004 Global Evaluation further pointed to the lack of agreement among respondents on the definition of RH focal point. This situation has now been clarified and the IAWG has terms of reference for the RH focal point that were added to the 2010 revised version of the IAFM to help implementing partners address this critical step [41]. Since the mid-2000s, several global initiatives have been established that may have contributed to the overall workforce strengthening in RHHS, including: the RAISE Initiative [42], the SPRINT Initiative [43], several training courses on sexual violence [44–46], and the MISP Distance Learning Module, which more than 4,000 people have completed online since 2006 [6,47].

With regard to guidance, the IAFM stood out as the most useful publication along with the ones supporting the field implementation of the MISP. The fact that guidance materials related to managing GBV and adolescent RH were also ranked highly illustrate the importance given to addressing these critical gaps. Adolescent RH is a cross-cutting but often overlooked theme in RHHS [48]. Partners should take note of the wealth of existing materials related to RHHS,

To consolidate progress to date, the IAWG members and other stakeholders in RHHS should focus on collective actions to further facilitate the capacity strengthening of countries and partners over the coming years. This includes the following:

- ❖ Continue the outreach efforts by holding annual work meetings on RHHS in the regions and supporting regional working groups. The regionalization of the IAWG has been instrumental in disseminating globally the MISP standards as well as tools and best practices to support its implementation.
- ❖ Establish an effective and responsive coordination structure for the IAWG with dedicated financial and human resources. As the number of institutions working on RHHS grows worldwide, it is important to continuously support their capacity development.
- ❖ Revitalize the IAWG Capacity Development Partnership and equip it with adequate resources to ensure that staff and institutions in the field can develop the capacities they require to implement RHHS. This Partnership can tackle critical topics such as DRR, coordination of RHHS, and the transition from MISP to comprehensive RH, for which there is currently very limited training materials. These topics are critical to strengthening local health systems from preparedness planning to response, recovery and re-development phases.
- ❖ Continuously address gaps in service delivery and improve quality and access. Particular attention needs to be given to abortion-related services and other RH services found to receive less attention, such as the provision of ARVs.
- ❖ Systematically identify a lead agency and its RH focal point to lead RH coordination in all humanitarian emergencies and support the development of a surge capacity to support RH coordination as needed. Effective coordination is paramount in emergency and key tasks of the RH focal point should include, among others, strengthening the RH supply chain management and facilitating the field implementation of accountability mechanisms.
- ❖ Support and undertake research on RHHS. Research, such as the global evaluation, has been instrumental in monitoring progress and identifying gaps and opportunities related to RHHS. The field is expanding with new frameworks and strategic approaches that would benefit from thorough documentation and study in order to provide sound evidence to inform policies and programmes.
- ❖ Increase advocacy efforts to engage both development and humanitarian sections among donors, governments and non-governmental organizations. As reflected in the results of this research, institutions are giving increased emphasis to a holistic approach to addressing RHHS within the emergency management cycle in which humanitarian and development institutions alike have a joint role to play. Therefore, donor alignment and harmonization with regard to their RH-related policies, funding and programs along the emergency management cycle will maximize impact on the ground and help bridge the divide between the humanitarian and development fields.

Fig 7. Policy and program implications of the study for the global public health community

asdesigning guidance and training resource packages to develop workforce capacity is resourceconsuming and should be thoroughly planned and evaluated from design to implementation phases.

Results suggest that the Interagency RH Kits remain the most commonly used source of supplies (along with other local, regional, and global sources), but that the timely distribution of the kits in-country remained a major challenge. Although multiple face-to-face logistics training workshops were conducted over the years by IAWG partners, further studies are needed to examine and address the commodity barriers and challenges reported by respondents.

Study limitations

The results of this research provide a snapshot of self-reported organizational capacity development among the participating institutions and does not equal to action on the ground or reflect quality of services. Non-probability sampling means that the results of this study are not representative and reflect the views and experiences of those who participated. Respondents may have had more interest in RHHS than non-respondents which may have led to a lack of perspective from organizations without this focus. However this in itself may indicate that more work is to be done to further engage organizations in RHHS. Further, agency representatives may have reported intentions given their engagement in internal dialogue or coordinated efforts, and not necessarily service delivery that had actually begun.

The responses exclude the inputs from those unable to complete the questionnaire in English or French and do not represent all

humanitarian emergencies and RHHS interventions in all communities covered by participating institutions. However, the study suggests capacity growth across a number of institutions. Further research is needed to examine whether this reflects trends across all institutions and the relationship between factors that help to facilitate institutional capacity development. The reported changes in organizational capacity over time are general descriptions relying on institutional memory, which participants may have had difficulty recalling. To follow trends in real time requires repeated representative cross sectional surveys at different points in time, which can be expensive and time-consuming. The current findings will also be useful as a reference for assessing progress in institutional capacity when future evaluations will take place, including the next Global Evaluation that will likely occur again in ten years.

Conclusions

The results suggest growth in institutional capacity in RHHS but further research is needed to examine the nature, quality and extent of this progress. Overall, there are encouraging indications that the RHHS field may have matured. It is therefore critical to consolidate the progress to date, address identified gaps, and sustain the momentum of ongoing improvement (Fig 7).

Supporting Information

S1 Data Set. Data set on institutional capacity for reproductive health in humanitarian settings. (PDF)

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Author Contributions

Conceived and designed the experiments: NTT JM SK CH. Performed the experiments: NTT. Analyzed the data: AD NTT. Wrote the paper: NTT AD JM SK CH.

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All relevant data are within the paper and its Supporting Information files.

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The Inter-agency Working Group (IAWG) on Reproductive Health in Crises was formed in 1995 and has grown into a broad-based network of over 1,800 individual members representing 450 agencies. The IAWG is a highly collaborative coalition led by a Steering Committee of 18 United Nations agencies, international non-governmental organizations and academic institutions that works to expand and strengthen access to quality reproductive health (RH) services for persons displaced by conflict and natural disasters. Between 2002 and 2004, the IAWG undertook an evaluation of RH for refugees and internally displaced persons (IDPs) in order to determine when and where RH services were provided and to identify gaps and challenges to better target resources and interventions. The findings revealed significant progress since 1995 in raising awareness and advancing RH services for conflict-affected populations, particularly those in stable refugee camps. However, major gaps in many RH components were present, including for gender-based violence, HIV/AIDS and sexually transmitted infections, safe motherhood and family planning, as well as youth-friendly services and services that encouraged male involvement. Furthermore, services for IDPs were found to be severely lacking and little was known about the SRH of populations in acute emergencies.

A decade later, the humanitarian context has changed significantly, and the IAWG has undertaken an updated review to identify services, quantify progress, document gaps and determine future directions for programs, advocacy and funding priorities.

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