



Diabetes in humanitarian crises 2

Challenges associated with providing diabetes care in humanitarian settings

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The humanitarian health landscape is gradually changing, partly as a result of the shift in global epidemiological trends and the rise of non-communicable diseases, including diabetes. Humanitarian actors are progressively incorporating care for diabetes into emergency medical response, but challenges abound. This Series paper discusses contemporary practical challenges associated with diabetes care in humanitarian contexts in low-income and middle-income countries, using the six building blocks of health systems described by WHO (information and research, service delivery, health workforce, medical products and technologies, governance, and financing) as a framework. Challenges include the scarcity of evidence on the management of diabetes and clinical guidelines adapted to humanitarian contexts; unavailability of core indicators for surveillance and monitoring systems; and restricted access to the medicines and diagnostics necessary for adequate clinical care. Policy and system frameworks do not routinely include diabetes and little funding is allocated for diabetes care in humanitarian crises. Humanitarian organisations are increasingly gaining experience delivering diabetes care, and interagency collaboration to coordinate, improve data collection, and analyse available programmes is in progress. However, the needs around all six WHO health system building blocks are immense, and much work needs to be done to improve diabetes care for crisis-affected populations.

Introduction

Humanitarian crises develop in a range of settings, as a result of environmental disasters and conflict, with conflict being often protracted. Since 2013, we have seen the greatest number of forcibly displaced people on record, standing at 68·5 million people at the end of 2017,¹ the majority of whom live in an urban environment.² Such trends and contextual factors inevitably affect the type of response required.³

Within this changing humanitarian landscape and further amplified by shifting global epidemiological trends, diabetes and other non-communicable diseases (NCDs) have risen to prominence.⁴ The importance of ensuring patient access and continuity of care for diabetes during and after a humanitarian crisis has been recognised in the WHO 2013–20 Global Action Plan for the Prevention and Control of Non-Communicable Diseases.⁵ Humanitarian actors are progressively incorporating care for diabetes into emergency medical response, but challenges abound. Competing priorities, coexisting multimorbidities, a paucity of sufficiently trained staff, and the complex nature of care required for diabetes are further compounded by an insufficient evidence base,^{6,7} inadequate recognition of the importance of diabetes care, and persistent access challenges.^{8–10} Given the diversity of settings affected by humanitarian crises, no single approach is possible and evidence from high-income stable settings cannot be directly applied. The nature of diabetes as a chronic disease poses particular challenges, but also presents an opportunity to learn from other examples of chronic care in humanitarian settings, particularly that of HIV. Humanitarian actors are gradually developing adapted models of care and guidelines, and are benefiting from growing experience.

This Series paper focuses specifically on humanitarian settings in low-income and middle-income countries (LMICs), where the majority of humanitarian crises occur, existing resources usually differ from those in high-income countries (which are, therefore, not included in this Series paper), and the formal evidence base is insufficient. Evidence for the review is largely generated from the experience of humanitarian agencies. Pre-existing health-care deficiencies in low-resource settings are often exacerbated by disasters, which presents a particularly complex challenge. Components of these challenges and associated responses might be applicable in broader low-income settings, or in crisis settings in high-income countries.

The six health system building blocks developed by WHO provide a useful framework within which to discuss the challenges associated with diabetes care in humanitarian contexts.¹¹ These building blocks are information and research, service delivery, health workforce, medical products and technologies, governance, and financing (table).

Information and research

Although evidence-based medicine and quality of care are valued in humanitarian medicine, these settings still do not have sufficient evidence associated with many aspects of medical care, and diabetes is a clear example of this issue, as discussed in the first paper in this Series.^{6,12,13} Given many competing needs in most humanitarian settings, programmatic choices should be based on existing epidemiological data, evidence on the effectiveness of interventions, and a situational assessment. However, humanitarian providers often work in LMICs,

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This is the second in a Series of two papers about diabetes in humanitarian crises

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	Responses to date	Needs
Information and research		
Insufficient evidence base	A newly formed research consortium for interagency data collection and analysis of available programmes	Funding to do the research studies
Paucity of adapted assessment methods	A few examples of adapted rapid assessments with mobile technology, and use of qualitative studies to supplement existing information	Assessment tools adapted for emergency and humanitarian settings with routine diabetes testing and inclusion of other NCDs
Non-adapted monitoring systems	Increasing inclusion of NCDs in cohort monitoring; few electronic medical records in more stable settings (UN Relief and Works Agency clinics in the Middle East); interagency work on NCD indicators	Agreed field-adapted indicators for programme monitoring and adapted data-collection systems
Service delivery		
Lack of inclusion of NCDs in routine emergency response	Increasing recognition of the importance of NCDs; development of models of care and guidelines adapted to humanitarian settings; WHO NCD kit for emergencies	Emergency response agencies' usual inclusion of NCD drugs and care into humanitarian response
Unavailable care for complications	Support to existing specialised services; primary health-care level care for early stages of complications, with timely identification and prevention of progression, and simplified protocols	Advocacy for increased access to specialised care for complications
Insufficient patient empowerment	Inclusion of patient education in care models; provision of glucose meters to some patients	Dietary advice adapted to humanitarian settings; advocacy for appropriate nutritional support
Follow-up care	Use of registration books, patient files, and recall systems	Follow-up systems regularly included in primary health-care response
Health workforce		
Few human resources, untrained medical staff	Task shifting or sharing; use of simplified guidelines and algorithms; on-the-job and adapted training; use of telemedicine; clinical supervision	Wider availability of NCD training adapted to humanitarian settings; guidelines on task sharing
Medication and technology		
Unavailability of essential quality NCD drugs (both globally and locally)	Importation by humanitarian providers	Improved supply and sustainable financing for diabetes medications
Insulin cost, product cold-chain information	Use of local cooling devices and studies on insulin thermostability	Increased evidence on stability of insulin
Glucose meter and strips cost, temperature sensitivity, lack of interoperability	Limited implementation of home glucose meter use in some settings	Need for universal, temperature-stable strips; affordable non-invasive monitoring
Limited investigative capacity	Use of desktop HbA _{1c} and electrolyte devices, and hand-held creatinine device	Field-adapted, harmonised point-of-care device for key diabetes investigations
Finance		
Insufficient funding for diabetes in humanitarian response, with pharmaceutical companies gaining space in the funding gaps	Newly formed interagency research consortium applying jointly for funding; symposia to improve advocacy, awareness, and global action	Strengthened advocacy campaigns; health financing models that reduce out-of-pocket health-care costs
Governance		
No policy and system frameworks	Early integration and coordination of diabetes care with host health systems	Adapted strategic policy frameworks to include diabetes
Diabetes care not consistently part of the humanitarian agenda	Diabetes is included in the WHO Action Plan and in the Sustainable Development Goals	Guaranteed inclusion of diabetes in the humanitarian response and agenda; inclusion of diabetes and other NCDs in ministries of health disaster response plans
No coordination between humanitarian actors and their target populations	UNHCR-convened informal working group on NCDs in humanitarian crises to share knowledge and experience, and improve collaboration between organisations	Develop and implement standardised systems to facilitate care, communication, and coordination for management of NCDs in emergencies
NCDs=non-communicable diseases. UNHCR=UN High Commissioner for Refugees.		
Table: Challenges and needs associated with diabetes care in humanitarian contexts (WHO health systems framework)		

where baseline diabetes data are generally not sufficient.^{7,14} Moreover, existing assessment tools, including knowledge–attitude–practice surveys and qualitative studies of patient and health worker experiences and perspectives, usually do not include diabetes or other NCDs.

The lack of inclusion of diabetes in existing assessment tools means that it is easily deprioritised or not considered for intervention; and when an intervention occurs, baseline data are missing to inform intervention design and measure its effect. In the past decade, efforts

have been made to cover evidence gaps using rapid or serial surveys and qualitative studies in specific humanitarian settings.¹⁵

Ideally, patient follow-up is facilitated by clinic-held records, patient-held booklets (an important mechanism for the sharing of information between providers and for patients on the move),⁴ appointment books, reminder messaging, and the use of community health workers to both support patients at home and trace defaulters. These strategies enable safe and effective patient care, while also facilitating service supervision and quality assurance with audit data, and the provision of data for monitoring and evaluation. However, such investment in registration and follow-up is not always feasible in humanitarian contexts. As a minimum, a clinic-held register that records new patients and their follow-up visits, together with a simple hand-held patient record, permits an acceptable degree of patient monitoring, support, and service supervision.¹⁶

Given the insufficient evidence on diabetes management in humanitarian settings, the improved use of programmatic data is strongly needed to document and evaluate models of care and alternative approaches. Unfortunately, most existing tools are not necessarily adapted for diabetes programme monitoring because they focus on aggregate data and usually do not include NCD indicators. However, increasing examples of diabetes cohort monitoring in humanitarian settings exist, including use of electronic data systems.^{16,17} Furthermore, several agencies are moving towards the use of individualised patient data entry for programme monitoring, enabling the analysis of patient and cohort outcomes, as well as standard service use data. This strategy promises to substantially improve service quality, but requires a large investment in data management at the health structure level. An ongoing interagency effort led by the UN High Commissioner for Refugees (UNHCR) seeks to develop an appropriate set of NCD indicators that can be used by various agencies.

Service delivery

Challenges of diabetes care delivery

The routine inclusion of diabetes care into humanitarian responses is challenging because of the absence of useful data, and because of the diversity of humanitarian contexts and complexity of choices that confront medical providers during the course of service delivery. The humanitarian settings in which diabetes care is implemented vary, from low-income to middle-income countries, rural to urban settings, camps to open settings, and acute to protracted crises, each with their own context-specific challenges. In an emergency context, care providers must make decisions associated with resource allocation, in which prioritisation is usually, and understandably, given to the immediate causes of increased mortality and communicable diseases (panel 1).^{18–22}

Panel 1: Médecins Sans Frontières' experience of competing needs in humanitarian emergencies

Competing needs in an emergency context were exemplified during the initial humanitarian medical response to the so-called conflict Battle for Mosul in 2016–17, which predominantly focused on the immediate response to trauma and emergency obstetric care, with a number of actors providing surgical and trauma care. However, patients presenting to the Médecins Sans Frontières' emergency rooms with medical conditions initially proved challenging to refer for ongoing management because of the overwhelmed governmental hospitals and a lack of other response providers supporting these needs. Thus, a patient presenting with a diabetic crisis could be stabilised, but further admission for disease control was more difficult to achieve.

In a very different humanitarian setting, the Médecins Sans Frontières' team in Tanzania was able to incorporate the acute and chronic management of diabetes into a broad medical response for Burundian refugees. Médecins Sans Frontières has been the main medical actor in Nduta camp in north western Tanzania since October, 2015, providing a range of preventive, primary, and secondary health services. Alongside a high incidence of malaria and other pressing needs (including malnutrition and under-vaccination), the team was also confronted by patients with existing and new non-communicable diseases, including diabetes. The complexity of concurrent management of these diseases alongside a multitude of other needs made implementation of care especially challenging, but the importance of avoiding neglect of patients requiring diabetes care was clear to the team, who set up a chronic disease clinic to better facilitate management.

Adapting the model of care

Humanitarian emergencies are typically considered in stages, from the initial acute phase to the post-emergency phase. However, a situation of chronic instability and eventually a recovery phase, when humanitarian activities transition to a more development-oriented response, is common. Decisions to include diabetes care and the comprehensiveness of the model of care might vary according to the phase of the crisis.²³ In the initial phase of an emergency response, organisations might implement so-called light and flexible activities, prioritising treatment (or referral) of symptomatic presentations, and delivering essential medications, particularly to high-risk patients and pregnant women. In relatively stable or protracted settings, a more comprehensive approach can be implemented (eg, including laboratory investigations, a good follow-up system, and patient education; panel 2). In each circumstance, particularly during the immediate emergency response, given the spectrum of care required and the limited availability of humanitarian resources, it is important to clarify treatment objectives. For example, in the initial emergency response the aim might be to enable basic continuity of care, with avoidance of acute complications, such as diabetic ketoacidosis, whereas in more stable settings, achieving good disease control becomes both more feasible and important. These objectives affect the way in which a model of care is implemented, including the frequency of follow-up (which might be minimised with less stringent clinical objectives) and the use of investigations (that might be restricted to the use of basic hand-held devices).

Panel 2: Médecins Sans Frontières' experience of crisis phases and complexity of care

Mobile clinics run by Médecins Sans Frontières during the Iraq conflict in 2015 and 2016 provide an example of an initial, flexible response. During this intervention, diabetes and other non-communicable diseases constituted a regular and important proportion of patient morbidity (averaging 10% of consultations). According to changing population needs, teams implemented a light system of care, including basic follow-up and education, with the objective of achieving continuity of care and minimising acute complications. Teams only had sphygmomanometers and glucose meters for diagnosis and monitoring.

In the conflict-affected region of Ukraine, Médecins Sans Frontières' mobile clinic response in the buffer zone between the Ukrainian-controlled territory and the self-proclaimed Donetsk People's Republic documented up to 90% of consultations for diabetes and other non-communicable diseases. As the conflict became protracted, the teams were able to implement a more thorough system of care than that of the mobile clinics in Iraq, including the use of point-of-care tests for HbA_{1c} and creatinine monitoring. In more stable protracted crisis settings, such as the Syrian refugee response in Lebanon and Jordan, diabetes care is integrated at the primary health-care level or is provided at stand-alone non-communicable diseases clinics, with a comprehensive approach, including dedicated patient education, use of laboratory testing, and referral to specialists when required. Diabetes care has also been integrated with HIV and tuberculosis care in low-income and other humanitarian settings.^{24,25} However, this integration is not without challenges because diabetes demands a unique knowledge base and skill set from staff members with specific training and high workloads (particularly given the implementation of task shifting for HIV and tuberculosis in many humanitarian settings).

Levels of care

NCD care is most commonly provided within a primary health-care setting in humanitarian contexts. When possible, care should be linked with, or integrated into, Ministry of Health primary care services. However, in many cases in the preconflict setting, diabetes is managed at the secondary or tertiary level.^{26,27} To support implementation of NCD care, the informal interagency working group on NCDs in humanitarian settings convened by UNHCR has developed an operational manual for publication in 2019. This document provides operational guidance to address NCD-related needs with an integrated approach at the primary health-care level.

Where emergency room and inpatient services are made available, provisions need to be made for the management of acute diabetes complications. In many settings, humanitarian responders will need to link with, and potentially support, the Ministry of Health and other actors so that patients can access all forms of necessary care. In settings in which high levels of care are not otherwise available, or are no longer functioning, the humanitarian provider might become the definitive care provider, whether at the primary or secondary care level. In some instances, the development of extremely basic protocols of care are needed. For example, in Agok, South Sudan, Médecins Sans Frontières provides basic secondary health care given the absence of other providers. Algorithms for diabetic ketoacidosis have been substantially adapted and simplified to suit the local nursing and medical care, and the absence of electrolyte testing and syringe pumps.

Given the lack of referral options in this setting, patients with chronic complications (ie, renal failure, diabetic retinopathy, or cardiovascular disease requiring intervention) do not receive specialised care, a challenge for care providers. However, even in places where emergency or secondary diabetes care are available, patient access to continuity of care following discharge from the hospital remains challenging in emergency contexts. For example, in Yemen, security constraints and pressing surgical and emergency needs have meant that chronic care remains a largely unaddressed aspect of the humanitarian response.

Prioritisation and patient-related factors

The resource limitations and need for priority setting in humanitarian contexts mean that challenging choices are faced regarding which diagnoses to cover and which elements of care to provide. Type 1 diabetes care is a high priority for intervention, given that the absence of treatment can be rapidly fatal. Type 2 diabetes is important to include in humanitarian medical care because it has a high prevalence and can generally be managed with inexpensive medications. In most emergency settings, priority is given to those who are symptomatic, and secondarily to those who have an established diagnosis (particularly if they already have identified complications). Generally, undiagnosed patients will only be actively sought in specific circumstances where resources allow, sometimes among high-risk groups (such as patients with tuberculosis). Diabetes in pregnancy is also of high importance and requires careful comanagement of both the pregnancy and diabetes. Specialised care might not be available in humanitarian settings. Nevertheless, where both antenatal and diabetes services exist, we are aware of unpublished examples in which both have been successfully managed by midwives and generalist doctors in humanitarian contexts. Importantly, given some similarities in management approaches and the prevalence of multimorbidity, resource allocation and management processes are often optimised by providing simultaneous care for multiple NCDs within one service.²⁸ This strategy allows for the treatment of comorbidities that feature commonly alongside diabetes, such as hypertension and cardiovascular disease.

Where resources are very scarce, humanitarian organisations might need to consider stratification of risk among identified patients to determine service eligibility. In practice, this stratification is difficult for field teams faced with high patient demand. However, it might prove useful in highly insecure settings (eg, where access to patients is limited). In this context, identifying patients who require insulin, with very unstable disease, or with recent hospital admissions or disease exacerbations, might enable teams to focus their access efforts to those in greatest need.

Chronic conditions require that patients have an understanding of their disease and the capacity to self-manage. Challenges around patients' education in

humanitarian settings are linked to the availability of context-appropriate materials, the capacity of staff to provide appropriate education, and knowledge of how best to adapt standardised educational materials to local cultural norms. Self-management skills, such as glucose monitoring, acquire added importance in many humanitarian settings, in which health system capacities might be scarce or of an insufficient standard, and might also be more difficult to achieve. In addition to checking their own glucose concentrations, patients need to be able to store their insulin safely and, ideally, titrate their dose according to their fasting blood glucose concentrations. Patients can be taught to check their feet and manage simple wounds, thus reducing their dependence on health services. Patient-held booklets should contain simple information to assist patients in their self-management.

Lack of patient control over lifestyle factors, such as when food is provided or in conditions of food insecurity, can prove a substantial barrier to patient self-management, and might require an investment in advocacy to improve the adequacy of food supply and other support for patients. For example, Médecins Sans Frontières' staff have struggled to manage patients with type 1 diabetes in two different refugee camps in east Africa, when food rations provided by the World Food Programme were cut because of insufficient funding. This funding issue led to food insecurity and irregular dietary patterns for patients who need to inject insulin multiple times a day, potentially putting them at risk of life-threatening hypoglycaemia. Additionally, patients might need to dedicate time to income-generating activities and life-preservation tasks in a way that impedes their ability to self-manage and attend appointments. Moreover, challenges to movement, including security restrictions and transportation difficulties, can be a barrier to accessing care, particularly in non-camp settings.^{29,30}

In humanitarian contexts, education usually focuses on patients already diagnosed with a disease, whereas primary prevention remains a low priority. However, use of health promotion staff in the waiting room or in the community might allow the wider community to benefit from messages associated with lifestyle management, which have the potential to assist in the prevention of type 2 diabetes and cardiovascular disease. Patient education can also be given in groups in health facilities or in the community, where working with social networks has also proven beneficial in refugee settings.³¹

Lessons from HIV

Humanitarian organisations tasked with implementing models of NCD care have been able to draw on successful experiences in the response to other chronic diseases, in particular that of HIV and tuberculosis. Panel 3 summarises how the experience of Médecins Sans Frontières in HIV can be useful for developing a response to NCDs.

Panel 3: HIV lessons for non-communicable disease care provision—transferrable interventions

Aspects of HIV models of care have been adapted for the implementation of humanitarian non-communicable diseases care. Lessons learned include the importance of integrating care into existing services or general primary health care when possible, the use of task shifting and sharing to enable greater numbers of patients to be treated in places where highly qualified human resources are scarce, and the facilitation of integrated, task-shifted care with the use of simplified protocols and follow-up regimens.^{24,25}

Similarly to HIV and tuberculosis, multidisciplinary care is of central importance in the management of diabetes. Nursing care and patient education are core components of management, and ideally patients should also have access to mental health care, social work services, and palliative care. Given the disease spectrum of chronic conditions, a cascade approach to management can help in the identification of the level of intervention required.

In humanitarian crises in which treatment disruption is a risk, lessons learned from experience in HIV and tuberculosis treatment include the use of buffer stocks and runaway packs to help minimise interruption to medication, networking with other health facilities, and the use of patient passports to facilitate continuity of care. At a time of rapid development in communication technologies, consideration might also be given to remote support for patients, where access is otherwise impossible.

Health workforce

In humanitarian settings, there can be two particular challenges regarding human resources: a deficient number of health-care workers, and a lack of experience and skill set required to manage diabetes. Supporting clinicians and other health-care workers to manage patients with diabetes in these complex settings has been negatively affected by the dearth of existing guidelines adapted to emergency contexts, insufficient evidence to support guideline adaptation, and an absence of agreed minimum standards of care. Furthermore, country-specific NCD guidelines that exist in low-income settings might recommend treatments that are not available or affordable in that country, having often received funding or support from pharmaceutical companies or specialists with links to them.³² The Pocketbook for Management of Diabetes in Childhood and Adolescence in Under-Resourced Countries³³ is an available resource for clinicians in LMICs, along with the WHO Package of Essential Non-communicable Disease Interventions guidelines that refer to type 2 diabetes management.³⁴ In addition, some humanitarian organisations have now developed their own guidelines, generally based on international guidelines and adjusted according to field experience and pragmatism.³⁵ These guidelines might be used by field workers as a resource to develop context-adapted protocols, based on the local availability of drugs and diagnostics, as well as national or local policies where appropriate. However, evidence associated with the effect of these guidelines on health outcomes is still insufficient.

Adapted guidelines are useful to support the health workforce, but alone are insufficient. Clinical training

based on context-adapted protocols should be supplemented with on-the-job training when possible, with on-site clinicians available to train and supervise. If not feasible, remote support can be useful, such as through online training and Médecins Sans Frontières' telemedicine system, with which field clinicians have remote access to a wide range of specialists for rapid clinical support.³⁶ Furthermore, clinical supervisors who are accustomed to managing a service based on the acute (single contact) model of care will require additional training to supervise a service providing chronic care for diabetes, which involves multiple health professionals.

Medical products and technologies

Multiple devices are needed to complete the key investigations for diabetes³⁷ and, although options for point-of-care devices are increasing, most are not handheld. Some are temperature-sensitive or require electricity, whereas others need a cold chain for reagents, have short reagent half-lives, or both. Therefore, an ideal tool readily deployable in humanitarian crises is not yet available. In settings where laboratories are available and of sufficient quality, the simplest approach might be to use the existing health infrastructure. Designing a standard list of laboratory investigations with associated frequencies might facilitate the judicious use of resources and can support and guide clinicians.

Despite being of crucial importance in diabetes, even glucose monitoring remains challenging in humanitarian settings because of the cost of glucose meters and their strips, temperature sensitivity, and the lack of interoperability between different meters, as well as the inconvenience of regular finger prick testing. Even when humanitarian agencies are able to provide them to some patients, patient illiteracy might prove a further challenge to their utility. Inexpensive, non-invasive, and field-adapted monitoring equipment is needed.

Diabetes medication availability and affordability remains poor in most regions of the world, and in humanitarian contexts supply and use of diabetes medication is a substantial challenge.³⁸ Humanitarian organisations might use imported medications, or those aligned with the organisation's standard list, which can differ from the range of medications that patients were prescribed before the crisis. This difference creates challenges when attempting to achieve continuity of care with past and potentially future forms of treatment. Lack of patient familiarity with new medications and potential side-effects during change over can affect treatment adherence and disease control. Along with other disruptions that patients might have endured, this seemingly small alteration to a medical routine can prove to be an additional challenge. Thus, adaptation of drug lists to local prescription preferences, where these are consistent with rational and evidence-informed use, can be useful. Medications can be sourced locally or internationally, but quality should be assured, along with

reliability of supply and integration within local pharmacological procurement networks, when relevant.

The provision of insulin must consider types of insulin (human or analogue, and duration of action) and delivery devices (pen devices or vials), as well as the supply of glucose meters and strips for certain patients, such as those on rapid-acting insulin. However, despite insulin having been available for almost a century, its cost remains prohibitively high in both high-income and low-income settings, particularly analogue insulins and newer devices, such as pens for injection.^{38–40} A lack of transparency on insulin pricing and an absence of prequalified products remain. In an emergency context, human insulin vials remain the cheapest option, but are more complex to use and might be challenging to introduce in an emergency setting to patients who are only familiar with analogue pen devices. Product information requires that insulin must be refrigerated, which is not always possible in humanitarian settings. This requirement poses a barrier to transport, storage, and even patient use, despite studies that have identified the cooling properties of locally made containers, such as clay pots,⁴¹ as well as early information on the potential stability of insulin at hot (above room temperature) but fluctuating temperatures.⁴² Nevertheless, during humanitarian interventions, insulin has more frequently been considered for inclusion in drugs sent for the emergency response, and is newly included in the Interagency Emergency Health Kit revised in 2017, along with glucose meters and strips.⁴³ Agencies using the kit should have supply capacity to manage diabetic emergencies. WHO has also developed a stand-alone NCD kit for emergency settings, which also enables continuity of care for patient medication.^{36,37,44}

Financing

To ensure that diabetes is included in the humanitarian response and to achieve sustainable diabetes care for patients affected by humanitarian crises, substantial advocacy efforts are needed to acquire sufficient industry-independent resources for implementation during a crisis and to ensure patients achieve continuity of care once humanitarian organisations have closed their projects.

Provision of diabetes care is often challenged by the presumption of high expense and complexity in many settings, given the need for ongoing support with multiple medications, regular monitoring and investigations, and other components of care. In general, costs vary substantially according to the setting and cost of supply, with medications—particularly insulin and insulin-related supplies—representing the main cost drivers.^{45,46} However, unpublished Médecins Sans Frontières' costing data from the Democratic Republic of the Congo suggests that costs might be as low as US\$185 per person per year for a nurse-led service. Furthermore, training nurses on multiple morbidities (including chronic infectious diseases such as HIV and tuberculosis) can improve the cost efficiency of

services. Nevertheless, the perception of cost and complexity, as well as a lack of donor interest, has meant that an insufficient number of organisations provide this care in humanitarian settings. Additionally, many organisations receive short term and targeted funding, a challenge which restricts the duration and continuity of care that they are able to provide. Furthermore, care is not always provided for free, and as described in the first paper in this Series,⁶ a number of studies in Lebanon and Jordan found cost of care to be the main barrier for patients with diabetes and other NCDs.^{10,47,48}

Governance

Diabetes is on the global agenda as part of the WHO's Global Action Plan for NCDs and the UN Sustainable Development Goals (SDGs).⁵ However, to achieve the goals that have been set and accelerate the progress that has been made, solidarity with populations in fragile contexts and a commitment to improve humanitarian action must be prioritised.⁴⁹

In addition, to optimise diabetes care among displaced populations, careful coordination between humanitarian actors and their target population is needed because different populations are affected differently during a crisis. For example, following a coup d'état in Mali in 2012, several populations with diabetes were described, each with specific needs: those in the conflict area, internally displaced people, refugees, and the population in the south of Mali.⁸ Each of these populations had individuals with diabetes; however, the response to each set of needs was different, with a variety of actors involved.

Achieving continuity of care for patients following a humanitarian emergency response is challenging in many of the settings in which humanitarian crises occur. When diabetes care is provided by organisations whose time commitment might be limited, the ability to achieve vitally important continuity of care is often constrained by deficiencies in pre-existing services. When diabetes services are provided by an external (non-Ministry of Health) actor, a strategy for integration into the existing health system should be identified in the design phase of an intervention. Capacity-building in the form of training and gradual integration into existing services can smooth the eventual handover, supplemented by advocacy for resources from ministries of health or donor agencies to address gaps in the availability of existing care.

Conclusions

With the dramatic increase in the burden of NCDs, and diabetes in particular, humanitarian action must adapt to remain effective. NCDs are now well situated in the global health agenda, but the importance of crisis-affected populations and their significance to achieve the SDGs must be recognised and prioritised.⁴⁹ Diabetes causes substantial avoidable mortality and disability in humanitarian settings, and thus provision of adequate care for diabetes in crisis is a humanitarian imperative.

Search strategy and selection criteria

We searched PubMed using search terms including "diabetes", "noncommunicable diseases", "insulin", "humanitarian", "conflict", "emergency", "humanitarian crises", and "refugees", for articles relevant to the challenges for diabetes care in humanitarian setting published up to Jan 20, 2018, with no language restrictions. Published literature was chosen according to the relevance to the topic. Additional published references were identified from the references of these sources. We also used highly referenced papers on the topic, and reports from humanitarian organisations and WHO. Websites of specific organisations were used to obtain data of relevance.

In the face of multiple competing needs in humanitarian contexts, improved situation assessments (including of vulnerability and chronic disease) can help guide programmatic choices, and a staged or risk-stratified approach to implement diabetes care should be used. Misperceptions about the prohibitive cost of diabetes care must be addressed. Costs can be rationalised with the simplification of treatment approaches, task shifting, decentralisation of care, and integration of NCD care at the primary health-care level. Humanitarian organisations are fast gaining experience in the design and delivery of models of care adapted to the pressures inherent in humanitarian settings. Adapted guidelines are being developed, point-of-care testing is becoming more widely available, and standardised laboratory and medicine lists can facilitate procurement and provision. Such changes will not only enable care to be scaled up, but will facilitate continuity of service and supply, particularly in times of insecurity, and might ultimately contribute to building improved health-care systems in the postcrisis phase. Improved transparency of insulin pricing, affordability, and clarity of labelling to show that insulin can be kept safely outside of refrigeration are greatly needed.

The precedent of HIV care provision in settings, and for populations, in which it was thought to be impossible provides hope and sets an example for diabetes and other NCD care. To achieve improved diabetes care in humanitarian settings, strong advocacy efforts will be required, demanding access to, and continuity of, care for patients with diabetes affected by humanitarian crises worldwide.

Contributors

PB prepared the first full draft of the Series paper. SK, JS, and DB assisted in structuring and editing the paper. KJ oversaw the project and provided overall quality control. All authors participated in the review and editing of the Series paper and approved the final version.

Declaration of interests

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For more on **Sustainable Development Goals** see <https://www.un.org/sustainabledevelopment/sustainable-development-goals/>

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