Emergency Medicine and the Global Burden of Non Communicable Diseases: A Public Health Framework

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ABSTRACT

Background: *Non-communicable diseases (NCDs) like heart disease, diabetes, and cancer are the leading causes of illness and death worldwide. Although these conditions are chronic, they can often lead to acute crises that require emergency department (ED) visits, especially when regular care is not accessible. Despite this important connection, the crucial role of emergency medicine in addressing the global NCD challenge is frequently neglected in public health policies.* **Objective:** *This study explores the relationship between emergency medicine and NCDs, examining how health systems are equipped to handle NCD-related emergencies and how disruptions in care pathways affect patient outcomes.* **Methods:** *We performed a narrative review of literature from the last ten years, utilizing sources such as PubMed, World Health Organization (WHO) reports, and global health policy documents. Our analysis focused on peer-reviewed studies and health frameworks related to acute care and public health responses to NCDs, while excluding non-empirical opinion pieces. We synthesized data across four main themes: service delivery, emergency preparedness, care disruptions, and the integration of acute and long-term care.* **Results:** *The findings indicate that EDs are increasingly becoming the first point of contact for patients with undiagnosed or poorly managed NCDs. The lack of coordination between emergency and primary care, along with deficiencies in routine management, contributes to a rise in preventable complications and hospital admissions.* ***Conclusion:*** *To effectively lessen the global NCD burden, health systems need to connect emergency services with long-term care. Enhancing emergency medicine and incorporating it into broader public health strategies is vital for creating resilient and prepared healthcare systems.*

Keywords*: Care Pathway Disruptions, Emergency Medicine, Health System Integration, Non-Communicable Diseases (NCDs), Public Health Preparedness*

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INTRODUCTION

Non-communicable diseases (NCDs) are chronic health conditions that develop gradually within individuals and are not transmitted from person to person. Unlike communicable diseases, NCDs typically arise from a complex interaction of biological, environmental, behavioral, and genetic factors (Gabe, 2026; Mozafari, 2021). According to Hajat & Stein (2018), common risk factors include unhealthy diets, physical inactivity, tobacco use, harmful alcohol consumption, environmental exposures, and inherited predispositions.

The major categories of NCDs include cardiovascular diseases, cancers, chronic respiratory diseases, and diabetes, which together account for the largest proportion of the global disease burden (Slama et al., 2016). outside these core groups, NCDs also encompass a wide range of conditions such as Alzheimer's disease, autoimmune disorders, chronic kidney disease, obesity, osteoarthritis, osteoporosis, Parkinson's disease, and cataracts (NCD Alliance, n.d.).

Globally, NCDs represent one of the most significant public health challenges of the 21st century. They are currently the leading causes of morbidity and mortality worldwide, accounting for approximately 74% of all global deaths annually (World Health Organization [WHO], 2022). Earlier estimates similarly indicated that NCDs were responsible for over 70% of global deaths, with projections suggesting a continued upward trend, reaching an estimated 55 million deaths per year by 2030 if current patterns persist (WHO, 2011; WHO, 2013). Once regarded primarily as diseases of affluent societies, NCDs have increasingly shifted toward low- and middle-income countries (LMICs), which now bear nearly 80% of all NCD-related deaths, many of which occur prematurely (WHO, 2013).

The growing burden of NCDs in LMICs has profound public health and economic implications. These include escalating healthcare costs, reduced workforce productivity, and increased pressure on already strained health systems (Nugent et al., 2018). Emergency care services, in particular, are heavily affected, as they often serve as the first point of contact for individuals experiencing acute exacerbations of chronic NCDs such as myocardial infarction, stroke, diabetic ketoacidosis, or severe asthma attacks (Hajat & Stein, 2018). In many settings, especially where access to primary or preventive care is limited, emergency departments (EDs) function as a critical safety net for NCD management.

In response to the rising global NCD burden, the World Health Organization developed the Global Action Plan for the Prevention and Control of Non-Communicable Diseases (2013–2020), which outlines key targets aimed at reducing premature mortality from cardiovascular diseases, cancers, diabetes, and chronic respiratory diseases. The plan also emphasizes reducing exposure to major risk factors, including harmful alcohol use, tobacco consumption, and elevated blood pressure, while increasing access to appropriate preventive therapies (WHO, 2013). Evidence from high-income countries demonstrates that emergency departments can play a meaningful role in achieving these targets through interventions such as tobacco and alcohol cessation counseling, early screening, and the use of patient navigators to improve treatment adherence among individuals with chronic conditions like diabetes (Lemhoefer et al., 2017).

Apart from the prevention and risk-factor modification, emergency departments remain the primary clinical setting for the management of acute NCD-related complications, mental health crises, and injury-related presentations (Reynolds et al., 2017). Timely and effective emergency care is essential to reduce mortality, prevent long-term disability, and limit downstream health system costs associated with poorly managed chronic disease. Consequently, studying NCD presentations within emergency care settings and developing high-impact, context-appropriate interventions is crucial. Strengthening the role of emergency medicine in NCD prevention, acute management, and linkage to long-term care represents a strategic public health opportunity to mitigate the growing global burden of non-communicable diseases (Figure 1).

In view of Slim et al. (2016), emergency medicine has been primarily oriented toward the management of acute conditions, including trauma, infectious diseases, and other immediately life-threatening events. However, ongoing global epidemiological transitions have significantly altered the case mix presenting to emergency departments (EDs) (Reynolds et al., 2017). Increasingly, EDs are confronted with patients whose acute presentations are directly or indirectly related to non-communicable diseases (NCDs), such as myocardial infarction, hypertensive emergencies, and hyperglycaemic crises. These presentations underscore the growing intersection between emergency care and chronic disease management.

The burden of NCDs becomes even more pronounced in the context of emergencies and disasters (Martel et al.,2015) Emergencies encompass natural hazards such as earthquakes and extreme meteorological events, as well as armed conflicts and their associated consequences, including civil unrest and refugee crises, often described as complex or chronic emergencies (United Nations Office for Disaster Risk Reduction, 2009). Historically, public health responses in such settings have prioritised the management of acute injuries and communicable diseases (The Sphere Project, 2011). While this focus remains essential, it no longer reflects the evolving health needs of affected populations.

Non-communicable diseases, including diabetes, hypertension, cardiovascular disease, cancer, and chronic respiratory conditions, are now leading causes of morbidity and mortality in low- and middle-income countries (LMICs) and in disaster-prone settings (Friel et al., 2011). These conditions require sustained, long-term management to prevent complications and reduce mortality (Tomio et al., 2014). However, emergency contexts often disrupt health systems, limit access to medications and continuity of care, and increase the risk of acute exacerbations of chronic illnesses. As a result, individuals with NCDs are particularly vulnerable during disasters and conflicts, with delayed or inadequate treatment frequently leading to preventable complications and deaths.

Complex emergencies further compromise NCD prevention and control over prolonged periods.

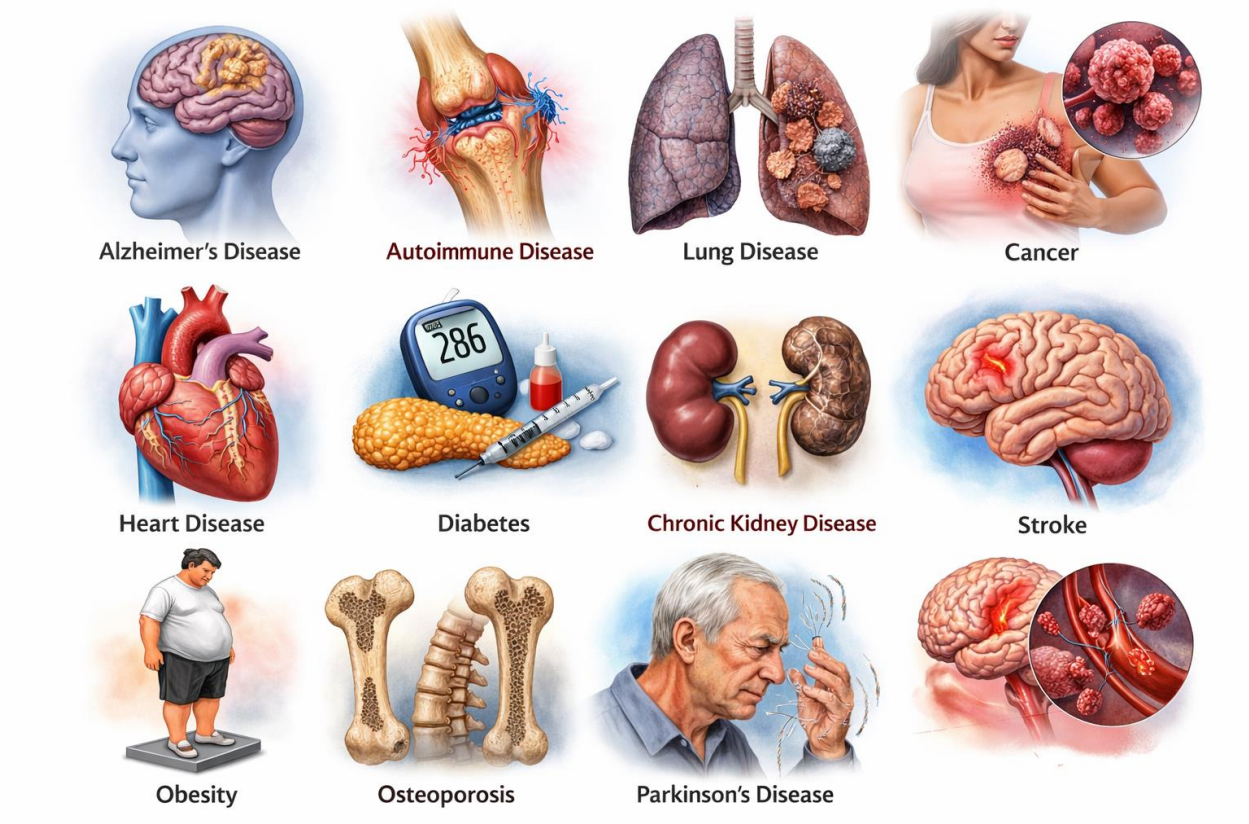

Figure 1: A Diagram showing some non-communicable Diseases
Source: Gemmy Image

Limited access to timely and appropriate care not only worsens health outcomes for affected individuals but also imposes substantial financial and operational burdens on humanitarian agencies tasked with managing advanced disease complications (Doocy et al., 2016; Spiegel et al., 2014). Despite this growing burden, NCD management remains an under-recognized and insufficiently integrated component of emergency and humanitarian health responses.

Addressing non-communicable diseases (NCDs) in emergency settings requires a more comprehensive and coordinated approach than has traditionally been employed. Central to this approach is the systematic incorporation of NCD care into standard operating procedures for emergency medical services (EMS), which would support both horizontal integration with acute emergency care and vertical integration with referral pathways and long-term disease management systems (Doocy et al., 2016; Spiegel et al., 2014). In spite of the growing burden of NCDs, the integration of NCD prevention, acute management, and continuity of care into EMS and emergency medicine remains poorly developed in many national health systems, particularly in low- and middle-income countries (Friel et al., 2011; World Health Organization [WHO], 2018).

Emerging scholarship stresses the potential public health gains of strengthening the role of emergency medicine in the early detection, acute stabilisation, and referral of patients with NCDs. Emergency departments are increasingly recognized as strategic points of contact for identifying undiagnosed or poorly controlled chronic conditions and linking patients to ongoing care (WHO, 2018; Doocy et al., 2016). Connecting urgent care services with preventive and chronic disease management frameworks, emergency medicine can contribute to improved continuity of care, especially in resource-limited and crisis-affected settings where access to routine health services is frequently disrupted (Spiegel et al., 2014; The Sphere Project, 2011). Against this backdrop, this article examines the role of emergency medicine in addressing the global burden of non-communicable diseases through a public health lens. It explores key operational challenges and opportunities for integrating NCD care into emergency systems and discusses the implications for policy development, clinical practice, and humanitarian health planning in both stable and emergency contexts.

METHODOLOGY

Study design

We conducted a narrative literature review to synthesize evidence on the role of emergency medicine in prevention, management, and health system integration of non-communicable disease (NCD) care.

Rationale

A narrative approach was chosen to integrate heterogeneous evidence from empirical studies, policy analyses, and health-systems frameworks and to identify thematic domains relevant to emergency and acute care settings.

Excerpt from source document

This study adopted a narrative literature review design to synthesize existing evidence on the role of emergency medicine in the prevention, management, and health system integration of non-communicable disease (NCD) care.

Search strategy

Databases and sources searched

We performed structured searches of PubMed/MEDLINE**,** Embase**,** Scopus**,** the World Health Organization publications, and selected global health policy and health-systems documents. We also screened reference lists of included papers and relevant reviews for additional records.

Search period

Publications from 2013 to 2026 were eligible to capture the most recent decade of evidence.

Search terms

Controlled vocabulary and free-text terms were combined using Boolean operators. Key terms included emergency medicine; emergency department; acute care; non-communicable disease; chronic disease; public health; health systems; humanitarian; disaster (Figure 2).

Eligibility criteria

Inclusion criteria

- Studies, policy analyses, and health-systems frameworks that explicitly examined emergency medical care systems in relation to NCD prevention, acute management, continuity of care, or system integration.
- Empirical quantitative studies, qualitative research, mixed-methods studies, systematic and scoping reviews, and authoritative policy documents.

Exclusion criteria

- Opinion pieces or commentaries without empirical or analytical foundation; studies not explicitly relevant to emergency medicine or NCD care; non-English language reports where translation was not available.

Study selection

Screening process

Two reviewers independently screened titles and abstracts for eligibility. Full texts were retrieved for records meeting inclusion criteria or where eligibility was unclear. Discrepancies at either stage were resolved by discussion and, when necessary, adjudication by a third reviewer. A PRISMA flow diagram documents the number of records identified, screened, excluded, and included.

Data extraction and management

Data items extracted

For each included source we extracted bibliographic details; study design; setting and population; NCD(s) addressed; emergency care role or intervention; outcomes measured (clinical, service delivery, system integration, public health); key findings; and limitations**.** Extraction was performed using a standardized form piloted on a sample of studies. One reviewer extracted data and a second reviewer verified entries for accuracy and completeness.

Quality appraisal

Approach

We appraised methodological quality using tools appropriate to study design**:** CASP checklists for qualitative studies, Newcastle-Ottawa Scale for observational studies, and the AMSTAR 2 tool for systematic reviews. Policy documents and frameworks were assessed for transparency of methods and evidence base. Quality assessments informed interpretation but did not determine inclusion.

Data synthesis

Synthesis method

Given heterogeneity in study designs and outcomes, we used thematic narrative synthesis to organize findings into key domains: service delivery models; emergency preparedness and system capacity; integration challenges between emergency and chronic care; and public health outcomes related to NCD burden. We tabulated study characteristics and key results to support cross-study comparison and identified evidence gaps and research priorities.

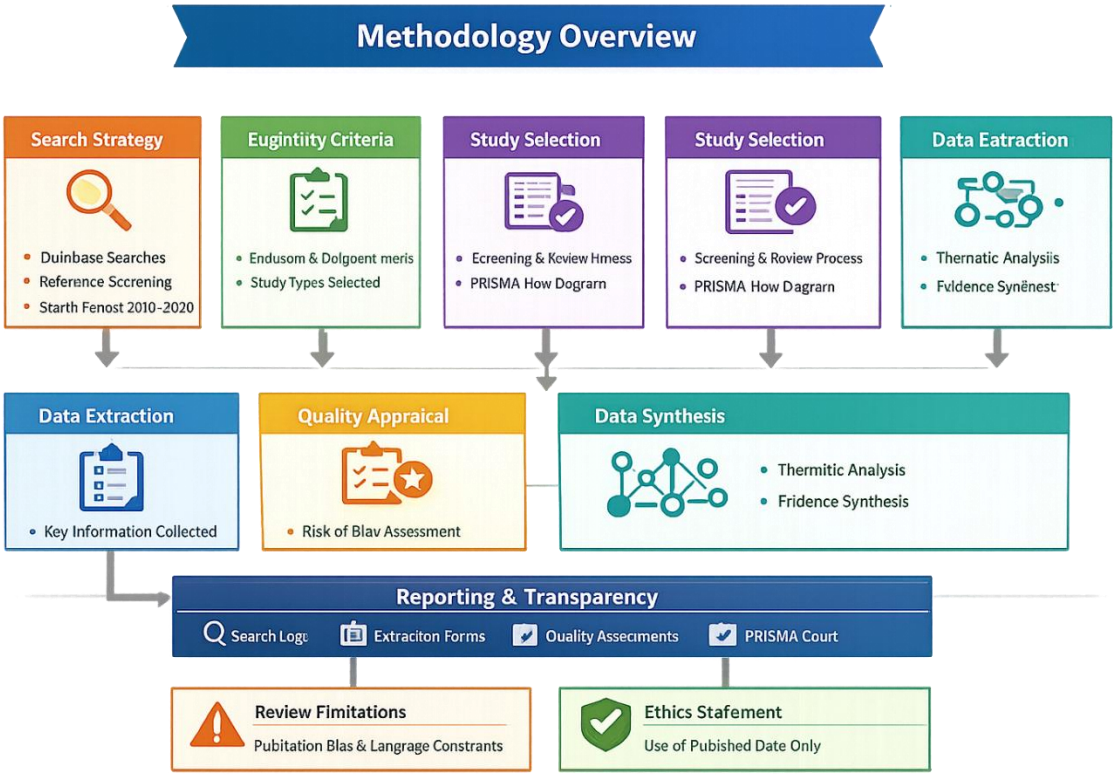

Figure 2: Methodology Overview — Narrative Literature Review Process for Emergency Medicine and Non-Communicable Disease Integration.

Excerpt from source document

Data extracted from eligible sources were systematically organized and synthesized into key thematic domains, including service delivery models, emergency preparedness and system capacity, integration challenges between emergency and chronic care, and public health outcomes related to NCD burden.

Reporting standards and transparency

Reporting

The review follows the SANRA guidance for narrative reviews and the PRISMA checklist where applicable. We provide the full search strategies, screening log, data extraction template, quality appraisal results, and a PRISMA flow diagram in the Supplementary Materials. Limitations of the review such as potential publication bias, language restrictions, and the narrative synthesis approach are described in the Discussion.

Ethics statement

This study used only published and publicly available data and did not require institutional review board approval.

RESULTS

Emergency Medicine Meets Non-Communicable Diseases

Around the world, emergency departments (EDs) have become a crucial safety net for people living with non-communicable diseases (NCDs) such as hypertension, diabetes, cardiovascular disease, and chronic respiratory conditions (Figure 3). Although these illnesses are typically conceptualized as chronic and best managed in primary care, they frequently manifest most acutely in emergency settings when disease control has deteriorated and complications arise (Ramsay et al., 2021; Razzak & Kellermann, 2002). In many low- and middle-income countries (LMICs), where continuity of care remains limited, EDs often represent the most accessible point of contact with the health system, particularly for marginalized populations (Ma et al., 2019; Obermeyer et al., 2015). This role is further reinforced by broader structural and environmental determinants shaping emergency care demand, including urbanization and spatial inequalities in health service access (Chayakova & Tsigengagel, 2026).

Hypertensive emergencies and acute coronary syndromes exemplify this frontline function.

Figure 3: A Diagram Showing the Connection between Emergency Medicine and Non-Communication Diseases.
Source: Visual Image

Patients frequently present with severe symptoms such as chest pain, dyspnea, or neurological deficits without prior diagnosis of underlying chronic conditions (Peixoto, 2019; Whelton et al., 2018). In such cases, ED clinicians are not only managing acute events (e.g., myocardial infarction, stroke, or heart failure) but are also initiating the diagnostic trajectory for previously unrecognized NCDs. Empirical evidence indicates that a substantial proportion of ED visits are attributable to exacerbations of chronic diseases, including cardiovascular disease, diabetes, and chronic obstructive pulmonary disease (McDermott et al., 2017; Obermeyer et al., 2017). This "acute-on-chronic" dynamic reflects the underlying biological interplay between long-term disease progression and acute triggers, often mediated by gene environment interactions (Telepina, 2026).

Beyond clinical presentation, ED utilization patterns also reflect broader epidemiological transitions, where injuries, communicable diseases, and NCDs coexist within the same health system pressures. Hospital-based studies reveal rising trends in injury-related admissions, particularly among younger populations, highlighting the dual burden faced by emergency systems (Shen et al., 2025). Similarly, outbreaks of infectious diseases such as yellow fever continue to intersect with chronic disease vulnerabilities, particularly among high-risk groups like pregnant women, further complicating emergency care delivery (Rodriguez-Morales et al., 2026). These overlapping burdens reinforce the need for integrated and adaptable emergency care models.

This reality has prompted increasing recognition that emergency care must be explicitly integrated into global and national NCD strategies. Historically, NCD frameworks have emphasized prevention, risk-factor modification, and primary care strengthening (World Health Organization [WHO], 2013). However, without incorporating emergency services, health systems miss critical opportunities for early detection, risk stratification, and secondary prevention (Mowafi & Ngaruiya, 2017; Razzak et al., 2019). Evidence shows that ED-based interventions such as early initiation of guideline-directed therapies for acute coronary syndromes—can significantly reduce mortality and improve long-term outcomes (Ibanez et al., 2018; O'Gara et al., 2013). Likewise, quality improvement initiatives targeting inappropriate clinical practices in EDs demonstrate measurable gains in patient safety and resource utilization (Monje et al., 2025).

At the systems level, innovation in healthcare delivery is reshaping the interface between emergency medicine and NCD management. Bibliometric analyses highlight a growing emphasis on service delivery innovations for

lifestyle-related diseases, including integrated and community-linked care pathways (Acharjee et al., 2026). Complementing this, entrepreneurial approaches to healthcare development emphasize efficiency, scalability, and responsiveness in service provision, all of which are critical for modern emergency care systems facing increasing NCD burdens (Durdykulyyeva, 2025).

The importance of integrating emergency and chronic care is further underscored in the context of aging populations and complex, multi-morbid conditions. For example, advancements in dementia care within public health systems illustrate the necessity of coordinated acute and long-term care frameworks, where EDs serve as pivotal nodes for crisis management and referral (Ancidoni et al., 2025). This aligns with broader health system reforms that prioritize integration, resilience, and responsiveness across care levels (De Belvis et al., 2024; Litvinova et al., 2025).

The case for integration becomes even more compelling in disaster and humanitarian settings. Individuals living with NCDs face heightened vulnerability during crises, as disruptions to treatment and care continuity can rapidly escalate into life-threatening emergencies (Balbus et al., 2020; Elafros et al., 2018). While emergency responses have traditionally focused on trauma and infectious diseases, evidence from past disasters demonstrates significant morbidity and mortality associated with unmanaged chronic conditions (Khalil et al., 2019; Kluge et al., 2020). Evaluations of Emergency Medical Teams (EMTs) indicate persistent gaps in NCD preparedness, despite growing recognition of their importance (Nolte et al., 2022; Tanaka et al., 2019).

Recent global policy frameworks emphasize strengthening EMT capacity to address NCDs alongside acute conditions. WHO reports highlight the need for standardized protocols, workforce training, and reliable supply chains for essential medicines as part of emergency preparedness (World Health Organization, 2025a). Regional and global health system reports further stress that achieving universal health coverage (UHC) requires bridging emergency and chronic care services (World Health Organization, 2025b; Porignon, 2024). Initiatives such as the WHO Small Countries Initiative demonstrate progress in integrating health system functions across care continua, including emergency services (World Health Organization, 2025c).

At a macro level, global health challenges including geopolitical instability, migration, and shifting investment priorities are intensifying pressures on health systems and reshaping patterns of disease burden (Boyom, 2026). These dynamics often exacerbate inequities in access to continuous care, increasing reliance on emergency services for NCD management. At the same time, legal and ethical frameworks reinforce the centrality of emergency care, emphasizing the duty of healthcare providers to deliver timely assistance regardless of disease type or patient background (Bianchi, 2024). Collectively, these findings position EDs and EMTs as critical yet underutilized platforms in the global response to NCDs. Emergency departments serve as sentinel sites for disease detection, acute management, and initiation of long-term care pathways, while also reflecting systemic gaps in prevention and primary care. Integrating emergency medicine into NCD strategies through policy alignment, clinical protocols, workforce development, and data systems offers a significant opportunity to reduce preventable morbidity and mortality, particularly in resource-constrained settings (Mowafi & Ngaruiya, 2017; Razzak et al., 2019).

Therefore, the convergence of emergency medicine and NCD care represents not merely an operational necessity but a strategic imperative for health system strengthening. As health systems confront the combined challenges of epidemiological transition, aging populations, and increasing frequency of public health emergencies, embedding NCD management within emergency care frameworks will be essential for achieving resilient, equitable, and sustainable healthcare delivery.

Public Health Preparedness and Response for NCDs in Emergencies

The findings of this review highlight the persistent imbalance in public health preparedness frameworks, which continue to prioritize acute, communicable threats while neglecting the growing burden of non-communicable diseases (NCDs) in emergencies. Despite the well-documented contribution of NCDs to morbidity and mortality in crisis-affected populations (Perone et al., 2017; Slama et al., 2017), humanitarian responses and global health security agendas remain largely focused on trauma, outbreaks, and immediate life-saving measures, with chronic disease care only partially or ad hoc included (Bausch et al., 2021; Collins et al., 2025). This neglect creates a “parallel” public health crisis that extends beyond the acute phase of emergencies, straining health systems for months or years (Ngaruiya et al., 2020; Parotto et al., 2025).

Recent initiatives by WHO and partners represent an important step toward addressing this gap. Operational guidance such as the WHO Noncommunicable Diseases Kit emphasizes continuity of treatment, referral pathways, and patient self-management as core components of preparedness and response (Kiapi et al., 2022; Slama et al., 2017; Alani et al., 2023). However, evidence from Kenya and Tanzania during the COVID-19 pandemic demonstrates that comprehensive provisions for NCD continuity of care were largely absent before the crisis and only partially addressed during it, underscoring ongoing policy and implementation gaps (Mohamed et al., 2024). This reflects a broader challenge of embedding NCD preparedness into national health security frameworks.

The integration of NCDs into emergency preparedness is increasingly recognized within regional and global

health agendas. For example, leveraging the International Health Regulations (2005) has enhanced health security in the Eastern Mediterranean, yet NCDs remain inconsistently incorporated (Elhakim et al., 2025). WHO's Strategic Operational Plan for the Eastern Mediterranean Region (2025–2028) explicitly calls for stronger NCD preparedness, aligning with broader efforts to strengthen primary health care resilience (WHO, 2024). Similarly, Nigeria's Health Intelligence Report highlights the importance of data-driven approaches to accelerate health sector transformation, including NCD surveillance and preparedness (Oladimeji et al., 2026). In Georgia, reforms to strengthen primary care have been positioned as critical for ensuring continuity of NCD services during crises (Richardson et al., 2025), while post-COVID-19 evaluations in Southeast Asia stress the need to institutionalize NCD preparedness rather than relying on improvised responses (Alifah & Hanafi, 2026).

The African context further illustrates the uneven progress in NCD preparedness. Comparative analyses across Kenya, Uganda, Rwanda, and South Sudan reveal significant disparities, with Kenya's emergency departments struggling to provide adequate NCD care (Sharif, 2026; Ngaruiya et al., 2026). These findings highlight systemic weaknesses in integrating chronic disease management into emergency care and point to the need for harmonized standards across countries. More broadly, multisectoral approaches to global health resilience emphasize equity, innovation, and system transformation as essential to addressing both communicable and non-communicable threats (Okesanya et al., 2026). Systematic reviews confirm that public health interventions for NCDs in humanitarian emergencies remain fragmented, with limited evidence on scalable models (Aoun et al., 2026). The N-CAP process offers a structured approach to assessing and planning NCD capacity, providing a practical tool for embedding NCD preparedness into emergency planning cycles (Saad et al., 2024). WHO's subregional workshops on strengthening primary health care preparedness further reinforce the importance of integrating NCD services into emergency frameworks (WHO, 2026).

Disruption of Care Pathways and Risk of Acute Exacerbations

Emergencies whether sudden-onset natural disasters, protracted conflicts, or pandemics frequently disrupt established care pathways, with profound consequences for individuals living with chronic non-communicable diseases (NCDs). Systematic reviews and country case studies consistently document how displacement, infrastructure damage, supply chain interruptions, and mobility restrictions reduce access to essential medications, monitoring, and specialist services, precipitating acute exacerbations of hypertension, diabetes, cardiovascular disease, chronic respiratory disease, and renal failure (Ngaruiya et al., 2020; Ganeshkumar et al., 2021; Sahoo et al., 2021). In conflict-affected and fragile contexts such as Gaza, the breakdown of primary care and hospital services has transformed otherwise manageable NCDs into life-threatening emergencies. High rates of treatment interruption and severe medicine shortages have been reported, with humanitarian assessments noting preventable complications and excess mortality primarily driven by discontinuity of care and loss of follow-up (Katchhi & Ming, 2025; Akik et al., 2024; Collins et al., 2025; Ansbro et al., 2024). These findings underscore the disproportionate burden borne by NCD patients in emergencies, where health system collapse magnifies vulnerability.

Chronic respiratory diseases, particularly chronic obstructive pulmonary disease (COPD), asthma, and bronchiectasis, are acutely sensitive to care pathway disruptions. Acute exacerbations of COPD (AECOPD) represent systemic events with significant morbidity and mortality, often requiring hospitalization and intensive management (Mills et al., 2026; Fantin et al., 2026). Physiopathological studies highlight viral infections, environmental exposures, and treatment interruptions as key drivers of immunopathogenesis, risks that are amplified in disaster and conflict settings (Tonelli et al., 2026; McKenzie et al., 2026). Emergency nurses play a critical role in triage, assessment, and acute management of COPD, yet their capacity is frequently strained in disaster contexts, limiting timely intervention (Moloney et al., 2026). Nonpharmacological strategies including pulmonary rehabilitation, oxygen therapy, and patient education are essential complements to pharmacological care, but these are often unavailable when infrastructure collapses (Panzuti et al., 2026). Similarly, bronchiectasis exacerbations demand timely antibiotic therapy and airway clearance, which are compromised under disrupted health systems (Aliberti & Sibila, 2026). Childhood asthma severity is further heightened by social and relational stressors, which emergencies exacerbate, compounding risks for vulnerable populations (Okwuwa & Ihongbe, 2026).

Natural disasters illustrate how intensive care units (ICUs) and emergency services are overwhelmed, with respiratory patients particularly at risk. The Valencia floods of 2024 demonstrated the fragility of critical care systems under disaster strain, where continuity of respiratory support was jeopardized (Sancho et al., 2026). These scenarios highlight the urgent need for resilient emergency preparedness strategies that integrate NCD management into disaster response frameworks. Even outside acute crises, barriers in primary care such as limited guideline implementation and fragmented follow-up contribute to poor COPD management. Updated frameworks, such as the Canadian Thoracic Society guideline for pharmacotherapy, emphasize structured treatment and continuity of care, which become even more critical in emergencies (Kaplan et al., 2024).

Advances in COPD management, including improved diagnostic pathways and integrated care models, provide opportunities to strengthen resilience against disruptions (Jensen, 2024; Kaplan et al., 2024).

Disruption of care pathways transforms chronic conditions into acute emergencies. For respiratory diseases, exacerbations are not only clinical events but systemic crises, magnified by infrastructure collapse and discontinuity of care. Evidence from COPD, asthma, and bronchiectasis demonstrates that both pharmacological and nonpharmacological interventions are compromised in emergencies, leading to preventable morbidity and mortality (Sahoo et al., 2021; Katchhi & Ming, 2025; Akik et al., 2024; Collins et al., 2025;) . Strengthening resilience in primary care, emergency nursing, and critical care systems is essential to mitigate the disproportionate burden faced by people with NCDs during disasters and conflicts. Integrating NCD management into humanitarian response and disaster preparedness is therefore a critical global health priority.

Mitigation and Preparedness

Effective mitigation begins with robust baseline information on the local NCD burden and on health system structure and performance. Evidence from humanitarian and fragile settings highlights the importance of using national health surveys, WHO STEPwise surveillance, and epidemiological studies to estimate disease prevalence, risk factors, and medication needs prior to emergencies (Perone et al., 2017; Collins et al., 2025). National registries can be particularly valuable for identifying vulnerable subgroups, such as people with end-stage kidney disease, cancer, or type 1 diabetes, and for planning continuity of highly specialised services like dialysis and insulin therapy (Slama et al., 2017; Ngaruiya et al., 2020).

Preparedness also involves patient-level measures to support continuity of care during disruption. Commentaries and operational guidance recommend advance provision of individualised self-management plans, up-to-date medication lists, and patient-held documents that summarise diagnoses, treatments, and allergies (Perone et al., 2017; Ganeshkumar et al., 2021). Experiences from the European refugee context and other displacement crises demonstrate that such documents facilitate rapid, standardised information sharing between providers across borders and systems (Bausch et al., 2021; Harris et al., 2022). The overarching goal is to prevent acute deterioration by minimising interruptions in therapy through stockpiling, personal NCD emergency kits, avoidance of known triggers (e.g. for asthma), and stress-management and symptom self-care strategies (Slama et al., 2017; Collins et al., 2025).

Health-care providers in disaster-prone settings are encouraged to integrate these recommendations into routine counselling, adapting messages to local risks and resources and building patients' preparedness literacy over time (Harris et al., 2022; Ansbro et al., 2022). Lessons from COVID-19 further emphasize the value of telemedicine, flexible dispensing, and decentralized follow-up in supporting continuity of NCD care under conditions of movement restriction and health-system strain (Baatiema et al., 2023; Ansbro et al., 2024).

Assessing Readiness and Strengthening Health Systems

Assessment of health-system readiness to manage common NCDs is now recognised as a core component of national emergency preparedness plans. Service Availability and Readiness Assessment (SARA) surveys and similar tools have been applied in relatively stable contexts (e.g. Tanzania, Viet Nam), in conflict-affected countries (e.g. Libya), and in host states managing large refugee influxes (e.g. Jordan), providing insight into gaps in staffing, medicines, equipment, and referral capacity for NCD care (Slama et al., 2017; Kabir et al., 2022). A broader systematic review of primary-care readiness for diabetes, cardiovascular disease, chronic respiratory diseases, and cancer concludes that supply-side components at this level are generally inadequate to address the rising NCD burden, even before emergencies occur (Kabir et al., 2022).

Facility-level preparedness can be strengthened using instruments such as the WHO Hospital Emergency Response Checklist, which guides hospitals, particularly national referral centres in low- and middle-income countries, to develop emergency plans that explicitly include NCD services (Slama et al., 2017; Bausch et al., 2021). When local facilities are overwhelmed or non-functional, clear standard operating procedures for referral from primary care to secondary and tertiary centres become critical, often requiring coordination between public and private providers and, in some cases, with deployed Emergency Medical Teams (Parotto et al., 2025; Alani et al., 2023).

Operational evaluations of the WHO NCD Kit in Yemen, Libya, and Sudan illustrate both the potential and the challenges of such system-oriented interventions. The kit has supported continuity of care when other supply chains failed, but its utility depends on prior assessment of facility capacity, workforce training, and alignment with national efforts to integrate NCDs into primary care (Kiapi et al., 2022; Alani et al., 2023). Qualitative work with global experts and frontline actors in Lebanon and other crisis settings further underscores that sustainable models of NCD care in emergencies must be integrated, system-strengthening, and patient-centred, with attention to governance, financing, supply chains, health information systems, and workforce development (Ansbro et al., 2022; Akik et al., 2024; Vijayasingham et al., 2024).

In sum, aligning public health preparedness and response with the realities of NCD burden requires

moving beyond a narrow focus on communicable threats toward comprehensive, integrated planning that safeguards continuity of chronic care before, during, and after emergencies.

DISCUSSION

The findings emphasise the dual role emergency medicine plays in the context of non-communicable diseases (NCDs). First, it provides acute clinical intervention through immediate stabilisation and management of life-threatening presentations such as hypertensive crises, acute coronary syndromes, stroke, and decompensated diabetes, which are increasingly common causes of emergency attendance in low- and middle-income countries (LMICs) Ngaruiya et al.,2020, Gupta et al., 2020). Second, emergency care functions as a public health gateway, given that emergency departments (EDs) and prehospital services serve high-risk, often underserved populations and thus represent critical points for detection of previously undiagnosed or poorly controlled NCDs and for linkage to longitudinal care (Ngaruiya et al.,2020, Gupta et al., 2020).

However, realizing this potential requires addressing multiple systemic challenges. Reviews of NCD care in humanitarian emergencies and fragile settings consistently highlight workforce training deficits in chronic disease management, limited familiarity with NCD guidelines among frontline providers, and an historic focus on trauma and acute infections rather than chronic conditions (Leff etal., 2021; Perone et al.,2017; Bausch et al., 2021 Witter et al., ;2020). In emergency and first-referral hospitals across several low-income countries, essential diagnostics, medications, and equipment for both acute and chronic NCD management are frequently unavailable, further constraining the capacity of emergency clinicians to provide evidence-based care (Gupta et al., 2020; Bausch etal.,2021). Weak and poorly standardised referral pathways between emergency, primary, and specialist services compound these problems, leading to fragmented care and poor continuity of treatment for displaced populations and host communities alike (Perone et al.,2017; Leff et at., 2021; Slama et al., 2017)

Enhanced education and training for emergency clinicians on NCD risk factors, acute complication management, and preventive interventions could improve early diagnosis and risk-factor modification, particularly when the ED visit is used as a “teachable moment” for lifestyle and adherence counselling (Leff et al., 2021; Ngaruiya et al.,2020; Shahet al.,2020: Devi et al 2020). Implementation research and capacity-building efforts in LMICs and humanitarian settings emphasise the importance of team-based care, task shifting to nurses and allied cadres, and use of simple, protocol-based approaches adapted to resource limitations (Leff et al., 2021; Ngaruiya et al.,2020 Bausch etal.,2021 Devi et al., 2020). Such models align with broader NCD care frameworks in primary care, where workforce education, guideline-based management, self-management support, and standardised referral pathways are repeatedly identified as core design elements (Eltigany et al.,2025). At the health systems level, embedding NCD care into emergency preparedness and response frameworks is crucial. Operational guidance for humanitarian actors and global health security–oriented analyses argue that NCDs must be explicitly integrated into disaster and humanitarian plans, rather than treated as residual concerns once acute infectious or traumatic threats have been addressed (Bausch et al., 2021; Collins et al., 2025; Ngaruiya et al., 2020; Perone et al., 2017; Slama et al., 2017). This includes planning for supply chain resilience for essential NCD medicines, diagnostics, and oxygen, with contingency stocks and simplified formularies suitable for crisis environments (Bausch et al., 2021; Leff et al., 2021; Parotto et al., 2025; Perone et al., 2017).

The COVID-19 pandemic and other recent emergencies in LMICs have demonstrated how surges in acute care demand can disrupt routine NCD services, amplifying morbidity and mortality among people living with chronic conditions and exposing the fragility of existing health systems (Kidanemariam et al., 2025; Richter et al., 2022; Yadav et al., 2021). Integration of digital health tools, such as electronic medical records, disease registries, clinical decision-support systems, and mobile phone–based follow-up, offers additional opportunities to strengthen the interface between emergency and primary care, support continuity of care, and maintain patient contact during and after crises (Devi et al., 2020; Eltigany et al., 2025; Kidanemariam et al., 2025; Xiong et al., 2023). Evidence from LMIC primary care settings indicates that digital interventions can improve service-delivery outcomes and help sustain NCD management when face-to-face services are disrupted by pandemics or other systemic shocks (Kidanemariam et al., 2025; Xiong et al., 2023).

Given that low-income and middle-income countries (LMICs) bear a disproportionate burden of both humanitarian emergencies and non-communicable diseases (NCDs), strengthened coordination between emergency medicine and the broader health sector should be a strategic priority (Collins et al., 2025; Leff et al., 2021; Ngaruiya et al., 2020; Yadav et al., 2021). Integrated, people-centred models of care that bridge emergency, primary, and community health services; protect essential NCD services during crises; and explicitly embed NCDs within global health security and universal health coverage agendas are critical for building resilient and equitable health systems capable of managing current and future shocks (Devi et al., 2020; Ngaruiya et al., 2020; Richter et al., 2022; Yadav et al., 2021).

Conclusion

Emergency medicine holds a crucial, but still underutilized

role in confronting the global burden of non-communicable diseases (NCDs). Around the world, emergency departments are often the first point of contact for people experiencing acute complications of chronic conditions such as cardiovascular disease, diabetes, and chronic respiratory illness. This makes emergency care a natural bridge between life-saving acute interventions and longer-term public health strategies for NCD prevention and control.

Embedding NCD prevention, early detection, acute management, and linkage to ongoing care within emergency care pathways can improve both immediate clinical outcomes and long-term population health. Practical measures include systematic screening for NCD risk factors in emergency settings, standardized protocols for stabilization and referral, and robust information systems that support continuity of care after discharge. When these elements are aligned, emergency medicine can function not only as a site of crisis response, but also as a gateway into sustained, person-centred chronic disease management. To realize this potential, policymakers, health system planners, and global health partners need to deliberately integrate emergency medicine into national NCD strategies. This involves strengthening workforce capacity, ensuring reliable access to essential diagnostics and medicines in emergency settings, and building strong referral and feedback mechanisms with primary and specialist care. Particular attention is required in low- and middle-income countries, where rising NCD burdens intersect with constrained resources and fragmented health systems.

Future research should move beyond conceptual frameworks to generate empirical evidence on integrated emergency–NCD care models. Priority areas include evaluating the effectiveness and cost-effectiveness of NCD screening and referral interventions in emergency departments, assessing patient and provider experiences, and examining the impact of such models on health outcomes, equity, and system resilience across diverse settings. By advancing this evidence base and embedding emergency medicine within broader NCD agendas, countries can better harness emergency care as a strategic lever for reducing the global impact of non-communicable diseases.

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