

Emergency Care in the Occupied Palestinian Territory: A Scoping Review

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Abstract

The development of robust emergency care systems as a critical platform for addressing the global burden of disease has been increasingly recognized by global health policy makers over the past decade. A human rights-based approach to securing the right to quality emergency care is also essential to respond to the structural and political determinants of poor health outcomes. In the occupied Palestinian territory, human rights violations have contributed to significant deficiencies in health and quality of health care. In this scoping review, we identify deficiencies in the management of high-risk presentations to emergency departments in the Palestinian health care system for traumatic injury, acute myocardial infarction, and stroke. We subsequently apply a human rights-based analysis to demonstrate how structural racism in the administration of the occupation has contributed to deficiencies in emergency care. Specifically, deficiencies in resource and system organization within the Palestinian emergency care system arise due to occupation-related restrictions on freedom of movement, the procurement of essential drugs and medical equipment, and the development of a national Palestinian health care system. Further research and intervention are needed to understand gaps in emergency care for Palestinians and, in turn, to improve the management of emergency medical and traumatic conditions through capacity building of a Palestinian emergency care system. Importantly, deconstruction of the structural determinants of poor health for Palestinians in the occupied territory is needed to improve public health and ensure the protection of human rights.

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Introduction

The adverse effects of war and prolonged military occupations on health are not limited to injuries, disability, and deaths caused by violence. War also indirectly impacts health through attacks on health care and disruptions to health systems, resulting in reduced access to curative and preventative services. The impact on health systems is long term, impeding the development of essential services and health system care pathways and creating substantial disparities in health access between competing axes of society.¹ Displaced populations as a result of political instability and war are at further risk of poor health due to dislocation from health care services.²

Protracted armed conflict and military occupation of the Palestinian West Bank, Gaza, and East Jerusalem represent one clear manifestation of how armed conflict can impact health system development long-term. Unlike the West Bank and Gaza Strip, East Jerusalem was formally annexed by Israel following the 1967 war, and Palestinians living there have been granted Israeli residency cards, which enables them to access Israeli health insurance and social services without the benefits of full citizenship.³ An important historical event underlying the high institutional and social fragility in the occupied Palestinian territory today is the long-term impact of the 1948 war, termed concurrently the Palestinian Nakba (meaning catastrophe in Arabic) and the Israeli War of Independence. This 1948 war simultaneously established the state of Israel and resulted in the expulsion of over 700,000 Palestinian refugees who were displaced from their homes and forced to take refuge in bordering Arab countries and territories.⁴

As a downstream consequence of the Nakba and direct result of the 1967 war, Palestinians who live in the occupied West Bank and Gaza Strip live under Israeli military occupation without Israeli citizenship.⁵ Although the 1994 Oslo Accords gave limited autonomy in approximately 40% of the West Bank to the Palestinian Authority, the Palestinian Authority remains subordinate to the Israeli government in all areas of the West Bank.⁶ The occupation impacts nearly all aspects of Pal-

stinian life by restricting Palestinian sociopolitical and economic autonomy, disrupting life through military incursions, and establishing a system of racial segregation with respect to infrastructure, legal systems, and other sectors between Palestinians and Jewish Israelis living in settlements in the West Bank.⁷ The Gaza Strip, which is administered by Hamas, has been under a permanent embargo since 2007 and has experienced repeated cycles of heavy conflict with Israel, leading to endemic poverty and food, electricity, and medical shortages.⁸

One mechanism to explore the effects of war and military occupations on health indicators is to examine emergency medical (EM) systems. Regions that have weak or dysfunctional EM systems are at increased risk for avoidable morbidity and mortality.⁹ Moreover, delayed diagnosis of emergent conditions places individuals at high risk of worse health care outcomes as a result of delays in time-sensitive treatment. In regions experiencing protracted conflicts, emergency systems of care are arguably even more important to manage injuries and disability acquired through violence.

Although it is well established that disparities in health and the quality of health care exist between Israel and the Palestinian West Bank and Gaza, no review comprehensively evaluates disparities in emergency care with respect to clinical presentation, medical management, clinical outcomes, resource availability, and specialty EM training.¹⁰ This scoping review uses a human right-based approach to discuss the development of emergency medicine in the Palestinian health care system of the occupied Palestinian territory.

Methods

Common high-risk presentations to emergency departments with potential for substantial long-term morbidity and mortality if care is inaccurately performed or delayed were chosen as indicators for emergency care: motor vehicle accidents and trauma, acute myocardial infarction, and stroke. These conditions were also selected because they represent a significant burden on the emergency health care system resources.

To identify articles, we searched PubMed, Google Scholar, Ovid MEDLINE, PubMed, Embase, Scopus, and Web of Science Core Collection from inception until January 1, 2022, using key words for “emergency medicine,” “prehospital care,” and “acute care,” in addition to key words for high-risk presentations, including “trauma,” “myocardial infarction,” and “stroke.” These results were filtered using geographically defined key words such as “Palestine,” “West Bank,” “Gaza,” and “Israel.” We extracted and synthesized results using a thematic analysis approach. A total of six articles included specific clinical data on the management of acute presentations for trauma, myocardial infarctions, or stroke, and were included in the final analysis. Initially, 11 articles were identified, but five were excluded due to lacking quantitative data on emergent management of emergency medicine presentations. The results are presented by acute presentation. Whenever possible, we make comparisons to Israeli medical quality indicators based on the Israeli Ministry of Health *Annual Report for 2013–2020*.¹¹ This work does not review emergency care gaps for Palestinian refugees residing in neighboring Arab states, though this is important work for future reviews.

Results

Trauma

Traumatic injury from motor vehicle accidents and violence constitutes a major etiology of emergency care visits for Palestinians in the West Bank and Gaza. In fact, the fatality rates per 10,000 vehicles in the occupied territory are higher than neighboring Arab countries.¹² Deficiencies in acute trauma care identified in a 2021 study of transit injuries in Nablus included limited administration of prehospital pain relief (1% of patients, n=3), limited acquisition of prehospital intravenous access (11% of patients, n=17), and poor adherence to spine immobility for patients who sustained traumatic injury (42.02% prehospital and 23.53% in-hospital).¹³ Early pain treatment following injury is critical as it has been shown to improve long-term outcomes and reduce rates of posttraumatic stress disorder and is codified

in Israeli military prehospital treatment guidelines, which propose oral transmucosal fentanyl citrate, low-dose intravenous or intramuscular ketamine, or intravenous morphine for traumatic injuries.¹⁴ Importantly, the authors also suggest that poor documentation protocols and research capacity, and lack of standardized trauma management represent limitations in their study.¹⁵ This limitation, in conjunction with the dearth of clinical emergency medicine research in general, serves as a marker of inequality, underscoring the asymmetry in medical research capacity that exists between Israel and the Palestinian Authority.¹⁶

The burden of traumatic injuries from accidents is compounded by injuries sustained through Israeli military operations. In a study of 520 traumatic brain injury cases caused by missile fire between 2000 and 2010 in the West Bank, metallic bullets were the most common etiology of traumatic brain injury, occurring in 60% of children and 70.3% of adults.¹⁷ Mortality occurred from each traumatic brain injury etiology, including 52 deaths from metallic bullets, 8 from rubber bullets, and 6 by shrapnel released from bomb explosions.¹⁸ This study found that all patients received skull radiography (a practice no longer supported by current European guidelines) and intravenous antibiotics, while those in a stable condition underwent non-contrast head computed tomography (CT) scans.¹⁹ CT is the preferred imaging modality in the acute phase of head trauma, whereas skull radiography is no longer commonly used in Israel, Europe, or the United States due to an inability to identify intracranial hematomas or cerebral edema.²⁰ Due to insufficient resources, the intensive care unit did not have access to a transcranial doppler or intracranial pressure monitoring.²¹

Myocardial infarction

Ischemic heart disease, including acute myocardial infarctions, represents the leading cause of death and disability-adjusted life years in both the West Bank and Gaza.²² A 2006 study carried out using a myocardial infarction registry of Israelis and East Jerusalem Palestinians in the Jerusalem district demonstrated a higher Palestinian:Jewish Israeli

mortality rate ratio for prehospital and emergency department mortality for acute myocardial infarction, with age-adjusted rate ratios of 2.79 (95% CI 2.09–3.73) in men and 2.66 (95% CI 1.74–4.00) in women.²³ Rates of out-of-hospital cardiac arrest were also significantly higher among Palestinians, with a Palestinian:Jewish mortality rate ratio for combined prehospital and emergency department mortality of 3.59 (95% CI 2.52–5.10) in men and 2.83 (95% CI 1.69–4.73) in women.²⁴ All Jewish patients and 84% of the Palestinian patients were admitted to 14 Israeli hospitals.²⁵ The remainder of Palestinian patients with suspected acute myocardial infarction admitted to the three East Jerusalem Palestinian acute care hospitals were identified using retrospective chart review extraction of discharge diagnoses.²⁶ Data for all identified patients were extracted from retrospective review of patient charts.²⁷ With respect to myocardial infarction management, a 2006–2007 study at Al-Watani governmental hospital in Nablus found that 81.4% of patients with myocardial infarction were prescribed a statin at discharge, which compares unfavorably to the 95% adherence in the Israeli health care systems of recommending statin therapy to discharged myocardial infarction patients in 2020.²⁸ Data from 1995–1997 in Jerusalem demonstrate that a lower percentage of Palestinian males received any revascularization procedures compared to Jewish patients (32% vs. 49%, $P=0.002$); however, there was no difference in specific use of primary percutaneous coronary intervention, non-invasive thrombolysis, aspirin administration, or beta blocker administration.²⁹

Stroke

In the West Bank, cerebrovascular diseases represented the second leading cause of death in 2014.³⁰ Gaps in emergent ischemic stroke management were identified in several studies from the West Bank and Gaza. A 2018 study from Palestinian Ministry of Health hospitals in Ramallah and Nablus documented that only 25% of patients arrived at the hospital by EM services, with only 61% arriving within three hours of symptom onset (a crucial period for reperfusion therapy).³¹ Among those who

arrived within three hours of symptom onset, only 57% received imaging within 45 minutes of arrival, which European and American guidelines recommend as a prerequisite to the administration of tPA therapy in order to rule out hemorrhagic stroke and intracranial hemorrhage.³² Though all patients ultimately received a head CT, only 8% received magnetic resonance imaging (which has clinical implications for the identification of posterior stroke), and 4% received carotid doppler (relevant to the prevention of future secondary strokes).³³ In contrast to the low usage in this study, the Israeli Ministry of Health utilizes the percentage of duplex carotid ultrasound performed within 72 hours of admission to the emergency department for expected transient ischemic event as a quality indicator for stroke, achieving 86% compliance in 2020.³⁴ Medical management for ischemic stroke consisted predominantly of antiplatelet therapy (92% of patients), with no patients receiving thrombolytic therapy.³⁵ In Gaza, similar limitations to stroke emergency care were described in a clinical audit of acute ischemic stroke at Nasser Hospital.³⁶ As in the West Bank, no patients received thrombolytic therapy.³⁷ The duration of stroke symptoms was not reported in 91% of cases, 41% did not receive anti-hypertensive agents on day one of hospitalization, and none of the patients had continuous cardiac monitoring or assessment of swallowing function.³⁸ Immediate antiplatelet therapy was deployed in 74% of patients, venous thromboembolism prophylaxis was administered in 85% of patients, and 43% of patients were prescribed antibiotics without a recorded indication.³⁹

Discussion

In 2007 and 2019, respectively, the World Health Assembly passed Resolutions 60.22 and 72.16, the former codifying the significance of emergency care systems and the latter outlining the importance of integrating emergency care systems into the implementation of universal health coverage.⁴⁰ These resolutions emphasize the importance of timely and coordinated EM care and the need for robust EM training and standardized assessment

mechanisms. In addition to recognizing the import of emergency care from a health care delivery standpoint, a human rights-based approach is useful to mobilize support for EM equity and analyze root causes for disparities in emergency care.⁴¹

Though access to health care is a crucial component of the right to health, this review has identified several deficiencies in the emergent management of trauma, myocardial infarction, and stroke in the occupied Palestinian territory. In 2000, the United Nations Committee on Economic, Social and Cultural Rights released General Comment 14 on the right to the highest attainable standard of health in order to operationalize the right to health.⁴² As discussed by Taylor Burkholder et al., several pillars of the right to health directly relate to emergency care: (1) nondiscriminatory access to health services; (2) the provision of essential drugs; and (3) the implementation of a national public health strategy.⁴³ In the context of the Palestinian health care system in the West Bank and Gaza, the Israeli occupation has violated these pillars of the right to health, thereby directly restricting achievement of the EM goals outlined by the World Health Assembly.

The Palestinian health system under Israeli occupation

Although the Geneva Conventions and other international treaties stipulate that occupying powers must provide medical resources and ensure the right to health for populations under its occupation, Israel has ignored these obligations for Palestinians in the West Bank and Gaza Strip.⁴⁴ Instead, in 1994, the Palestinian Ministry of Health was established to independently oversee health care provision in areas under Palestinian Authority administration.⁴⁵ The Palestinian Ministry of Health provides the majority of services but remains dependent on nongovernmental organizations, the United Nations Relief and Works Agency for Palestine Refugees, the Palestinian Military Medical Services, and private for-profit organizations to augment its limited health care infrastructure.⁴⁶ While the Oslo Accords gave Palestinians without Israeli citizenship autonomy over their own health care system, they did not give Palestinians autonomy

over fundamental resources within the domain of public health, including control over water, land, and movement of peoples and goods.⁴⁷ The result is considerable racial disparities in the distribution of these resources between Palestinian and Jewish Israeli settlement communities in the West Bank.⁴⁸ In 2007, the health care system in the West Bank and Gaza was further fragmented when Hamas took control of the Gaza Strip, leading to two separate Palestinian health systems. Both health systems rely on East Jerusalem's six nonprofit hospitals, collectively known as the East Jerusalem Hospital Network (EJHN), for treatment that cannot be obtained in hospitals in Gaza or the West Bank.⁴⁹ All six hospitals of the EJHN lie on the opposite side of a 2005 Israeli separation wall that prevents Palestinians without Israeli citizenship from accessing these facilities without a prior approved Israeli-government-issued permit, resulting in delays in care.⁵⁰

Discriminatory access to emergency care

Palestinians experience discrimination in freedom of movement compared to Jewish Israelis living in West Bank settlements, which directly impacts access to emergency care. This discrimination occurs as a result of Israeli military checkpoints and arbitrary road closures, including nearly 600 permanent obstacles that are often installed between Palestinian communities.⁵¹ In contrast, the Israeli occupation allows Jewish Israelis living in settlements to move freely in the West Bank in areas under its control, including on a system of Israeli-only roads that bypass Palestinian populations and facilitate integration with Israel's pre-1967 borders.⁵² As a result of this system, Palestinian EM services incur delays at Israeli checkpoints, estimated to be an average of 27 minutes by the nongovernmental organization Medical Aid for Palestinians.⁵³ Palestinian EM services must also work around the Israeli separation barrier, which particularly affects cities such as Qalqilya, Tulkarem, and Jenin, which are cut off from larger medical referral centers.⁵⁴ A 2012 study using geographic information systems demonstrated that rural West Bank governorates far from general hospitals were most affected by Israeli checkpoints and barriers. Specifically, the

modeled difference in time to arrival at a general hospital between a best-case scenario of no obstacles to movement, and a scenario reflecting reality (checkpoints passable with risk of delay), was especially pronounced in Qalqilya (18-minute delay) and Salfit (20-minute delay).⁵⁵

Though limited data exist assessing emergency presentations and quality of care for Palestinians from rural West Bank governorates most affected by Israeli checkpoints, Israeli roadblocks are a commonly cited etiology in delays to care, including by the World Health Organization, which reported 37 instances of delayed care and three deaths in 2018 in the West Bank.⁵⁶ Furthermore, a 2006 study conducted over the course of a single week found an association between checkpoints and worse clinical outcomes (the outcomes were not listed). In three Bethlehem and Nablus emergency departments, 18% of patients reported delays from military checkpoints or detours, and hospital admission was more common among those delayed (32%) compared to those not delayed (13%) ($P < 0.0001$).⁵⁷ However, further research is needed to determine how checkpoints affect time to presentation, management, and outcomes for trauma, myocardial infarction, and stroke.

Limiting provision of essential medicines and implementation of evidenced-based emergency medicine management

Deficiencies in these emergency medicine resources can be attributed to restrictions placed on the Palestinian authorities in the West Bank and Gaza. Israeli control over imports into the occupied territory has made it difficult for the Palestinian Ministry of Health to import materials from local manufacturers and to procure medicines and equipment from outside the occupied territory.⁵⁸ The Paris Protocol further solidified the dependence of the Palestinian economy on Israel by limiting the ability of the Palestinian Authority to create independent economic policies.⁵⁹ Restrictions are most acutely felt in the Gaza Strip, where an Israeli and Egyptian blockade since 2007 has resulted in severe shortages of drugs and medical equipment.⁶⁰ These resource and energy shortages exacerbate the Gaza

health care system's reliance on outside referrals and impedes the system's ability to adequately provide emergency care within the Gaza Strip.⁶¹

Significant examples of deficiencies in emergency care were identified in our review. Thrombolytic therapy (alteplase/tPA) was added to the World Health Organization's Model List of Essential Medicines in 2019, yet two studies from the West Bank and Gaza found that no patients received thrombolytic therapy for ischemic stroke.⁶² This represents a critical gap in ischemic stroke management in the Palestinian health care system that requires further study and intervention. Limited access to thrombolytic therapy has been identified as a barrier in low- and middle-income countries due primarily to high costs.⁶³ Several other deficiencies in emergency care management have been identified, including low usage of carotid doppler and continuous cardiac monitoring in ischemic stroke, suboptimal statin prescriptions following acute myocardial infarction, and limited administrations of prehospital pain relief and intravenous access.⁶⁴ Palestinian Ministry of Health reports have also documented numerous deficiencies in EM equipment, including in ambulance supply (33 additional needed in 2019) CT scanners (24 additional needed in Gaza Strip to reach the 1 per 100,000 benchmark), and magnetic resonance imaging machines.⁶⁵

Preventing a national Palestinian emergency medicine strategy

Emergency medicine in the Palestinian health care system is less professionalized and lacks specialty training programs in comparison to the Israeli system, which limits the implementation of a Palestinian national public health strategy that supports emergency medicine. Emergency medicine is also not currently a recognized specialty as either a primary residency or fellowship program in the Palestinian West Bank and Gaza.⁶⁶ This contributes to emergency care shortages and limited training opportunities for Palestinian clinicians in emergency medicine.⁶⁷ The most recent and comprehensive review of Palestinian emergency medicine in 2004 found that no physician had residency-level train-

ing in emergency medicine, and only 17% of nurses had received some emergency medicine training.⁶⁸ In addition, improved triage, charting, and ICD-10 coding were all identified as critical areas of concern. These deficiencies may explain suboptimal management within emergency departments.⁶⁹

Improvements to the Palestinian emergency care system face a number of external barriers. For example, excessive Israeli military incursions into the West Bank and Gaza add chronic stress to Palestinian EM systems that restricts their growth and disrupts essential medical services.⁷⁰ There have also been direct attacks on Palestinian EM services, exemplified by the period between 1989 and 2008, when more than 100 ambulances were damaged or destroyed during Israeli military operations in the West Bank and Gaza.⁷¹ Additionally, the professional advancement of Palestinian emergency medicine is impeded by barriers on Palestinian freedom of movement that prevents students and providers from participating in international educational programs.⁷²

An important third barrier to improved emergency care in the region is the overall fragmentation of the Palestinian health care system in the occupied territory.⁷³ Palestinian agencies refer thousands of patients each year to receive tertiary-level care at the EJHN for specialty services, including cancer care, cardiac and eye surgeries, neonatal intensive care, pediatric dialysis, and pediatric physical rehabilitation.⁷⁴ A Palestinian in the West Bank in need of emergency transfer to a hospital within the EJHN relies on multiple coordinating systems and multiple ambulance transfers before being able to receive definitive care. Furthermore, Palestinian EM services must be coordinated in advance with Israeli authorities. Known as the “back-to-back” procedure, Palestinian patients are transferred between ambulances at certain checkpoints between the West Bank and East Jerusalem.⁷⁵ This transfer incurs delays and puts patients with spinal cord injuries at increased risk of further injury.⁷⁶

Conclusion

Deficiencies in the Palestinian EM system and its

management of high-risk presentations, including trauma, acute myocardial infarction, and stroke, are deeply connected to manifestations of structural racism in the administration of the Israeli occupation of the occupied Palestinian territory. By limiting Palestinian freedom of movement, employing economic restrictions, and conducting excessive military operations, Israeli policies have significantly limited the development of a robust Palestinian EM system. Further research and intervention are needed to understand gaps in emergency care for Palestinians. In addition, the implementation of policies that ensure Palestinian human rights and dignity are needed to deconstruct structural determinants of poor emergency care outcomes for Palestinians in the occupied territory.

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