

Utilizing Pharmacist Expertise in Enhancing Emergency Response and Disaster Relief Efforts

حمود عبدالمحسن المقاطي

(اخصائي صيدلة)

فهد زيد البقمي

(فني صيدلة)

Introduction

A disaster is a catastrophic occurrence that has the potential to interrupt the regular course of life. The primary objective of disaster management is to attain efficient restoration by promptly responding to hazards and preventing losses (Al-Jazairi, 2018). Health care facilities that have a team of specialists in several fields, including pharmacists, are crucial for effective disaster management. The occurrence of diseases and disruptions in patient care can result in more severe and disastrous outcomes during a crisis. Although pharmacists can serve as readily available healthcare providers during community disasters, they are typically only recognized for their role in managing the supply chain and dispensing medications and related items. Pharmacists have a crucial role in all aspects of disaster management, from clinical to managerial. They are involved in creating strategies to prevent hazards before a disaster occurs, developing response plans during the disaster, and providing care for patients (Saghir et al., 2020). This care includes not only timely administration and distribution of medications, but also counseling and ensuring that patients continue their therapy after the disaster.

Disasters pose distinctive challenges and offer advantageous prospects to the medical community. During a disaster, the state of health can be significantly impacted due to a variety of factors, such as the competence of healthcare experts and their ability to effectively address unforeseen obstacles. Pharmacists and other pharmaceutical personnel have a longstanding involvement in disaster response (Rasheed et al., 2019). Over time, pharmacists have gained recognition for their role in verifying prescriptions and distributing medications. Although these roles are crucial, the exceptional circumstances caused by disasters necessitate pharmacists to assume nonconventional responsibilities that involve making decisions regarding therapeutic protocols. This includes granting clinical pharmacists in hospitals extended authority and offering additional services in community pharmacies. Pharmacists have a distinct advantage in the healthcare system to offer crucial assistance during emergencies. Their extensive knowledge of medications, encompassing dosages, interactions, and storage needs, is crucial for guaranteeing the effective and secure dispensing of pharmaceuticals during emergency situations. In addition, pharmacists have the knowledge and skills to deal with prescription shortages, modify treatment protocols, and deliver necessary pharmaceutical care to affected populations (Sridhar & Rabbani, 2021).

Pharmacists directly contribute to medical logistics assistance, healthcare delivery, and the implementation of preventive measures in a managerial role. Pharmacists working in clinical environments have the responsibility of providing medical treatment to patients and developing strategies for managing the supply chain of pharmaceuticals during times of crisis. Additionally, they are also involved in performing various patient care duties. Community pharmacists provide as a primary source for assessing and directing patients, providing initial medical assistance, urgent

medication replacements, administering vaccinations, and adopting preventive measures. Pharmacists from many governmental and non-governmental organizations are actively engaging in relief activities and delivering humanitarian assistance.

In addition to direct patient care, pharmacists contribute to public health efforts by disseminating essential information about medication safety, disease prevention, and treatment options. Through education campaigns and outreach initiatives, they empower communities to make informed decisions regarding their health and well-being in the aftermath of disasters. Furthermore, pharmacists collaborate with other healthcare professionals to address emerging health concerns, such as infectious disease outbreaks or chronic disease management.

The global roles of pharmacists in disaster management have undergone significant evolution, marked by their invaluable contributions during events such as the SARS outbreak, Hurricane Katrina, and the COVID-19 pandemic. During the SARS epidemic, pharmacists played critical roles in disseminating accurate information about the virus, providing access to antiviral medications, and ensuring the safe distribution of medical supplies (Visacri et al., 2021). Their expertise in infectious diseases management and medication therapy management proved instrumental in containing the spread of the virus and supporting affected communities. Similarly, in the aftermath of Hurricane Katrina, pharmacists demonstrated their resilience and adaptability by setting up temporary pharmacies, providing essential medications, and offering counseling services to displaced individuals. Their presence helped alleviate healthcare disparities and ensured continuity of care amidst the chaos. Fast forward to the COVID-19 pandemic, pharmacists emerged as frontline healthcare providers, administering vaccines, conducting testing, and dispensing medications while navigating unprecedented challenges. They played pivotal roles in public health education campaigns, combatting misinformation, and promoting vaccination efforts to curb the spread of the virus (Aburas & Alshammari, 2020).

Incorporating the knowledge and skills of pharmacists into emergency response and disaster relief operations is crucial for maximizing the efficiency and adaptability of healthcare systems on a global scale. By acknowledging the immense value that pharmacists bring and promoting cooperation among different fields, societies may enhance their readiness, response, and recovery efforts in the face of disasters. This will eventually ensure the protection of the health and welfare of communities during times of crisis.

1. Pharmacists' Vital Contributions to Public Health

Public health programs rely heavily on pharmacists because of the important role they play in managing medications, educating patients, and reaching out to communities to improve health and prevent illness. A few important ways in which pharmacists contribute to public health are as follows:

- Medication Management and Safety

Counseling patients on correct pharmaceutical usage, possible adverse effects, and adherence to

treatment regimens is one-way pharmacists guarantee the safe and effective use of medications. In addition, they assess medications for possible side effects or combinations with other drugs, which helps improve treatment results while reducing risks to patients (Strand et al., 2020).

- Immunizations and Preventive Care

Vaccine administration and immunization services are provided by pharmacists in order to prevent infectious diseases like HPV, influenza, and pneumonia (Isenor & Bowles, 2019). Through outreach programs, education campaigns, and community-based vaccination clinics, they significantly contribute to the reduction of vaccine-preventable maladies and the enhancement of vaccination rates.

- Chronic Disease Management

Pharmacists work together with healthcare teams to oversee and control chronic ailments like diabetes, hypertension, and asthma. They offer services for managing medication therapy, track patients' health progress, and provide guidance on lifestyle choices to help individuals effectively handle their conditions and enhance their overall well-being.

- Health Promotion and Education

Pharmacists participate in health promotion endeavors to enhance public understanding of health-related matters, encourage the adoption of healthy habits, and enable individuals to assume responsibility for their own well-being. They organize training workshops on subjects including smoking cessation, weight management, and medication adherence, targeting various demographics in community environments.

2. Pharmacists' Roles in Emergency and Disaster Response

Various types of disasters can strike communities, each presenting unique challenges and requiring tailored response efforts. Natural disasters, triggered by natural forces like earthquakes, hurricanes, floods, and wildfires, cause widespread destruction, injuries, and displacement, necessitating rescue operations, emergency shelter provision, and essential supplies to affected individuals. Pandemics and disease outbreaks, exemplified by events like the COVID-19 pandemic, spread rapidly, overwhelming healthcare systems and disrupting social and economic activities. Response strategies involve implementing public health measures, vaccination campaigns, and promoting preventive behaviors to mitigate disease spread and protect public health.

In times of crisis, pharmacists have long been there to help, but they have received little acknowledgement for their work in the past. Before 2001, the main function of pharmacists was to ensure that medications were delivered to the appropriate locations in the event of an emergency. The roles of pharmacists in disasters have changed throughout time, as shown in Figure 1.



Figure (1): An illustration of the evolution of pharmacists' roles in disasters (Watson et al., 2020)

Pharmacists play many vital roles in times of emergency, such as natural disasters, disease outbreaks, or terrorist acts. First and foremost, they have a crucial function in guaranteeing the presence and ease of access to vital pharmaceuticals. Pharmacists have the duty of managing, acquiring, and distributing medications (Bragazzi et al., 2020). Their goal is to ensure that people who need pharmaceuticals may still get them, even if there are disruptions in the supply chains.

In emergency circumstances, pharmacists offer their experience in medication therapy management, providing advice on the optimal selection, dose, and administration of drugs to optimize patient outcomes. They work together with healthcare teams to evaluate patient requirements and modify pharmaceutical regimens as needed, guaranteeing uninterrupted treatment during emergencies.

In addition, pharmacists assist to public health initiatives by offering pharmaceutical counseling and information to persons who are impacted. Their role involves addressing issues linked to medication, promoting compliance with treatment plans, and preventing errors in medication administration in challenging circumstances. Pharmacists contribute to patient safety and support recovery efforts by providing clients with information about their drugs.

Moreover, pharmacists work along with other healthcare professionals to prioritize patients, evaluate their prescription requirements, and deliver personalized pharmaceutical treatment in emergency situations (Greenwood et al., 2021). They engage in interdisciplinary collaboration to prioritize patient care and efficiently allocate resources, so contributing to the entire response effort and assisting communities in navigating the difficulties of crisis circumstances.

3. Key Skills for Emergency and Disaster Response

Pharmacists need to have a wide range of abilities specifically designed for the unique difficulties and requirements of crisis circumstances in order to improve emergency response and disaster relief.

Pharmacists require some essential skills to thrive in their role:

- Medication Management

Pharmacists must possess a comprehensive comprehension of drugs, encompassing their indications, doses, administration routes, and potential interactions (Waktola, 2020). Acquiring this understanding is essential for guaranteeing the secure and efficient utilization of pharmaceuticals in emergency situations, where patients may possess intricate medical issues or encounter restricted availability to healthcare facilities.

- Triage and Prioritization

Pharmacists should possess the skill to assess patients and determine the urgency of their disease, allowing them to prioritize therapy appropriately. During emergencies, there may be a scarcity of resources, requiring pharmacists to promptly determine how to distribute medications and healthcare services to those who require them the most (Falconer et al., 2019).

- Critical Thinking and Problem-Solving

Pharmacists must engage in critical thinking and be able to adjust quickly to rapidly evolving conditions in order to effectively respond to emergencies (Ortmann et al., 2021). Pharmacists need to possess the ability to recognize medication-related difficulties, such as shortages or storage problems, and develop creative strategies to resolve them.

- Interdisciplinary Collaboration

Pharmacists are required to engage in close collaboration with various healthcare experts, including as physicians, nurses, emergency responders, and public health officials, in order to guarantee well-coordinated and all-encompassing care in emergency situations. Establishing robust relationships and cultivating effective teamwork are crucial for optimizing the influence of pharmacist expertise (Alruwaili et al., 2023).

4. Challenges Faced by Pharmacists in Emergency Response

Pharmacists face numerous difficulties when participating in emergency response and disaster relief activities, despite their crucial role. An important obstacle is the absence of established protocols and guidelines for pharmacy practice in emergency situations (Ortmann et al., 2021). Pharmacists must adjust their practices promptly due to the ever-changing nature of emergencies, which often requires rapid decision-making and creativity. Nevertheless, the lack of established frameworks might result in inconsistencies in the provision of treatment and impede the achievement of optimal outcomes. According to (Aburas & Alshammari, 2020) limited resources present significant obstacles for pharmacists during emergency and disaster scenarios. The scarcity of pharmaceuticals and medical supplies, worsened by interrupted supply chains and overcrowded healthcare facilities, can greatly hinder pharmacists' capacity to deliver vital pharmaceutical treatment. Restricted availability of essential pharmaceuticals may jeopardize patient care and worsen health inequalities, especially among

marginalized groups that are disproportionately impacted by emergencies.

In disaster-stricken areas, pharmacists may have challenges in delivering timely and effective services due to logistical obstacles, such as transportation restrictions and communication outages. Pharmacy operations may be disrupted and the provision of pharmaceuticals to those in need may be hindered due to infrastructure damage, road closures, and loss of power. Poor communication methods and lack of information sharing among healthcare practitioners can exacerbate coordination challenges, resulting in deficiencies in care delivery and inefficiencies in emergency response operations.

According to (McCourt et al., 2021) the psychological burden of engaging in emergency response operations might affect the well-being and performance of pharmacists. Observing the widespread destruction caused by calamities, delivering assistance in difficult circumstances, and dealing with the emotional burden of aiding afflicted persons can lead to burnout, compassion fatigue, and mental health issues among pharmacists. It is crucial to address these psychological problems and provide assistance for the mental health requirements of pharmacists in order to ensure their resilience and effectiveness in emergency response operations.

5. Opportunities for Enhancement in Emergency Response

Although there are challenges, there are substantial prospects for improving the incorporation of pharmacist skills into emergency response and disaster relief endeavors. Effective collaboration among pharmacists, emergency management organizations, and other healthcare stakeholders is crucial in order to create thorough preparedness plans and response tactics. Pharmacists can improve their preparedness to effectively respond to different emergencies by engaging in interdisciplinary teams and participating in emergency drills.

Moreover, utilizing technology and telepharmacy services can assist in overcoming logistical obstacles and enable the remote management of medication in places impacted by disasters (KC & Heydon, 2022). Telepharmacy systems facilitate pharmacists in remotely evaluating pharmaceutical orders, offering clinical consultations, and assisting with medication reconciliation endeavors. As a result, they can expand their services to marginalized groups in times of crisis.

According to Aruru et al. (2021), it is essential to allocate resources towards the training and education of pharmacists in emergency preparedness and disaster response. This is crucial in order to have a skilled workforce that can effectively handle the ever-changing public health risks. Pharmacists can acquire the necessary knowledge and abilities to handle difficult emergency situations and provide excellent pharmaceutical treatment by participating in continuing education programs, engaging in simulation exercises, and undergoing competence examinations.

Furthermore, pharmacists can actively contribute to community resilience and disaster preparedness efforts by actively involving themselves with the public and advocating for proactive measures to reduce the impact of disasters. Engaging in educational initiatives about medication safety, emergency

preparedness, and preventative health measures can provide individuals with the knowledge and skills necessary to effectively manage their health and well-being during emergency situations. Pharmacists can work together with community organizations, local health departments, and disaster response agencies to create and execute plans for enhancing access to healthcare services and fostering resilience among vulnerable populations (Aruru et al., 2021).

By taking advantage of these opportunities for integration and development, stakeholders can increase the effectiveness of pharmacist participation in emergency response and disaster relief activities. By working together, being creative, and investing in the training and development of their employees, pharmacists can use their important knowledge and resources to reduce the effects of disasters and protect the well-being of the public during emergencies.

6. Examples of Successful Pharmacist-led Interventions

Pharmacist-led initiatives in emergency response and disaster relief operations have been successful, demonstrating the vital contributions pharmacists provide to public health during emergencies. An exemplary instance is the process of medication reconciliation and management following natural catastrophes or mass casualty situations. Pharmacists have a vital role in guaranteeing that patients receive suitable and secure medications. The following are actual instances of effective interventions conducted by pharmacists in response to diverse disasters:

- Hurricane Katrina

In the aftermath of Hurricane Katrina, pharmacists assumed a pivotal function in supplying evacuees residing in shelters with medication administration services (Watson, 2022). Medication reconciliation was performed, continuity of care was ensured for individuals with chronic conditions, and medication-related concerns were addressed in an effort to optimize patient outcomes amidst the devastation.

- Ebola Outbreak in West Africa

Pharmacists assumed a pivotal role in infection control and prevention endeavors throughout the Ebola outbreak that stormed West Africa. Healthcare workers were instructed in the appropriate utilization of personal protective equipment and proper medication administration. Additionally, they oversaw the secure disposal and management of hazardous materials and ensured the provision of vital medications required to treat Ebola patients (Ayegbusi et al., 2016).

- COVID-19 Pandemic

Pharmacists have played a pivotal role during the COVID-19 pandemic by administering vaccines, undertaking testing and contact tracing, and delivering medication therapy management services to those infected with the virus. In order to control the spread of the virus, they have also been instrumental in promoting vaccination campaigns, dispelling misinformation, and educating the public about preventative measures.

The examples listed above illustrate the multifaceted functions that pharmacists fulfill in the context of disaster response and relief endeavors. They highlight their capacity to administer critical pharmaceutical services, advocate for public health, and bolster community fortitude in times of crisis. As a result of their proficiency, ingenuity, and dedication to patient care, pharmacists persistently provide indispensable support to emergency preparedness and response on an international scale.

Conclusion

Pharmacists play a crucial role in emergency situations by using their specific expertise, abilities, and cooperative methods to tackle medication-related difficulties, deliver vital healthcare services, and enhance community resilience. Pharmacist-led interventions such as medication reconciliation, immunization campaigns, disaster preparedness education, telepharmacy services, and interdisciplinary collaboration have been successful in demonstrating the major influence pharmacists have on emergency response outcomes.

However, pharmacists also encounter challenges in their involvement in emergency response efforts, such as the lack of standardized protocols, resource constraints, logistical hurdles, and psychological stressors. Addressing these challenges requires concerted efforts from healthcare stakeholders, including collaboration, investment in training and education, and prioritizing pharmacists' well-being.

Pharmacists play a crucial role in improving emergency response and providing assistance during times of crisis. By acknowledging and endorsing the indispensable contributions of pharmacists, societies can enhance their readiness, responsiveness, and resilience in the face of disasters, so ensuring the protection of the health and welfare of global populations.

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