

Importance of Emergency Medicine in Public Health

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ABSTRACT

A global field of study called emergency medicine (EM) offers both primary and secondary illness prevention. It is a laterally intelligent approach in emergency care that includes patient access to EM care, EM care delivery in the area and during the level of mobility, and EM care delivery in the admitting facility or hospital ED. EM can provide a variety of methods to enhance public healthcare. Such tools encompass primary preventative medicine, drug abuse and violence-related treatments, safety skills training, epidemiologic studies monitoring, patient enrolment in acute intervention-focused clinical research trials, education and medical experience of healthcare professionals, and involvement in local and regional disaster relief efforts. Advocates for public health and healthcare decision-makers may profit from EM's prospects and contribute to overcoming its difficulties. In addition to enhancing the capacities of EM for primary and second-line prevention for the benefit of general health, promoting the advancement and acceptance of the speciality of EM on a global scale can positively affect education programs.

Keywords: Emergency Medicine, Public Health, Primary Healthcare, pre-hospitalization.

Introduction

Conventional global public health issues like sickness and hunger can be reduced through preventive care. Regardless of the most diligent efforts, primary prevention is not always used, and not all acute diseases and injuries can be avoided. There has been an upsurge in trauma-related morbidity and death, particularly among young people, due to urbanization, mechanization, local aggression, and international wars. Chronic cardiac, pulmonary, and vascular disorders are becoming more prevalent due to individuals living longer. Modern civilization has novel and distinct issues, necessitating the development of new primary and secondary preventive techniques for emergency medicine. Primary care also plays an important role in emergency medicine because of its primary care competencies. They

provide patients with affordable and preventative care, assist in triage and treatment, and aid in patient education (Figure. 1).



Figure 1. Schematic illustration of the multiple roles of the primary care network in emergency medicine reproduced with permission from [1]

Globally recognized as one of several strategies for conducting specific disease prevention strategies, emergency medicine (EM) is a foundation for subsequent illness prevention. An emergency treatment session can aid a primary preventive episode, and many basic EM measures are quick and efficient. Nations at all stages of economic growth can benefit from effective and sustainable EM principles and practices through enhanced public health. In addition to outlining the elements of emergency healthcare and how they are delivered, this article also summarizes the accomplishments emergency medicine may make to population health. It also discusses some potential obstacles to enhancing EM treatment globally.

While delivering emergency medical treatment has been a part of medicine for as long as it has been, the field of emergency medicine (EM) and the creation of system components for emergency care administration are relatively recent developments. The framework for public

health already in place is focused on avoiding negative health outcomes and lowering illness risk. Public health places a greater emphasis on the community's health than emergency medicine does on the specific patient. Initiatives in the healthcare system are frequently planned to have a long-term impact and may last months or years. Most treatments in emergency departments (ED) are put into place immediately. The concept that unifies these professions is community wellness [2]. The ED ensures that everyone, especially underprivileged and underinsured communities, have access to quality medical treatment and services. The emergency department (ED) offers urgent and emergency care to individuals in urban and rural environments as the backbone of healthcare. The Emergency Department (ED) is frequently the epicentre of several epidemics, notably infectious diseases, terrorism, and drug misuse. It makes sense for public health and emergency treatment to work together again to safeguard and enhance healthcare quality [3].

Several public health initiatives aim to guarantee everyone's access to healthcare. Crowded ED issues offer a rare chance to assess continuing care access in rural and urban settings. It is difficult to analyze ED traffic and patient challenges from the waiting area to treatment to final disposition. A thorough analysis of ED congestion beyond existing information on the number of ED visits can provide insightful information about healthcare access. The emergency department (ED) serves as the primary site for doctors to recognize health issues and successfully respond because many patients lack other providers of routine treatment. Emergency treatment frequently includes secondary preventative care. Emergency services are not always appropriate for both primary and secondary preventative care.

Nevertheless, only a few activities can be adequately provided in the ED without interfering with the primary duty of caring for unwell patients. Instances involve referring children lacking primary care available to continuation facilities, spreading awareness of the dangers of tobacco and alcohol consumption, revising tetanus guidelines, and doing domestic violence screenings. Early detection of contagious and respiratory illness epidemics takes place in the ED. Prevention and disease-preventative measures have to be applied more consistently. As a member of the healthcare continuum, emergency departments are in a distinct position to develop deeper interaction with patients experiencing an urgent crisis [4].

Since these illnesses frequently manifest suddenly, the emergency department serves as a key location for medical intervention. Critical practices in the ED include minimizing sickness

among patients with a condition and presymptomatic detection and management. The emergency department often treats high-risk groups vulnerable to harm and aggression. Emergency medical personnel closely examine individuals who have been injured or have experienced violence. Recognizing risk factors for aggression and injuries can enable public health programmes to minimize their occurrence and frequency. ED personnel have the chance to do this. Emergency medical treatment was a weak point in the global system of healthcare delivery up until the 1960s. There needed to be comprehensive systems for EM care. When it was accessible, prehospital care mostly involved getting patients to the hospital quickly. No particular emergency care mandatory training is accessible for either physicians or nurses. Organizations must be committed to improving the scientific understanding of delivering high-quality EM treatment. Regardless of their expertise or speciality, clinicians were all responsible for operating hospital emergency rooms. Many doctors viewed cases of emergency duty as an unwanted obligation and a detour in their professional routes [5, 6].

Naturally, the emergency treatment offered at this moment was inconsistent, the clinical outcomes were frequently poor, and the general public's health benefits were minimal. In advanced countries, grassroots activities to organize and enhance EM care delivery started in the 1960s. General surgery specialists, surgeons, and family practitioners with traditional training oversee roles in creating systems to guarantee the best care for all patients experiencing serious illnesses. This occurred when rapid developments in diagnosis, medicines, and technologies offered improved options for identifying and managing emergencies. In reaction to highly integrated speciality care systems, globally integrated emergency treatment systems started to form. Some rather vertically integrated processes were "silos" (independent, closed domains or operations without connection of organizational, cognitive or technological knowledge to other specializations) that posed difficulties in providing the necessary care for people with clinical emergencies that had not yet been identified or for individuals with complex medical emergencies that transcended conventional speciality boundary lines. Around the same time, early EM innovators in several nations started creating training programmes for doctors interested in this area and growing public reservations about the inadequate EM necessary procedures brought on international pressure to finance initiatives to create comprehensive EM care delivery methods. After 40 years, emergency medicine has become a unified field that requires a specialized set of

cognitive, managerial, and technological abilities to treat any individual with an emergency illness or injury, independent of their medical history [7].

This cutting-edge method of EM treatment is "successfully combined" in that it integrates the new abilities and knowledge required for the fast and efficient administration of medical emergencies with those that have historically been connected to various specializations. There are already more than 30 corporate and scholarly journals about EM published worldwide, which is one indicator of the extent of EM's globalization. Implementations that provide continuation of emergency care from the neighbourhood, via emergency medical care systems, and into emergency rooms are mainly responsible for coordinating EM healthcare provision worldwide [8].

Because of the local information, these approaches are especially created to reduce incidence, fatality, and impairment due to acute sickness and trauma to the maximum extent feasible. Systems for providing EM care have evolved to serve as a pillar of chronic disease prevention in modern healthcare systems.

Components for emergency medical care

The fundamental ideas and approaches of EM care demand concentrated medical judgment and intervention to avert avoidable demise or impairment from time-sensitive illness processes (i.e. conditions that must be treated within a certain period to prevent or minimize mortality or morbidity). Accessing care, care in the community, treatment during the evacuation, and care upon arrival at a receiving institution are the four parts of emergency medical care. It is critical to act quickly in medical crises since the longer it takes for evaluation and treatment, the higher the risk of morbidity, fatality, or disability. Consequently, it must be simple to get EM treatment. Public awareness of how and when they should seek EM care can help cut down on waiting times for care. A dedicated telephone number that links the caller to a scheduling system for prehospital quality healthcare can streamline obtaining emergency assistance. Accessibility to prehospital care and public health and safety operations, such as fire and police departments, are often combined. Community emergency room care Spectators, health personnel, pharmacists, doctors in primary care and other healthcare professionals may deliver efficient EM treatment in the communities with the right training [9].

Where there are no emergency medicine systems or before they arrive, training institutions in first aid, chest compressions, strategic planning of foreign bodies in the air passages, regulation of external bleeding, and immobilization of wounded extremities using locally available resources can ensure an instantaneous, basic level of EM care. EM treatment while travelling Another crucial element in lowering deaths and morbidity is the systems for transferring patients with medical crises to hospitals. Through communications technologies, prehospital care professionals may alert destination institutions before a patient is admitted and acquire medical advice while the patient is transported. Prehospital care systems' capacity to offer emergency medical treatment while transporting patients varies greatly from nation to nation and is influenced by many socioeconomic, cultural, and legal aspects.

There are many different system methods, ranging from merely offering transit to basic level care (first aid), advanced level care by paramedics, nurses, or doctors, and systems that deal with patients in the vehicle and discharge them from care without transfer. EM doctors have crucial roles in managing prehospital care networks, educating prehospital care staff, and offering prehospital treatment. Upon arrival at a reception institution, EM care The basic methods are included in the treatment plan after a patient enters the emergency room (ED): triage; medical intervention and stabilization; making an initial prognosis and administering treatment; inference and discussion; communicating the results and documenting the therapies; and making preparations for follow-up treatment.

The prehospital care team may transport patients directly to an inpatient speciality unit when a particular in-hospital intervention is available and appropriate. For instance, patients with acute ST-elevation myocardial ischemia may be sent immediately to the operation theatre. In contrast, precarious individuals with severe injuries may go straight to the cardiac catheterization lab. Nevertheless, emergency treatment in a hospital ED is a more typical procedure. Assessment is required to determine who needs immediate treatment and who could degenerate, to prioritize care for the individuals who survive, and to distribute limited funds as effectively as possible [10].

Pre-established prioritization rules or procedures assist in identifying people who require emergency treatment and can reduce morbidity since patients may utilize the ED for

practicality and self-described crises. Typically, professionally trained nurses handle ED triage. Identifying a life-threatening failure and recovering vital organ function is the resuscitation procedure. Acute bleeding control, volume and blood replacement, pediatric and obstetric recovery, and knowledge of the treatments for myocardial infarction, ventricular arrhythmias, and blood clots are all areas in which emergency departments are knowledgeable, skilled, and experienced. Other experts could be knowledgeable, skilled, and experienced enough to treat individuals in need of emergency care who have issues related to their area of expertise.

Nevertheless, while EM physicians can perform this duty efficiently, it is neither possible nor expensive to staff hospital EDs around the clock with the breadth of experts required to offer basic emergency treatment for all individuals. Most patients who go to the emergency department have symptoms or indications but no diagnosis. Prioritizing individuals during triage permits the earliest examination to make a tentative prognosis and start therapy. If early diagnostic and treatment efforts are unsuccessful, further investigation by an expert or surveillance may be advised. It's also essential to record the care provided, plan for follow-up treatment, and disseminate outcomes to the individual or other doctors [11].

Once a patient is hospitalized, released, or transported to a greater care level, the immediate treatment phase is over. EM's functions in public health Clinical EM medical services and physicians are crucial to prevention and treatment in conjunction with their vital public health function in preventing secondary illness. Primary interventions offered by EDs include immunization against illnesses including tetanus, diphtheria, and pertussis; post-exposure prophylaxis for conditions like rabies and hepatitis; and detection of undetected antihypertensive during regular pulse oximetry assessments. Doctors of emergency medicine offer focused case management, and referrals for disorders, including substance misuse, depression, and interpersonal violence, in addition to instruction on the proper use of seatbelts and helmets. By advocating for laws to avoid injuries, EM doctors may also be effective agents of change in society. Information for demographic and epidemiologic monitoring is gathered from EDs. The vast majority of patients who are released from the ED and never go to the inpatient are also included in the medical and administrative data that the ED network infrastructure collects. EDs are crucial locations for patients to sign up for clinical research studies concentrating on urgent therapies. Research on ischemic exacerbation, cardiomyopathy, acute bronchitis, and severe seizures are a few examples. An

emergency department (ED) is a great place to teach medical professionals because of the prevalence of illnesses there [12].

EDs in medical centres are excellent for education and training locations. EM doctors can educate and train neighbourhood healthcare workers in less developed nations, who might provide most of the populace's EM care. Both national and international disaster response systems almost always take a bit of time to mobilize and operate, and they only become functional a few weeks after the crisis. Consequently, local EM networks and healthcare professionals will be in charge of the early medical response to a catastrophe. The severe acute respiratory syndrome (SARS) pandemic highlighted the significance of EM systems and EDs for the early diagnosis and treatment of the illness. Although there is still more to be done to enhance crisis response capabilities globally, it is now more obvious than ever how crucial strong EM infrastructure and healthcare professionals are to efficient catastrophe responses and preparation. EM care organizations' worldwide advancement: possibilities and problems training and instruction In many medical universities around the world, the fundamentals and ideas of EM could be better covered in the curriculum or completely omitted. The hospital departments of tertiary care facilities are the standard location for medical students' medical training, focusing on making the appropriate diagnoses rather than identifying and treating medical crises.

Health professionals from nations without postgraduate residencies in emergency medicine (EM) or without sufficient EM-trained professionals might not have access to education in this field. Policymakers in health care but also decision-makers can take the following actions to enhance educational and training prospects in emergency medicine (EM) in a particular region or country, inspiring neighbourhood schools to integrate EM notions into the students who are enrolled on curriculum, assisting initiatives to launch projects for schooling postgraduate doctors in EM, and to contribute positively to launch EM classes for teachers and nurses in the neighbourhood [13].

Recruiting talented and specialized people considering they won't be able to get jobs of academic, clinical, and regulatory responsibility, brilliant people are less likely to select EM as a profession in nations where it isn't an officially recognized speciality. If there is little chance for progression, talented people from developing nations who travel overseas to learn

in EM have no reason to stay. Healthcare policymakers may contribute to creating conditions that will draw brilliant persons to EM and keep them there by endorsing or launching initiatives to accept EM as an authorized speciality. These individuals will then push improvements in the local delivery of EM care. Recognizing the function of EM Some outmoded beliefs or a lack of acquaintance with modern EM procedures and practise may be the root of misunderstandings regarding the function of emergency medicine. Despite their origin, these myths restrict the potential for EM technologies and healthcare professionals to help healthcare organizations and the general public by impeding their growth and adoption. One common misunderstanding is that just individuals with documented life-threatening situations require EM treatment, and everyone else is taken care of by the primary care system. Identifying which patients have actual or prospective crises can be challenging. The roles of triage and resuscitation must be firmly linked inside this healthcare system to prevent delays in diagnosis and care. Another myth is that EM care systems exclusively deal with patients who have wounds and that different parts of the health care handle people who have medical crises. Healthcare service designers miss important chances to effectively use funds and improve the standard of emergency treatment by concentrating strictly on trauma care. A related myth is that most emergency medical care is provided in prehospital settings. Although institution EDs may manage a far higher number of medical emergencies, prehospital care is a crucial component of EM treatment. Emergency treatment is often provided in hospital-based emergency departments (EDs) instead of the prehospital environment in the vast majority of nations, regardless of their socioeconomic state of development. . Healthcare decision-makers and healthcare institutions may support the establishment of recommendations for the establishment of EM care systems that fully exploit EM's possibilities for supporting public health by collaborating with both national and international EM professional societies. Global health organizations are urged to research and monitor such growth and consequence better to comprehend EM care systems' function and capacity to advance public health.

Negotiating Emergency Treatment while Health Policy Shifts

Unlike emergency medicine (EM), EM investigation begins with the outreach work done by emergency doctors to ensure that disadvantaged treatment centres have access to medical care. This research was largely made up of descriptive research intended to show how different groups of people get treatment. Such investigations included descriptive evaluations of the practice known as "patient dumping," wherein the private clinics shifted people

without insurance to emergency departments of public hospitals regardless of their medical conditions. The Emergency Care and Active labor Act (EMTALA), which introduced a legal obligation for Medicare-participating institutions with EDs to provide immediate care to anybody, was informed by this analytical study.

Regulatory and free market expenditure methods, such as the rise of health organizations, surged in the 1990s. The financial implications of covering the massive price of emergency treatment have drawn criticism from several policy commentators. But according to some experts, the variable cost of ED care, particularly for non-urgent issues, was far lower than previously thought. Williams presented proof that the bulk of emergency department expenditures was permanent due to the need for backup capacities for unanticipated trauma and acute medical situations. The extra charges mostly represented expense shifting to cover the unemployed [14].

The multisite Medicaid Receive Study Group was established in 1994 by a consortium of medical doctors to investigate the difficulties Medicaid beneficiaries had while attempting to obtain medical services. They prepared study participants in nine locations to act as patients seeking treatment for 1571 very minor yet physically painful health issues. As a result, healthcare insurance providers attempted to restrict patient's access to emergency treatment. Dowling from the University of Texas School of Family Medical Sciences sums up a primary healthcare professional's perspective. He stated that the "missed opportunity for prevention" is the true cost of an ED visit and described ED care as "fragmented, chaotic, insufficient, and inappropriate." Such criticisms could have been more justified if the vast majority of Americans at the time had basic insurance coverage, which was either inadequate or unavailable. Only 8% of Medicaid respondents could get a consultation within two days without committing to paying a sizable sum of money upfront, and only 44% of Medicaid respondents might get an examination at any time. Double as many individuals were given an examination on time once they recontacted the same primary care offices and mentioned having private insurance. According to the researchers, uninsured patients have few choices outside of the ED. Midway through the 1990s, other researchers examined the effects of ED access obstacles caused by HMOs. The Healthy People (HP) 2010 objectives 1-10, to "reduce the proportion of persons who postpone or have difficulty receiving emergency medical care," and the encompassing goal to "enhance the availability of high-quality health care

services," was ultimately developed as a result of these scientific studies and awareness initiatives on the part of organized emergency medicine and wellness actively support. The "cautious layman standard" is how many individual states and the government Medicare and Medicaid programmes define a medical emergency for insurance coverage. A national legislative proposal that would apply the reasonable layperson criteria to urgent care payment choices by all health insurance companies nationwide also included the prudent layperson criterion [15].

System Management for the Provision of Emergency Medical Services

The many EM care network elements are frequently coordinated, run, and funded by various government departments or organizations in many nations. For instance, the police (minister of justice) may be in charge of alert and response, the fire department (ministry of interior) may be in charge of prehospital care; and the ministry of health may be in charge of hospital EDs. All of these components must cooperate closely for EM healthcare to be successful and efficient, which calls for leadership collaboration as well as a shared knowledge of the purpose and corporate processes at all organizational levels. . By adhering to these criteria, controlled care plans were required to pay for emergency department treatment depending on enrollees' presenting symptoms, which might include excruciating pain, but instead of their ultimate diagnosis. A sensible layman, defined as someone with an average understanding of healthcare and medicine, is required to rationally anticipate that the lack of timely medical assistance may cause injury before payment would be allowed under these criteria [16].

The value of Rigorous Methodology in EM Public Health Research

Increased methodological rigour is required in future EM research on public health. Hard outcomes should be the main emphasis of quantitative research. For instance, research on health promotion should extend beyond frequency studies to investigate novel treatments, monitor mortality rates, and compile information on the negative effects of having access to preventive care on health. Nonetheless, descriptive research on phenomena that have yet to be characterized will always be vital. EM offers itself nicely to qualitative research investigation because of the abundance of patient accounts, a methodology technique that has yet to be fully established in this context. Randomized designs should be used in intervention programs, and deliberate rather than survey methods should be used to reduce sampling error.

The assessment for comorbidities and covariates should be managed so that our non-experimental research has more validity when the design of experiments and randomization are not practical. Many EM researchers are starting to understand the advantages of investigating EM issues using population-based datasets. Partnerships with related fields can also result in the application of fresh approaches to prevalent EM issues. For instance, psychology, ethnography, and economics can offer fresh viewpoints on the practice of emergency treatment and the populations we serve. We must have a deeper grasp of the issues we are experiencing. For instance, we must move beyond documenting health inequalities and try to pinpoint the processes and provider, individual, and system-level problems that are causing them. Health inequalities may be characterized using geographic information system research, census indicators of inequality and ethnicity, and other data sources.

Last but not least, the scope of EM public health research has to extend outside of the clinic to include the residents and neighbourhoods. Participating in community-based participant observation will increase knowledge about patient obstacles to healthy behaviour and the influence of neighbourhood and family variables on disease. Healthcare policymakers and health authorities may support functional links between various components of the EM care industry by proposing system-based administration of EM care as a fundamental public increased health. The need for medical management across the board in the EM system of care delivery and the selection of a coordinating body to oversee interagency operations are examples of strategic interventions [17].

Conclusion

We have discussed the broad field of emergency medicine from the viewpoint of public health to clarify how it offers both secondary and primary preventative medicine. Emergency medical care services are efficient public instruments for lowering morbidity and mortality through acute illnesses and injuries, emergency preparedness, epidemiological monitoring, and some primary prevention activities. Nevertheless, there are still several obstacles to enhancing EM care for the public's health and possibilities for healthcare reform and global health campaigners.

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