Austin Emergency Medicine

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Austin Publishing Group

Mini Review

Emergency Medicine at the Crossroads: Vision for the Next Lap

Lateef F*
Department of Emergency Medicine, Singapore General Hospital, Singapore

***Corresponding author:** Fatimah Lateef, Department of Emergency Medicine, Singapore General Hospital, Outram Road, 1 Hospital Drive, Singapore

Received: April 04, 2016; **Accepted:** May 27, 2016; **Published:** May 30, 2016

Abstract

Emergency Medicine (EM) is a speciality that is developing at a very rapid rate. If one reviews how fast it has evolved since it started to the current state of the art practice, no other single speciality can claim the dynamism, ownership and evolution EM has gone through. The practice of EM will continue to evolve further into the future. It will be exciting, especially with academic EM and global thought leadership. The triple goal of improving overall health, improving the experience of every patient in the ED and keeping the cost of care affordable and reasonable, must be aspired to. There will be challenges but there are also opportunities. The speciality is well positioned to accept and manage these changes, with the view of how we are training our residents and emergency physicians for the next generation. It is critical to lay the ground work now by being progressive and forward in our thinking.

Keywords: Emergency medicine; Academic medicine; Faculty development; Value chain; Emergency departments; Information technology

Introduction

Emergency Medicine (EM) is one of the specialties that is developing and moving very rapidly. Alongside this; the numbers of Emergency Department (ED) attendances; worldwide; continue to rise at a disproportionately fast rate. Factors which contribute to this; both global and local; include; the rapidly ageing global populace; especially in developed countries; the longer lifespan; which means more chronic illnesses with more complications; more modernization and industrialization related problems such as road traffic accidents and construction related injuries; among others. However; to treat 21st century problems using the 20th century approach and mindset; would require an extremely large numbers of doctors and healthcare personnel; and would almost seem impossible.

The demand for healthcare will continue to increase faster than the incoming supply of doctors and healthcare staff can enter the system or be trained. In this respect; healthcare is notoriously inefficient [1-3]. Thus; the need to innovate; find alternative ways to train doctors and staff; look for alternatives to 'doctors' in the provision of care; utilize technology maximally as well as change the mind-sets of people in the healthcare industry as well as the patients and consumers of healthcare services. Eventually; achieving high value for our patients must be the overarching goal of emergency care delivery; with value being defined as the health outcomes achieved per dollar spent [4-5].

The other issues of very current interest in EM include the rise of doctors' associations and groups; development of more specialized career tracks and niche areas of practice; more structured rules of prudence in practice (which may be country specific); changing disease trends; a more educated population of patients; connectivity of the globe and the need to handle new and emerging infectious diseases with the more porous borders. Issues of ED over-utilization too; need customized handling in some cities.

Whatever changes take place; the focus on real patients' needs as well as patients' best interest must be the central theme.

The important areas to focus on would be;

a. The scope and practice of EM

b. Integration of Technology and Information Technology (IT)

c. The Continuum of Systems Thinking and Integrated Healthcare.

a. The scope and practice of EM

In the evolution of Emergency Medicine; there has been a major paradigm shift: from the historical days when emergencies were managed in one corner of clinics or hospitals called "casualty"; to the current state of the art emergency departments which provide timely; multi-disciplinary front line management; 24hours a day; at the "front door" of institutions. With the ever increasing patient load globally; institutions and nations will have to make decisions on streamlining practice and ensuring timely care [6-9]. A review of the patient and disease burden will be helpful before embarking on this. The numbers and statistics can then be customized to plan; amongst others; utilization of an emergency observation unit; chest pain unit; provision of onsite access to primary care facilities; personnel optimization and projections (especially with many nations feeling the manpower crunch in healthcare) as well as provision of other specialized services. Many EDs are now starting geriatric assessment and observation units to cater to handling the projected higher numbers of seniors; with the onslaught of the "silver wave" or ageing population in many countries. Features; such as non-glare lighting; larger font signage's; non-skid flooring; guard and hand rails represent modifications for seniors [9-12].

Many countries are facing the challenge of staffing their EDs and grapple with recruitment issues [4,9]. Local medical schools may not be able to meet the higher demands. Besides recruiting foreign trained doctors; one other option to creatively handle this would be to

Citation: Lateef F. Emergency Medicine at the Crossroads: Vision for the Next Lap. Austin Emerg Med. 2016; 2(5): 1030.

join forces with Family Medicine (FM) and have family practitioners help in running the ED. There are various options to consider such as:

1. Getting the family practitioners to run the minor emergency suite or ambulatory emergency section of the ED

2. Booster training for the family physicians to up-skill them in emergency care and the state of the art

3. Planning a combined EM and FM residency training

This way; FM can be a part of the future of EM. Family practitioners are suited for the embedment as they are trained with the breadth of medical care for various systems and diagnoses but require some depth to bring them up to the level whereby they are able to function in the ED.

In the coming years we may also see more academic medical centres being formed and recognized. These will be high performance centres and will of course mean a more robust practice of EM; with highly integrated delivery systems. Academic medicine centres will continue to produce evidence that truly advances our practice of EM. Evidence based practice must be balanced with service delivery to meet the high expectations of patients and the public. The practice will be more rigorous to meet surge demands and it calls for a more adaptable and flexible-minded group of staff. Any change in the ED will also mean change in the rest of the institution or hospital but it is most critical to always bear in mind that the ED is a first contact point in the value chain of healthcare. In such centres; faculty development will continue to feature strongly with undoubtedly higher standards of certification and maintenance. How the EM faculty upkeep their wellness and enthusiasm for their speciality is critical to its societal mission.

Healthcare institutions; including EDs will have to continue to strategies their outcomes and productivity; customized to suit developments and dynamics [13-15]. Buchan; in his paper; which reviewed the literature; suggested there are 5 different factors that play a role in raising productivity among healthcare workers [13]:

Being there: addressing staff absence and leave entitlement.

In the right place: issues of geographical location.

At the right time: matching staffing with workload.

Doing the right thing: being more responsive to patient needs and making the best use of skills and competencies (He also suggested that individual workers may be less productive because they are not focusing on their core competencies and activities; and that health teams may be less productive if their mix of skills is less than optimum).

Doing things different/ Doing different things: improved training; management and enhanced roles etc.

Besides larger academic centres; some countries may have to explore the need for free standing EDs. These will need to have a network of support; but essentially this entity will serve population in more rural areas and areas located far off from larger centres. It is more suited for larger countries where the urban-rural divide is more significant. In such instances; with regionalization; the configuration of services to be offered will have to be planned carefully to meet the emergent care needs of the populace [10-12,14].

Availability of telephone triage and telephone consult; perhaps combined with video telemetry and conferencing may have to be considered as tools for EDs of the future. This will be useful not just for patient and self referrals but also for other referrals such as from primary care practitioners; nursing homes and long term care homes as well as polyclinic referrals. The patients; problems and presentations can be discussed with the ED specialists; and the relevant information gathered to formulate diagnoses and treatment plans. Photos can also be sent via video conferencing. However; with doing this; institutions must have their patients consent to having their information shared within the closed loop established. Confidentiality and the ethical code of practice must be maintained at all times.

Pain management will continue to be a core requirement and common presentation in EDs. Thus; deeper understanding and research into pain management will be needed; including innovative techniques in analgesia delivery systems and patient controlled analgesia modalities. In Asia; where traditional and eastern practices of pain control is still widespread; we will continue to see this as a prominent feature; for example through acupuncture; acupressure; massage techniques and certain physiotherapy considerations; especially for musculoskeletal injuries and pain.

End of life care in EDs is another topic where conversations must continue. The limits of the technology available at our disposal and considerations of "when enough is enough" must continue. "Do Not Resuscitate" (DNR) and "Allowing Natural Death" (AND) must cease to be taboo topics.

b. Integration of technology and information technology

Technology drives growth in EM. IT can be integrated into various aspects of healthcare to simplify work processes; increase efficiency; reduce errors; for monitoring and syndromic surveillance as well as a variety of other customized roles.

The use of technology and robotics will continue to expand; especially with the more routine duties. This will be true for the staff as well as the patients and their families. For the more IT literate patients it may even shorten wait times/ process times; if they can start to enter their presenting complaint and history whilst waiting; after their registration is done. This can be done through proposed mobile devices or a self entry kiosk at the ED. This would mean; a proportion of the patients would have already 'clerked' themselves partially whilst waiting.

Electronic medical records which has already seen widespread use and applications will continue to feature prominently [4,14]. Connectivity will be enhanced across public- private institutions as well as primary care; where possible. In fact there will be more applications; and big data spin offs. Research too will be more active with these applications. However it is crucial to bear in mind issues of confidentiality; informed consent and safe-guarding patients' data and health records [1,9,14].

Social Media (SM) too is changing the way physicians and patients interact. SM can be one of the drivers towards a more patient-centric model of healthcare. It offers a platform for health communications; empowerment and even possibly strengthening the physician-patient

relationship; if used appropriately within context and adhering to guidelines of the institution [16,17].

The use of SM in medicine tend to bring on more negative feedback The academic literature is commonly seen with articles on SM and how it poses dangers and risks to medical personnel. Many SM usage guidelines are also geared towards the expectations of misuse rather than positive considerations and constructive use. There is a need to assess its impact and utilization in medicine; through processes such as consultation; education and creation of awareness; communications; interaction and sharing of information. The culture of medicine is one that values confidentiality; privacy; one to one interaction and very professional conduct. This is often thought to be contrasting to that of SM; which involves open sharing; connectivity and is thus; more informal. Despite the contrasting cultures; a significant proportion of medical personnel does use or are on SM platforms. Participation in SM networking and other similar internet sites can support physicians' personal expression (within limits and maintaining professionalism); enable individual physicians to have presence online; foster collegiality and camaraderie within the profession and provide opportunities to disseminate public health messages and other health communications. If properly and adequately used; within acceptable framework; SM can indeed be a boon; rather than a bane to the practice of emergency medicine [7-16].

The connectivity IT offers with continue to be harnessed especially in the area of global communications and sharing of crucial information such as that seen during the SARs or bird flu outbreaks. The timely sharing of relevant information in such situations can mean between life and death and emergency physicians at the frontline need to be quickly appraised of this. With education too; educators and faculty will have to modify their instructions for trainees. It will be more highly structured; interactive and more technology-based; which allow for rapid feedback. Simulation too as a training and teaching modality will continue to feature prominently [4,18-20].

c. The continuum of systems thinking and integrated healthcare

EDs worldwide are subjected to a variety of Key Performance Indicators (KPIs) statistical surveillance; politics and balance score cards. These will include issues of waiting times; re-attendance rates for various diagnoses; morbidity and mortality; "bed blocks"; admitting rights and even managing patients' expectations. Due to the dynamic environment of the type of work as well as the discipline of EM; other factors like balancing service and education; fee structures; having a pediatric service ED or a generic service ED; utilization of locum services; running a short stay diagnostic unit or a chest pain unit are also considerations [1,2,9-17].

Whether EM is practiced in large academic centres or smaller institutions; the issue of space utilization is always a concern to ensure seamless flow and throughput [14].

Sharing of space: If each institution and each discipline can be "less territorial"; there will be less silos and segmentation to patient care. 'Seamless' care is an ideal to strive for. Experience this from the patient's perspective: patients with multiple medical issues; moving from one specialist clinic to another; on different days of the week; at different times; with different waiting times and investigations. Will there be a day when such a patient just has to sit in a room and the different specialists will come in; one after another; for their consultation and management. Many EDs in developed countries bring multiple disciplines and services under one roof.

Use of 'dead space": Can we utilize 'dead space' in our midst? For example; an area used by one discipline at certain times can be used by another discipline at other times. The corridors in hospitals can be redesigned to create ambulatory consult rooms for less serious emergencies or areas for ED administrative services. There can be really innovative ways to utilize space if we are able to think out of the box; but at the same time maintain safety and infection control practices.

"Building up…..and down": Today; rooftop spaces are being utilized in some institutions. Basements are currently where hospital support services (eg: kitchen; mortuary) are located. There is nothing stopping us from using other basement areas and the underground for future patient care facilities Roads can be built to travel down quickly so that ambulances bring emergency patients do not face delays.

In Singapore 90% of our population live in high rise apartments. If we can build "step down care' or long term care facilities in a relatively similar fashion; one block can house quite many such chronically ill patients (eg: those needing rehabilitation or nursing support); and with lifts that stop on every floor; access is not an issue. This is already being done in Scandinavia; where such services are being run by private hotel chains. This will also be an example of highly productive space use for land scarce Singapore. Several such blocks of apartments can be served by a stand-alone emergency clinic. This means residents from these apartments need not be transported to EDs or academic centres for simple emergencies. This is also where the FM practitioner; with training in emergency care will come in handy [19,20].

In realizing integrated healthcare delivery; there will be deeper and more partnerships between EM and disciplines such as Infectious Diseases; Family Medicine; Public Health; Trauma care; Palliative care; Neurology and Prehospital Medicine. We will see more clinical and care pathways which are up to date; seamless and state of the art. EPs will continue to play a central role in care coordination as significant proportions of patients present to the ED for the first time and has no other follow ups.

Integration and connectivity must be established and stepped up between different ED and also between private and public EDs. Handling of cases such as child abuse or regular attendees being monitored on an integrated database is extremely useful.

Conclusion

EM does attract emergency physicians and practitioners who are leaders at the front line and in change adaptation and management. This is most appropriate; being a discipline at the forefront of medicine and also the 'front door' of the institution. Many have evolved to become leaders in clinical medicine; and at the national; regional or even international level. Being the leader in the pack; also puts us in a position where we can be called to raise the bar of practice

and thresholds to increase both patients' and staff satisfaction [1,4,18-21].

The practice of EM will continue to evolve further and change into the future. It will be exciting; especially with academic EM and global thought leadership. The triple goal of improving overall health; improving the experience of every patient in the ED and keeping the cost of care affordable and reasonable; must be aspired to. There will be challenges but there are also opportunities. The speciality is well positioned to accept and manage these changes; with the view of how we are training our residents and emergency physicians for the next generation. It is critical to lay the ground work now by being progressive and forward in our thinking. More academic centres will sprout but will need to adapt in responding to the new and changing environment and patient profile. The key to the survival and flourishing of the discipline depends on our responsiveness; adaptability; flexibility where needed and creativity in using IT and technology in negotiating the climate of the future. This will determine whether EM remains the speciality of specialties.

As Sir Winston Churchill said; "The future is unknowable; but the past should give us hope".

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Austin Emerg Med - Volume 2 Issue 5 - 2016
ISSN : 2473-0653 | www.austinpublishinggroup.com

Citation: Lateef F. Emergency Medicine at the Crossroads: Vision for the Next Lap. Austin Emerg Med. 2016; 2(5): 1030.