PERSPECTIVE

Early lessons from COVID-19 that may reduce future emergency department crowding

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Abstract

The COVID-19 pandemic has produced significant changes in emergency medicine patient volumes, clinical practice, and has accelerated a number of systems-level developments. Many of these changes produced efficiencies in emergency care systems and contributed to a reduction in crowding and access block. In this paper, we explore these changes, analyse their risks and benefits and examine their sustainability for the future to the extent that they may combat crowding. We also examine the necessity of a system-wide approach in addressing ED crowding and access block.

Key words: *access block, COVID-19, crowding.*

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The COVID-19 pandemic produced unexpected changes in ED patient volumes. In fear of contracting the disease in the ED, patient visits precipitously decreased early on. Patients returned when they became symptomatic from community spread or so ill with a non-COVID-19 disease that they were willing to take the risk to be seen in the ED. Even in areas where COVID-19 cases were low, the decrease in the number of ED visits was still dramatic with many hospitals remaining well under capacity for weeks and even months.[1] What are the benefits and risks of this phenomenon, how did some communities manage their patients without using the ED, and what lessons can we extract for the future?

Emerging strategies that are beneficial

Telemedicine

Much of the telemedicine infrastructure mobilised during the COVID-19 pandemic has existed for years, but the majority of healthcare has historically been delivered face to face. The COVID-19 pandemic significantly disrupted this to bring virtual care to the forefront. COVID-19 also saw an increasing number of self-care applications that enabled patients to receive automated guided medical assistance (e.g. online COVID-19 self-assessment tools). Follow-up appointments to family doctors and specialists were often conducted virtually, producing savings in human resources (e.g. transportation time) and financial costs, allowing for more timely assessments followed by in-person care where appropriate.[2] In some settings (e.g. the UK), pre-existing emergency telephone lines were leveraged in an attempt to reduce attendances or ambulance dispatch, and concerted efforts were made to reduce ambulance conveyance rates.[3] Collectively, these strategies may be more broadly applied at a systems-level to reduce ED crowding by reducing or diverting input.

Forward deployment of mobile resources and re-consideration of hospital admission

A significant portion of the population seriously affected by COVID-19

were elderly patients with chronic comorbidities, many of whom came from assisted living homes, or who were receiving palliative care at home. The pandemic forced clinicians to consider that they may not be able to provide care in hospital for these patients and it must be delivered *in situ*. There are certain populations of patients who present to the ED where care delivered *in situ* via forward deployment of resources can reduce crowding by diverting input, such as sending staff to a patient's residence and supporting them with telemedicine as needed. In other groups, it could be argued that with increased attention to discussions around treatment escalation and end-of-life care, patients could be allowed to die with dignity in more appropriate settings than acute hospitals, if culturally appropriate.

Infectious disease containment within the ED and hospital

An important comparison can be drawn between COVID-19 and seasonal influenza. The death rate from COVID-19 has yet to be conclusively determined, but seasonal influenza is thought to be responsible for approximately 650 000 deaths per year and causes a predictable ED surge and hospital burden. The establishment of fever management systems for outbreaks, even if only used for influenza, could significantly reduce this burden on the ED. Establishing self-care apps, phone tracking of patients with influenza-like illness symptoms, passive ED influenza-like illness tracking systems, tiered system telemedicine screening, testing, strict isolation, housing mild–moderate cases in non-hospital settings (people in shelters or high-risk housing conditions) and strictly separated wards that are created during these periods, would likely reduce the impact and would remain scalable measures for pandemics. The creation of fever or isolation zones, with separate access and exit points, can also allow high-risk staff (i.e. those at risk of experiencing serious morbidity from the disease due to pre-existing comorbidities) to more safely work in a non-COVID-19 zone.[4]

Global efforts to reach consensus on an unprecedented scale

While traditionally expert opinion has been the level of evidence used in emerging diseases, including this pandemic, there have never been this scale of participation using technology. Although it remains a field of conflicting opinions, the approach to consensus and rapid evidence collection to validate or evaluate recommendations is unprecedented. Examples include the rate at which COVID-19 literature is being synthesised and published, the effective and timely dissemination of results via pre-prints, and leveraging pre-existing social media platforms to accelerate forums of discussion.[5,6] These changes will likely continue to evolve as a major future tool for the implementation of practice guidance and knowledge translation.

Emerging COVID-19 phenomena that pose risks

Telling people not to come to the ED unless they are very ill

This certainly reduces visits, but over an extended period may cause an increase in morbidity and mortality as those who need ED care will not seek it out of fear. Improved use of tiered ED telemedicine with tele-triage and then an ED physician virtual visit could reduce this impact.

Disparate and conflicting public health advice

The challenges of collecting data and the inclusion of non-medical political forces in decision-making has led to conflicting recommendations. The challenge arose because the strategies that 'flatten the curve' also flatten the economy and while healthcare providers tend not to prioritise this concern, the impact can have major impacts on the health of their citizens from loss of healthcare insurance, reduced local ability to access services, disrupted medical supply chains (e.g. those for HIV medications), and dramatic increases in poverty and starvation, all of which may have a greater impact on mortality and

morbidity than COVID-19 itself. The balanced position is a 'properly protected' community able to work and function effectively without contributing to disease spread.

Systems change and the need for a new normal

The COVID-19 pandemic has demonstrated to the world that when a common goal must be urgently met, emergency care systems can rapidly adapt, with the NHS response to COVID-19 serving as one of many clear examples.[7] In departments not at the centre of major surges, input has reduced, and reduced hospital occupancy has meant that access block has improved. Staffing levels have been boosted and departments have been granted more floor space. Despite the challenges of reconfigured departments, the need to work with high levels of personal protective equipment, and the need to redesign clinical pathways, many emergency medicine teams have been able to do their job better, delivering better quality care, and avoiding more admissions. This begs the question as to why it has been such a battle for health system leaders to believe, and act upon, what has in the past been obvious to those working in emergency medicine, well-evidenced in the literature, and which has now been shown to be true during a natural experiment. ED crowding has not generated the same urgency as the pandemic, although it has been attributed with a wide range of negative outcomes, including significant mortality.[8] Returning to the previous state of crowded EDs will inevitably result in worsened patient outcomes and avoidable deaths, necessitating the need for a reset of expectations following COVID-19.[9]

Access block and crowding are not insoluble problems. The same systems-wide collective leverage that was applied to the COVID-19 response can and should be applied to our EDs and emergency care systems. Recommendations to reduce ED and hospital occupancies have also been put forth by emergency medicine colleges to facilitate ED redesign.[9] Unless a 'new normal' in

emergency care comes after COVID-19, one that is re-engineered for resilience, ED crowding will continue to take its toll on patients and providers. We are at the crux of this transition, and health systems leaders, policymakers, on-the-ground clinicians and other stakeholders must act now.

This paper has been adapted from a section of a similar name in the International Federation for Emergency Medicine (IFEM) Report from the Task Force on ED Crowding and Access Block, which can be found on the IFEM website.[10] Ethics approval was not required for this report as it was not an experimental study and did not directly involve any human participants.

Author contributions

All authors had substantial involvement in the conception, design, analysis, drafting and critical revisions of the work. All authors played a role in writing and approving the final piece.

Competing interests

None declared.

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