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Commentary

Describing a 12-hour ambulance shift during a second wave of COVID-19 in London

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Abstract

The coronavirus disease (COVID-19), caused by the virus SARS-CoV-2, has strained international healthcare systems, including ambulance availability. Ambulance officers and paramedics are at the frontline of this pandemic and are therefore particularly exposed. Under normal operational circumstances, ambulance delivery is challenging; the effects of COVID-19 have exacerbated both the delivery of services and the stress placed on paramedics.

In this case report, we describe a 12-hour emergency ambulance dayshift in central London during the second wave city-wide lockdown. We also discuss the impact COVID-19 has on day-to-day operations and the strategies employed to reduce paramedic infection.

Keywords:
paramedicine; COVID-19; ambulance

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Introduction

The coronavirus disease (COVID-19) and infectious virus, SARS-CoV-2, have strained international health care systems, placing pressure on health care systems including ambulance availability. Ambulance officers and paramedics have been at the forefront of this pandemic and particularly exposed. Under normal operational circumstances, ambulance delivery is challenging with research demonstrating that ambulance work is one of the most dangerous professions due to a multitude of reasons. It remains one of the most dangerous jobs in countries including Australia, the United Kingdom and the United States of America (1-3).

In many countries, including Australia, the United Kingdom and the United States, being a paramedic is a dangerous job (2,3). Violence against paramedics, workplace injuries, disrupted sleep and occupational stressors all contribute to workplace stress (4,5). A recent systematic review showed that paramedics experience higher rates of mental health stress and workplace violence compared with other health and emergency service professions (6). Due to the COVID-19 pandemic and subsequent country-wide lockdowns, these factors are now likely amplified, making the role of paramedics even more difficult.

There has been little published regarding the experiences of frontline paramedics during the COVID-19 pandemic. This critical reflection will describe a 12-hour emergency ambulance dayshift in central London during the second wave city-wide lockdown. It also discusses the impact COVID-19 has on day-to-day operations, and discusses several strategies currently employed to reduce paramedic exposure to COVID-19.

Background

London demographic

The densely populated city of London has significant local, national and international transport links. Due to COVID-19's close person-to-person and aerosol transmission, these transport links have likely fuelled the spread of the disease. The United Kingdom's population density is 100 times more than the whole of Australia (260 people per square kilometre vs. 2 people per square kilometre). Contrastingly, London's population density of 4932 people per square kilometre saw it affected by COVID-19 to a significant degree (7-9). Additional to the significant issue of London's population density is the city's national and international transport links, including six airports, notably London's Heathrow airport, the seventh busiest in the world (10). These figures depict the vast challenges and the greater risk of an out-of-control transmission of a virus that thrives on close person-to-person contact.

Service and pressures

The National Health Service (NHS) and London Ambulance (LAS) are under considerable pressure during day-to-day operations. When the COVID-19 pandemic was announced in March 2020, the NHS and LAS adapted to continue to service the city of London. In late March 2021, the LAS experienced one of its busiest days on record with more than 8000 calls to control rooms (11). The ambulance service enlisted the help of the London Fire Brigade (LFB) and partnered with Stagecoach London (a major bus operator) to cope with the additional pressure (12). The latter assisted in repurposing vehicles to double the number of ambulances capable of responding to emergencies (12). As the second surge in COVID-19 cases hit London in late 2020 and early 2021, the Metropolitan Police Service (MPS) and returning members of the LFB assisted with the NHS and LAS response to patients (12).

Personal protective equipment

Personal protective equipment (PPE) is vitally important in protecting health when interacting with highly infectious patients. Large numbers of healthcare workers were infected with and died from COVID-19 due to a lack of availability of appropriate PPE. As each patient contact presents varying levels of risk to the healthcare worker, levels of PPE have been introduced to assist with managing national supply while mitigating the potential risk. Level two and three PPE were used by ambulance staff during the COVID-19 second wave. Level two PPE consists of an apron, gloves and a surgical face mask. This PPE is worn during assessment of every patient unless level three PPE is indicated. Level three PPE is used for aerosol generating procedures, such as intubation, ventilation and suction, and involves the use of a full-face reusable respirator, long-sleeved surgical gown or Tyvek suit, and two layers of gloves. Due to the availability of personal-issue reusable respirators, these are now worn during contact with COVID-19 positive patients or with patients suspected of having COVID-19.

Donning and doffing PPE correctly and in the appropriate order is essential to optimise infection control. Donning PPE often occurs when enroute to more serious jobs while remaining restrained in the ambulance. The respirator is donned first, followed by the gown or suit and gloves. On arrival the gown is tied to minimise the risk of the strings becoming tangled in the ambulance seatbelt. While wearing PPE, uniform pockets are unable to be accessed, therefore any essential equipment (eg. radio, pen, drug charts) must be removed before donning the PPE.

Although PPE is necessary to minimise disease risk, it can cause strenuous work to become more difficult. During the pandemic, increased sanitising regimens exacerbated common problems experienced by healthcare workers such as dry and cracked hands and skin irritation. Prolonged mask wearing caused facial irritation, contact dermatitis and pressure sores. Healthcare workers wearing full-face respirators have reported feeling claustrophobic, experiencing headaches and having difficulty being heard by patients.

Definitions
Category one (Cat 1) calls require a 7-minute response time, where first responders are initially sent and arrive on scene quickly. Cat 1 calls are enacted to treat cardiac arrests, unresponsive patients, ongoing seizures or major trauma (eg. motor vehicle/pedestrian incident).

Category two (Cat 2) calls require an 18-minute response time to patients with an altered level of consciousness, difficulty in breathing, chest pain, abdominal pain or a seizure that has stopped.

Category three (Cat 3) calls have a response time of less than 2 hours, however some Cat 3s can have a response time of more than 8 hours. Elderly people who have fallen, people who have fallen without injury (recovered or still on the ground), mental health, non-traumatic back pain and younger patients are often placed into this category.

Case report: the shift description
At approximately 08:30 an ALS LAS crew signed on for the morning and was dispatched immediately to a Cat 3 call that had been held for over 6 hours. Before COVID-19, a Cat 3 call required a response time of less than 2 hours, however this has not been possible to maintain due to the increased call rates. On scene, a 37-year-old female with a cough required the crew to don Level 3 PPE. The respirator limits any peripheral vision and is claustrophobic. Following a thorough assessment of the patient the attending crew deemed this patient non-critical and left her at home with self-care advice. She was further advised to undertake a COVID-19 test. They cleared the case and were immediately dispatched to a female, 53 years of age, experiencing non-specific back and flank pain with no reported COVID-19 symptoms.

Nevertheless, protocol required Level 2 PPE (surgical face mask with an apron and gloves) to transport this patient to the emergency department for further assessment. During transport to hospital, dispatch informed all crews via broadcast of multiple calls on hold throughout the sector. At the hospital, one officer worked to triage the patient while the other attempted to reset the ambulance to prepare for the impeding calls.

The crew were then dispatched to a female patient, 58 years of age, with a 5-day history of abdominal pain and diarrhoea. Outside the property the crew donned Level 2 PPE. Following a thorough patient assessment, the patient was transported to hospital for further assessment. During the journey to hospital the crew heard dispatch broadcasting for assistance due to increased call rates. Following the handover of this patient the crew were assigned to render assistance to a female patient, 96 years of age, seizing and with a history of fever. This case required Level 2 PPE consisting of surgical face mask with apron and gloves. The patient was assessed and treated on scene before hospital transportation, however, was unable to be offloaded at the hospital due to a bed shortage. This small window of opportunity allowed the crew to eat some food while delayed. One officer remained in full PPE with the patient while the other removed themselves from the scene, doffed their PPE and performed a decontamination before eating a snack. Each officer attempted to decontaminate, eat and rotate before the patient was accepted by the hospital. Immediately following handover, the crew were dispatched to a female, 57 years of age, in respiratory distress. COVID policy dictates that Level 3 PPE is donned before entering the scene. On arrival, the patient was confirmed as a COVID-19 positive patient. The patient's oxygen saturations were 70% room air, and tachypnoeic with a respiratory rate of 44. The patient was tachycardic at 120 beats per minute and was febrile at 39°C. Although she was unwell, this patient was not the most severe COVID-19 patient the crew had attended that week. The patient was provided high flow oxygen and loaded onto the stretcher for emergency transport to the hospital. Once the patient was handed over to the hospital an extensive decontamination of the vehicle and all exposed equipment commenced. Although the importance of vehicle decontamination is well known, the crew were under pressure to be available to respond to a growing list of delayed calls.

Immediately following the decontamination, a Cat 2 response was assigned to the crew. A male patient, 52 years of age, was in respiratory distress and confirmed as a COVID-19 positive patient. Outside, the crew donned Level 3 PPE. Following a thorough assessment, the patient was deemed non-critical and left at home in the care of family, with advice given. Another extensive decontamination of the response kits and vehicle occurred before the crew was available for dispatch. Following this, the crew were immediately dispatched to assist a female, 32 years of age, who was COVID-19 positive. On arrival under Level 3 PPE, the patient was found in respiratory distress requiring urgent oxygen therapy. The patient was transported under normal operational conditions to the emergency department, there were seven ambulances waiting outside. The crew took a position in the line and hospital staff took blood samples and vital signs of patients in the waiting ambulance outside. The crew had to remain in full PPE during a 3-hour delay due to bed shortages. A hospital bed became available at approximately 21:30. The crew conducted another full decontamination of the vehicle and arrived back at their station 1 hour and 45 minutes after their normal shift completion time to log off.

Conclusion

The COVID-19 pandemic has impacted the delivery of ambulance services around the world. More emphasis must be placed on risk mitigation strategies and PPE measures to safeguard paramedics so they can continue their vital work in the community. This critical reflection was a description of a 12-hour shift in London during the second COVID-19 outbreak in 2021. It is intended for this critical reflection to add to the experiential data of paramedics working during a pandemic.

Competing interests

The authors declare no competing interests. Each author of this paper has completed the ICMJE conflict of interest statement.

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