Clinical Skills for Police Officers in Specialist Role: An Audit of Patient Report Forms in 2019

Abstract

Some specialist police officers, predominantly from firearms units, are trained in pre-hospital medicine to a national standard curriculum initially developed in 2009. The incidents are recorded in Patient Report Forms, which are subsequently reviewed by their clinical governance oversight to quality assure the treatment given and to inform future training or curriculum development. This is a retrospective review of 298 Patient Report Forms from 2019 from five police forces covering a mixture of metropolitan and semi-rural areas. Patients were predominantly male and the mechanisms of injury were mainly stabbings, road traffic collisions or alcohol/ drug-related. There were 42 (14%) medical call-outs which were mostly cardiac in nature. Other non-trauma incidents included mental health problems. The most frequent injuries sustained by patients were lacerations, stab wounds and abrasions and 116 (31%) patients were reported as being in pain. 55 (18%) patients required airway support. Cardiopulmonary resuscitation (CPR) was required in 40 (13%) patients with a Return of Spontaneous Circulation (ROSC) on scene achieved in 17 patients (43%). More focus on medical emergencies and mental health in training could be valuable. Airway management has improved compared to previous audits and there is potential for supraglottic airways to be used more frequently. The relatively high numbers of ROSC on scene is commendable. These officers are well-trained and serial audits show a steady increase in use of skills, which makes them an important medical resource, although it is important to remember that they are police officers first.

Introduction

The year 2019 saw a 7% increase in knife & sharp object offences in England and Wales[1]; the highest on record (however, this figure does not include statistics from Greater Manchester). There were 6060 incidents involving firearms and a terrorist attack on London Bridge[1]. It is, therefore, more important than ever for the police officers responding to such incidents to have a high degree of medical capability. In 2010, firearms police officers began training to a national curriculum in basic but essential life-saving skills. 'Clinical Skills for Police Officers in Specialist Role' is a module (previously named D-13), which involves the assessment and treatment of casualties using the <C>ABCDE paradigm[2].

Patient Report Forms (PFRs) record details of the care provided each time an officer is called to a patient. They are reviewed by a registered medical professional for assurance of the treatment given and are used to inform future training for the continual quality improvement of medical care. This audit aims to examine the PRFs completed in 2019 and compare the data to previous years using earlier audits. It will look for emerging trends, identify areas for improvement and where police officers in specialist roles (referred to as *officers* in this report) are particularly proficient. It also evaluates components of the form itself.

Method

This is a retrospective audit of 298 PRFs completed by predominantly police firearms officers in 2019. The PRFs are from five police forces in England, all under the same clinical governance structure[3], covering a mixture of urban and semi-rural areas. Anonymised data

was categorised into the mechanisms of injury, types of injuries, sex of the patient, observations recorded and interventions provided by officers.

Results

There were 217 male patients, accounting for 73% of PRFs. There were 51 firearms deployments, making up 18% of PRFs. 16 PRFs did not record whether the incident was a firearms operation or not. Officers spent an average of 51 minutes on scene.

Mechanism of Injury

The three most common mechanisms of injury were stabbing, alcohol/ drug-related, or road traffic collisions (RTCs) (Figure 1). While there were 11 incidents (4% of PRFs) where the mechanism of injury was alcohol or drugs alone, 66 incidents (22% of all call-outs) involved drugs or alcohol, including 13 self-harm/ parasuicides (59%) and 13 stabbings (19%).

The 'other' category included three patients with hypothermia, three fractures (two wrists and one hip), two completed suicides, two minor cuts, two welfare concerns, someone who was pushed through a window, one industrial accident, a fall from a horse and a casualty from a police operation. Six incidents were unspecified.

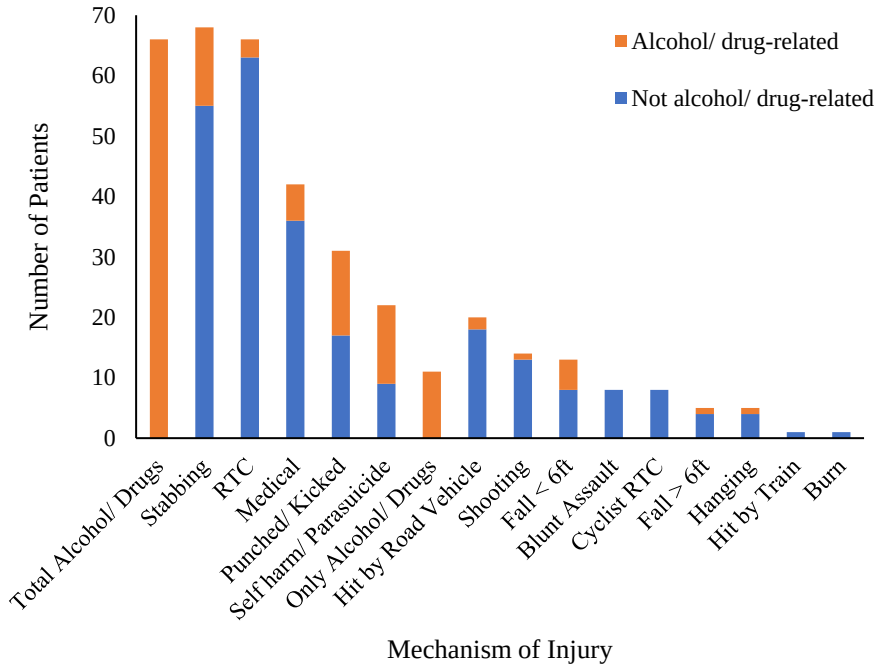

Figure 1: Number of most commonly reported mechanisms of injury, including the proportion of incidents in each category where alcohol/ drugs were also reported in the PRF.

42 PRFs (14%) were medical call-outs (this excludes mental health). The majority of these incidents involved cardiac arrest or patients with chest pain (Figure 2). Mental health problems were noted explicitly in the free-text of 10 PRFs (3%), although the true number of incidents where mental health played a part is likely to be much higher, considering that the total number of suicides, para-suicides, missing persons and domestic incidents was 35 (which would make it involved in 15% of PRFs).

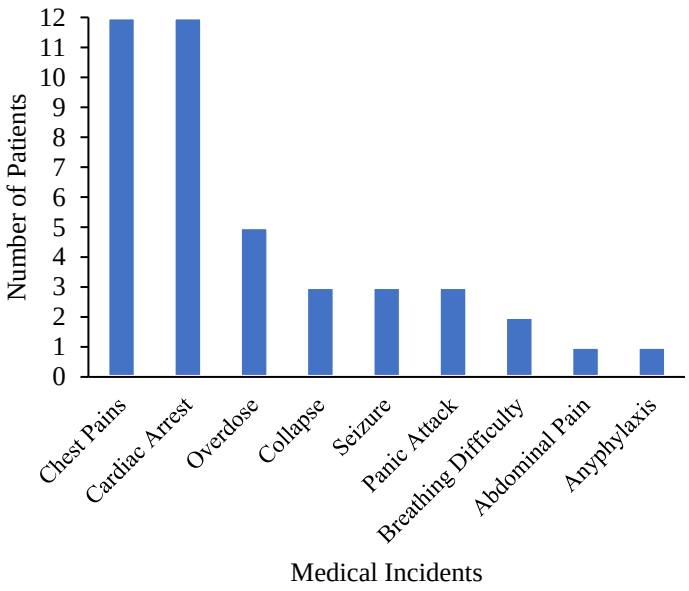

Figure 2: The number of patients reported for each medical incident.

Injuries

The most frequently reported injuries were lacerations, stab wounds and abrasions (Figure 3). 46 patients (11%) sustained fractures and three patients had amputations (one hand, one finger and one foot). One patient suffered self-inflicted disembowelment, where officers sealed large wounds with clingfilm. The doctors and surgeons at the hospital were grateful for their resourceful actions, which helped to save the young man's life.

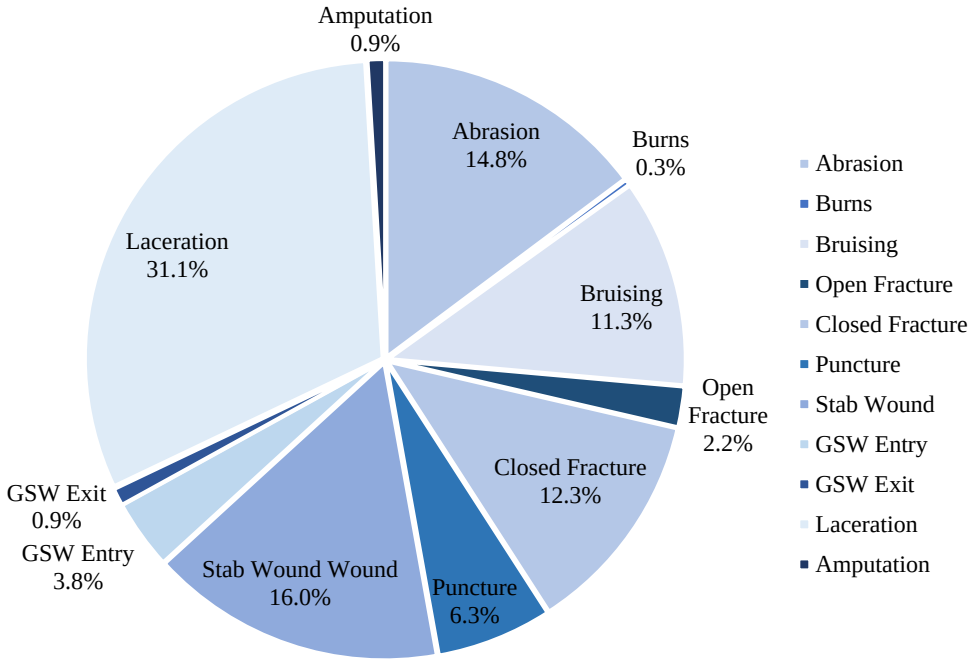

Figure 3: The proportions of injuries, out of all injuries sustained by patients reported in the PRFs. (N.B. patients may have had more than one injury).

Pain
116 patients (39%) suffered from pain. The analgesic Methoxyflurane (*Penthrox™*) was used in 23 patients (8% of all patients), mainly in RTC (seven patients) or assault (seven patients). 83% of the patients (19) were given only one dose. Before administration of *Penthrox™*, the majority of these patients reported 'severe pain,' which is rated at 8-10/10, and mostly reduced to 'moderate pain' (rated at 4-7/10), although one patient reported no change in pain levels. Two patients were identified as candidates for *Penthrox™* but refused it or their care was taken over by paramedics.

Assessment
<C> - Catastrophic haemorrhage:
137 patients (47%) had an external bleed, which was mainly treated with direct pressure. On one occasion, where a man had a heavily bleeding head wound after an assault, the application of a pressure bandage was commended by the Emergency Department. 12% of those who had an external bleed had a tourniquet applied (16 patients). One man had a catastrophic bleed from a deep laceration on his forearm which was treated with a tourniquet on his upper arm, stemming the bleed. The patient was identified as very unwell as a result of blood loss (confusion, pale complexion) and the two officers were complimented on the application of a tourniquet by the Helimed doctor taking over care. As the first responders, their quick assessment and decision-making markedly improved the outcome for this patient.

A - Airway:
55 patients (18%) had obstructed airways, which were often managed using a combination of manoeuvres (Table 1). Positioning the patient on their side or turning the patient was commonly used to manage obstruction. All patients with a reported initial AVPU Score (Alert, Verbal, Pain, Unresponsive Score) of *Pain* or *Unresponsive* (74 patients) were given airway support where required. 24 (8%) patients had suspected bony injuries to the face, mainly from falls over six feet or from RTCs. A supraglottic airway was used on one occasion for a child in cardiac arrest. In two patients who had substantial facial trauma and were unresponsive, the ambulance crews replaced oropharyngeal airways that had been placed by police with supraglottic airways.

Table 1: Number of times officers used each airway manoeuvre.

Airway Management	Frequency
Repositioning patient	28
Suction	10
Chin lift	15
Jaw thrust	20
Nasopharyngeal airway	15
Oropharyngeal airway	16
Supraglottic airway	1

B - Breathing:
The respiratory rate was recorded in 265 (89%) PRFs. 33 (11%) patients had chest seals (vented or non-vented) and only one had a suspected flail chest. 121 patients were treated with oxygen (40% of patients). 39 patients had breathing recorded as 'not normal' but were not given oxygen by police. This was mainly because it was refused, not available, or given by the ambulance or fire service, so was not recorded. In three RTC patients with abnormal

breathing and in two patients who had been stabbed and had chest seals applied, oxygen was not given.

C - Circulation:
141 (47%) PRFs had an exact heart rate filled in rather than only indicating the presence or absence of a pulse. CPR was required in 40 patients (13%) and 75% of those patients had an Automated External Defibrillator (AED) applied. ROSC on scene was achieved in 17 patients (43%).

Discussion

Airway Management

The airway ladder used to protect the airway begins with repositioning the patient, using a chin lift or a jaw thrust, then progressing to airway adjuncts[2]. Often, simple manoeuvres such as positioning the patient on their side provided an adequate airway in the patients included in this audit.

An audit in 2017 found some PRFs involving unresponsive casualties had the 'Airway' section of the form left blank. The report stressed that a patient's reduced consciousness should always lead to prompt airway protection[4]. As in the manual, airway obstruction in unconscious patients is most commonly caused by the tongue and early, often simple actions can re-open the airway[2]. In 2019, all unresponsive patients' airways were assessed and the majority were successfully managed with positional support or an adjunct. This indicates an improvement in airway management across all forces.

There was only one occasion in which a supraglottic airway was used by an officer, although they were used by ambulance staff in two patients with major facial injuries. The low usage of these airways may be explained by the effectiveness of the commonly used adjuncts paired with careful patient positioning which protects the airway in the short-term before paramedics arrive. However, there may be an argument for using supraglottic airways more during CPR. In out of hospital cardiac arrest, there is evidence that asynchronous CPR has an improved outcome compared to conventional compressions and ventilation in a 30:2 ratio when CPR is not performed by an emergency medical service (EMS) professional[5, 6, 7]. In the context of these officers, it may be appropriate to use bag-valve-masks and supraglottic airways for asynchronous CPR in cardiac arrest. The technique is also useful if the number of responders is limited, as the airway can be maintained and good ventilation provided by only one person, whilst the other can deliver compressions. This is suitable for officers in specialist roles who may be alone or medically unsupported in more rural locations. If not frequently used, it may be a difficult skill to keep current. However, considering the number of cardiac arrests officers attend compared to some other incidents, it would become fairly common if used in most cardiac arrests. Certainly, those officers in specialist roles may benefit from this training. In the context of the Covid-19 pandemic, first responders should be wearing aerosol-generating procedure (AGP) personal protective equipment (PPE) if carrying out AGPs[8]. In light of this, it is unlikely that officers have adequate PPE to perform safe asynchronous CPR currently. This may mean that for the time being, officers get limited opportunities to use supraglottic airways and improve this skill.

Pre-hospital oxygen treatment is mandatory in all major trauma; shock; cardiac arrest; convulsions; smoke inhalation; carbon monoxoide poisoning and in unwell paediatric patients[2]. Audits from 2010-15 and 2017 indicate that oxygen delivery was generally lower than expected[4,9]. Data from this audit suggests that officers are very capable of identifying

which patients require oxygen, but its use can be limited by the situation on scene. Oxygen delivery may be impractical, the patient may refuse it, or other emergency services may provide it. Considering that excessive oxygen can be detrimental to patient outcome[10], its use in 2019 generally seems appropriate.

Non-Trauma Incidents

There was an increased proportion of medical incidents in 2019 compared to previous years[4,9]. 19 (8%) PRFs filled in between 2010-15 were medical in nature, compared to 42 (14%) incidents in 2019. The types of medical problems encountered are comparable to previous years: mainly cardiac arrest or chest pain. Officers are trained in basic life support so are competent at managing medical cardiac arrests. However, 12 patients (29% of patients with medical problems) had (non-traumatic) chest pain, which is not covered to the same extent in training. This represents more than the combined number of patients with burns, found hanging or who had fallen from a height of greater than six feet (a combined total of 11 patients), and almost equals the number of shootings attended (14 patients). Although police officers are generally more likely to be called to trauma incidents, it is interesting that the most common medical emergencies are more frequent than some types of trauma. Perhaps this should be acknowledged more in training.

There was a comparative increase in incidents related to drugs or alcohol. Between 2010-15, 31 PRFs (13%) reported alcohol/ drugs as the mechanism of injury[9]. Based on audits in 2017, 24 PRFs were in this category,[4,11] which made up 11% of incidents. In 2019 it rose to 67 PRFs (22%). However, alcohol/ drug use among patients may be underreported as, where it is not the main mechanism of injury, it may not be detailed in the PRF. The PRFs, which are specific to the patients, may not reflect the use of alcohol/ drugs in some situations. For example, in assaults, the victim may not be under the influence, but others involved may be.

Pain

Pain was very frequently reported in PRFs. However, the number is likely to be inaccurate, as it is clear that some injuries which would have been painful did not have pain recorded in the PRF, as noted in a 2017 audit[11]. *Penthrox™* was only introduced in 2017 and it is difficult to compare trends due to differences in forms. In 2018, it was used in 10 (6%) patients compared to 23 (8%) in 2019. Generally, it appears to be effective in reducing pain score from severe to moderate, but its use by officers is currently limited by strict protocols. An audit of the use of *Penthrox™* in these five forces[12] (Franklin, Elford et al, in preparation) looks at whether these protocols might be safely loosened to improve availability.

Return of Spontaneous Circulation on Scene

A report into out of hospital cardiac arrests[13] found that ROSC was achieved in 29.8% of all cases and in 41.8% of those who arrested in the presence of EMS. This indicates that the rate of 43% ROSC achieved by officers on scene is in line with the national standard. However, this is not directly comparable because the national report included all out of hospital cardiac arrest ROSCs rather than just ROSC on scene. Considering that these officers often deliver CPR in challenging circumstances, in a pre-hospital environment without the kit of an ambulance, it is a credit to their training and abilities that the rate is so high.

Improvements to the PRF

It is a pity that the comparability of PRFs is limited by subtle differences in the forms between forces. It would be easier to audit data if there was a national standard of form. Better still, an online version would reduce errors in audits and save time. That said, the

difficulty of agreeing on a national form has previously been documented[4]. It is more likely that a national reporting template might be used to inform the development of PRFs toward a standard format.

The components of the PRF could also be improved. The respiratory rate was almost always recorded, but less than half of PRFs recorded an exact heart rate. Perhaps if the form had tick box categories for heart rate, as it does currently for respiratory rate, it could improve the number filled out. Although it is less important than recording a respiratory rate, heart rate of over 120 beats per minute is currently part of the exclusion criteria for use of *Penthrox™*, so it would be useful if this was incorporated in the PRF.

The PRFs included in this audit may not reflect all of the medical care given by the units in 2019. For instance, some forms were not filled in completely. Many of the incomplete observations, examinations or interventions were carried out by other members of the emergency services (as often noted in the free-text). Adding a tick-box to indicate when this was the case would avoid care appearing insufficient and would highlight the admirable teamwork between police and medical practitioners on scene.

The free text section is a valuable part of the form that to some degree bypasses the problems with the form itself. The level of detail in the free-text section of the PRFs is often high and also acknowledges the PRF as a feedback mechanism to improve on care given. However, in some PRFs, the free text contradicted the boxes ticked, which leads to flawed reporting.

This audit reveals a substantial number of incidents involving mental health, but this is based on analysis of the free-text material and clinical judgement of the incidents. Unfortunately, as there is no standard way of reporting mental health incidents on the PRFs, it is difficult to compare this to previous years but it could be an interesting component of future audits. An important addition would be a tick-box option for mental health, to enable a more reliable audit of these cases.

Conclusion

PRFs recording the management of patients are essential tools for governing their clinical activities, aiding the training of specialist officers and enabling quality improvement of the care they provide. Simple modifications to the forms could enable police officers to more accurately and reliably record information. Officers showed improvements in airway management compared to previous years and there is possibly scope for increased use of supraglottic airway devices, primarily for asynchronous CPR. Generally, oxygen was used appropriately and the frequency of ROSC achieved demonstrates sound resuscitation skills. Incidents are frequently not trauma-related, which highlights the importance of medical and mental health training.

There is no doubt that the skill of these officers saves lives and the quality of care given is commendable.

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