Jonathan Shepherd, Vivienne Avery and Saifur Rahman examine how data from accident and emergency departments can reveal 'invisible' violence hotspots and gang crime activity.





Jonathan Shepherd is Director, Violence Research Group, and Professor of Oral and Maxillofacial Surgery, at Cardiff University.



Vivienne Avery is Demography and Policy Analysis Manager at the Greater London Authority.



Saifur Rahman is an intelligence analyst, Met Intelligence, at the Metropolitan Police Service.

Targeted policing

ollowing the 2010 general election, the new coalition Government prioritised the use for violence reduction of the unique, anonymised intelligence available in accident and emergency departments (A&Es). Since then, this has steadily increased. By 2012 a third of A&Es in England and Wales were sharing information about violence locations, weapons and times; a 2014 Department of Health audit showed this had increased to over 60 per cent. This approach is an important part of the new crime prevention strategy announced by the Home Secretary on March 23.

Building on the creation of Community Safety Partnerships as a result of the 1998 Crime and Disorder Act, implementation has been accelerated by the appointment of violence reduction nurses (VRNs) tasked with working with A&Es and partnerships in all the regions of England.

A new *Information Standard for tackling Violence* (ISTV) has been published by the Health and Social Care Information Centre (HSCIC). In 2014 data collection by NHS Trusts according to this new standard was mandated across England through the standard NHS contract.

These steps help to ensure routine intelligence collection sharing and use. Some hospitals and partnerships have been slow to engage; some took this up very rapidly, including in the early 2000s, for example, on Merseyside and in Cambridge.

Underpinning this whole approach is the finding – consistent across developed countries including the US – that police only know about a third to a half of violence which results in hospital treatment.

The question, of course, is does this approach work? Does this information really add value to police intelligence already available? Above all, do violence levels fall more rapidly when this new source of intelligence is used compared to towns and cities where it isn't?

Evaluations point the same way. Whether effectiveness is measured according to A&E data, hospital admissions, woundings recorded by the police, or even, most recently, homicides (see chart), results are positive.

According to a 2011 study published in the *British Medical Journal*, in Cardiff where this approach was developed, woundings and hospital admissions fell 42 per cent relative to cities designated "most similar" by the Home Office where this approach had not been implemented.

Homocide rates in major UK cities



A series of case studies in southeast England published in the *Nursing Times* showed how this intelligence brought to light, and then helped to prevent, violence in specific nightclubs, blunt weapons being taken from builders' skips and violence perpetrated on cyclists.

But there were still questions. How could these data be brought together from several A&Es, for example, those in a large metropolitan area? In a city like Cardiff, served by just one A&E, the problem was relatively simple, but what about in London or Manchester? What value did they represent in this large city context?

In 2015/16, the Mayor's Office for Policing and Crime was awarded a grant from the Home Office Police Innovation Fund to implement information sharing in collaboration with health services, police and local government for preventing violence-related injury in London.

With high level support from the mayor, a strategic approach to A&E data sharing is being developed across the 29 'Type 1' A&E departments in the capital and all 33 boroughs. Early findings from this programme were presented at two 2016 conferences at City Hall.

It was clear, for example, that violence hotspot maps of Tower Hamlets looked very different when they were made with data from A&Es compared with those generated from Metropolitan Police Service (MPS) intelligence. Here, A&E data showed concentrations of violence around the Royal London Hospital, Stepney Green Park and immediately to the west of Bethnal Green Technical College, whereas, from police intelligence, the obvious hotspot was at the junction of Whitechapel Road and Mile End Road. Furthermore, the hotspots stood out much more starkly from A&E data than they did from police intelligence.

Tower Hamlets 2014/15 A&E data shows more violence locations



In Southwark, Rye Lane Peckham and the Old Kent Road stood out as hotspots identified from A&E data but not from police intelligence, whereas Peckham High Street and Borough Southwark Street hotspots were only apparent from police records.



Maps of Lambeth and Hackney told the same story.

Seasonal variations in violence according to the two sources of information were largely the same across London, for example with regard to knife violence, with consistent peaks in June and dips in December. As elsewhere across the UK, violence prevention effort needs to be concentrated in the summer.

Targeting the hotspots at the right times is crucially important. It is clear that scientific policing, like precision surgery, is more effective, less harmful and less costly than interventions informed by tradition and scatter-gun approaches. Here, A&E intelligence is also proving useful. Information collected in the three large A&Es serving southeast London – King's College Hospital, Guy's Hospital and St Thomas' Hospital – showed that hotspots on Friday nights are quite different from those on Saturday nights.

On Friday nights, for example, violence was concentrated around Camberwell Green and Leicester Square, whereas

on Saturday nights it was concentrated further West, towards Stockwell, and around King's College Hospital (*see Friday night and Saturday night 'hotspot' charts on following page*).

Based on the Cardiff model, ISTV data include information on numbers of reported assailants. This provides an indicator for gang violence – a benefit not envisaged when the model was developed. But this is perhaps not surprising in the light of research which concluded that many young male assault patients either have a history of criminal activity or develop criminal behaviour subsequent to their assault. The MPS estimates that gangs and gang members are responsible for approximately 22 per cent of serious violence and 50 per cent of shootings committed in London. In Hackney, this new intelligence is being used by the Integrated Gang Unit (IGU).

This standard A&E violence data also includes information about weapon use. Here again, geographical and temporal concentrations are somewhat different to those identified from police intelligence.

A&E data helps the MPS Trident gang command to identify 'new' areas where knife and gun crime occurs, corroborate MPS findings and show where prevention, education and engagement interventions, such as knife arches and identifying and engaging schools and youth clubs, should be focused. The data also shows that people often travel considerable distances for hospital treatment after getting injured; data from just nine A&Es over 12 months revealed knife-related injuries that had occurred in 22 boroughs.

Analysis has highlighted specific licensed premises, streets and areas in the night-time economy in Southwark, Tower Hamlets and Hackney where glass-related injuries had occurred. These injuries occurred at different times, typically later, and at some different places compared to those identified from police intelligence. Overall, A&E data helped build a more solid evidence platform from which to engage with venues and plan prevention.

In Lambeth, the Tulse Hill estate showed up as a hotspot from A&E data but not from police or ambulance data. All three datasets indicated that victims of violence in the Tulse Hill hotspot typically lived there and were aged 30 to 35 years. The resulting visual audit of the area suggested that lack of guardianship, street lighting, crime-prevention signage and visible CCTV may have contributed. These conclusions provided an excellent starting point for discussions with local partners to decide which prevention interventions to implement.

These analyses, and the practical lessons for policing which they provide, are only available because of the expertise of the Greater London Authority SafeStats team. Reflecting the pioneering work of analyst Steve Forgan, this team use an analysis technique called hot blocking to geocode the location of assaults and identify hotspots. One of the challenges for A&E receptionists is collecting detailed location data. Hot-blocking, based on multiple datasets, ensures that meaningful locations can be identified in at least 70 per cent of cases.

Without this resource, police capability would be much lower. To use a medical analogy, a police service serving a metropolitan region which disinvested in its skilled analysis team would be rather like a hospital which shed its diagnostic expertise; scanners, X-rays, radiographers and radiologists. It is clear that these resources should not be thought of as 'backroom'.



Friday night hotspots - A&E data July 2014 to January 2015.

Saturday night hotspots - A&E data July 2014 to January 2015.

SafeStats is a single platform which is the home of detailed information about crime and disorder from several sources, information which is available on an authorised-only basis to community safety professionals. SafeStats combines data from London A&Es and converts unstructured free text into coherent usable form.

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The SafeStats team collects raw data and distributes merged, cleansed and geocoded data to users. Its work is evolving rapidly.

From almost a standing start in 2013, it was processing data from nine A&Es by the beginning of 2015, with a further eight datasets being shared with CSPs. Now that the Cardiff model is being implemented and evaluated in the US and Australia, there will be lessons for cities with multiple A&Es there.

Most importantly, though, this anonymised A&E data needs to be used by police forces, local authorities and public health practitioners.

Information, however enlightening, is only as good as its use. The closer the relationship between A&Es, analysts and community safety tacticians, all compliant with information governance standards, the safer we will be.

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