Ballistics imaging systems effective with good management

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During a homicide epidemic in Trinidad and Tobago driven mainly by guns, the developing country had forensic ballistics imaging technology, but faced problems effectively using it to solve crimes, according to a study at Sam Houston State University.

"The homicide epidemic involved the repeated use of a limited number of firearms, conditions that are ideal for the ballistic imaging technology," said Dr. William King, who co-authored "Impediments to the Effective Use of Ballistics Imaging Information in Criminal Investigations: Lessons from the Use of IBIS in a Developing Nation" with Dr. William Wells, both faculty at the College of Criminal Justice's Department of Criminal Justice and Criminology. "This nation also possessed a professionalized forensic crime lab and advanced ballistic imaging technology. The analysis reveals that the effective use of ballistic imaging was impeded by inefficient processes and backlogs at the national crime lab, time delays in identifying ballistic hits, and an inefficient system of transmitting hits report to police."

Although the U.S. experiences relatively high rates of violent and gun crimes, Caribbean nations have among the highest homicide rates in the world, mainly due to gun violence. Trinidad and Tobago experienced a significant increase in homicides, with a 418 percent rise between 1993 and 2008. In 2008, 42.8 people per 100,000 were murdered in this two-island nation, compared to 5.6 people per 100,000 killed in the U.S. in 2007. Trinidad and Tobago has strict gun ownership laws.

In 2004, the country adopted the Integrated Ballistics Information System (IBIS), an advanced computerized technology used in the U.S. and Europe to capture high resolution images of ballistic evidence, which documents unique tool marks from fired bullet and cartridge cases. These marks can be used to link weapons to different cases. It took Trinidad and Tobago two years to generate its first hit from the system, mainly due to a delay in populating the database with firearms evidence, the research found.

The country also suffered from a backlog in cases because the nationwide crime lab only hired three examiners to handle more than 2,000 firearm related cases. With assistance from foreign experts from the U.K. and U.S., more firearms evidence was input into the system, which led to more hits that linked guns to crimes. Over time, the lab's firearms section became extremely proficient at identifying ballistics imaging hits.

But a successful ballistic imaging program also relies on effective processes and handling of evidence. Among the issues faced in Trinidad and Tobago were the timely production and transfer of information to police agencies. The average time between submission of evidence and a gun crime hit report was 863 days.

The study also found that hit reports were inadequately transferred to investigators in the case. By tracking information from 19 gun hit reports, only six were delivered to the appropriate investigator. "This crude analysis shows the ineffective transmission of ballistics reports can prevent information from getting to investigators in at least one-third of cases and perhaps up to two-thirds of cases," Dr. King said.

While the study was limited to Trinidad and Tobago, it may provide insight to assist other developing countries in the Caribbean and around the world, which suffer from escalating gun violence. The study

concluded that the ballistic information systems can provide a wealth of tactical and strategic information to combat gun crime, but only when there are efficient and coordinated organization and communication networks in place to deliver the information. For example, a better system is needed to transmit hit reports to police, and police must communicate the relative importance of particular items of evidence. "Lapses or breakdowns in the system of organizations and networks, such as evidence backlogs, lapses in processing evidence and identifying hits, and problems in transmitted hit information to investigators will blunt the impact of the technology," said Dr. Wells.

More information: The study was published in *Forensic Science Policy and Management: An International Journal*. The full study is available at www.tandfonline.com/doi/full/1 … 015.1051673#abstract.

Provided by Sam Houston State University