

# A stab in the heart puts the Colombian health system to the test



Murders, particularly when they involve heart injuries, can reveal failures in the interinstitutional coordination of the country to receive urgent attention in life-compromising emergencies. Specialists from the Clinical Research Group of Universidad del Rosario joined the Instituto Nacional de Medicina Legal y Ciencias Forenses (National Institute of Legal Medicine and Forensic Sciences) to analyze this situation, detect it, and come up with possible solutions.

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According to the Instituto Nacional de Medicina Legal y Ciencias Forenses (National Institute of Legal Medicine and Forensic Sciences), in Colombia, there were 11,630 homicides in 2019. In 92 percent of the cases, the victims were men. Sharp weapons were the second most used mechanism, after firearms.

According to the literature, from people with heart injuries, only 10 percent get surgical care. If the health system were able to provide immediate and specialized care to those who were stabbed in this vital organ, probably more victims would be alive. Specialists from Universidad del Rosario's Clinical Research Group, together with legal medicine, carried out a study to understand this problem, in which they analyze every autopsy record of heart injury deaths in Bogotá, comparing those that occurred in 2007 and 2017.

"We reviewed severe injuries and concluded that even though patients are treated with great surgical skill, it would be very difficult to save them if they did not arrive quickly to



the hospital,” Andrés Isaza, main researcher of the study, explained to *Advances in Science*. Furthermore, he emphasized that to increase the survival options of these people, the implementation of better and more timely public health policies are required.

#### The ideal situation: A trauma injury observatory

Studies worldwide report that a vast majority of patients with heart injuries die before reaching the hospital. Investigations of violent injuries to this organ aim to decrease the occurrence of cases, and if they occur, they aim to find ways to optimize treatment and reduce mortality. “Our study is important to evaluate the victim’s particularities, the circumstances in which heart injuries were produced, and the characteristics of the care they received before arriving at the hospital,” highlighted Ángela Pinzón, researcher at Universidad del Rosario.

“We could attend to patients in a timely manner if the health system was integrated with other important actors, such as law en-

forcement authorities and ambulance services, as they are the ones who arrive first to the scene,” she added. “Ideally, these entities should come together to operate as a trauma injury observatory, and thus, they would have a faster reaction.”

It is essential, said Pinzón, to identify the places where these events are more frequently present and whether the city has the capacity to attend to them in a timely manner, for example, other than having a hospital close to the scene. It is important to know how long it takes an ambulance to arrive to the scene of the attack and whether paramedical personnel, or other actors involved eventually, are trained to provide adequate onsite care. In addition, by knowing who carries out the transfer to the hospital and how they do it, they can better instruct on the care level of the health center where the wounded must be taken.

#### Slow transfer obstructs medical work

To review backgrounds, the group analyzed 240 patients with heart injuries who arrived at the Hospital Occidente of Kennedy between 1999 and 2009. Of all the victims, 62.3 percent received surgical attention, and regardless of treatment, 14.6 percent died among those patients who were attended to. However, it is likely that prehospital mortality was 90 percent. This exceedingly high number of fatalities motivated the team to find the underlying cause of the matter.



← Andrés Isaza, researcher and academic vice-dean of the School of Medicine and Health Sciences, emphasized the fact that to increase the survival options of the people who arrive at the hospital with injuries, the implementation of better and more timely health public policies are required.

The aforementioned hospital is known for receiving the highest number of patients with trauma in Bogotá, many of whom have been stabbed. “Day and night, they arrive with heart injuries, and the staff is trained to recognize and respond quickly to victims,” said Isaza. The hospital has all the necessary logistics to guarantee recovery and suitable postoperative management.

“Although heart injuries represent a challenge of speed, dexterity, and ability for the surgeon, patients who go through surgery recover quickly,” said the main researcher. In the event of complex heart damage (such as that produced by firearms) the clinical forecast is less favorable.

#### The health system put to the test

The research authors consider that more knowledge on case care at the different system levels is necessary to get evidence that helps prevent or improve outcomes. In this sense, the study compiles the necessary information for relevant agencies to know what should be improved in terms of logistics, personnel, and education, among other areas, to take preventive measures and corrective actions.

For example, according to the researchers, it is important to “identify whether patients drank alcohol, whether they took part in squabbles, how people can communicate with the emergency services when the event happens, and whether they are taken to the hospital by patrol, ambulance, or taxi.” As for the authors, if it is possible to have a map of the city to identify where these cases are more frequently reported, they would achieve more effective responses.

Previous studies of this nature achieved the implementation in Bogotá of the “Carrot hour,” which limited the open hours of bars or nightclubs until 2:00 a.m. Also, they encouraged the use of seat belts in cars and helmets in motorcyclists.

Heart injuries are “a trauma that tests the entire health system,” said researcher Andrea Donoso, part of the team, who added that institutional coordination and patient-care skills are required. “We hope that these results materialize in public health strategies because minutes save lives,” she concludes. ■

