

Firearm-related violence in the Caribbean is a complex systemic issue: how do we move towards a solution?

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Summary

In the Caribbean, gun violence has reached crisis levels and regional heads of government have called for a public health approach to inform prevention and control. We describe the work of a multisectoral group convened to develop a “Pathway to Policy” to inform the regional approach. We utilized a systems mapping technique to inform our understanding of firearm-related crimes and injuries based on the expertise of stakeholders. The analysis is informed by publicly available data from thirteen countries of the Caribbean Community. Feedback loops showed that firearm-related crimes increased the chances of household poverty, national economic costs, deaths and disability and promoted a culture of violence, all of which reinforced gun violence. Interventions to reduce illicit access and use of firearms, social development programs, and investment in educational systems may balance rates of gun violence. We call for greater attention to the equilibrium between crime response strategies and prevention approaches.

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Introduction

There is a growing recognition of the need to utilize the public health approach in the prevention and management of gun violence.^{1–3} The Centers for Disease Control and Prevention (CDC) describes four phases of the public health approach to violence—defining and monitoring the problem, identifying risk and protection factors, developing and testing prevention strategies and assuring widespread adoption. Maharaj et al. posit that the public health approach is one that focuses on the root causes of the problem in contrast to traditional law enforcement characterized by rapid response and reactive enforcement. For this model to succeed, there is a need to focus on facilitating shared understanding and collaboration amongst stakeholders from various sectors, including health and security,¹ to enhance the planning and coordinated response needed for this complex problem.⁴

The Americas, which include the Caribbean, South, North and Central America, had a homicide rate of 15 per 100,000 in 2021—more than twice the global homicide rate of 5.8 per 100,000 for that same period.⁵ In the Caribbean, some countries reported homicide rates up to nine times the global rate.⁶ In some territories, the rates as of 2023 continue to rise.⁷ Rates are particularly high in the Turks and Caicos Islands, Haiti, St Kitts and Nevis, St Vincent and The Grenadines, Trinidad and Tobago, St Lucia and Jamaica.⁸ In countries with small populations, such as many Caribbean islands, for example, the Turks and Caicos Islands and St Kitts and Nevis, it is important to note that every incident of homicide has a significant impact on the homicide rates because of the small population denominator. In the Caribbean region, more than half of the homicides are committed using firearms, with the highest rates occurring in Jamaica, Haiti, Trinidad and Tobago, and the Bahamas.⁹ The situation is particularly acute in Haiti, where gangs enjoy greater access to military grade firearms and control 85% of the capital city, while

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nearly half the population faces acute food insecurity as a result of the escalating instability.^{10,11}

The Caribbean Community (CARICOM) has long recognized crime as a significant barrier to socio-economic development. While responses have traditionally focused on law enforcement and judicial mechanisms, CARICOM Heads have adopted a broader public health framework to address violence and crime. This shift was formalized in April 2023 during a regional symposium in Trinidad and Tobago, entitled “Crime and Violence as a Public Health Issue”, where leaders called for a holistic “all of society” approach and “robust regional response”, enlisting sectors such as academia, culture, sports, family, and religious institutions.¹² This declaration was reaffirmed in February 2024 at the 46th Heads of Government meeting in Georgetown, Guyana, in a statement on Crime and Public Safety¹³ and anchored in the George-Bridge Declaration prepared in November 2024 at the Second Regional Symposium on Crime and Violence as a Public Health Issue.¹⁴

In 2021, the Small Arms Survey and the CARICOM Implementation Agency for Crime and Security (IMPACS) began a research and policy collaboration that resulted in the regional report titled “Weapons Compass: The Caribbean Firearms Study”,⁹ which also included contributions from the George Alleyne Chronic Disease Research Centre (GA-CDRC) of the University of the West Indies (The UWI). This collaboration between health, academia and security actors highlighted the public health and economic consequences of armed violence, the trends in illicit firearm and ammunition trafficking and use in violent crimes, and the emerging issue of privately made firearms within the region.⁹ The findings have been used to advocate for more robust policy responses to illicit firearms trafficking and the associated violence.

The success of that collaboration led to a second phase—the “Pathway to Policy: Integrating security and public health responses to firearms trafficking and violence in the Caribbean.”¹⁵ This is a joint project of CARICOM IMPACS, the Caribbean Public Health Agency (CARPHA), the GA-CDRC-UWI, and the Small Arms Survey, that focuses on translating the findings and recommendations from the Caribbean Firearms Study into policies to address firearm violence. This co-implementation is guided by a regional advisory committee that recognizes the importance of the multisectoral approach.

In this paper, we provide a critical analysis of the data presented in the Caribbean Firearms Study and the work of this multisectoral consortium and utilize a systems mapping technique to inform our understanding of the dynamics around firearm-related injuries based on the expertise and experience of the partners involved. We accept the call by the Caribbean political leaders to view crime and violence as a public

health issue and build on the work of Maharaj et al., who elucidated the need for the public health approach.¹ Our literature review revealed several articles examining the association between firearm-related injuries and public health, but only two used systems mapping and none were conducted in the Caribbean. The existing literature on prevention tends to relegate the role of firearms to a second level, while the arms control literature tends to focus on arms supply issues and neglect root factors. Here, we fill the gap in the literature by providing a framework where the specific implications of firearm injuries, prevention, impact, and policy are fully integrated into a comprehensive framework.

Given the critical burden of firearm-related violence to the Caribbean, this systems guided analysis (the first in the region) provides a map for a shared understanding of the problem as multiple sectors (e.g. health, education, security, and arms control) seek to find prevention focused solutions to the crisis of violence. Additionally, although calls have been made to adopt a public health approach, the practical challenges of multiagency, multidisciplinary work have not been fully explored and overcome.

Systems thinking approach

There is a growing body of work connecting systems mapping and approaches to crime and violence prevention.^{16–18} In alignment with the work of Barbrook-Johnson, we consider a systems map to be a model which provides a “purposeful simplification of some aspect or perception of reality”¹⁹ of the system which according to Meadows is an “interconnected set of elements that is coherently organized in a way that achieves something”.²⁰ We chose this theoretical framework because thinking in systems has been used as a catalyst for discussion bringing health, security and other disciplines to a shared understanding of the problem of violence.¹⁶

Causal loop diagrams (CLDs), a type of systems map, have been used to understand gender-based violence, youth violence in the context of gangs, key determinants of community violence transmission and racial inequities. Causal loop diagrams are characterized by their description of feedback mechanisms as organizing structures in complex systems. They can facilitate a focus on the interconnectedness and dynamic nature of systems. We have chosen to develop a causal loop diagram, which allows us to visualize and promote a shared mental model of the system around firearm-related injuries in the Caribbean. Based on our understanding of the system, we hypothesize interventions that may support achieving the most effective and efficient desired public health impact on the system, leveraging multistakeholder and multidisciplinary approaches.

Building of the causal loop diagram

The 2023 Caribbean Firearms Study revealed the complexity of the problem of firearm-related injuries. As such, it paved the way towards systems thinking approaches, which foster interdisciplinary collaboration and inclusivity, to better understand complex public health issues.²¹ These approaches enable us to capture critical features of the system, identify action points, and explore potential scenarios, fostering a sense of shared responsibility.

The data in the Caribbean Firearms Study⁹ served as the cornerstone for our understanding of the system surrounding firearm-related injuries in the region and the development of the first draft of the causal loop diagram. We performed secondary data analysis on the information documented in the publicly available report. The data was based on contributions from 13 of 15 CARICOM countries, qualitative interviews with 77 inmates serving firearm-related sentences in prisons in Belize, Suriname and Trinidad and Tobago, and three case studies on the medical costs and productivity losses of gun violence in the Bahamas, Barbados, and Jamaica.

Using this publicly available source, we identified factors causing and resulting from firearm-related crime and injuries and examined linkages between these factors. In the CLD, these factors became our variables and arrows were drawn between them to represent causal links. In accordance with guidance from Sterman, each link is assigned a polarity (positive or negative). A positive link means that if the preceding variable increases, then its linking variable also increases and conversely if it decreases, its linking variable also decreases. A negative loop indicates that if the preceding variable increases, its linking variable decreases and vice versa. When all links had been created, we identified loop polarities to determine which reinforced firearm crime and violence, and which loop leads to a decrease/balance of firearm crime and violence.

After the core authorship team (NS, JA, KN) developed a first draft of the map, other authors derived from multiple sectors, including public health practitioners and policymakers, security and arms specialists and emergency medicine physicians, provided comments on the diagram. Additionally, we sought feedback from the regional advisory committee (Table 1) assembled to advise on and ensure continued alignment with the research priorities of the 'Pathway to Policy' initiative. These stakeholders reflected on the systems map and its potential to enhance shared understanding of the problem and recommend action plans with mutually reinforcing, synergistic programs and policies.

The resulting map emphasized health and societal costs while highlighting the pivotal roles of social norms and the importation of illicit weapons (Fig. 1). These categories demonstrate the importance of

developing effective approaches in support of national and regional security and health.

Reinforcing feedback loops

Household poverty and national economic costs

In the Caribbean Firearms Study, we showed that firearm-related injuries had higher medical costs and productivity losses than other types of violent injuries, and thus could result in or perpetuate household poverty, which is a driver of involvement in gangs. Gang involvement increases access to firearms,²¹ and thus, this cycle represents a reinforcing loop in our system. This interplay emerged in some Caribbean countries (Haiti and Trinidad and Tobago)^{22,23} but was less apparent in others. Gang involvement is believed by stakeholders to be also heavily associated with drug, sex and human trafficking. While these associations can be strong, they are outside the scope of the objectives of this paper, requiring their own complex system explorations.

The critical economic reinforcing loop also operates at the national/societal level. Productivity losses resulting from firearm-related injuries and threat posed by high rates of violence to the viability of the tourism sector, place countries at risk for weaker economic development. Poor macroeconomic growth can contribute to the proliferation of gangs within society and similarly increase illicit access to gun and firearm-related injuries. The map demonstrates the linkages between illicit trafficking of firearms through a series of linked pathways. Most firearms used in the Caribbean come from foreign markets (the United States representing a major but not the only source). Ammunition has been discovered in peanut butter and cereal containers, further illustrating the statement that "most schemes to traffic firearms to the Caribbean have been notable for their simplicity".⁹ Misuse of firearms, modified to be made capable of automatic fire using 'conversion devices', increases the risk of multiple injuries and may overburden public health systems. The availability of semi- and fully automatic models therefore raises both public health and security concerns.²⁴

Deaths, disability and excessive incarcerations

Disability and deaths are common consequences of firearm-related crimes. Particularly since they occur in young people, the effect can be crippling on the social and economic fabric of an ecosystem on an individual, community and societal level. Psychosocial and mental conditions may also affect both the perpetrator and victim of these crimes. Incarcerations resulting from firearm-related crimes and injuries affect several variables in this model. They have a negative impact on both family and social cohesion because of the loss of usually male role models in the home and community, as well as the loss of income from those incarcerated. Post-incarceration, convicted persons have reduced

Sector	Organization	Role in reduction
Government (Public Sector)	Princess Margaret Hospital (Bahamas)	Healthcare delivery to victims, data collection for prevention, monitoring and control
	Kingston Public Hospital	Healthcare delivery to victims, data collection for prevention, monitoring and control
	University Hospital of the West Indies (Jamaica)	Healthcare delivery to victims, data collection for prevention, monitoring and control
	The Queen Elizabeth Hospital (Barbados)	Healthcare delivery to victims, data collection for prevention, monitoring and control
	CARICOM Standing Committee of Commissioners of Police	Law enforcement
	Regional Integrated Ballistic Information Network (RIBIN)	Forensic ballistics/Firearms expertise
	Senate of the Government of St. Lucia	Governance/Communication
	National police force	Firearm-related investigations
Academia	The Centre for Health Economics at The University of the West Indies (UWI) St. Augustine	Health Economics
	Criminology Unit at The UWI St. Augustine	Criminology/Research
	Health and Law Unit at The UWI Cave Hill	Legal Education and Research
	The George Alleyne Chronic Disease Research Centre	Population Health Research
	The University of The Bahamas	Clinical psychology
	The UWI Mona Campus	Epidemiology
	The University of Guyana	Security/Education Leadership/Research
	Caribbean Policy Consortium and Global Americans Center for Strategic and International Studies	
	Institute of Forensic Science and Legal Medicine University of Technology, Jamaica	Forensic ballistics
Civil Society	Small Arms Survey	Research and expertise related to small arms and light weapons
	Health Promotion and Communications Specialist	Communication/Health
	UNICEF Youth Advocate	Youth
International and regional organizations	United Nations Development Program	Anthropology
	The Caribbean Public Health Agency (CARPHA)	Regional Public Health Priorities
	CARICOM IMPACS (including the CARICOM Crime Gun Intelligence Unit)	Regional Security
	CARICOM Secretariat	Crime Prevention/Human and Social Development
	Regional Security System	Regional Security/Defense

Source: This table was developed by the authors of the review.

Table 1: Multisectoral actors from Caribbean regional, governmental and non-governmental organizations advising the Pathway to Policy project involved in firearm injury prevention.

employment opportunities and may face marginalization further exacerbating problems related to household poverty in particular.^{25,26} In addition to socioeconomic factors, incarceration may also impact mental health leading to anxiety and depression, and placing sufferers at greater risk of drug use and misuse.^{27,28} Moreover, the lack of reintegration programs and access to social services, and rejection from the community/family post-release are other detrimental elements.²⁷

Culture of violence

The normalization of firearm violence—whether through victimization or perpetration—contributes to neighborhood cultures that legitimize violence as a conflict resolution mechanism.²⁹ Such social norms can turn firearms into a perceived mode of conflict resolution. Interviews with inmates, as reported in the Caribbean Firearms Study, reveal the pervasive nature of this. As one respondent quoted in that study recounted, “I found a gun in the neighborhood and hid [ding] it in the house and [...] playing with it every day”.⁹

Such narratives underscore a reinforcing cycle of violence that undermines community cohesion and perpetuates firearm misuse. The damage to social cohesion caused by incarcerations, violent deaths and disability may also increase the likelihood of a culture of violence within neighborhoods.

Balancing feedback loops

Public and private sector policy to reduce firearm access

National, regional (Caribbean) and international government policies and initiatives, ‘such as the Caribbean Firearms Roadmap’, have the potential to reduce firearm access and associated drug trafficking activities. Regional governments, for example St Kitts and Nevis, have been unveiling community-based approaches that include mass media campaigns and are said to address root causes such as education, poverty alleviation and access to essential services.³⁰ The United States remains a significant source of firearms entering the

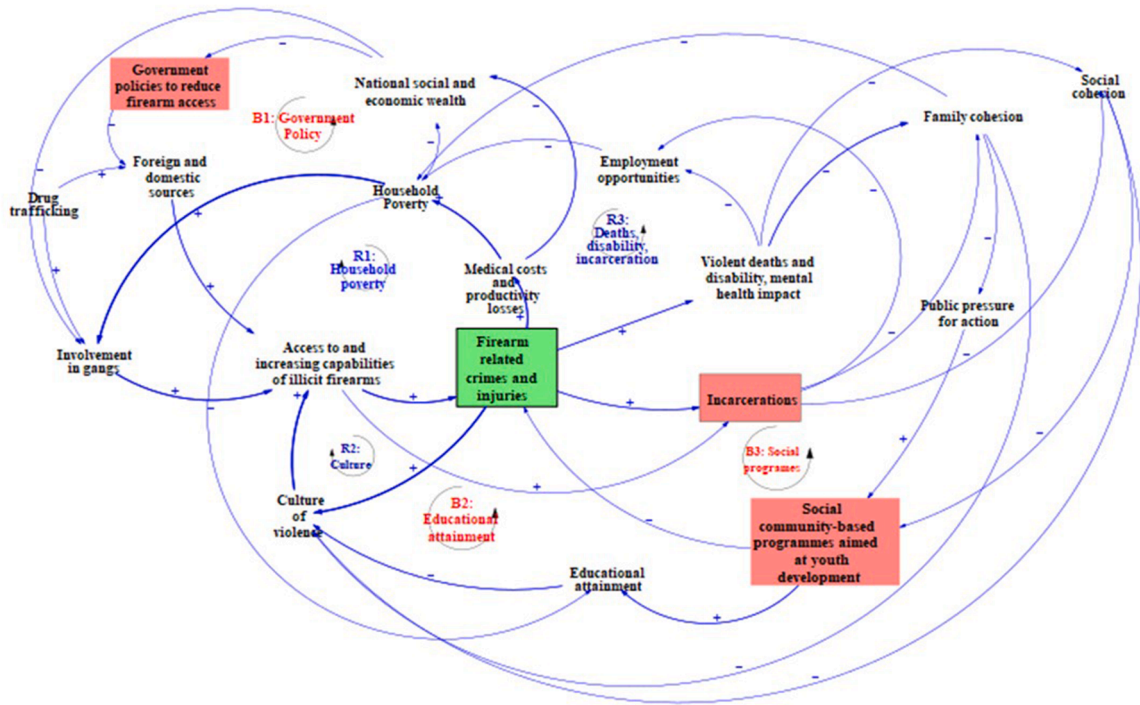


Fig. 1: Causal loop diagram describing relationships among individual and societal costs of firearm related injuries. Key: Core reference node: Firearm-related crimes and injuries. Variables in pink background are interventions; R = Reinforcing loop; B = Balancing loop. +: An increase in one variable leads to increase in connected variable; -: An increase in one variable leads to a decrease in a connected variable.

Caribbean region, underscoring the importance of sustained collaboration with US agencies. Continued partnerships with entities such as the Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF), Homeland Security Investigations (HSI), Customs and Border Protection (CBP), the Bureau of Industry and Security (BIS), the Bureau of International Narcotics and Law Enforcement Affairs (INL), and other agencies are essential to develop and implement regionally tailored policies for addressing firearm and drug trafficking.³¹ These collaborations are crucial for creating policies, responsive to the unique security and public health challenges faced by the Caribbean. The Caribbean Firearms Study comprehensively outlines a series of policies that regional and national governments and non-governmental partners may consider for reducing illicit firearm flows and misuse.

Educational systems

Education emerged as an important balancing feedback loop in the prevention and control of firearm-related injuries. Interviews with inmates serving firearm-related sentences highlighted the significant impact of lack of educational attainment, as 60% of them reported completing only primary school.⁹ There are individuals who have, as a result of incarceration, pursued educational opportunities whilst in prison, however it was posited by the multistakeholder advisory group that

more emphasis needed to be placed on financing these programs to combat the strong negative effects operating within the system.

Social development programs

Quantitative data indicates that overall violent deaths in the Caribbean are high and while this varies by country, on average, more than half of these relate to firearms.³² This has a significant impact on individuals (e.g. psychological impacts due to loss), families (e.g. weakened family structure and reduced earning capacity) and nations (e.g. years of potential life and productivity loss, increased cost of living with disability from firearm injury). These consequences may prompt community programs and policies from both government and non-governmental actors to work to reduce the impact of gun violence on social and economic development. These activities could act as a balancing loop to the increasing trend of firearm injuries, provided they are coordinated as part of context specific armed violence reduction strategies and are robustly evaluated.³³

Systems archetypes: shifting the burden

In our journey, working as a multidisciplinary team, we found it helpful during our communications to simplify and summarize the causal loop diagram. To facilitate communication with key stakeholders and assist with identifying potential leverage points for action, we

choose to simplify the larger causal model by considering the systems archetypes developed by Kim et al.³⁴ After deliberations with the team, the best fit for our causal loop diagram was the ‘shifting the burden’s systems’ archetype (Fig. 2). Incidents involving firearm-related injuries often culminate in incarceration for the perpetrator, which is seen as an appropriate punishment and a deterrent to crime. This incarceration, if excessive and repeated (recidivism) and occurring without requisite rehabilitation, can be part of reinforcing loops that perpetuate the culture of gun violence and lead to further incarcerations (Fig. 2).

In the Caribbean, prison and justice systems receive the smallest allocation from most national security budgets, which could perpetuate the continuing issues of rehabilitation and recidivism associated with firearm violence and offenders. There is a need for equitable resource allocation, where immediate firearm crime control measures such as incarceration are matched with rehabilitative programs and long-term investments that address root causes. Rather than concentrating system resources predominantly within the incarceration loop, the model highlights the need to complement punitive measures with investments in preventative strategies—such as education, social development, and community resilience—that address the structural drivers of violence. This systems perspective suggests that a more sustainable and effective response requires an integrated balance: combining proportionate enforcement to safeguard public safety with long-term, evidence-based interventions that strengthen protective

factors, reduce vulnerabilities, and ultimately disrupt the cycles of crime and violence.

Discussion

There is a clear regional imperative to address crime and violence,¹² not only through the strengthening of traditional approaches to law enforcement and crime legislation, but also through the recognition that the multifaceted nature of violent crimes requires the incorporation of a public health approach. More robust financing and support for policies at the regional and national levels, have the potential to combat the negative impacts of violent injuries and incarcerations.

Our model emphasizes the need to balance the focus between security and prevention approaches, recognizing public health as a major sector that has successfully identified and acted on upstream determinants of life altering events. The World Bank, World Health Organization and Inter-American Development Bank have at various times endorsed evidenced informed interventions based on the public health approaches like Cure Global,³⁵ Reach Up,³⁶ INSIGHT³⁷ and RESPECT Women.³⁸ Much of the success noted from the Reach up program is based on studies from Jamaica where this and other prevention violence programs³⁹ have been met with success in the Caribbean context. Cure Global was developed based on a program in the United States but initial research has demonstrated effectiveness in Trinidad and Tobago.^{40,41} A recent umbrella review of the evidence on violence prevention showed that sports-based community

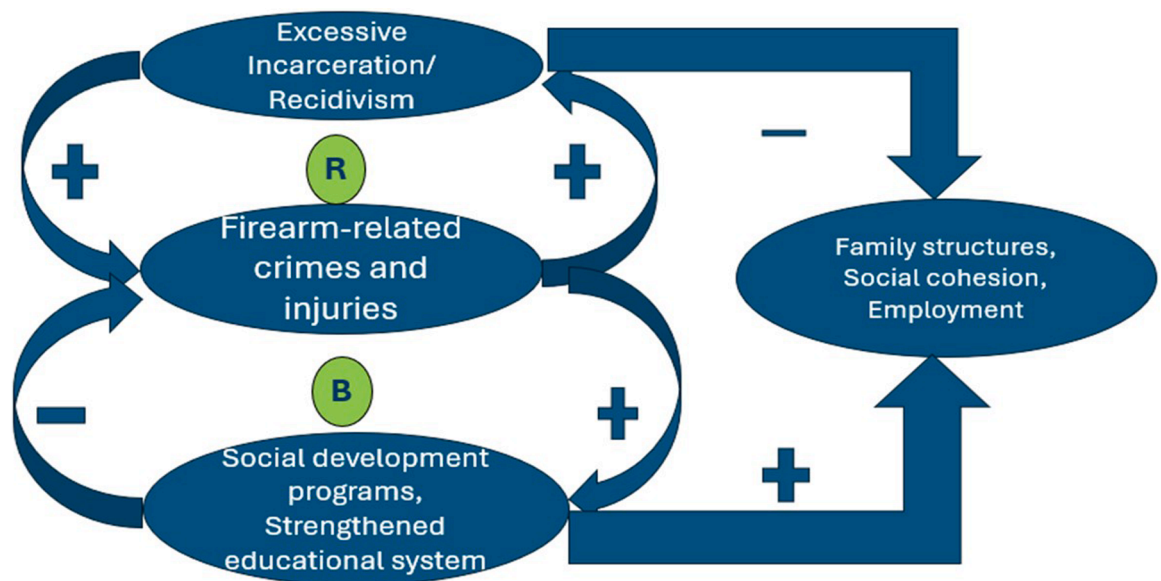


Fig. 2: Importance of achieving balance between excessive incarceration and social development programs. Key: R = Reinforcing loop; B = Balancing loop. +: An increase in one variable leads to increase in connected variable; -: An increase in one variable leads to a decrease in a connected variable.

initiatives and psychosocial interventions targeting parents can be effective violence prevention measures.⁴² Greater investment is needed in these areas of prevention.

Greater emphasis on the production of regionally derived evidence that informs management of victims and offenders is critical. Research that qualitatively and quantitatively assesses the impact of rehabilitation programs, alternative programs to prisons, and support systems to assist persons after medical treatment and prison, is needed. New interventions should build upon the insights from the wide range of programs already implemented and evaluated in the region.⁴³

The intervention policies and programs emerging in the model represented both upstream (education) and downstream (incarceration and firearm access restriction) determinants of health. Leading Caribbean scholars on crime have explored the crucial nexus between guns and crime in the Caribbean, highlighting that the Caribbean does not manufacture guns but that the vast majority enter the region illegally.⁴⁴ They promote legislative frameworks and strengthening of the criminal justice system to enhance implementation and enforcement of laws. Our feedback loops emphasize the operation of these downstream security related actions

Box 1.

Recommendations to address violence as a public health problem.

1. Establishing a Regional Framework for Interpersonal Violence Research:

Development of a comprehensive framework to guide research on interpersonal violence across the region. This framework would:

- Strengthen the region's ability to generate actionable insights, support policy development, and enhance the effectiveness of violence prevention and intervention strategies.
- Provide standardized methodologies and good practices for researchers, particularly in assessing the often-intangible impacts of violence, such as psychological trauma and social disruption, which are challenging to quantify.
- Improve bidirectional data and information sharing between law enforcement and public health sectors to enable more accurate tracking of firearm types, trafficking patterns, and the lethality and injury characteristics of the different weapon categories. Facilitate consistent and rigorous approaches to studying these nuanced dimensions.

2. Establishing a Regional Public Data Repository/Injury Surveillance System:

A regional, interoperable injury surveillance system and public repository for data on interpersonal violence would provide policymakers, public health officials and researchers with timely, high-quality information to support data-driven decision-making. This repository would:

- Serve as a critical resource for monitoring trends, assessing the effectiveness of interventions, and informing evidence-based policies across the Caribbean.
- Facilitate a harmonized approach, fostering data-driven strategies that address the root causes and broader impacts of interpersonal violence.
- Be managed collaboratively by key regional institutions (such as CARPHA and CARICOM IMPACS) and supported by academia. The lead regional entities could be responsible for the development of protocols on regionally agreed upon data elements, standardized data management mechanisms, methods and content of reports and guidance of ethical data use and sharing.
- Allow law enforcement and hospital data on violent injuries to be integrated into national injury surveillance systems facilitating research (at the country level) into the characteristics of violence such as demographics, circumstances of incidents, type of mechanism/weapon used, medical resource utilization and immediate consequences.
- Be a significant advancement in regional capacity to tackle violence comprehensively, aligning with international commitments to promote peace, security, and public health resilience.

3. Enhancing Law Enforcement–Public Health Collaboration:

The public health and law enforcement sectors should coordinate closely with each other and with other agencies to ensure the safe rehabilitation of gunshot wound victims into their communities, potentially through the creation of intersectoral rehabilitation committees. The aim would be to:

- Maximize meaningful re-integration into society and self-actualization.
- Enhance collaboration of intersectoral agency groups or boards that would help assess the vulnerability of victims of gunshot wounds before they return to their communities given the risk of being victimized again or of seeking revenge. Such interagency rehabilitation committees might provide support to victims to re-enter society/communities with better conditions to prevent these risks.

4. Implementing Evidence-Informed Public Health Campaigns to Shift Social Norms:

Evidence-informed campaigns aimed at changing attitudes toward the use of firearms particularly within communities affected by gang-related activities. These campaigns:

- Are essential to reducing the cultural acceptance of gun violence, as well as to supporting public health approaches that focus on changing these norms, given the disproportionate costs that the misuse of these weapons inflicts on societies.
- Can be supported by regional organizations like CARPHA and the Pan American Health Organization which have a role to play in supporting evidence gathering to understand the context and inform the campaign.
- May be best led by individual government ministries supported by local non-governmental organizations, if appropriate, given that the differences in the associated factors may necessitate nuanced messaging for each territory.

5. Adapt and Scale-up Hospital-Based Violence Intervention Programmes (HVIPs):

Integrated interventions at critical entry points, such as hospitals, can disrupt reinforcing cycles of violence and support long-term prevention. Pilots in major trauma centres should:

- Provide immediate trauma-informed bedside counselling and risk assessment for gunshot injury patients.
- Assign dedicated case managers to coordinate medical follow-up, mental health support, vocational opportunities, and conflict mediation.
- Establish monitoring systems to track outcomes (e.g., re-injury, re-hospitalisation, re-arrest) and evaluate cost-effectiveness to inform regional scale-up.

complementing societal and public health focused prevention approaches.

Our CLD map is a qualitative construct, acting as a first phase towards a shared understanding. Use of this map would be greatly enhanced with its conversion into a stock and flow diagram and the use of systems dynamics modelling as has been done for interpersonal violence⁴⁵ although not yet for firearm-related crimes. More granular data from local Ministries of Health would be needed to enhance the use of the quantitative systems dynamic model to further inform policy development. We offer a set of recommendations to further address firearm violence as a public health problem (Box 1). Our first three recommendations describe ways to enhance an evidence-informed collaborative public health approach focusing on data production. The final two recommendations focus on the need for systems informed interventions that promote intersectoral collaboration that are sensitive to the peculiar, interconnected factors within the region.

We acknowledge the limitations of this model. We focused on firearm crimes and injuries and access, rather than other equally essential issues around drug, sex, and human trafficking, and physical and mental disability. Our aim was to create a useful model, which has facilitated discussions between the health and security sectors of our multi-stakeholder group largely consisting of stakeholders operating at the regional level. As these stakeholders continue to reflect on the systems map to identify leverage points and create coordinated action plans with programs and policies that complement each other, there is a need to more thoroughly review the implementation/operationalizing of regional commitments into national policies and programs and to consolidate lessons learned from previous efforts in this domain at the national and local level.

Conclusion

Firearm-related violence in the Caribbean is a complex, systemic challenge that cannot be resolved through enforcement alone. The systems analysis presented in this paper underscores the need to move beyond reactive, punitive cycles of incarceration towards a more balanced and sustainable response that integrates security, public health, education, and social development. As highlighted by the Caribbean Firearms Study, most illicit firearms are trafficked into the region, making clear that national efforts, while essential, cannot comprehensively address the problem without strong regional and international cooperation. A systems-thinking approach allows us to recognize and articulate the intricate interplay between firearm-related injuries, social determinants of health and security, revealing that no single solution is sufficient to address this problem.

Education, health, culture, social norms, behavior change, and economic development all emerge as critical factors, reinforcing the need for a multi-stakeholder, multisectoral approach. Our focus on the system has prompted our call for a greater integration of crime response strategies and prevention approaches, with stronger emphasis on social determinants such as education and cultural norms. Future work should seek to explore “what if” scenarios based on a coordinated action plan that leverages the systems thinking embraced in this paper and consider cost/benefit analyses that assess both response and prevention strategies.

Contributors

All authors contributed to the conception of the study background, aims, setting, designing and contributing to the analysis. Drafting and finalizing the manuscript - All authors were involved in drafting and finalizing the manuscript and have agreed both to be personally accountable for their own contributions and to ensure that questions related to the accuracy or integrity of any part of the work even ones in which the author was not personally involved, are appropriately investigated, resolved, and the resolution documented in the literature.

Declaration of interests

We have no conflicts of interest to declare.

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