

TITLE: EXPLORING GUN VIOLENCE IN AMERICAN SCHOOLS: A MULTIFACETED APPROACH

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Abstract: In recent years, incidents of gun possession by children within the premises of American schools have drawn widespread attention and concern. While school shootings remain relatively rare events, their potential consequences and societal impact are far-reaching. This paper aims to shed light on the multifaceted problem of gun violence in schools by adopting a comprehensive approach that combines three distinct perspectives.

The first perspective employed in this study is a public health approach to gun violence prevention, both in general and within the school context. By viewing gun violence as a public health crisis, we delve into the root causes, risk factors, and potential preventive measures that can contribute to safer school environments. Understanding the broader societal implications of gun violence allows for a more holistic examination of this pressing issue.

The second perspective involves the application of an Emergency Management Cycle framework to gun violence intervention in schools. This framework encompasses preparedness, mitigation, response, and recovery phases, offering a structured and systematic approach to addressing school shootings. By analyzing the effectiveness of each phase, we can identify opportunities for enhancing the safety and security of educational institutions.

The third perspective focuses on New York City's Crisis Management System and its applicability to school settings. This system, initially designed to combat gun violence in communities, presents a unique model for proactive intervention within schools. By adapting this successful approach to educational environments, we explore the potential for early intervention and conflict resolution to prevent gun-related incidents.

This research aims to bridge the gap between what occurs within school walls and the surrounding community, recognizing that these two realms are intrinsically interconnected. While schools traditionally represent places of learning and growth, they can also serve as microcosms of the larger society, reflecting its challenges and complexities. As such, this study seeks to provide a comprehensive understanding of gun violence in schools, offering insights into prevention, intervention, and recovery strategies.

In conclusion, the presence of guns within American schools, particularly in the hands of children, poses a significant threat to the safety and well-being of students and educators. While school shootings may be relatively infrequent, the potential for such incidents demands proactive measures and a comprehensive approach to prevention. By combining the lenses of public health, emergency management, and crisis intervention, this research contributes to the development of a more robust framework for addressing gun violence in American schools and promoting safer educational environments for all.

Keywords: gun violence, school shootings, prevention, public health, emergency management, Crisis Management System

1. Introduction

A headline from a Connecticut newspaper recently read:

EAST GRANBY, CT (WFSB) – A man is facing charges after a child was in possession of two handguns at an East Granby elementary school. [Sobol, 2022]

Unfortunately, although not commonplace in the United States, gun possession by a child in school is also not a rare occurrence. While school shootings are relatively rare, given the number of students attending Pre-K through 12 and the number of days they attend, the opportunities for school shootings far exceed the actual number of occurrences. However, society has reasonable expectations, especially among parents, that armed attacks will not happen at school. Each incident receives the attention warranted when that expectation is violated. Despite youth being generally safer in and around the classroom than they are elsewhere, the interrelationship between what happens in the community surrounding a school and what happens inside establishes the need for research that explains the fundamental aspects and complexities of gun violence in schools. This paper examines the problem by combining three distinct perspectives and approaches, namely as follows: 1) a public health approach to gun violence prevention generally and in schools;

2) an Emergency Management Cycle framework applied to gun violence intervention; and 3) New York City's Crisis Management System designed to stop gun violence when applied to school settings.

2. Applying a public health approach and the emergency management cycle to gun violence prevention

This section will examine the theoretical frameworks underlying a public health approach to gun violence intervention, the Emergency Management Cycle as applied to violence, and New York City's Crisis Management System. These theories will be explored from their epistemological orientation and their adaptability to school settings.

The public health approach to gun violence intervention is grounded ontologically in the objectivism/realism of medicine and epidemiology and its epistemological approach has elements of positivism; however, its practice concerning gun violence is more oriented toward pragmatism. [World Health Organization, 2022; American Public Health Association, 2018; Gonen & Grench, 2022; Center for Disease Control and Prevention, 2022; Prevention Institute, 2022] The ontology of the public health approach is rooted in its quest to identify a singular view of reality that will lead to a single, effective way to address gun violence that can be validated and replicated independent of the observer/researcher. The parallel can be drawn to seeking a vaccine(s) for a pandemic disease. In that regard, knowledge is constructed through value-neutral observations using data to "diagnose" the contributing risk factors of violence and protective factors that will "inoculate" individuals and populations against it. Objective measures are taken and applied using quantitative methodology capturing information related to the incidence and prevalence of gun violence. (Prevention Institute, 2022) Knowledge regarding the epidemiological aspects of gun violence is derived deductively using scientific rules and the tools and designs of science. (Nurse Killam, 2015; Knowledge Quest, 2021; Dr. Hu 2020; Qureshi, 2020)

The public health approach diverges from a strictly objectivism/realism framework in its additional reliance on factoring in the context in which violence occurs and the practical challenge of designing an experiment involving putting someone at risk for violence, and especially gun violence. The knowledge developed and applied using a public health paradigm instead integrates a more relativist/constructivist perspective, acknowledging the potential for multiple realities. The application of this framework orientation allows for exploring natural experiments, e.g., gun control laws and policies, gun violence prevention program variability, community conditions, input from members of communities heavily impacted by gun violence, etc. The framework also lends itself to qualitative

methodology and methods that heavily lean into subjectivism and extend to the use of techniques such as ethnography, participant observation, empowerment evaluation, case studies, etc.

However, the use of both qualitative and quantitative methodologies reflects attempts at placing value on the utility of a dialectical ontology and epistemology, applying simultaneously a realist/objectivist framework and a relativist/subjectivist perspective, thus rendering the public health approach, functionally, a pragmatist approach. (Prevention Institute, 2022) That conclusion is supported by several factors as follows:

1. The search for *the best tool*, be it scientific or interpretive, or both, that offers the most useful knowledge to *solve the problem of violence*.
2. The application of a mixed-methods and multiple-methods that include both quantitative and qualitative approaches to gain a comprehensive understanding of the phenomenon of gun violence.
3. The search for singular realities that can lead to single, objectively verifiable truths, e.g., vaccines protect against viruses or effectively securing guns in a household reduces the risk of gun-related homicide and suicide.
4. A collaborative approach that includes a diverse group of stakeholders and the tools available from various disciplines including sociology, psychology, criminology, education, and economics. (Center for Disease Control and Prevention, 2022; Prevention Institute, 2022)
5. The provision of support to community members who are designated as intervention leaders.

The evidence constructed under the public health approach reflects knowledge acquired through both objective and subjective methodologies. It reflects aspects realist/positivist views in understanding gun violence as a potentially fatal disease while using relativist/interpretivist views to gain a functional insight into what can be done to ameliorate or alleviate gun violence. This dialectical approach renders it a pragmatic ontological framework at its core. (Prevention Institute, 2022)

The Emergency Management Cycle is ontologically relativist. Epistemologically, it is phenomenological. The practice of managing emergencies necessitates collaboration and involves a high level of phenomenology; specifically, the lived experience of being involved in an emergency or disaster is interpreted by and through human consciousness.

Through phenomenology, consciousness is structured with intentionality using the technique of bracketing (setting functional parameters) in historical context. Subsequently, the interaction of reality (realism) and consciousness creates knowledge. (Academic Educational Materials, 2016)

The approach that dominates the field of emergency/disaster management is the application of the "bracketing" construct represented in the Emergency Management Cycle (EMC). The EMC employed and promulgated by the Federal Emergency Management Agency (FEMA) is commonly expressed as consisting of a 4-5 component cycle that begins with prevention, ends with recovery and is sequential. Sometimes referred to as five phases or stages of crisis management, supporting skills and decision-making rubrics/frameworks for each phase are assigned. (UCF Online, 2022; Gun Violence Archive, 2022) Knowledge in the EMC results from the verification that the event has progressed through the various stages and consensus has been achieved confirming that sufficient elements of each stage have been realized, e.g., establishing that there was an official movement from response to recovery. Historical context provides the knowledge base for identifying what the stages are and what activities they comprise.

3. An application: New York City's Crisis Management System

New York City's Crisis Management System (CMS) evolved from an established violence interruption approach, namely Cure Violence (CV), a program developed in Chicago and implemented in numerous cities across the United States. This established program had been guiding gun violence intervention among NYC community organizations working toward that goal. Approximately ten years ago, however, the several NYC violence intervention organizations, having been trained in the CV model and having established a respectable track record in its implementation, joined together to develop a gun violence prevention practice designed to fit the unique challenges presented by operating in NYC. That practice is the Crisis Management System.

The ontology of the CMS is relativist. Epistemologically, views of reality as to what causes or cures gun violence vary depending on the perspective taken by the intervention program staff, the community members with whom they work, law enforcement, and various other stakeholders, established CMS as subjective. Knowledge is constructed using qualitative methodologies that include interviews, surveys, and subjective measures that form the basis of performance evaluation.

The challenge of this paper is to apply the concepts emerging from these three practices from violence intervention, particularly gun violence, to how those occurrences present themselves in the context of public schools, grades Pre-k through 12. The brief literature review to follow will begin that exploration by highlighting the some of the existing research covering the topics related to gun violence intervention as follows:

- 1) A public health approach
- 2) EMC applications
- 3) The CMS approach

3. Literature review _

The primary focus of this literature review will be on characteristics and dynamics of efforts to fully understand and intervene in gun violence in schools. Extensive literature is available on gun violence and other gun deaths, especially in the United States.

Using a public health lens, statistical evidence of the problem of gun violence in schools emerges. According to the Gun Violence Archive, the US experienced 19,411 deaths by gun, 4,142 of which were teens in the year 2020. (Gun Violence Archive, 2022) Gun violence incidents on school grounds, however, represent a small fraction of the gun violence experienced by youth, yet during 1999 "at least 233,000 kids across 243 schools have been exposed to gun violence during school hours." (Beckett, 2019) Although children are more likely to be killed at home and in their neighborhood than at school (schools remain one of the safest places for children in the US), nearly 1,300 American children aged 17 and younger die from gunshot wounds each year. (Beckett, 2019) What makes schools such special cases and worthy of special attention regarding gun violence are at least three factors. The first factor is the expectation that schools are safe and secure places for children. Society expects that when parents drop their children off at school or send them there, that those parents will have their children return home safely and well. The second factor is that the death of a young child or teenager strikes a particularly discordant note in our collective psyche, seeming more tragic than the death of an adult who has lived longer. Third, schools as communities have characteristics that lend themselves to being inherently safer.

Specifically, schools a relatively closed systems in that community members and visitors have a legitimate reason to be there and generally go through a screening process to gain access. Additionally. the interactions between

members are structured, regular, and purposeful. Unlike communities at large, individuals in schools frequently encounter each other and engage with each other in an educational and safe social context.

One of the several factors identified from the public health perspective as contributing significantly to school gun violence is child/youth access to guns. (Heller & Kapustin (2022); Kennedy (2011); Google search, (2022); Wadman, 2018; Sonali, et al., 2022; Thompson, 2022; ABC News, 2020) Numerous school shootings also illustrate the devastating impact of a young person with access to a gun, especially when that gun is a military-style assault weapon. December 14, 2022, marked the tenth anniversary of the mass murder at Sandy Hook Elementary School in Newtown, Connecticut-- an infamous event that highlighted how even a single, tragic event at a school can have profound national and international effects and devastate the lives of the families of the victims and the surrounding community.

Examining the impact of school gun violence on surrounding communities and the influence of specific characteristics of those communities on schools expands the ability to clearly understand the problem and potential solutions. Gun violence is associated with several factors, community factors prominently being among those factors.

A more expansive and evidence-informed strategy to prevent intentional shootings In K-12 schools should include the enhancement of basic neighborhood and school structures including investments in affordable housing...and universal school-based violence prevention programs.

Schools are often anchor institutions in communities that sustain a flow of myriad interactions between the school, parents, residents, and other members of the community and those serving the community. As such, schools are necessarily influenced, directly or indirectly, by events and conditions in the neighborhood. Factors such as what parents and children encounter in the physical and social environments on the way to and from school will have an impact on perceptions of safety/security and other quality-of-life dimensions. Significant events, especially untoward happenings such as gun violence, nearby crimes, bullying, and other threats to persons will have negative impacts to which youth and adults must psychologically adjust and adapt.

An opportunity is available for caregivers in communities surrounding schools or those servicing youth to provide guidance to youth regarding gun safety and make clear the potential damage, intentional and unintentional, that can ensue from the use of firearms. (Seewald, et al., 2022; South, et al., 2022) The concept of establishing "community schools" facilitates integrating schools into a community-wide strategy to intervene in gun violence not only at a school but also within its community. Such schools can "help uplift the entire community" while becoming educational centers and "contributing to stable, healthy, and safe neighborhoods." (South, et al., 2022)

The Emergency Management Cycle addresses the predominant emphasis in the literature of the prevention aspect of gun violence intervention. Given the fatal and near-fatal nature of the intentional and unintentional use of guns, it is understandable that the focus would land on prevention. However, the large number of gun-related deaths and injuries experienced in the United States indicates that prevention efforts are insufficient in addressing the problem. (Sobol, 2022; World Health Organization, 2022; Schweig, 2014; Mayor's Office to Prevent Gun Violence, 2022; Center for Disease Control and Prevention, 2022; Prevention Institute, 2022; Gun Violence Archive (2022); Waldman, 2018; Sonali, et al., 2022; American Psychological Association, 2013) The Emergency Management Cycle offers an intuitively logical expansion of considerations for approaching the problem of gun violence in schools (UFC Online, 2022; O'Brien & Hurley, 2021; Hokenstead, 2007). The stages of the EMC

include prevention but add the dimensions of mitigation, protection, preparedness, response, and recovery. The EMC provides a comprehensive and strategic framework for addressing gun violence.

Policy makers can allocate resources that focus on each aspect according to local, state, and national needs. Individual schools and service providers can work with communities to ensure that each aspect of handling this public health emergency is adequately addressed.

Finally, a survey of the related literature provides insight into at least one deliberate application of melding the public health approach with the Emergency Management Cycle. New York City's Crisis Management System, as previously described, evolved from the Cure Violence Model to include the comprehensive approach offered by applying the EMC. (Butts, et al., 2015) The application of that model to schools is evident in NYC Mayor Adams' assertion that he would "like to reduce the number of school safety agents while increasing the presence of crisis management teams within a year or two." (Gonen & Grench, 2022) The CMS system in NYC operates in 21 local communities. (Mayor's Office to Prevent Gun Violence, 2022). The size and scope of this innovation along with the substantial resources devoted to its implementation offers a natural experiment to examine the extent to which the concept and its implementation offers a viable, replicable, and effective approach to ending gun violence in schools and the communities that surround them

4. Evidence supporting a public health approach, the emergency management cycle, and the New York City Crisis Management System

The practices of the public health approach, the Emergency Management Cycle, and New York City's Crisis Management System have varying degrees of evidence that support their application. The three concepts presented in this paper reflect frameworks, guidance, and practices used in attempts to stem the tide of gun violence in US communities and schools. This section will briefly present and assess the degree to which each is evidence-based, the justification for identifying the practices associated with each concept, and degree to which the proof offered regarding claims of EBP are: 1) internal or external; 2) mutually exclusive from other applied or related theories or practices; and 3) are reflective of an identifiable process of development that generates new knowledge.

The public health approach (PHA) is grounded primarily in the sciences of medicine and epidemiology. PHA to violence focuses on prevention, using strategies that center around the factors known to increase or decrease the likelihood of violence. (American Public Health Association, 2018) Among the prominent practices that comprise the PHA to violence are a "violence interrupter" program, hospital-based violence intervention, street outreach, dating violence prevention programs, and a city-wide injury review program, all of which have demonstrated measurable, positive outcomes. (American Public Health Association, 2018) While it is difficult to determine if the programs that present evidence of their success were initially based upon evidence from a specific program(s), their utilization of the PHA principle were identified by researchers as being evident in their program implementation. The outcome measures of these programs form the basis of evidence-based practice claims. For example, one program resulted in a 35% reduction in violence among 17-24-year-olds and another evaluation that incorporated trauma-informed care practices and case navigation resulted in a 98% reduction in re-injury and 70% reduction in arrests. As the PHA involves testing and evaluation strategies, the evidence of justified beliefs is external and provided by outside evaluators who present their findings publicly and in refereed journals. While not disqualifying the opposing criminal justice theories and approaches, the public health approach revealed inherent weaknesses and harmful effects of practices associated with the criminal justice approach that resulted

from trying to arrest society's way out of gun violence. Initially, the adoption of the PHA was diametrically opposed to a criminal justice approach (CJA) to violence prevention. The CJA, characterized by emphasizing increased policing, arrests, sentencing, and incarceration, being reactive instead preventative in nature, was predominant as a populist and politically expedient set of responses. Criminal justice system actions were driven by crime patterns and law enforcement strategies (surveillance, intelligence gathering, deterrence, arrests, etc.). However, when PHA preventive strategies proved more effective in crime reductions and less harmful to communities, criminal justice system actors joined partnerships among various stakeholders that collaborated to intervene in violence instead of leaving the responsibility entirely to the police. (American Public Health Association, 2018)

The resulting collaborations that emerged from the dialectical dynamics between law enforcement and non-law enforcement generates new knowledge through the phenomenology of the stakeholders working together in various situations to co-create, provable, effective approaches to gun violence prevention. To date, however, limited research is available regarding gun violence intervention in schools making it difficult to identify an evidence-based practice rooted in the public health approach. In exploring the evidence supporting the practice of using the Emergency Management Cycle, support of the EMC being an EBP was weak at best. Although a large body of literature exists, its validity and generalizability[sic] is unclear. There is little evidence that this potential evidence base has been exploited through synthesis to inform policy and practice. Challen, et al. (2012) The EMC is researched as an aspect of emergency planning. The literature, aside from identifying the EMC and its stages as a tool of emergency planning, focuses on the general planning practice and the various activities it comprises. (Challen, et al., 2012) The literature available specifically on school gun violence/shootings, is widely available through the U.S. Department of Education (USDOE) under the banner of Readiness & Emergency Management (REM, previously referred to as Emergency and Crisis Response Management, or ECRM). The focus of REM is consistent with the Criminal Justice/Law Enforcement approach to handling gun violence, and rightfully so. With the primary concern being an active shooter, much of the material on gun violence in schools is to focus on response to the presence or suspicion of an armed assailant – a situation necessitating a law enforcement response. However, the USDOE comprehensive library of REM-related materials also reflects the PHA in offering a range of strategies and practices to address gun violence.

The application of the EMC to gun violence intervention is most evident in school safety and security planning. The EMC promulgated by USDOE as guidance for school REM includes the "protection" stage along with all other stages and lists mitigation as a separate stage instead of blending it into the "prevention" phase. (Federal Commission on School Safety, 2018; Readiness and Emergency Management for Schools Technical Assistance Center, 2022). Evidence-based practices are grounded in using public health approaches to gun violence. Mental health services, community involvement, and a comprehensive set of EBP that can contribute to preventing, mitigating, preparing for, and recovering from incidents of gun violence provide guidance that emanates from the disciplines from which they were derived. These include grief counseling, trauma informed counseling, community engagement, primary care, etc. (Readiness and Emergency Management for Schools Technical Assistance Center, 2022).

The field of emergency management relies on the established validity of professional practices such as mental health counseling, to assure that the services they provide are evidence based. The perceived effectiveness of providing previously mentioned services in relation to gun violence relies on the practices having been proven

effective in similar situations. The emphasis on using the appropriate services at the appropriate time mediates any conflict over positivist versus interpretive approaches. The collaborative nature of REM tends toward individual roles having clearly defined "lanes" to stay in during a crisis or emergency. Policies, plans, and training are used to reinforce those roles. The practice of applying an emergency planning framework most likely developed in a linear, relativist fashion with guiding beliefs being internally justified while being subjected to external scrutiny. The steady attachment to the fundamental approach (EMC) while incrementally adjusting practices in response to environmental demands reflects the internal nature of beliefs. However, law enforcement and non-law enforcement actors join to address the horrors of gun violence and other forms of school and community violence. The unique, complex nature of schools brings special demands on those working to intervene in gun violence. Schools are anchor, multifunctional institutions in communities being guided by standard emergency planning paradigms. The challenges presented by schools force a collaboration among diverse stakeholder groups to learn ways to adapt the emergency management framework in a way that reflects the intent and spirit of collaboration.

The Crisis Management System evolved from the Cure Violence Model (CVM). The evaluation of that model identifies several aspects of the design that are evidence based. Since the CVM was developed from the PHA, it inherited its orientation around using an EBP already proven within the field of public health. Since the CV model is relatively new, the evidence supporting it as an EBP is relatively new as well and still developing. (Butts, et al., 2015) The practice is that of using "credible messengers, in epistemological terms, rational authorities, to intervene in conflictual situations, especially those that are likely to lead to violence, and particularly those that could lead to gun violence. (James & Wooten, 2022)

The support for this EBP comes from outside evaluators who have studied various implementations of the CV, including the NYC CMS. The evaluations examined by (Butts et al., 2015) used mixed methods to assess the CV programs that included interrupted time series analysis of shooting data, surveys, and quasiexperimental designs to conduct impact and process analyses. (Butts, et al. 2015) The CMS was initiated in 2014. Prior research has been conducted primarily on the existing community violence intervention programs operating in NYC while being guided by the CVM. (Butts et al., 2015; Mayor's Office to Prevent Gun Violence, 2022)

The evidence for this newly conceived approach is being developed based on its CVM epidemiological foundation and trusting that the emergency management framework will strengthen the strategies and practices. Subsequently, claims of being evidence based still need to be established although preliminary results, both documented and undocumented, have proven sufficient to sustain and substantially increase funding. Instances of long stretches of times with no gun violence or related 911 calls in traditionally gun-violence-plagued NYC neighborhoods, have shown promise although not showing objective causality. Reliable testimony from all groups of stakeholders expressing their justified *internal beliefs supported by external indicators* constitutes (currently) sufficient proof in the absence of "undefeated defeaters" of the assertion of program success. The issue has not arisen of the CMS being an EBP (beyond claims associated with the CV Model). Further claims and assumptions have yet to be adequately tested. The specific contributions of the CMS logic model and its implementation are still unknown as the research methodology and methods have yet to be adequately developed to address that question. However, the dialect of the CMS being perceived as being in opposition to the criminal justice model should result in new knowledge being generated given the continuity of the program, the increasing value assigned to work being done on a local level, and the substantial political support that CMS has gained.

5. Knowledge building in support of gun violence prevention in Pre-K through 12 schools

The way knowledge is constituted within the PHA reflects the credibility it establishes by predominantly using quantitative methodology and its disciplinary association with the fields of medicine and epidemiology in its quest for a single intervention or "cure" for gun violence pushes the approach in the direction of realism/positivism. The public health dimension, however, is also characterized by its utilization of multiple other disciplinary fields that rely on more relativist/interpretive approaches to acquire or develop knowledge. (Center for Disease Control and Prevention, 2022). The steps defined by CDC in public health violence prevention are denoted as follows:

1. Define and monitor the problem
2. Identify risk and protective factors
3. Develop and test prevention strategies
4. Assure widespread adoption

The techniques used in Step 1, defining, and monitoring the problem, consist of methods that facilitate determining the size and scope of the problem, its incidence and prevalence, details on how the "disease" manifests and all the related details. Data is mined from police records, medical examiner files, vital statistics, hospital records, population data, and other sources that help understand how the disease of violence behaves and the factors that contribute to (risk factors) or detract from (protective factors) that behavior. (Center for Disease Control and Prevention, 2022) Step 2 is an analysis of the risk factors and protective factors along with incidence and prevalence data to ascertain where prevention is most needed. Step 3 merges data and information from diverse sources using both quantitative and qualitative methods that include community surveys, stakeholder interviews, and focus groups to develop optimal strategies to prevent gun violence. Analogous to trials with a newly developed drug that has proven potentially effective in preliminary experiments, potential gun violence prevention strategies, both tried and untried, are carefully tested toward identifying those that are most efficacious. Step 4 is analogous to assuring that every one that is sick gets the cure and that everyone that may be exposed to the disease gets vaccinated. The strategies and programs that can address the physical and psychological trauma of those already impacted by violence are spread strategically as widely as available resources allow.

After primary prevention, the focus of efforts is to provide some form of intervention to reach all those potentially at risk, and in this case, virtually everyone (like an epidemic) through public education, institutional and organizational information sharing, training, and networking. Ultimately, reliance is placed upon community-based organizations to use ongoing evaluation to identify any trends or occurrences, positive or negative that will lead to increased knowledge about efforts to fight gun violence. (American Public Health Association, 2018; Prevention Institute 2022)

The Emergency Management Cycle constructs knowledge through phenomenology continuously seeking an approach that will work best in the dynamic environments created by crises and disasters.

In terms of gun violence, the current focus is on active shooter and other mass casualty events (MCEs) with special attention given to schools for the distinctive features and challenges they present. Lived experience that is memorialized in after-action reports (AARs) is used to build knowledge. AARs are exercises in identifying what worked and what did not during an emergency and are conducted as soon as practical after an event. Similar events allow for a reservoir of knowledge to accumulate and become part of institutional memory. That knowledge can then be disseminated widely to emergency management professionals on one level (training, certifications, etc., and strategically to other populations (using public information campaigns, mass media, social media).

Accordingly, messages can be spread widely such as the current one urging parents to check whether the homes their children are visiting have guns inside. Considerations for scientific approaches and technology are embraced whenever they can reduce uncertainty in handling events characterized often by the degree of uncertainty associated with them. Application of science potentially allows for singular solutions, or solutions to a single aspect of an emergency, allowing for uncertain aspects of the event to get more of the attention required for efficacy. Lessons learned from the use of science get integrated into the development and dissemination of knowledge.

The Crisis Management System's foundational knowledge is built upon training, professional development, and monitoring/evaluation based on experience resulting from implementing the Cure Violence Model. In NYC, providers of violence interruption "services" do the work of credible messaging and violence intervention by adapting their policies and operations to the needs of their specific community. Consequently, each CMS model looks different in its application of CMS practices. Knowledge tends to be colloquial due to data collection limitations, i.e., administrative data collection requirements, time to meet with other providers, limited opportunities to conduct AAR's and insufficient training in the technology of doing so. These features are particularly hampering when implementing an innovative intervention. The Cure Violence Model data collection requirements still being employed are designed to capture the information that supports that model. Therefore, the "bracketing" of staff perceptions to fit the Cure Violence scheme can impede the ability to fully appreciate or concentrate on the innovative aspects of the Crisis Management System in its divergence from the Cure Violence Model. Continuous interactions between community members, some of whom are staff members, offer rich opportunities to develop knowledge collaboratively with the service population; however, the program has yet to develop a methodology for knowledge development that is tailored to maximize that learning that is available using qualitative and mixed-method research approaches.

6. Strengths and limitations of foundational knowledge and knowledge base building

The strengths of the PHA to gun violence are its credibility derived from association with the medical and epidemiological fields. This association allowed for violence, and particularly gun violence, to be recognized and widely acknowledged as an emergency. Once violence intervention was brought into the field of public health, a coalition of representatives from a variety of professions began to collaborate on addressing violence. The primary weakness of the PHA seems to be that the policies generated and EBP identified often lack the resources and "political will" to be widely adopted or continuously developed beyond their foundational version. In terms of social work practice, social workers can be more prominent in leading or participating actively in evaluation efforts, assuring that the communities being served have a prominent voice in evaluations that ultimately will impact them. Being an active member of anti-violence coalitions will also open opportunities for violence prevention, in its many, varied forms, to become more of a specialization within the field. School social workers can become better equipped to deal with the problems associated with violence and the threat of violence that plagues our schools, resulting sometimes in gun-related school tragedies.

The strengths of the Emergency Management Cycle lie in its compatibility with the public health approach as a supplement that offers a comprehensive, strategic perspective on efforts to avert gun violence. The EMC moves current attempts that are predominated by prevention efforts and response strategies to a more integrated approach that accounts for community needs across the spectrum of disasters, emergencies, and crises.

The EMC shares a weakness with the PHA that being the lack of sufficient resources to address properly the identified needs using best practices related to violence intervention at each stage of the cycle. However, allocations of resources can be done more strategically and purposefully by employing a paradigm that provides a bracket within which programs, communities, cities, states, and countries can be more rationally approached. Social workers have the potential to play prominent roles in each phase of the EMC from prevention/mitigation, to protection, preparation, response, and recovery. Especially in situations where needed services that are traditionally assigned to or assumed by social workers but are performed by nonsocial workers, our presence can help avoid critical needs that the social work field recognizes as essential from being treated as a low priority or being ignored altogether.

For example, after a school shooting or a gun violence incident in the surrounding community, social workers can lead efforts to identify concrete and psychological needs of families that have been impacted and coordinate making needed resources available. Approaching the issue from a phenomenological epistemology, school social workers, can approach the problem of gun violence in schools using a mindset and skill set to apply the concept of a blended, comprehensive approach to violence intervention. Social workers, once purposefully integrated into violence prevention collaboratives, can facilitate implementation of evidencebased practices while attending to the perspectives and priorities of the individuals and communities being served.

Finally, the CMS strengths of knowledge construction lie primarily in phenomenology, gathering firsthand knowledge of what works in their localities to stem the tide of gun violence in areas where prior attempts to do so have had limited effectiveness. Although crime statistics for their service area are used as a yardstick to measure outcomes and effectiveness, often minimizing impacts of individual-level and group-level interventions, practitioners of CMS have intimate knowledge of the efficacy of their work. When a violence interrupter intervenes in a conflict involving guns or threats of deadly violence, failure can mean the loss of life and success can mean saving a life. A weakness of the CMS approach is that current evaluation metrics do not recognize epistemologically the knowledge base upon which the interrupter knows that they have succeeded. Being perceived to be in competition with law enforcement, or worse, impeding police work, knowledge regarding the effectiveness of the CMS is continuously called into question among law enforcement professionals and other individuals opposed to a model that often uses previously incarcerated individuals and known former gang members to help in anti-violence efforts. However, as lives are saved and violent confrontations are averted, the collection of anti-violence workers and members of communities plagued by gun violence know the rewards of CMS organizations being effective in their domain.

7. Applications to social work practice

Social workers can be instrumental in developing and implementing an evaluation approach that best serve the communities that strengthen the ability for CMS programs to flourish in any effective efforts to stop gun violence and support peaceful, safe, and secure environments. The model applied to schools should involve social workers as primary, internal coordinators working closely with the school principal to manage the critical contingencies and any idiosyncrasies that can either facilitate or impede the successful launch of any violence intervention program – especially one focusing on gun violence . An example of the potential value of the contribution of a social worker in a school (gun violence context) is in communicating clearly that EBP studies from the public health field provide evidence that current approaches such as "lock-down" drills involving youth and a strong, visible police presence at schools raises anxiety levels in children and can trigger anxiety. A social worker trained

in research/evaluation (quantitative and qualitative), group facilitation, and violence intervention, with some field work experience in schools can be the keystone in assuring that the priority remains the physical and psychological safety of the students, faculty, staff, and parents.

8. Summary

School gun violence is a complex, multi-faceted, continuous problem that evades simplistic analysis and solutions. The field of epistemology can guide the evolution of more effective approaches by illuminating the ontologies and epistemologies being applied by various groups of actors in anti-violence efforts. The three approaches presented in this paper provide an insight into the potential for blending practices that are rooted in different ontologies but have compatible intentions. Professional social work practice can claim its rightful place in fields that have had minimal or subordinate use of social workers, namely violence intervention, emergency management, and school safety. What will be required to be successful in increasing the value of social work in these fields is for social work schools to aggressively prepare students to be critical actors in situations that will inevitably call for their expertise during disasters, emergencies, and crises.

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