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Strengthening Active Shooter Response Through Interprofessional Training: The Role of Health Security Teams in Healthcare Systems

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Abstract

Background: Active shooter incidents in healthcare settings have emerged as a critical health security challenge, disrupting care delivery and threatening staff and patient safety. Hospitals, designed for accessibility and continuous operation, are increasingly recognized as vulnerable "soft targets" for firearm-related violence.

Aim: This study aims to examine the operational complexities of active shooter preparedness in healthcare facilities and propose interprofessional strategies to strengthen response and resilience.

Methods: A comprehensive review of epidemiologic data, regulatory frameworks, and case analyses was conducted, focusing on U.S. hospital shootings and global hybrid-targeted violence (HTV) events. The study synthesizes evidence from occupational safety guidelines, law enforcement protocols, and healthcare contingency planning literature.

Results: Findings reveal that hospital shootings are often targeted, relational, and concentrated in high-risk zones such as emergency departments and outpatient clinics. Five typologies of violence—criminal intent, patient-related, worker-to-worker, domestic spillover, and ideological—shape risk profiles. HTV incidents, involving coordinated multi-weapon tactics, pose additional threats requiring all-hazards preparedness. Effective response hinges on facility-specific contingency plans, rapid communication systems, and simulation-based training.

Conclusion: Active shooter preparedness in healthcare demands a multidimensional approach integrating physical security, behavioral threat assessment, and interprofessional collaboration. Continuous evaluation, scenario-based drills, and robust communication protocols are essential to mitigate harm and sustain clinical operations during violent crises.

Keywords: Active shooter, healthcare security, contingency planning, hospital violence, hybrid-targeted violence, emergency management.

Introduction

Active shooter incidents have emerged as a persistent and increasingly visible threat in many parts of the world, with reports in the United States (US) frequently occurring with alarming regularity and comparable events documented across diverse international settings. Historically, the prevailing pattern of active shooter violence was often associated with non-healthcare workplaces such as post offices, factories, and corporate environments, where grievances, occupational conflict, or targeted interpersonal violence were commonly implicated. Contemporary risk landscapes, however, have shifted in ways that challenge earlier assumptions about where such incidents occur. A widely held and increasingly evidence-informed understanding is that no sector—including healthcare—can be regarded as categorically insulated from gun violence or the operational disruption created by an active shooter. This recognition has prompted growing attention to preparedness and response planning in hospitals, clinics, and other care environments, where the consequences of violence extend beyond immediate casualties to include system-wide impacts on continuity of care, staff safety, and public trust. Active shooter incidents can occur in both rural and

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urban healthcare facilities and may arise at any time, including periods of high occupancy or during routine operations. This temporal and geographic unpredictability complicates standard preparedness models that rely on historical patterns or location-specific risk assumptions. Unlike many other organizational settings, healthcare facilities present distinctive operational features that intensify the complexity of prevention, mitigation, and response. Hospitals and large outpatient centers often serve thousands of patients and visitors each day, generating substantial human traffic across multiple departments and shared public spaces. This high-volume throughput increases exposure opportunities and constrains the feasibility of strict access control measures that might be acceptable in other sectors. Furthermore, the healthcare environment inherently includes populations with limited mobility, impaired cognition, acute medical instability, or dependence on life-sustaining equipment. These realities restrict evacuation options and require nuanced decision-making that must weigh immediate physical safety against clinical risk, particularly for critically ill patients, neonates, surgical cases, and individuals receiving intensive monitoring [1][2].

Healthcare facilities also occupy a unique position within the broader ecology of community violence. Emergency departments, in particular, routinely receive victims of interpersonal violence, including firearm-related injuries, and may be the point of arrival for law enforcement personnel, family members, or bystanders experiencing acute distress. As a result, some active shooter–adjacent events may occur in circumstances where police are already present onsite, such as within or near the emergency department, and the firearm may not always be introduced into the facility in a straightforward manner. This variability underscores that healthcare-associated shooting events do not always follow a predictable "external threat enters the building" sequence; rather, risk can emerge from complex patient, visitor, or community interactions that evolve rapidly and may be difficult to anticipate. The underlying prevalence of gun violence itself is influenced by multiple factors, including regional history and culture, patterns of social stress, and the legal and regulatory environment governing firearm access and possession. These contextual determinants shape local risk profiles and affect both the likelihood of incidents and the preparedness expectations placed upon healthcare institutions. Architectural and logistical features of hospitals further increase response complexity. Many facilities have multiple entrances and exits, extended corridors, interconnected units, and mixed public–restricted access zones, all of which can complicate lockdown decisions and hinder reliable containment strategies. Large campuses may include outpatient clinics, emergency services, inpatient towers, parking structures, and ancillary buildings, each with distinct security vulnerabilities and evacuation constraints. In addition, clinical workflows require movement of staff and patients between departments, often involving transport teams, diagnostic services, and time-sensitive procedures. These operational demands limit the practicality of simple "stop all movement" responses and reinforce the need for clearly defined, role-specific protocols that account for clinical priorities and situational variability. A further challenge is the acute time compression that characterizes many active shooter events. Such incidents commonly occur without warning and may conclude within minutes, frequently before law enforcement can arrive and establish control of the scene. In these circumstances, reliance on external responders alone is insufficient to protect life during the earliest phase of the event. Consequently, effective preparedness planning in healthcare must explicitly address the role of immediate actions by bystanders, hospital personnel, and other civilians who may be present at the time of the incident. Early decisions—such as initiating a rapid lockdown, guiding patients and visitors to safer locations, implementing protective barricading, or coordinating internal communication—can influence casualty outcomes and determine the speed with which an organization transitions from crisis onset to structured incident management. For this reason, contingency planning for active shooter incidents in healthcare settings increasingly emphasizes not only coordination with law enforcement but also facility-specific training, communication protocols, and practical response measures that can be implemented before formal external command is established.[1][2][3]

Gun Violence

Gun violence encompasses the intentional use, threatened use, or accidental discharge of firearms that results in physical harm, psychological trauma, or disruption of safety within communities and institutions, including healthcare environments. Within hospitals and clinics, gun-related incidents carry consequences that extend beyond direct injury, affecting staff security, patient throughput, continuity of care, and the overall perception of the facility as a safe place for treatment. Although the drivers of firearm-related violence are complex and multifactorial, public health and social determinants are increasingly recognized as meaningful contextual contributors. In particular, food insecurity has been identified as a common predictive factor for violence risk, reflecting broader patterns of socioeconomic instability, chronic stress, and reduced access to supportive resources.[4][5][6] The relationship is not necessarily causal in a simplistic sense; rather, food insecurity can function as a marker of structural vulnerability that coexists with other risk amplifiers such as unemployment, housing instability, and limited access to preventive health services. Consequently, healthcare facilities situated in food-

scarce regions or "food deserts" may face elevated exposure to community-level stressors that can increase the likelihood of violence-related presentations or conflicts that escalate. In addition, psychiatric illness—particularly when undiagnosed, untreated, or inadequately supported—has been cited as another factor associated with firearm-related harm, including incidents that may reach healthcare settings.[4][5][6] Facilities that provide high volumes of psychiatric or behavioral health services may therefore carry a distinctive risk profile, not because mental illness inherently equates to violence, but because the acuity of crisis presentations, co-occurring substance use, and the presence of agitation, paranoia, or impaired judgment can raise the probability of confrontation, self-harm attempts, or threats to staff and other patients. Taken together, these considerations suggest that risk assessment for gun violence in healthcare cannot be confined to physical security alone; it must also account for the social and clinical case mix the facility serves, as well as the broader community conditions that shape patient influx and security demands.[4][5][6]

Possession of Firearms

In the United States, the legal framework governing firearm possession varies substantially from one state to another, resulting in uneven regulatory landscapes that directly influence firearm prevalence, access, and patterns of carrying in public and semi-public spaces. Healthcare institutions operate within these legal contexts and must navigate the implications for safety policy, signage, security screening, and staff preparedness. Healthcare professionals may hold diverse views on firearm ownership and regulation, and these perspectives can be shaped by personal beliefs, local culture, and professional experiences with trauma and violence. Regardless of individual viewpoints, the rise in active shooter incidents has intensified attention to gun violence prevention as a component of health security, particularly for hospitals that must maintain open access while safeguarding vulnerable populations. Evidence-based prevention strategies frequently emphasize "safe firearm practices," including secure storage and responsible handling. However, studies examining the effectiveness of specific components of safe storage and related practices have yielded results that are often mixed or inconclusive, indicating that implementation challenges, variability in adherence, and differences in study design may complicate firm conclusions.[7][8] In practice, this does not imply that safe storage lacks value; rather, it highlights that translating prevention concepts into measurable population-level reductions in harm can be difficult and may require comprehensive, multi-layered interventions. Within this landscape, policy discussions also involve the scope and rigor of background checks, including whether and how psychiatric stability should be assessed. As described, background checks that evaluate psychiatric stability are not presently required, which underscores an ongoing policy gap that intersects with healthcare concerns about violence risk and crisis presentation management.[7][8]

Emergency Management: What is a Contingency Plan?

Given the frequency and high-impact potential of active shooter events in the United States, healthcare organizations are increasingly expected to maintain robust emergency management structures that explicitly incorporate firearm-related threats. A contingency plan functions as an operational framework that specifies how a facility will prepare for, respond to, and recover from incidents involving gun violence, including active shooter scenarios. The purpose of such a plan is not only to reduce morbidity and mortality but also to preserve organizational function, protect critical infrastructure, and sustain essential clinical services during and after an event. Because healthcare facilities typically include complex layouts, multiple entry points, and high-occupancy clinical zones, contingency planning must be detailed and location-specific rather than generic. A comprehensive contingency plan commonly includes unit-level floor mapping that clarifies exits, controlled-access points, and designated shelter areas, while also identifying resources such as first aid kits and emergency equipment. It also assigns defined responsibilities to key personnel to ensure that the plan is actionable under stress and that communication and command structures can be activated rapidly. Importantly, modern preparedness increasingly involves collaboration with law enforcement, who may advise on threat recognition, lockdown tactics, coordinated response procedures, and post-incident scene management. This collaboration reflects the reality that early phases of active shooter incidents evolve quickly and may require immediate internal actions before external responders fully assume control. Regulatory and occupational safety guidance has also reinforced the necessity of systematic planning. In 2016, the Occupational Safety and Health Administration (OSHA) updated its healthcare safety field guidance through Rule 3148, titled Guidelines for Preventing Workplace Violence for Healthcare and Social Service Workers.[9] Within this framework, incorporating an active shooter response plan is positioned as an essential element of broader emergency management, aligning workplace safety obligations with the practical need to protect staff, patients, and visitors. In effect, the contingency plan becomes a formalized bridge between policy and practice: it translates recognized risks into concrete procedures, training expectations, and coordination mechanisms that enable healthcare facilities to

respond decisively when confronted with gun violence.[9]

Active Shooter Versus Shooting Incident: What is the Difference?

Differentiating an "active shooter" event from a more general "shooting incident" is a foundational requirement in emergency management and health security planning, particularly within healthcare environments where rapid escalation, complex facility layouts, and the presence of vulnerable patients can magnify harm. Although both scenarios involve firearm discharge or threatened firearm use, they differ in operational characteristics, intent, tempo, and the type of response they demand. These distinctions are not merely semantic. They shape how incident command is activated, how internal communications are framed, how staff protective actions are prioritized, and how coordination with law enforcement is conducted. Misclassification can lead to inappropriate response choices—either underreacting to an evolving mass-casualty threat or overapplying lockdown measures that may disrupt critical clinical care without commensurate benefit. An active shooter is a law enforcement term used to describe a situation in which a shooting is actively occurring and the perpetrator is engaged in ongoing attempts to kill or seriously harm multiple individuals, typically in a confined and populated setting. The United States Department of Homeland Security defines an active shooter as "someone who is actively engaged in killing or attempting to kill people in a confined and populated area."[10] This definition highlights the immediacy and continuity of threat, implying that the perpetrator is not simply discharging a weapon once or twice but is actively moving through an environment, selecting targets, and sustaining lethal intent. In healthcare settings, this pattern is particularly dangerous because the environment includes high-density public zones (such as emergency departments, outpatient waiting areas, and corridors), as well as clinical units where evacuation may be constrained by patient acuity, limited mobility, or dependence on medical devices. Active shooter events are frequently characterized by planning and a deliberate commitment to violence. Many are believed to be premeditated, with the perpetrator arriving prepared, having already accepted the possibility of death by law enforcement intervention or self-harm. The operational relevance of this mindset is substantial: a perpetrator who anticipates dying may be less responsive to negotiation, deterrence, or displays of authority, thereby compressing the window for prevention once the event has begun. Active shooter incidents are also typically short in duration, often ending within a limited time span because law enforcement intervenes, the firearm malfunctions, or ammunition is exhausted. Yet the brevity of these events should not be misconstrued as indicating limited harm; on the contrary, the rate of injury can be high, and multiple casualties may occur within minutes. Moreover, the rapid resolution of many active shooter events underscores a critical preparedness challenge: at least a substantial proportion of incidents may conclude before external responders arrive, meaning that the initial phase may require immediate protective actions by those already onsite, including healthcare personnel and civilians [10].

By contrast, a "shooting incident" in the healthcare context commonly refers to firearm violence that is more spontaneous, interpersonal, and limited in scope. Rather than reflecting an intent to inflict mass casualties, a shooting incident may involve a small number of individuals—often one or two primary participants—who may or may not have a prior relationship. These episodes can be triggered by acute conflict, perceived injustice, emotional dysregulation, or sudden loss of control. For instance, a patient or family member may react to an adverse clinical outcome with anger directed toward a specific clinician, or workplace conflict may escalate when an employee feels wronged by a supervisor. In such cases, the violence tends to be situational and targeted rather than indiscriminate, and it may manifest as a small number of shots rather than sustained firing across multiple locations. Although the event may be brief and geographically contained, the consequences can still be severe, including fatal injury, psychological trauma, and secondary disruption to patient care and staff functioning. From an emergency management standpoint, these differences have practical implications for response design. An active shooter scenario requires protocols oriented toward an ongoing, mobile threat, emphasizing rapid threat recognition, protective movement or sheltering strategies, immediate communication to alert staff and visitors, and swift integration with law enforcement tactics. A shooting incident, while still requiring urgent response and security engagement, may more often involve scene containment, rapid medical intervention for a limited number of casualties, and de-escalation measures aimed at preventing further escalation if the perpetrator remains present but is not actively pursuing additional victims. Importantly, because initial information in real time is often incomplete, healthcare organizations must train staff to respond to the indicators of ongoing lethal intent and repeated violence rather than relying solely on labels. In both scenarios, clarity in terminology supports clearer situational awareness, faster decision-making, and more coherent coordination between clinical operations and security response, thereby strengthening preparedness and reducing avoidable harm.[10]

Function

Active shooter incidents in healthcare settings vary considerably in origin, intent, and behavioral trajectory, and this heterogeneity has

direct implications for preparedness planning and response protocols. Although certain events may appear spontaneous—emerging from acute emotional arousal, perceived humiliation, or sudden loss of behavioral control—many active shooter incidents are more accurately characterized as preplanned acts of violence. In these premeditated scenarios, the perpetrator may harbor longstanding grievances, maintain prior ties to the facility or its personnel, or develop a retaliatory narrative that culminates in an intentional plan for revenge. From an operational health security perspective, recognizing that many incidents are planned reinforces the importance of upstream measures such as threat reporting systems, workplace violence prevention programs, and structured pathways for escalating concerning behaviors before they evolve into lethal events. When a shooting incident or an active shooter event occurs in a healthcare facility, the precise root cause is often difficult to determine in real time. The healthcare environment is inherently complex, involving large volumes of patients, visitors, staff, and external responders, all interacting under conditions that may already be stressful. In the immediate aftermath of violence, information is frequently incomplete, narratives may be conflicting, and the priority must remain focused on life safety, casualty care, and containment. Nevertheless, evidence-informed frameworks have been developed to describe broad categories of violence that can assist institutions in conceptualizing the type of threat encountered and refining response strategies. Such categories can support incident documentation, guide post-event review, and inform future prevention training, even if they do not provide definitive explanation at the moment the event unfolds [11].

A critical boundary exists between the roles of healthcare professionals and those of law enforcement and investigative authorities. Detailed profiling of the perpetrator, reconstruction of motive, and formal classification of the event are beyond the scope of routine healthcare practice and are more appropriately conducted by law enforcement or specialized investigative teams. This demarcation is essential because clinical personnel must prioritize immediate clinical and operational duties—triage, stabilization, evacuation or sheltering, and continuity of essential services—rather than attempting to interpret perpetrator psychology during an unfolding crisis. However, an intersection between healthcare operations and investigative processes frequently occurs after the event, especially when clinicians or staff have interacted with the shooter, observed pre-incident behaviors, or witnessed key moments during the incident. In such cases, healthcare personnel may need to provide factual descriptions of their interactions, report whether any patients were directly involved, and clarify environmental factors that influenced clinical response. Additionally, healthcare professionals may contribute uniquely relevant information regarding injury patterns and the mechanism of gunshot wounds, which can assist in understanding the nature of the violence and the immediate clinical impact. Documentation of wound characteristics, number and location of injuries, and clinical trajectory can support both medical management and subsequent investigative review, particularly when reconstructing the sequence of harm. In this way, although perpetrator analysis is not a clinical responsibility, healthcare professionals remain essential contributors to the accurate characterization of events through objective reporting and careful clinical documentation, supporting broader institutional learning and interagency coordination.[11][12][13][14][15]

Understanding the Problem

When an active shooter event unfolds within a healthcare facility, the immediate clinical priority is preservation of life through rapid protective action, casualty care, and incident communication. However, effective emergency management also depends on situational understanding—specifically, the ability of healthcare professionals on scene to recognize the general type of violence occurring, identify who is involved, and anticipate how the threat may evolve. Although clinicians are not responsible for criminal profiling, their proximity to patients, visitors, and staff gives them a uniquely informed perspective on contextual cues that may clarify whether the violence appears personal, professionally motivated, opportunistic, or possibly premeditated. This contextual awareness can support timely escalation to security and law enforcement, inform decisions about lockdown versus evacuation, and guide staff messaging when seconds matter. In contemporary law enforcement and workplace violence literature, active shooting and firearm-related workplace incidents are often organized into five broad categories. These categories are not designed to assign motive with certainty during an unfolding crisis; rather, they provide a practical structure for understanding common patterns of access, target selection, and risk pathways. In healthcare settings, where patient privacy obligations, high public access, and clinical complexity converge, these typologies can assist leaders and frontline staff in aligning the immediate response to the likely threat dynamics while supporting post-incident review and prevention planning. Type 1 violence is commonly described as criminal intent. In this pattern, the perpetrator has no legitimate relationship to the workplace and enters primarily to commit a crime, most often theft. Because the offender's objective is instrumental, the violence may be triggered by resistance, interruption, or perceived threat to escape. Weapons are frequently present, and the risk of severe injury or fatal outcomes can be substantial, particularly when staff are isolated or working during late hours. In the

broader workplace context, this category has historically accounted for a large proportion of workplace homicides, as robberies and shoplifting incidents may escalate unexpectedly into lethal encounters. Although hospitals are not typical targets for robbery in the same way as banks or retail businesses, healthcare facilities and pharmacies can still experience Type 1 events, particularly in scenarios involving attempted diversion or theft of controlled medications. The presence of pharmaceuticals with high diversion value means that some hospital units and outpatient pharmacies may face a distinctive vulnerability to opportunistic criminal violence .[11][12][13][14][15]

Type 2 violence is often characterized as customer-to-worker or patient-related violence, and within healthcare it can be conceptualized as violence arising from interactions between patients, visitors, or service recipients and healthcare personnel. In this category, the perpetrator may be a patient, a family member, or another individual receiving services, and the conflict that precipitates the event may develop over time or escalate rapidly during the course of care. These incidents frequently occur during working hours and may be driven by perceived mistreatment, dissatisfaction with outcomes, frustration with administrative or legal decisions, or the behavioral effects of psychiatric illness, substance intoxication, or acute distress. Certain roles within healthcare may experience elevated exposure to Type 2 risks because their work inherently involves high-stakes decisions and emotionally charged conversations. Psychiatrists, social workers, and first responders may be placed at heightened risk when communicating involuntary treatment decisions, child custody actions, or crisis interventions. Likewise, emergency clinicians may encounter retaliatory dynamics if they treat victims of interpersonal violence and the assailants or associated individuals arrive at the facility, potentially seeking confrontation. A well-known illustration of this pattern in the healthcare context is the 1991 Alta View Hospital incident, in which Richard Worthington entered the facility with multiple weapons and held hostages while targeting a specific physician. Subsequent reporting has also noted a similar hostage-related event involving his son in Utah in 2022, underscoring how targeted grievances can translate into high-risk violence in clinical spaces. Type 3 violence refers to worker-to-worker incidents, in which the perpetrator is a current or former employee and the violence is linked to workplace conflict, perceived injustice, or interpersonal grievances. This category highlights an important institutional reality: healthcare facilities are complex workplaces with high stress, hierarchical structures, and emotionally demanding work, which can amplify interpersonal conflict when protective organizational cultures and conflict-resolution mechanisms are weak. In worker-to-worker violence, targets are often supervisors, managers, or colleagues associated with disciplinary actions, termination decisions, or workplace disputes. Although this category represents a smaller proportion of workplace homicides relative to criminal intent, it carries disproportionate organizational impact because it often involves insider knowledge of facility layout, staffing patterns, and access points. The Bronx Lebanon Hospital shooting in June 2017, in which Dr. Henry Bello—recently terminated—returned armed and opened fire, exemplifies how employment-related grievances can escalate into lethal workplace violence. For healthcare security planning, this typology reinforces the importance of threat reporting mechanisms, workplace behavioral risk assessment, and coordinated offboarding procedures when separation from employment is contentious .[11][12][13][14][15]

Type 4 violence involves intimate partner or domestic violence that spills into the workplace. In this pattern, the perpetrator is usually not an employee, but the intended target is—often a current or former partner. Workplace-directed domestic violence frequently emerges during periods of separation, restraining order proceedings, or escalating interpersonal control. Healthcare facilities may be particularly vulnerable because they are public-facing and accessible, and because employees' work schedules and locations can sometimes be inferred or discovered. Such incidents are especially dangerous when they occur in parking lots or adjacent areas, where surveillance is limited and where a perpetrator may approach the target before security systems are activated. In clinical settings, a perpetrator may present at reception, triage, or a front desk seeking information about the partner's location, length of stay, or reason for care. In these moments, healthcare personnel must balance immediate safety concerns with legal and ethical obligations to protect patient privacy, recognizing that disclosure can increase risk while non-disclosure may escalate confrontation. Effective prevention planning therefore requires staff training on privacy-compliant responses, rapid security escalation protocols, and environmental safeguards for entrances and parking areas. Type 5 violence is described as ideological violence, in which the perpetrator's motive is rooted in extremist beliefs and the target may be an organization, a symbolic location, or a group of people perceived as representing a political, religious, or social cause. These incidents may involve one or more assailants and often result in harm to individuals who are not personally connected to the perpetrator. Ideological violence can be directed at healthcare institutions because healthcare services may intersect with contentious social issues, public policy debates, or perceived governmental authority. A frequently cited example is the shooting at a Planned Parenthood facility in Colorado Springs, where the standoff extended for hours and law

enforcement ultimately used armored vehicles to breach the facility and apprehend the suspect. For emergency management, Type 5 scenarios emphasize the need for robust coordination with law enforcement, clear facility lockdown procedures, and preparedness for protracted incidents that may include hostage dynamics or extended containment operations. Taken together, these five categories provide a structured lens for understanding how firearm-related violence may emerge in healthcare settings and why preparedness cannot rely on a single "typical" scenario. While clinicians should not be expected to determine motive during a crisis, recognizing broad patterns—such as whether the perpetrator appears to be an outsider seeking theft, a distressed patient or visitor in conflict with care, an employee acting on grievance, an intimate partner pursuing a target, or an ideologically motivated attacker—can support faster, more appropriate protective action and more effective communication with security and law enforcement. This conceptual clarity strengthens emergency response, supports staff training, and ultimately contributes to improved safety outcomes in environments where the margin for delay is exceptionally narrow .[11][12][13][14][15]

Hybrid-Targeted Violence

Hybrid-targeted violence (HTV) refers to a category of intentional, high-impact violence in which perpetrators target a specific population or group of individuals through the coordinated use of conventional and unconventional weapons, coupled with tactics designed to maximize casualties. The defining feature is not simply the presence of firearms or the occurrence of a mass casualty event; rather, HTV involves an integrated operational approach in which perpetrators combine multiple tools and methods—potentially including firearms, explosives, incendiary devices, and other disruptive tactics—to overwhelm responders, generate fear, and inflict large-scale harm. In many scenarios, HTV is further distinguished by geographical or operational dispersion, with attacks occurring across multiple locations, either simultaneously or in rapid succession, in order to complicate response efforts and stretch security and emergency medical resources beyond capacity. Recent history provides multiple examples that illustrate the operational logic and human toll associated with HTV. The attack on Westgate Mall in Nairobi in September 2013 demonstrated how armed assailants can move methodically through a crowded civilian setting, transitioning from store to store and sustaining violence over an extended period. The event resulted in at least 67 deaths and more than 200 injuries, underscoring how a single public venue can become the locus of mass casualties when attackers exploit density, limited escape routes, and delayed containment. Another prominent example is the Beslan school siege in 2004, a three-day assault that led to at least 334 deaths and hundreds of injuries. In that incident, heavily armed militants took control of a school and used hostage-taking as a tactic to increase leverage and prolong the event, culminating in a forceful assault that contributed to devastating child casualties. The Mumbai siege of November 2008 further exemplified coordinated multi-site violence over several days, with attackers striking multiple targets in succession and generating 164 deaths and hundreds of injuries. These incidents collectively highlight the capacity of HTV to create sustained crisis conditions and to impose a level of operational complexity that surpasses the tempo of many single-site active shooter events .[11][12][13][14][15]

Other HTV-related incidents demonstrate how combining tactics can accelerate casualty rates and intensify psychological impact. In April 2013, two homemade bombs detonated at the finish line of the Boston Marathon killed three people and injured hundreds, with some victims sustaining traumatic amputations. The subsequent manhunt and confrontation with law enforcement illustrated how an attack may transition from a mass casualty episode to a broader public safety emergency with secondary violence. In 2015, the terrorist attack in San Bernardino resulted in 14 deaths and 22 injuries and included a targeted component tied to a workplace connection, followed by flight and a shootout with police. In March 2017, gunmen disguised in hospital robes entered the military hospital in Kabul and killed 49 people while injuring dozens more. This event is particularly relevant to health security because it shows how attackers may exploit healthcare-associated attire and trusted entry assumptions to penetrate facilities, position themselves strategically, and move floor-to-floor to maximize harm. Collectively, these cases emphasize that HTV is not confined to a single nation or region; it represents an international threat pattern that can manifest in diverse environments, including healthcare facilities, schools, public gatherings, and commercial centers. HTV incidents are not novel, and they have been documented across many parts of the world for decades. In a substantial proportion of such events, perpetrators are affiliated with organized terrorist groups or are driven by fanatical ideologies that frame mass casualty violence as a symbolic or strategic act. Over the past two decades, multiple international extremist organizations have sought to conduct such attacks in the United States, often citing geopolitical grievances and U.S. foreign policy as motivating narratives. From a health security standpoint, the implication is that HTV should be considered within all-hazards preparedness planning, particularly for high-visibility institutions and settings in which mass casualties would disrupt both

local care delivery and wider public confidence .[11][12][13][14][15]

Characteristics of HTV

HTV differs from many active shooter incidents in several operational dimensions. Whereas an active shooter event is often carried out by one individual—or occasionally two—HTV typically involves multiple attackers who may be trained, tactically coordinated, and familiar with a variety of weapons. These perpetrators frequently demonstrate a willingness to die during the event, a factor that reduces the effectiveness of deterrence and complicates negotiation. HTV attacks may be executed by small teams operating in different locations, communicating with one another to synchronize phases of the assault, adapt to evolving response actions, and maintain momentum. This distributed structure is one reason HTV can overwhelm local response capacity: multiple scenes require simultaneous law enforcement engagement, emergency medical triage, and scene security, all while the threat may continue to move or expand. A further hallmark of HTV is the strategic intent to attract first responders and then exploit their arrival to increase harm. This can occur through ambush tactics, secondary devices, or movement patterns designed to funnel responders into exposed areas. In some regions, open-air violence has been observed in contested or densely populated spaces where opposing groups live in proximity, creating complex and recurrent security demands. Although the specific sociopolitical dynamics differ by location, the core health security concern is similar: sustained violence in shared public spaces can rapidly generate mass casualties and disrupt routine emergency services, including access to care. Comparable patterns of recurrent community violence have been cited in urban areas in the United States, illustrating that while HTV is often associated with terrorism, the broader logic of concentrated violence and responder burden is not limited to international conflict zones .[11][12][13][14][15]

HTV can also incorporate additional complicating tactics intended to increase lethality and destabilize infrastructure. In some documented incidents in Iraq and Afghanistan, attackers intensified harm by inducing fires, which can impede evacuation, degrade visibility, and create secondary hazards such as smoke inhalation and structural risk. From an emergency management perspective, such multipronged tactics are particularly dangerous in healthcare facilities because hospitals contain oxygen supplies, flammable materials, critical electrical systems, and high-dependency patient populations. The most serious long-term concern is the potential evolution of HTV into scenarios involving chemical, biological, radiological, and nuclear (CBRN) agents. Even if such use remains relatively rare, the possibility poses disproportionate consequences, requiring that preparedness planning at least consider detection, decontamination capacity, personal protective equipment, and surge management. Reports from conflict settings, including Syria and Afghanistan, have indicated that some attackers have had access to higher-grade weaponry, including high-powered military arms and suicide bomb vests, illustrating how quickly lethality escalates when attackers combine firearms with explosives and martyrdom tactics .[11][12][13][14][15]

Differentiating Terrorist Attacks From Gun Violence

Distinguishing terrorism-related HTV from other forms of gun violence is essential for health security because the threat model, response requirements, and prevention strategies differ. Over recent decades, documented attacks on healthcare facilities across multiple countries have revealed that hospitals are increasingly recognized by terrorists as viable targets. Such attacks have produced substantial injury and mortality burdens, and they can create cascading consequences by disrupting care delivery precisely when demand is highest. In addition to direct casualties within the facility, terrorists may target healthcare institutions to create strategic diversion: by drawing law enforcement and emergency medical services toward the hospital or to secondary scenes, they can delay assistance to the primary target site, thereby increasing deaths among those initially wounded.[16] This logic reflects a deliberate operational calculus that views the healthcare system itself as part of the target set. By contrast, many incidents of gun violence—particularly those not classified as terrorism—do not involve organized groups with formal identity structures, command-and-control mechanisms, or articulated ideological objectives. While gun violence can still produce mass casualties, it is often driven by interpersonal conflict, opportunistic crime, or individual grievance without the same coordinated multi-site planning. Terrorist attacks, in contrast, typically involve a recognizable organized group, or at minimum a self-identified ideological affiliation that shapes identity, recruitment, and tactical choices. This distinction matters operationally: when an event is terrorism-linked, responders may need to anticipate additional attackers, secondary devices, extended standoffs, and follow-on threats to critical infrastructure. For healthcare leaders, the practical implication is that preparedness must account for both categories—conventional gun violence and terrorism-driven HTV—because each demands different emphases in surveillance, access control, staff training, and coordination with external security partners. In healthcare settings, where disruption of care can itself become a mechanism of harm, differentiating these threat types strengthens the ability to protect patients, staff, and the continuity of essential services.[16]

Issues of Concern

Shooting Incidents in Hospitals in the United States

Shooting incidents in hospitals represent a distinct and increasingly salient threat within the broader spectrum of workplace violence and public safety hazards. Unlike many other settings, hospitals must preserve accessibility for urgent care, accommodate large and unpredictable volumes of visitors, and maintain continuous operations in high-risk clinical environments. These structural features make hospitals particularly vulnerable to violent episodes that can rapidly escalate into mass casualty events, disrupt critical care pathways, and generate sustained psychological and operational consequences for staff and patients. From a health security perspective, understanding the epidemiology, motives, and environmental vulnerabilities of hospital shootings is essential for designing preventive strategies, refining contingency planning, and strengthening incident response capacity. Since 2000, a substantial number of hospital-related shooting incidents have been documented, reflecting a persistent pattern of firearm violence affecting healthcare facilities across the United States. Specifically, 154 incidents involving 148 hospitals have been reported, resulting in 235 injuries, including fatalities. The data also suggest an upward trajectory in incidence over the last decade, with hospital-related shootings appearing to increase on an annual basis. Importantly, these events are not confined to large, high-profile institutions; shootings have been recorded in hospitals of all sizes. Notably, over the past two decades, at least 51% of shootings occurred in hospitals with fewer than 40 beds, while larger hospitals experienced comparatively fewer incidents as bed count increased. One plausible interpretation is that smaller facilities may be easier to navigate and may have less robust security infrastructure, fewer controlled-access points, or reduced capacity for onsite law enforcement presence.[17][18] Regardless of causality, the distribution highlights that vulnerability is not solely a function of size or prestige; rather, it is shaped by access dynamics, security resources, and situational context. The location of hospital shootings further illuminates operational risk. Approximately 60% of shootings occur inside the hospital, while 40% occur outside on hospital property. The most frequent internal site is the emergency department, which is often the busiest and most publicly accessible clinical area and may serve as a convergence point for distressed family members, intoxicated or agitated patients, and individuals involved in interpersonal violence. Outpatient clinics constitute the second most common location, reflecting their high patient throughput and, in many facilities, relatively open access compared with inpatient units. Parking lots are also prominent, likely because they provide opportunities for ambush, stalking, or domestic violence spillover and because they are often less monitored than interior spaces. Patient rooms and intensive care units (ICUs) appear among common locations as well, underscoring that risk extends into clinical zones where patients are vulnerable and where clinicians are engaged in time-critical care tasks.[17][18]

Who is the shooter?

Demographic patterns, while not determinative for individual prediction, help clarify the typical profile of hospital shooters from a population-level perspective. In more than 90% of incidents, the shooter is male. Many shooters have been young males, though older adults have also been involved, suggesting that age alone is not a reliable protective factor. In the broader workplace violence literature, a large proportion of assailants have been associated with underlying psychiatric disease—often undiagnosed, misdiagnosed, or poorly managed—although the strength and specificity of this association for hospital shootings remains uncertain. One dataset notes that among 115 workplace shootings from 1982 to 2019, many assailants had evidence of psychiatric illness, but it remains unclear how directly this correlates to hospital-specific incidents.[6] From a health security standpoint, this uncertainty reinforces a critical point: psychiatric illness should not be treated as a simplistic predictor of violence. Rather, risk emerges from a complex interplay of stressors, access to weapons, grievances, interpersonal conflict, and acute destabilization, sometimes in combination with substance use or situational triggers.

What is the motive for the shooting?

Motives for hospital shootings are diverse and frequently reflect personal or relational dynamics rather than purely random selection of victims. Documented motives include grudges and perceived mistreatment, often framed by the perpetrator as being “treated poorly” by staff or the system. Revenge may be directed at a specific clinician, administrator, or facility, sometimes linked to dissatisfaction with care, disagreement about medical decisions, or conflict arising from a perceived medical error. In some tragic cases, shootings are motivated by “mercy killing” narratives in which an individual seeks to end the life of a severely ill relative with terminal cancer or advanced dementia, reflecting distorted reasoning under grief, caregiver strain, or desperation. Other motives include ideology or political beliefs, which may align with broader patterns of targeted violence against specific institutions, and suicide, in which the hospital becomes a location for self-harm or a stage for a final act. Prisoner escape scenarios have also been reported, particularly when an assailant is under custody or seeks to evade law enforcement in transit or during care. Additionally, mentally unstable patients may act on false beliefs, including paranoia

or delusions, interpreting clinicians as threats or conspirators. Finally, complications from medical procedures or surgery may act as precipitants, with a patient or family member attributing blame to a clinician or the facility. This range of motives underscores that hospitals are not merely settings of opportunity; they are environments in which high emotion, grief, fear, anger, and perceived injustice are common, creating conditions in which violence can erupt when protective systems fail or when high-risk individuals gain access to weapons.

Who are the victims?

Most hospital shooting incidents involve a limited number of individuals, often one shooter and one primary victim. Only about 10% of incidents include more than three victims, suggesting that many hospital shootings are targeted rather than indiscriminate mass attacks. Nonetheless, when multiple victims are involved, the human toll broadens rapidly, and innocent bystanders represent a substantial share of casualties. Data indicate that when there are multiple victims, approximately 60% to 80% are uninvolved bystanders, reflecting the danger posed by crowded waiting areas, corridors, and clinical spaces where people cannot easily evacuate. The remaining victims include physicians (approximately 3%), patients (13%), and nursing staff (5%). A particularly grim feature is the frequency of suicide by perpetrators: nearly half of shooters die by suicide after the event. Fewer than 10% of shooters are captured alive, a pattern that has significant implications for law enforcement tactics and for post-incident investigation and recovery, including the difficulty of obtaining definitive motive and planning details directly from the perpetrator.[17][18]

Relationship Between the Shooter and Victims

A defining characteristic of hospital shootings is the relational proximity between the shooter and the target. In many incidents, the perpetrator knows the victim or has an established relationship. Identified relationship categories include active personal relationships (32%), estranged relationships (25%), current or former patient relationships, current or former employee relationships, and cases with no obvious relationship. In hospital settings, more than half the time, shooter and victim have known each other, which differs from many non-hospital shootings where a larger proportion of victims have no prior connection with the assailant. This pattern supports a critical operational conclusion: hospital shootings are often personal, targeted, and linked to grievances rather than purely random events. For preparedness planning, this suggests that prevention strategies must include mechanisms to address interpersonal conflict, domestic violence spillover, and patient-family dissatisfaction escalation—alongside physical security improvements [18].

Behavioral indicators of potential shooters

Although no single behavioral indicator can reliably predict violence, certain patterns are commonly described in threat assessment frameworks and may justify escalation to security review or behavioral risk evaluation. Individuals who articulate personal grievances, demonstrate fixation on perceived injustice, or repeatedly escalate complaints beyond reasonable resolution channels may warrant closer attention. Fascination with weapons, amassing large collections, enrolling in weapons training, or frequent gun-range practice—particularly when paired with escalating anger or threats—may represent concerning combinations. Similarly, preoccupation with explosives, persistent discussion of violent scenarios, or repeated consumption of violent content may indicate ideation. Additional indicators include volatility, pervasive hostility, rigid beliefs that others are "out to get them," and persistent paranoia-like narratives. Importantly, these indicators should be interpreted through structured threat assessment processes rather than informal judgment, to avoid bias, protect legitimate rights, and ensure that interventions are proportionate and evidence-informed [18].

Weapons used by the assailant

Firearms are the predominant weapons used in hospital shootings. However, in rare scenarios, perpetrators may employ other weapons or improvised explosive devices (IEDs), which can increase casualty numbers and significantly complicate law enforcement and emergency response. IEDs may detonate immediately or be equipped with delayed fuses, creating hazards that persist beyond the initial shooting and introducing the risk of secondary explosions. Because of this risk, staff and bystanders should not attempt to approach, move, or handle suspicious devices. Instead, protocols should emphasize immediate withdrawal, area isolation when feasible, and prompt notification of security and law enforcement so that trained personnel can assess and neutralize the hazard.

The hospital environment as a "soft target"

Hospitals are often considered "soft targets" because they are designed for access, not exclusion, and because they routinely contain large numbers of people, including patients who cannot self-evacuate. The high density of visitors and clinical personnel, combined with open corridors and multiple entry points, means that a single shooting incident can quickly generate multiple casualties. Moreover, certain hospital locations amplify system-wide disruption. A shooting in the emergency department, for instance, can effectively paralyze the hospital's capacity to deliver life-saving care, because the emergency department functions as the core resuscitation hub and the entry point for acute emergencies. If this area becomes unsafe or locked down, injured individuals may have nowhere else to receive immediate stabilization, and emergency medical services may be forced to divert patients to

distant facilities, compounding mortality risk. These cascading effects reinforce the importance of contingency planning, drills, and simulation exercises that expose operational vulnerabilities and identify realistic response pathways [18].

Challenges in hospitals with an active shooter

Hospitals face unique response dilemmas during an active shooter event. Facilities are often large, complex, and segmented, making it difficult for staff to determine where the incident is occurring and which areas are safe. This raises immediate communication challenges: how to disseminate accurate threat information rapidly, to whom, and through which channels, without creating panic or misinformation. Clinicians also confront ethical and operational dilemmas: whether to leave patients when shots are fired nearby, how to respond if in the middle of a procedure or surgery, and how to balance duty of care against personal safety. Visitors may require clear guidance, but hospitals must also identify and communicate safe shelter areas, particularly in outpatient zones with limited security infrastructure. Evacuation is especially challenging for bedridden, elderly, or incapacitated patients, and it may be nearly impossible for those dependent on ventilators or continuous infusions. Mental health wards introduce additional complexity because doors are often locked for safety reasons, and evacuation routes may require controlled access. In high-security wards that require passwords or badge access, staff may be able to exit quickly, but patients may not, raising questions about how to evacuate vulnerable individuals without compromising safety protocols. When multiple casualties occur, staff may also face difficult triage decisions: determining whom to evacuate first, which patients can be moved safely, and how to allocate limited personnel in a chaotic environment [18][19].

Areas of high risk

Certain hospital locations are repeatedly recognized as high-risk or high-consequence zones. The emergency department often contains crowded waiting rooms, emotionally distressed visitors, and patients with behavioral instability, making it both vulnerable to violence and critical for surge response. ICUs represent another high-consequence area because evacuation is difficult and patients are physiologically fragile, frequently dependent on machines and ventilators. Specialized protocols are therefore necessary to determine shelter-in-place strategies, criteria for evacuation, and methods to sustain critical care under lockdown conditions. Laboratories present additional hazards because a shooting incident could coincide with chemical spills or exposure to infectious agents, creating a compound emergency that requires both security and hazardous materials awareness. The magnetic resonance imaging (MRI) suite is a uniquely hazardous environment in the context of an active shooter or law enforcement response. MRI machines generate powerful magnetic fields that can create a “missile effect,” in which ferromagnetic objects are pulled rapidly into the magnet bore with enough force to become airborne projectiles. This risk has caused severe accidents, including a widely cited scenario in which an oxygen cylinder entered an active MRI environment and was forcefully drawn toward the magnet, leading to catastrophic injury and death. Moreover, there have been reports in which firearms were pulled from holsters or hands of law enforcement officers near MRI magnets, striking equipment and in some cases triggering accidental discharge.[19][20] These hazards illustrate why active shooter planning must be location-specific; a response tactic that is safe in a corridor may be dangerous in an MRI environment. Accordingly, emergency plans should include MRI-specific guidance, clear signage, staff education, and rapid coordination to prevent armed entry into MRI zones during a crisis unless strictly controlled and clinically justified.[19][20] In sum, hospital shootings present a complex, multifaceted security and clinical problem shaped by epidemiologic patterns, relational dynamics, facility design, and high-consequence clinical environments. Addressing these issues requires layered prevention strategies, robust contingency planning, targeted training, and continuous interprofessional coordination that accounts for the distinctive ethical and operational dilemmas of providing care during an evolving violent threat.[6][17][18][19][20]

Clinical Significance

Workplace Evaluation

The clinical significance of active shooter preparedness in healthcare begins with a rigorous workplace evaluation that precedes any meaningful preventive or response initiative. Preparedness cannot be effectively “imported” as a generic policy document or a standardized training module without first understanding the specific risk profile of the facility, its patient populations, its physical environment, and its operational constraints. Each hospital area—clinical units, outpatient services, administrative zones, entrances, and surrounding grounds—requires assessment, planning, and structured exercises to determine whether the facility can protect life, sustain essential care functions, and coordinate efficiently with external responders. Importantly, workplace evaluation is not a one-time activity conducted for accreditation purposes; rather, it is a cyclical process that is continuously refined and tested as risks evolve, facility structures change, and new threat patterns emerge. Risk is inherently contextual. A small urgent care clinic in a high-income location near a large body of water does not face the same threat landscape as a community hospital bordering two states near a desert, where geographic isolation, cross-jurisdictional law

enforcement boundaries, and delayed emergency response times may meaningfully change both the probability of violence and the consequences of delayed intervention. In such environments, the second facility may require a more intensive and continuous quality improvement approach because response capacity may depend more heavily on internal staff actions during the critical first minutes. By contrast, the first facility might reasonably emphasize periodic readiness checks and targeted drills, assuming lower baseline risk and faster external response capacity, though complacency remains a danger in any setting. A practical implication is that the preparedness of staff must be evaluated in relation to the facility's risk exposure, including whether emergency management teams anticipate credible threats, whether the institution has experienced recent violent incidents, and whether local community dynamics suggest heightened risk [20].

Unit-level differences within the same hospital also demand tailored evaluation. Emergency department exercises must account for high patient volume, the presence of visitors in waiting areas, emotionally distressed families, and the likelihood of simultaneous arrival of law enforcement or victims of community violence. In contrast, mental health units often involve locked doors, restricted egress, and higher potential for targeted violence involving a limited number of actors, with staff members frequently being the intended victims. Similarly, a unit like the intensive care unit typically has more controlled access, often fewer entrances and exits, and a patient population that cannot be rapidly evacuated. These differences affect not only how drills should be designed but also the ethical dilemmas embedded in response, such as whether and how staff can prioritize evacuation when patients are ventilator-dependent or undergoing time-sensitive interventions.[21] In multi-victim incidents, triage principles become clinically and operationally significant because healthcare personnel may be forced to allocate limited resources under extreme pressure. Evidence suggests that applying structured triage principles has promising results when multiple casualties occur, and it is also recognized that many emergency department patients expect clinicians to take an active role rather than remain passive observers during chaotic events.[19][22][23] This expectation elevates the need for pre-defined roles and training that reconcile professional duty with personal safety [21][22][23].

Active Shooter Response Options

Active shooter response doctrine has evolved over time into practical, easy-to-recall principles intended to guide immediate action in rapidly unfolding scenarios. The best-known framework is "Run, Hide, Fight," which is designed to provide a structured hierarchy of protective choices: escape if possible, shelter if escape is impossible, and resist only as a last resort when faced with immediate lethal threat. Multiple organizations have developed training programs that operationalize these concepts, including ALICE (Alert, Lockdown, Inform, Counter, Evacuate), the United States Department of Homeland Security, Ready.gov, and the Federal Emergency Management Agency (FEMA). While the terminology varies, the underlying goal is consistent: maximize survivability by promoting early recognition of threat cues, rapid protective movement, and coordinated communication. The first operational step is situational recognition and decision-making. If gunshots are heard, or if overhead announcements indicate an active threat, personnel must rapidly determine whether evacuation is feasible or whether sheltering in place is safer. In healthcare, this decision is complicated by patient dependency, locked unit doors, and the presence of individuals who cannot self-mobilize. Staff should follow established communication channels and designated unit leaders when they are available, because coordinated action reduces chaos and improves the likelihood that patients and visitors receive consistent instructions. When evacuation is viable, "Run" is prioritized. This includes moving quickly along identified escape routes and encouraging others to follow, ideally under guidance of trained personnel when available. However, the healthcare environment introduces an important nuance: employees or former employees who become perpetrators may already be familiar with exit routes and high-traffic paths, which raises the possibility that obvious escape corridors could be compromised. Consequently, avoiding predictable routes may be advisable when there is reason to believe the shooter is positioned to intercept fleeing individuals. Group evacuation in single-file lines may reduce congestion, and elevators should be avoided because they may be disabled, become bottlenecks, or trap occupants. Evacuation also requires immediate external notification, typically via emergency lines, so that hospital leadership can activate a facility code and initiate lockdown procedures for affected areas or the entire institution. When formal leaders are not immediately available, staff must still be prepared to provide actionable information to dispatchers and law enforcement, including the shooter's identity if known, the shooter's location, the number of shooters, physical description, the number and types of weapons, and the number of potential victims, while following dispatcher instructions to support coordinated response [23].

If evacuation cannot be safely achieved, "Hide" becomes the next protective option. Effective sheltering involves moving to a space that can be locked or barricaded and provides cover from sightlines and ballistic threat. In healthcare, an appropriate hiding place must also avoid trapping patients and staff in a way that prevents later

movement if fire, smoke, or secondary threats arise. Windows and doors should be covered when feasible, and entrances obstructed if violence escalates. Noise discipline is essential to reduce detection risk, and individuals should remain low to the ground, recognizing that bullets and fragments may travel unpredictably through corridors and walls. Incident leaders should provide consistent sheltering instructions, but when leaders are absent, staff must rely on training and established protocols. “Fight” is the last-resort option, reserved for situations in which an individual faces immediate lethal threat and escape or shelter is not possible. The goal is survival through aggressive resistance and disruption of the perpetrator’s capacity to continue harm. This may include attempting to interrupt the shooter’s focus, disrupt their rhythm and momentum, and prevent access to additional weapons. Training may emphasize that, in a close encounter, redirecting the firearm downward rather than sideways or upward is more likely to reduce immediate harm to oneself and nearby individuals. Once law enforcement arrives, compliance is critical because officers entering an active shooter scene do not immediately know who the perpetrator is. Individuals must follow instructions, keep hands visible, and avoid sudden movements that could be misinterpreted as threat [23].

Planning

Planning to counter an active shooter in healthcare requires a multidimensional, interprofessional approach that aligns emergency management principles with clinical realities. No single strategy is universally effective, because threat dynamics vary and facilities differ in physical layout, population density, and resource capacity. Planning therefore begins with establishing a facility-specific framework that defines activation triggers, roles, command structure, and decision pathways for lockdown, evacuation, sheltering, and clinical continuity. Communication protocols must ensure that everyone in the facility can be notified rapidly, while leadership roles are clearly assigned in each department to prevent diffusion of responsibility. If everyone is nominally “in charge,” then no one effectively leads, and response fragments into individual actions that may increase risk. Scenario-based ideation is essential. Using emergency management guidelines, teams should design and rehearse multiple scenarios, including incidents beginning in the emergency department, parking lots, outpatient clinics, mental health units, and high-risk procedural areas. Law enforcement collaboration strengthens planning by providing insight into likely attacker behaviors, response tactics, and facility vulnerabilities. Facilities should foster a culture of reporting without reprisals, encouraging staff to report concerning behaviors, threats, or suspicious activity early rather than delaying out of fear of retaliation. Simulation-based training modeled on current research can improve performance under stress by building muscle memory for communication, lockdown procedures, evacuation decision-making, and casualty care under threat conditions.[24][25]

Facility initiatives

Facility initiatives translate planning into operational readiness through layered prevention and response measures. Recognition systems should be established to identify early warning signs and to ensure reporting reaches a multidisciplinary leadership group that includes representatives from every department, from senior clinicians and administrators to trainees and support staff. Security measures should include mandatory staff identification with name badges and photo credentials, and systems that allow staff to report suspicious activity without fear of reprisal. Badge or card access controls should be capable of rapid reprogramming to prevent former employees from entering, a critical measure given the documented role of disgruntled former staff in some workplace violence incidents. Reporting stations and clear escalation pathways should be established so that staff know exactly whom to contact and how. During an active shooter event, protocols should permit rapid closure and locking of doors to limit movement of the assailant and protect sheltering areas. Communication systems must be reliable and redundant, enabling messaging to reach all personnel despite panic, noise, and potential infrastructure disruption. Evacuation protocols must be explicit, with staff trained to recognize emergency escape routes, identify safe locations if routes are blocked, and provide basic self-defense and harm-reduction education appropriate to healthcare settings [25].

Use of bystander intervention

Bystander action can influence outcomes because law enforcement often requires minutes to arrive, and active shooter events can unfold rapidly. However, most law enforcement experts caution that attempting to confront the shooter is generally not recommended and should remain a last resort. The risk of misidentification, escalation, and additional casualties is substantial, especially when untrained individuals intervene. That said, if a bystander is armed and chooses to confront the assailant, the situation becomes more complex and may introduce further danger if arriving officers cannot distinguish between perpetrator and intervenor. A more widely supported role for bystanders is to assist injured victims when it can be done without exposing oneself to direct threat. Some guidance emphasizes controlling external bleeding, but this presents practical challenges: many clinicians outside emergency medicine or surgery may not have the skills, tools, lighting, or assistance required for effective hemorrhage control, especially in chaotic

settings. Attempting to treat internal bleeding is not feasible without advanced clinical resources, and unless trained emergency clinicians are present, the focus should shift to actions with higher likelihood of benefit, such as ensuring a patent airway, positioning victims to support breathing, and rapidly activating emergency response through 911 or internal emergency operators. In all cases, personal safety and threat proximity determine what is feasible. The principle is not to compel heroic action but to support informed, realistic actions that can reduce preventable deaths when conditions permit [25].

Special considerations

Healthcare facilities must address the needs of patients who cannot move or who cannot be safely disconnected from life-sustaining therapies. Ventilated patients, those in neonatal intensive care units, critically ill ICU patients, dialysis recipients, and post-operative recovery patients often cannot be rapidly evacuated. This generates profound moral dilemmas: clinicians may feel compelled to remain with high-dependency patients even under threat, yet doing so may place staff at extreme risk. Institutions must anticipate these scenarios and establish policies that clarify expectations, define "shelter-in-place" clinical protocols, and provide legal and ethical guidance, recognizing that litigation concerns often arise after catastrophic events. Predefined protocols help reduce decision paralysis and moral injury by ensuring that frontline staff are not forced to make impossible choices without institutional support.

Medical considerations

First aid during an active shooter incident must be approached within the constraints of threat conditions. Some victims may die immediately, while others sustain injuries during escape attempts, including falls from height, lacerations from broken glass, fractures, or exposure to hazardous terrain. For this reason, first aid kits should be distributed across departments and include supplies to provide oxygen where feasible, control external bleeding, and manage extreme environmental exposures such as hyperthermia or hypothermia, as well as materials relevant to traumatic limb injuries. These kits must be mapped and identified in the contingency plan and should be periodically inspected to ensure supplies are intact and within expiration dates. The existence of supplies alone is insufficient; staff must be trained in their use under realistic conditions, and units must clarify who is authorized to deploy them during a threat.

Communications

Communication failures are among the most common drivers of preventable harm during crises. In active shooter events, time is extremely limited, and panic and confusion can erase valuable minutes. Messages must therefore be clear, concise, and immediately actionable. The goal of communication is not simply to "inform" but to drive protective behavior: where to go, what to do, and how to avoid exposure. Communication should also support medical care by allowing staff to protect potential targets and reduce the number of secondary casualties. In a hospital, where many individuals may not understand security terminology, the structure and clarity of messaging becomes a clinical safety issue. Lucid language messaging is widely recommended. Law enforcement and emergency management authorities have suggested that mass communication should use plain language rather than obscure code words that patients and visitors cannot interpret. Codes may still be used intradepartmentally among staff for operational coordination, but facility-wide messaging should prioritize clarity and speed. At the same time, indiscriminate broadcasting can generate panic; therefore, communication strategies may delay alerting a large group until an accurate message can be delivered, especially if staff are simultaneously coordinating protective actions. Messages should specify the nature of the threat, the location when known, and clear instructions for evacuation or sheltering. This balance—clarity without chaos—is central to effective incident management [25].

Immediate support

Immediate medical support during and after the event depends on the number of victims, proximity of nearby facilities, and protocols governing deployment of staff and resources. Triage prioritizes the most critical cases, while less acute patients are stabilized as resources permit. Even when physical injuries are limited, the psychological impact can be profound and can compromise evacuation behavior and medical decision-making. Experts in mental health emphasize the importance of addressing acute psychological trauma, offering psychological first aid promptly, and limiting exposure to distressing information that can amplify fear and panic. Psychological first aid is appropriate for individuals experiencing overwhelming emotional responses regardless of whether they have a prior mental health condition; its goal is not to "cure" but to stabilize, reduce panic, and support safe protective action, including orderly evacuation.[26]

Long-term support

Long-term outcomes after gun violence are often shaped by follow-up care, social support, and reintegration services. Loss to follow-up is reported to be high—approaching 69% in gun violence survivors—meaning that many individuals do not receive sustained rehabilitative, psychological, and preventive care after initial stabilization.[27] Innovative models such as Trauma Quality of Life clinics have been developed to improve follow-up adherence and address the complex needs of survivors, including pain, disability, psychological trauma, and social instability.[27] Survivors of gun violence are also at increased risk of reinjury, with disproportionate patterns across racial groups, and emerging evidence suggests elevated risk for substance use disorders within affected

populations.[28][29] These findings support the clinical significance of hospital-based interventions aimed at underlying risk factors, including linkage to social services, mental health support, violence interruption programs where available, and structured follow-up planning. The role of primary care clinicians is also evolving, with research exploring whether training at the resident physician level improves preparedness to address the medical and psychosocial consequences of violence exposure and to coordinate prevention-oriented care.[30] In sum, the clinical significance of active shooter preparedness extends beyond immediate survival tactics. It encompasses workplace evaluation tailored to unit-specific risks, structured response options supported by realistic training, interprofessional planning reinforced by facility initiatives, and comprehensive medical and psychological support that continues long after the incident ends. By integrating these domains, healthcare organizations strengthen resilience, protect staff and patients, and improve outcomes across the full arc of violence-related harm.[19][21-30]

Other Issues

Hospitals are increasingly recognized as environments that are not immune to violence, including shooting incidents and active shooter events. This reality has clinical, operational, and ethical implications because healthcare facilities are designed to remain accessible to the public, operate continuously, and care for vulnerable individuals who cannot readily protect themselves. Unlike many other workplaces, hospitals contain multiple departments with distinct patient populations and highly specialized workflows. An emergency department has open access, high crowd density, and frequent interactions with law enforcement and community violence, while an intensive care unit contains critically ill patients who cannot be moved quickly. Mental health units may have locked doors and heightened behavioral risk, and outpatient clinics often have high visitor throughput with comparatively fewer security controls. Because each department delivers care under different constraints, a single universal approach to active shooter preparedness is insufficient. Instead, each area must clarify its responsibilities during a crisis, including who leads, how patients are protected, and what actions are feasible when the threat is nearby. To reduce harm and improve survivability, hospitals must adopt preventive measures that account for multiple plausible scenarios rather than planning for a single “typical” event. This prevention framework is often operationalized through a contingency plan—an institution-specific structure that integrates facility layouts, risk assessments, staff roles, communication systems, and response procedures. Importantly, contingency planning is not merely a written document; it is a living system that should be tailored to areas requiring improvement and modified as the facility’s risks change over time. For example, a facility may decide that its most urgent gap is rapid lockdown capability in outpatient zones, while another may focus on improving evacuation routes for wards housing immobile patients. Regular drills are essential because they transform theoretical plans into operational competence and reveal practical vulnerabilities that are not obvious on paper. Exercises allow organizations to evaluate what is functioning and what requires refinement, including alarm systems, door-locking processes, staff movement pathways, and coordination with security and law enforcement. High-quality training must also be precise and role-specific, enabling personnel to act without hesitation under stress. Many institutions benefit from establishing a dedicated task force or multidisciplinary committee responsible for active shooter preparedness, ensuring accountability, continuity, and ongoing improvement rather than episodic attention following a news event. Clinical readiness also depends on understanding first aid principles during violent incidents. While staff safety remains paramount, preparedness should include basic knowledge of hemorrhage control, airway support, and the safe use of first aid supplies where conditions permit. Critical supplies should be positioned strategically, especially in high-risk areas such as emergency departments and high-traffic outpatient clinics, so that response is not delayed by inaccessible equipment. Communication is another cornerstone: hospitals must have reliable methods to alert staff, patients, and visitors quickly and clearly, using actionable language that supports safe movement or sheltering. Finally, preparedness should be continuously audited with facility leadership involvement, because sustained improvement requires resources, policy enforcement, and a culture that prioritizes safety alongside clinical care [30].

Enhancing Healthcare Team Outcomes

Responsibilities of Employers

Employer responsibility is central to healthcare active shooter preparedness because organizational leadership controls the structures, resources, policies, and culture that determine whether staff and patients are protected during violent events. Historically, many workplaces in the United States lacked formal plans for active shooter scenarios. However, the growing frequency of shooting incidents has prompted healthcare institutions to implement systematic measures intended to prevent events when possible and reduce casualties when prevention fails. This shift is reinforced by occupational safety frameworks and regulatory expectations, including guidance from the Occupational Safety and Health Administration (OSHA), which has issued recommendations relevant to employers across government and healthcare settings.[31][32][33][34] While local requirements

vary, the consistent premise is that worker safety is not optional; it is a core obligation that must be addressed through proactive planning rather than reactive crisis management. A fundamental employer duty is to provide a workplace that offers employees a safe environment free from preventable physical hazards. In the context of active shooter risk, this principle extends to security infrastructure, access control, staff education, and emergency response capability. Employers are expected to adopt best practices and industry standards to support worker safety, which may include implementing identification badge policies, controlling entry points where feasible, maintaining functional surveillance systems, and ensuring that lockdown mechanisms are operational across all relevant departments. Compliance with state and federal guidelines regarding workplace safety is another essential element, as hospitals must align institutional policies with legal and regulatory expectations while documenting processes that demonstrate due diligence .[31][32][33][34]

Education and awareness are also employer responsibilities. Healthcare professionals should be informed that active shooter incidents are possible, even if rare in a given facility, and they should understand how to recognize early warning signals and how to respond during the first moments of a crisis. Employers should incorporate lessons learned from prior shooting events—whether internal incidents or external case examples—into training content and preparedness design. This "learning system" approach is particularly important because threat patterns evolve, and institutional vulnerabilities may only become apparent after real-world events have been analyzed. The legal and ethical stakes of employer preparedness are substantial. Healthcare facilities that fail to comply with OSHA recommendations or that demonstrate inadequate security planning may be exposed to liability when injuries or deaths occur during an active shooter event. Indeed, multiple lawsuits have been filed against institutions when claimants allege negligence, insufficient security measures, or failure to implement reasonable protective strategies.[18][35][36][37] From a health security perspective, these legal realities reinforce that preparedness is both a moral duty and a governance requirement. Employers therefore must treat active shooter preparedness as a sustained institutional priority, supported by leadership oversight, resource allocation, periodic auditing, and continuous improvement, thereby protecting staff, patients, and visitors while strengthening organizational resilience.[31][32][33][34]

Conclusion:

Active shooter incidents in healthcare settings represent a complex intersection of clinical, operational, and ethical challenges. Hospitals cannot rely on generic emergency plans; they require tailored strategies that account for unique vulnerabilities such as immobile patients, high public access, and critical care zones. Evidence underscores that preparedness must extend beyond physical security to include behavioral risk assessment, staff education, and interagency coordination. Simulation-based training and clear communication protocols are vital for reducing chaos and improving survivability during the critical first minutes of an event. Hybrid-targeted violence further amplifies the need for comprehensive planning, as these attacks often involve multiple perpetrators, unconventional weapons, and tactics designed to overwhelm responders. Healthcare facilities must adopt an all-hazards approach, integrating contingency plans with law enforcement collaboration and continuous quality improvement. Ultimately, active shooter preparedness is not a static policy but a dynamic system requiring leadership commitment, resource allocation, and a culture of safety. By embedding these principles into organizational practice, healthcare institutions can protect staff and patients, maintain continuity of care, and strengthen resilience against evolving threats.

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