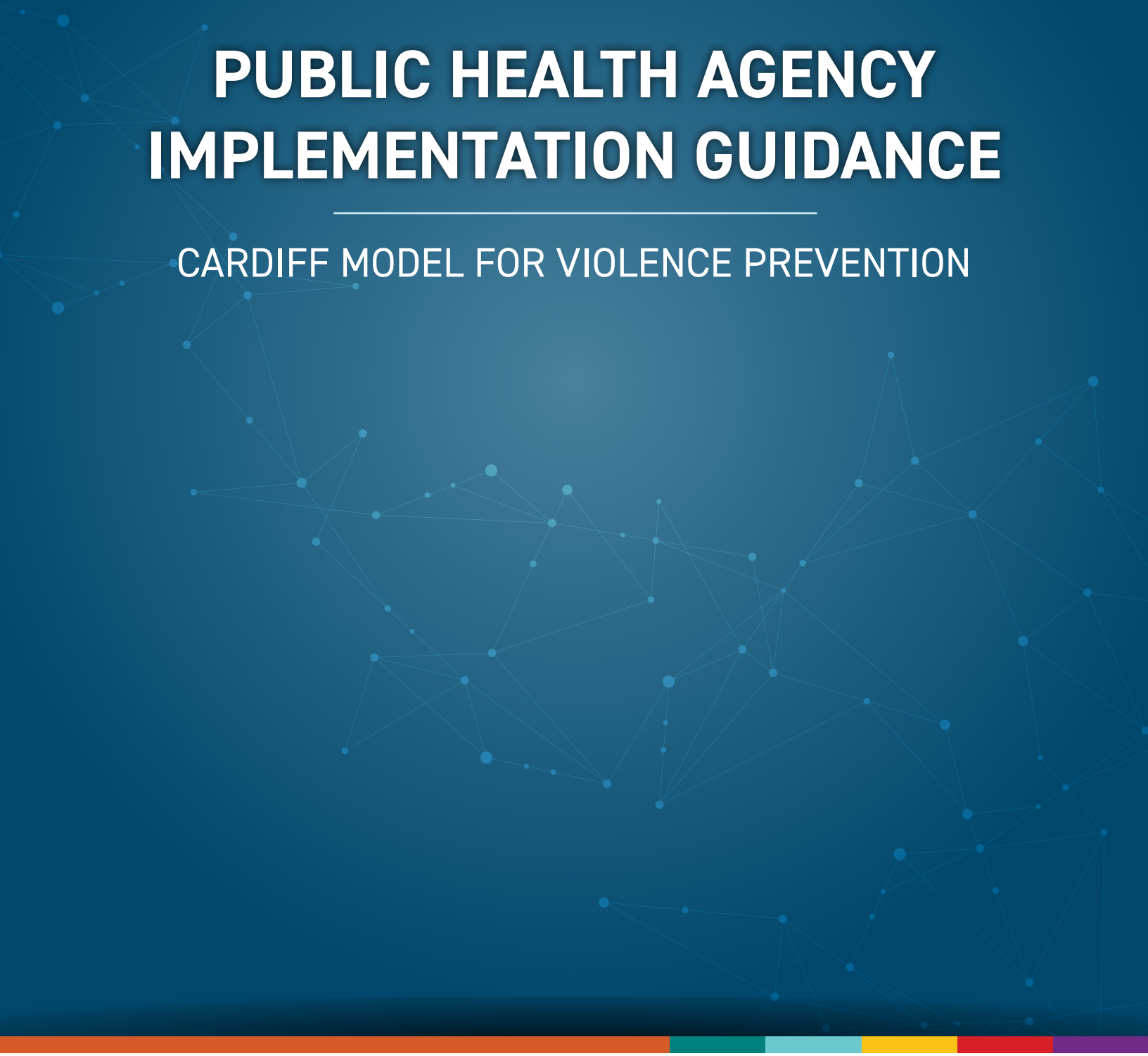
PUBLIC HEALTH AGENCY IMPLEMENTATION GUIDANCE

CARDIFF MODEL FOR VIOLENCE PREVENTION



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ACRONYMS

ASTHO ..... Association of State and Territorial Health Officials
Cardiff Model ..... Cardiff Violence Prevention Model
CDC ..... Centers for Disease Control and Prevention
CSP ..... Community Safety Partnership
Georgia DPH ..... Georgia Department of Public Health
HIPAA ..... Health Insurance Portability and Accountability Act
IT ..... Information Technology
MCW ..... Medical College of Wisconsin
PD ..... Police Department
USIPP ..... United States Injury Prevention Partnership
VFWAC ..... Violence Free West Allis Collaborative

PURPOSE

This implementation guide serves as a background for health agencies who wish to advance data-driven violence prevention efforts and partnerships. In particular, this document captures the experiences, discussions, and evidence base generated by state and local public health agencies and their partners as they've implemented the Cardiff Violence Prevention Model (Cardiff Model). The information presented in this guide serves as general guidance and use cases, sourced from the experiences of sites currently in the implementation phase, for interested sites to consider when planning their implementation of the Cardiff Model. **Please note that each site is unique and may not need to follow every implementation step and guidance provided in this guide.** Information on the development of this guide can be found in Appendix A..

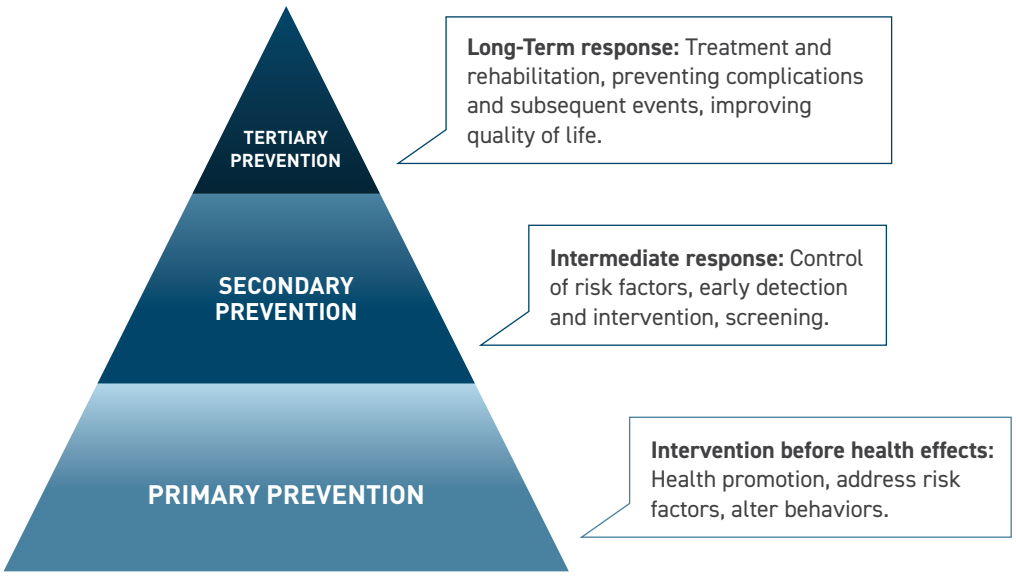
EVIDENCE BASE

Violence and injury prevention continue to be significant public health priorities. Based on the three levels of health promotion and disease prevention primary prevention measures could prevent the onset of injuries before they happen (see Figure 1).[1] Violence and injury primary prevention efforts can be supported through place-based interventions. Multisector partnerships and data-driven decision-making can inform public health, healthcare, law enforcement, and community partners on areas of potential violence. This model also builds trust between community partners and law enforcement. Originally co-developed by Dr. Jonathan Shepherd in Cardiff, Wales, the Cardiff Model began to be adopted in the U.S. in 2015, by the Medical College of Wisconsin.[2] Since then, the model has been adopted by multiple countries (e.g., Australia), states, cities, and counties. However, limited translation has occurred in the U.S.

RELATED PUBLICATIONS

Violence outcomes after implementing the Cardiff model, Cardiff, Wales.
Effectiveness of anonymized data sharing for violence and injury prevention.
Impact and Process Evaluations of the Cardiff Model.

FIGURE 1. THE LEVELS OF PREVENTION[1]



[1] CDC. (2016). "Picture of America: Prevention." Available at https://www.cdc.gov/pictureofamerica/pdfs/Picture_of_America_Prevention.pdf.
[2] National Institute of Justice. "Integrating Emergency Department data with Law Enforcement, Emergency Medical Service and Community Data to Reduce Violence." Available at https://nij.ojp.gov/funding/awards/2014-ij-cx-0110.

A growing body of evidence supports the Cardiff Model as a comprehensive public health approach and a data-driven model for violence prevention. The model encourages the formation of multisector partnerships to establish an infrastructure to share and store data in a single location. Healthcare, law enforcement, and other stakeholders—such as public health—engage in an agreement to share data to a state public health agency or an "honest broker" that stores and geocodes the data for data analytics and to inform the collaborative development of place-based injury prevention strategies.[3] Communities can use these shared knowledge streams to gain a deeper understanding of sources and patterns of violence at a geographic level that can be presented for a community's assessment and inform and evaluate programs and strategies for reduction.

In the United States, the Cardiff Model is being adapted, or considered, as a strategy for violence prevention in several cities across the country. Community safety partnerships lead the Cardiff Model adaptations in Georgia and Wisconsin. The United States Injury Prevention Partnership (USIPP) leads the Cardiff Model adaptation in Atlanta, while the Violence Free West Allis Collaborative (VFWAC), in collaboration with the Comprehensive Injury Center at the Medical College of Wisconsin (MCW), leads adaptation efforts in West Allis, Wisconsin, and in a police district in Milwaukee.

COMMUNITY SAFETY PARTNERSHIP – MEMBERSHIP EXAMPLES		
USIPP – Atlanta, GA	**VFWAC – West Allis, WI**	
Georgia Department of Public Health's Injury Prevention Program	Medical College of Wisconsin's Comprehensive Injury Center	Local school district
Grady Memorial Hospital	Children's Hospital of Wisconsin and Froedtert Hospital	Housing authority
CDC's Division of Violence Prevention	West Allis Department of Health	Local business owners
Dekalb County Police Department	West Allis Police Department	Community Leaders
ASTHO's Public Health Data Modernization and Informatics Team	West Allis Fire Department and EMS	Other healthcare providers
	City of Milwaukee Health Department's Office of Violence Prevention	

The Cardiff Model is driven by these strong community safety partnerships to share, map, and use data to inform decisions or policies that promote safety and prevent or discourage violence through environmental (place-based) modifications. Understanding an area's trends, rates of violence, and the contextual factors influencing violent behavior can aid in the identification and design of effective health interventions and prevention planning and evaluation. Aligning with the environmental asset assessment framework, the Cardiff Model builds from theoretical and practice-based concepts to support health promotion interweaving by designing place-based interventions that complement the policy/regulatory environment, information environment, social/cultural environment, and physical environment (see Figure 2).[4]

Resulting strategies and modifications have included adjusting law enforcement officers' patrolling routes, moving resources from suburbs to city centers on weekends and events/holidays, improving lighting around problematic premises, and pedestrianizing areas with high traffic and use.[5]

RELATED PUBLICATIONS

External validation of the Cardiff Model

A process evaluation of a replication of the Cardiff Model in the southeast, US

Feasibility of implementing the Cardiff Model in a midwestern city, US

Implementing the Cardiff Model for violence and prevention: using the diffusion of innovation theory to understand facilitators and barriers to implementation.

Implementation and initial analysis of Cardiff Model data collection procedures in a level I trauma adult emergency department

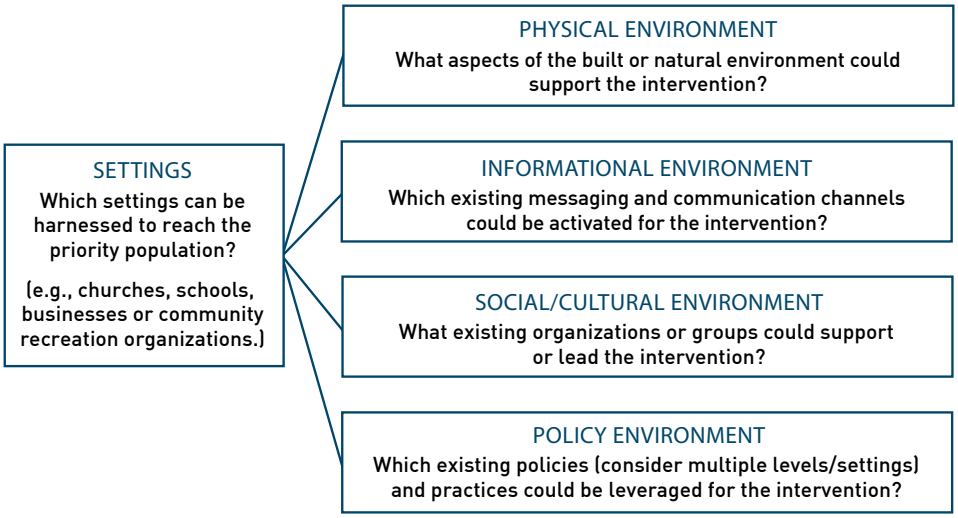
[3] Florence C, Shepherd J, Brennan I, et al. "Effectiveness of anonymized information sharing and use in health service, police, and local government partnership for preventing violence related injury: Experimental study and time series analysis." *BMJ.* 2011. 342:d3313. doi:10.1136/bmj.d3313

[4] Springer AE, Evans AE, Ortuño J, et al. "Health by Design: Interweaving Health Promotion into Environments and Settings." *Front Public Health.* 2017. 5:268. doi:10.3389/fpubh.2017.00268

[5] Florence C, Shepherd J, Brennan I, et al. "Effectiveness of anonymized information sharing and use in health service, police, and local government partnership for preventing violence related injury: Experimental study and time series analysis." *BMJ.* 2011. 342:d3313. doi:10.1136/bmj.d3313

Health promotion interventions introduced to different environments within the setting and geographic targets or places of interest hold the potential to influence health and health behaviors. While data exchange is critical, partnerships with the community include more than data sharing and lead to the broader goal of engaging the community in understanding and informing the data to action (e.g., safer communities). As such, securing community and leadership champions (e.g., public health officials, nursing/emergency department/physician leadership, law enforcement/police department leadership, or community leadership) serve as a critical driver of Cardiff Model adoption and buy-in.

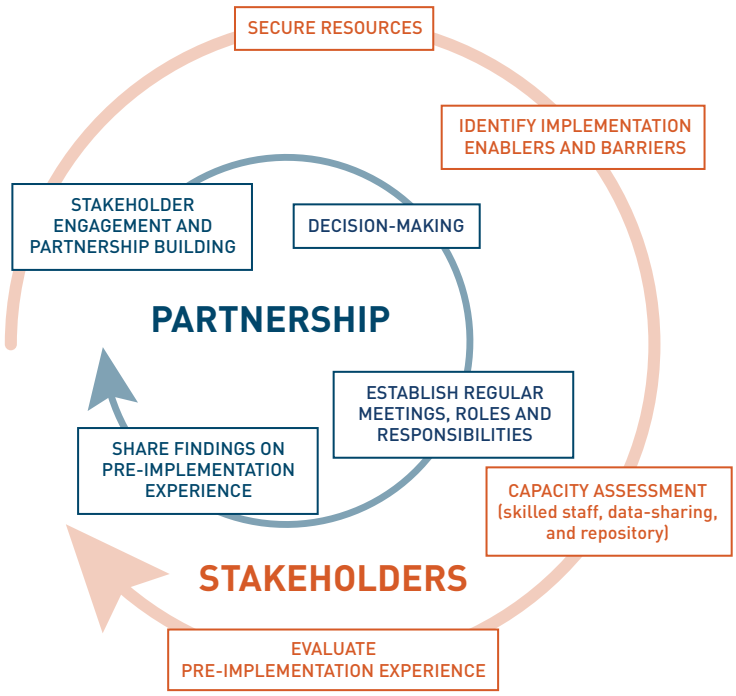
FIGURE 2. ENVIRONMENTAL ASSET ASSESSMENT FRAMEWORK



STATE HEALTH AGENCY GUIDANCE

Year 1 Pre-Implementation Process Map

FIGURE 3. PROCESS MAP



Steps may happen in sequence or parallel and may need to be repeated throughout the process (see Figure 3). The process of identifying enablers and barriers and completing a capacity assessment may illuminate the need to secure additional or other types of resources. This implementation process map illustrates and encourages regular evaluation of processes, policy, and decision-making within the partnership.

A community safety partnership (CSP) may be unable to engage or convene additional agencies during a state of emergency or other public health threat when other activities take priority. The screening tool for violence-related injuries could be generalized to capture all injuries to solicit broader buy-in and adoption by healthcare staff.

RELATED PUBLICATIONS

Legal, technical, and financial considerations for pre-implementation and adoption (p.13)

Engaging health systems in evidence-based violence prevention activities

Stakeholder Engagement and Partnership Building

Multiple agencies (or stakeholders) should participate in exploratory discussions about implementing the Cardiff Model and forming a multisector data-sharing partnership. Stakeholders from the following three key entities should be involved in the initial phase of the project: a state or local public health agency, a healthcare agency(ies), and a law enforcement agency(ies).[6] Each of these three entities comes to the table with its own perspectives, goals, and approaches/strategies for addressing and reducing violence prevention/violence-related injuries. Stakeholders may consider scheduling a kick-off meeting to help establish a strong partnership among the entities and come to a collective understanding on the goal and purpose for implementing and advancing the Cardiff Model in their jurisdiction. The adaptation may include more than one organization for each sector involved due to the pre-implementation cycle's feedback loop of stakeholder engagement and partnership building.

During ASTHO's virtual listening sessions with several adaptation sites and partners/stakeholders (see Appendix A), participants noted several aspects of the Cardiff Model that they felt were important to consider including:

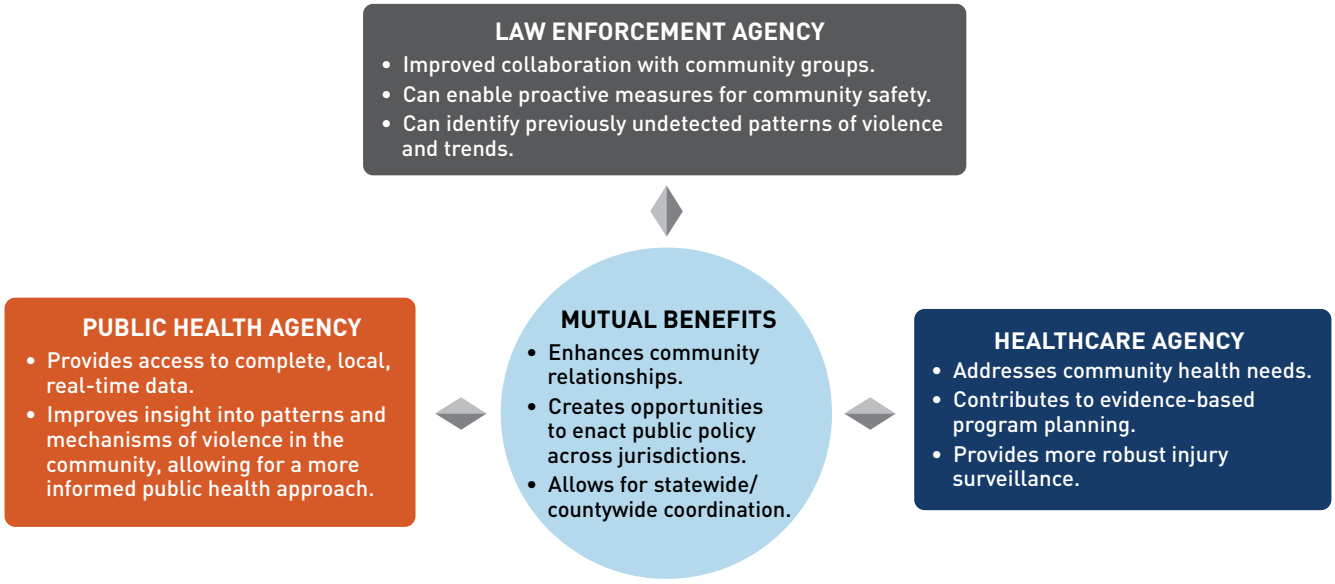
- Securing champions from local and state health departments, emergency departments, and law enforcement.
- Framing the Cardiff Model for local implementation, as local champions are crucial in the initial phases of standing up the model and then building up to state implementations where local champions can be leveraged to help scale up the model.
- Managing the challenges of securing and onboarding partners to establish data sharing. While there may be several hospitals in the area that service the population or geographic area of interest, the data broker may not always be able to gain access to that hospital data, or it may be a lengthy process to get that data.
- Making inroads with public vs. private hospitals. Training and buy-in are pertinent to securing hospital partners. Receiving buy-in from private hospitals may require additional conversations and strategies, such as using a Quality Assurance/Quality Improvement (QA/QI) approach, to outline and better understand the benefits of implementing the Cardiff Model.
- Leveraging the public health agency. Even when the public health agency isn't serving as the data broker or central repository for the data, it has potential to be engaged as a champion, leader, or convener for the community safety partnership meetings.

Partnership Benefits

Who needs to be involved in the Cardiff Model as part of my state or community's violence prevention efforts?

Each member of a community partnership contributes to the partnership and benefits from being in partnership with the other members. Working in a collaborative environment promotes mutual learning; helps participants identify their strengths, assets, and limitations; and provides the opportunity to network with new partners. Participation may promote credibility in the community from working with other respected, established organizations. A thriving community safety partnership shares a vision for violence prevention and positions community members as experts who consult on violence prevention strategies. Through working to solve pressing community problems (e.g., through neighborhood watch groups) and building community capacity (e.g., by implementing positive law enforcement/community relationships), a community safety partnership can create or restore community trust and promote social cohesion, which is vital to sustained community engagement. Figure 4 illustrates potential mutual benefits, including partner-specific incentives from participating in a CSP.

FIGURE 4. PARTNERSHIP BENEFITS



Decision-Making

Along with making critical project decisions, sites should decide who within the partnership is responsible for implementing each of the decisions, their respective actions, and tracking their outcomes. Sites are encouraged to review and analyze the decision-making processes occurring at the agency and with partners. This may help identify common hierarchies, sub-themes, or misalignment regarding the categories (e.g., process/policy, technology-related) of decisions being discussed and to help clarify which stakeholders (e.g., agency or partner) are responsible for making and implementing those decisions.

Participatory Decision-Making in a Community Partnership

Establishing a transparent, mutually-endorsed approach to decision-making allows group members to have explicit and reasonable expectations and engage in a respectful and productive process. A community partnership should capitalize group sessions to generate and discuss ideas that are then voted on by the stakeholders, leading to decisions that are actionable (See Figure 5.).

FIGURE 5. PARTICIPATORY DECISION-MAKING

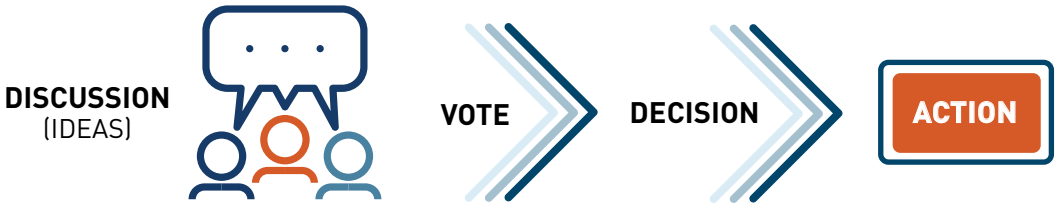


TABLE 1. OTHER DECISION-MAKING MODELS

METHOD	STRUCTURE	CHALLENGES
Strategic Discussion	*Informal* • Focused discussion useful for generating alternative strategies/solutions. • Allows participants to articulate views and opinions.	• Relatively unstructured. • Concerns regarding priorities and productivity.
Nominal Group Technique	*Formal* • Individuals record their opinions independently. • Each participant presents an idea for discussion. • Similar ideas are grouped, tabulated, and summarized. • The group holds further rounds of discussion on the group's direction and strengths.	• May produce unrepresented judgments. • No evaluation or critique of ideas is permitted.
Delphi Method	*Formal* • The process uses a survey to collect opinions of experts on the specific subject. • Participants may or may not have direct interaction. • Organizers collate and summarize responses. • This is an iterative process that moves toward convergence. • It can be useful when expert judgments are needed.	• Does not provide the opportunity for clarification of ideas or discussion. • The indefinite number of rounds can be time-consuming. • Experts' time, distance, and other factors may be a problem.

Governance/Organizational Structure

It is highly recommended that partnerships establish a structure that details which stakeholders will be involved in Cardiff Model implementation, including how new stakeholders will be able to join an existing or new partnership and what role the health agency will take in that partnership. Governance also outlines partners' specific responsibilities and the group's decision-making procedures, and identifies operations and processes to ensure that the group fulfills its implementation goals and objectives. Explore the possibilities of leveraging an existing governance structure or foundation from an established stakeholder group, partnership, or coalition within the community that could support the Cardiff Model implementation.

GOVERNANCE BODY RESPONSIBILITIES

- Data management and sharing (e.g., with healthcare partners, law enforcement, and the public health agency)
- Oversight
- Governance
- Decision-making
- Leadership
- Communications and dissemination

Figure 6 details a general governance structure that ASTHO feels will best support health agency capacity when exploring the Cardiff Model or other innovative technologies or public health practice models. This structure illustrates the key partners and architects of the community safety partnership and additional relevant contributors that should be considered as pre-implementation progresses.

FIGURE 6. ORGANIZATIONAL GOVERNANCE STRUCTURE

For example, establishing a data-sharing agreement between the healthcare partner and the public health agency first requires discussion within the community partnership. The agreement, which can also be instituted as a contractual arrangement between partners, should be drafted in consultation with health IT or informatics staff at the health agency and reviewed by each organization's contracts team or legal department before the organizations sign and execute it. Each of these partners may also have its own pre-existing relationships with other community partners that can be leveraged throughout the process or in the future when the partners implement the Cardiff Model.

Health agencies should continue to reference CDC's Cardiff Violence Prevention Model Readiness Checklist (see

Table 2) to help develop and maintain a strong Cardiff Model governance/organizational structure.[6]

TABLE 2. CDC CARDIFF MODEL TOOLKIT: READINESS CHECKLIST

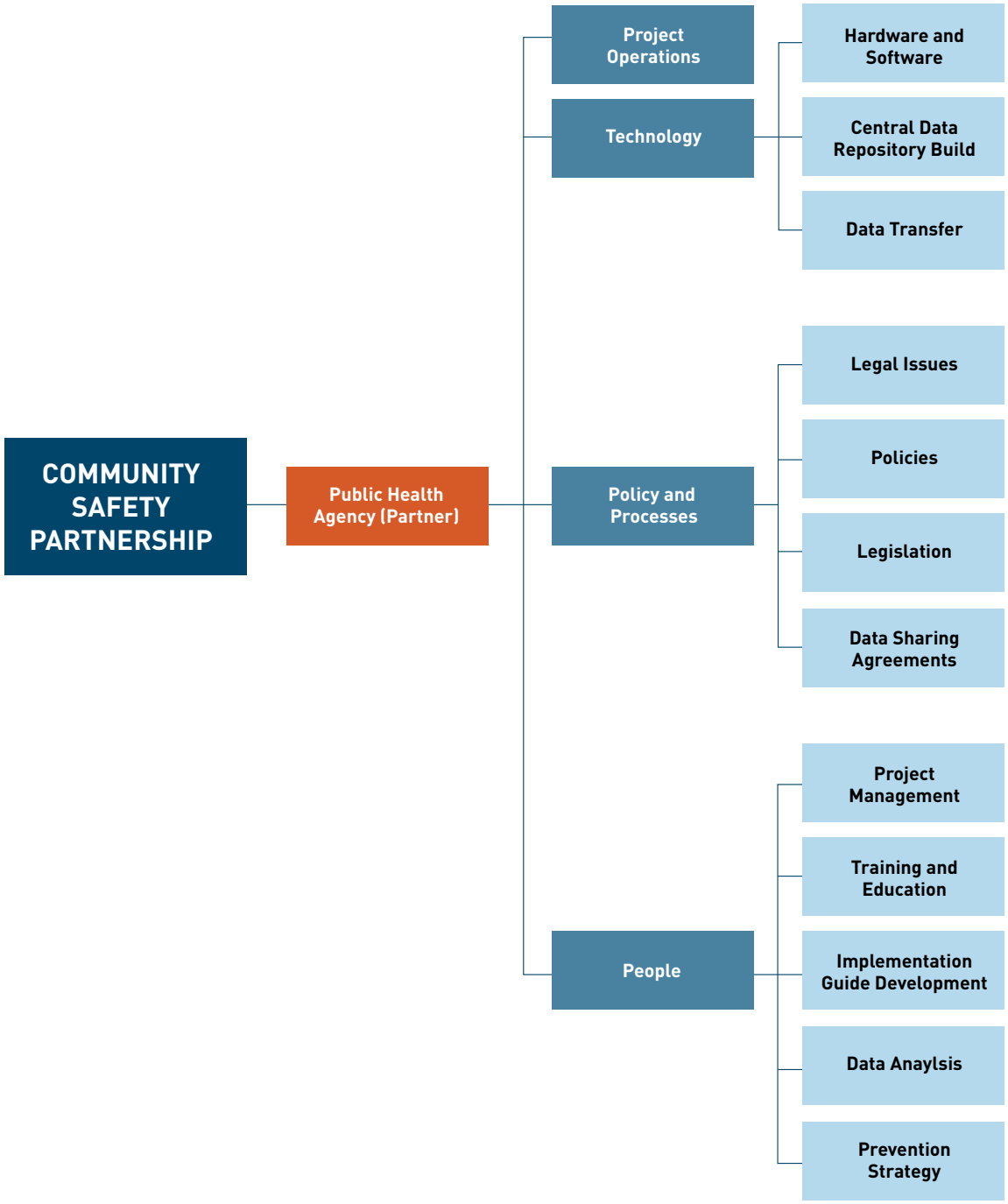
TOPIC: COMMUNITY SAFETY PARTNERSHIP READINESS	READINESS LEVEL		
TASK	Have Not Started	In Progress	Completed
Establish a Community Safety Partnership (CSP). Key partners should include law enforcement, a public health agency, and hospital(s). Other key partners may include other government agencies, universities, and other local community organizations.	☐	☐	☐
Establish where, when, and how often the CSP will meet.	☐	☐	☐
Determine the most useful violence information to be collected. Critical information includes the time, date, weapon used, and location of injury, but other information may also be useful to address specific needs.	☐	☐	☐
TOPIC: HOSPITAL READINESS	**READINESS LEVEL**		
TASK	Have Not Started	In Progress	Completed
Work with hospital leadership to obtain buy-in and support, especially among emergency department physicians, emergency department nurses, and trauma department staff (if applicable).	☐	☐	☐
Determine who can regularly attend CSP meetings as a hospital representative (there may be more than one individual).	☐	☐	☐
Establish the process with appropriate hospital staff to determine ability to integrate Cardiff Model injury information into the electronic health record (EHR) or planned record-keeping system.	☐	☐	☐
Work with hospital departments to: 1. Integrate the injury information data collection fields into the EHR/record-keeping system. 2. Identify and train appropriate hospital staff (e.g., nurses or registrars) to collect violence information. 3. Extract violence information at regular intervals—established by the partnership—and share that with an appropriate partner so they can combine data and create maps to share with the community safety partnership.	☐	☐	☐
Develop a communication plan for the hospital, which may include identifying a communication lead and developing internal and external communication materials.	☐	☐	☐
TOPIC: LAW ENFORCEMENT READINESS	**READINESS LEVEL**		
TASK	Have Not Started	In Progress	Completed
Work with law enforcement contacts to obtain buy in, especially from command staff/leadership and analysts.	☐	☐	☐
Determine who is able to regularly attend CSP meetings as a law enforcement representative (this may be more than one individual).	☐	☐	☐
Identify a process for information sharing and mapping, which may include: • Receiving hospital violence information. • Combining violence information with law enforcement records. • Creating maps with hospital violence information and law enforcement records and sharing these maps with the CSP.	☐	☐	☐
TOPIC: FINANCIAL, LEGAL, AND TECHNICAL READINESS	**READINESS LEVEL**		
TASK	Have Not Started	In Progress	Completed
Identify legal and regulatory considerations, including institutional review boards or institutional legal departments.	☐	☐	☐
Determine how data are shared and kept secure. Note: Sharing injury information from hospital records in accordance with the local legal and regulatory environment may require collaboration with the local or state public health department.	☐	☐	☐
Determine costs and whether these can be supported internally, or identify funding mechanisms.	☐	☐	☐

[6] Laura K, Steven S, Sara J, *et al.* "Cardiff Model Toolkit: Community Guidance for Violence Prevention." https://www.cdc.gov/violenceprevention/pdf/cardiffmodel/cardiff-toolkit508.pdf

Project Management at the Health Agency

The health agency may consider internally governing and managing the project through project management and securing adequate resources. However, a formal project management structure may not be appropriate or feasible for every health agency and may vary widely across translations. Generally, the health agency will manage the project with at least one full-time staff member who can work on partnerships and data cleaning, analysis, and visualization. Figure 7 illustrates a sample project management structure.

FIGURE 7. PUBLIC HEALTH AGENCY PROJECT MANAGEMENT STRUCTURE



PROJECT MANAGEMENT OVERVIEW		
PEOPLE	**PROCESS/POLICY**	**TECHNOLOGY**
• Who will provide leadership? • Who needs to be involved in the Cardiff Model? • Who will handle oversight, planning, and evaluation? • Who will ensure proper training and skills for implementation? • Who will outline and implement the model's prevention strategy?	• Ensure that the proper legal authority and data sharing agreements are in place. • Adopt big "P" and little "p" policy development (Association of Maternal and Child Health Programs [AMCHP]).	• Data aggregation and analytics. • Interoperability between different data files and systems or efficient data integration. • Data mapping and geocoding. • Developing a sustainable conceptual model for a central repository for shared data.

Securing Resources

CHECKLIST	
☐	Identify how you will secure resources through funding, contracts, and hiring skilled personnel.
☐	Develop a position description to hire the skilled staff needed.
☐	Engage national organizations and federal agency partners to build capacity and provide technical assistance.

How will you address resource and funding shortages?

What efforts will sustain the Cardiff Model replication or allow for expansion?

Mitigation Strategies

When additional resources are required, investigate the use of existing resources and consult with internal development experts. It may be necessary to identify and develop other resources and explore additional external funding. Alternative resources or strategies may include:

- Leveraging partnerships to combine or pool resources to adapt the Cardiff Model successfully.
- Working with universities and other academic institutions, including academic medical centers with common violence prevention interests (e.g., Emory University School of Medicine, MCW, Morehouse College).
- Identify grant funding or sponsors that could supplement program activities (e.g., VFWAC Department of Justice grant).

During ASTHO's virtual listening feedback sessions, stakeholders mentioned additional resources and strategies that future sites may want to consider leveraging to support their implementation:

- Leveraging a local comprehensive blueprint or strategy for eliminating/addressing violence.
- Getting the information and data around violence and injury onset, as well as law enforcement and healthcare response geocoded.
- Working with local health agencies or leveraging existing relationships with them.

Roles and Responsibilities

Below are examples of job descriptions and the associated skills and expertise appropriate for key personnel responsible for Cardiff Model implementation and support. Each partnership will manage its own process for distributing roles and responsibilities for programmatic sustainability, as this is often contingent on funding, and needs of each implementation site.

ROLE	SKILLS
Violence Prevention Coordinator	• Data collection • Database/repository maintenance • Ability to liaise with other partners • Ability to engage with community organizations • Ability to facilitate scholarship activities
Honest Data Broker	• Data integration • Data analysis • Ability to generate tools and data visualization • Technical expertise in mapping and geospatial analysis
Project Manager or Project Lead	• Experience with project management activities, contracts, and grants, etc. • Ability to facilitate CSP meetings • Ability to develop data sharing agreements

Identify Implementation Enablers and Barriers

Using implementation science principles to identify enablers and barriers can be useful when addressing current capacity and gaps. Contextual differences within communities can present both enablers and barriers to each adaptation. For example, not every health agency has the capability or staffing to act as the data repository or produce advanced analytics. In addition, relationships between law enforcement and local or state agencies may be inadequate to support model adaptation. CDC's Cardiff Violence Prevention Model Readiness Checklist (see Table 2) can help agencies identify their enablers and barriers to adopting and implementing the Cardiff Model. Below are some additional example categories of internal and external enablers and barriers that participating agencies should consider within the context of their Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis before implementing the Cardiff Model.

CHECKLIST	
☐	Identify internal and external enablers and barriers
☐	Conduct a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis

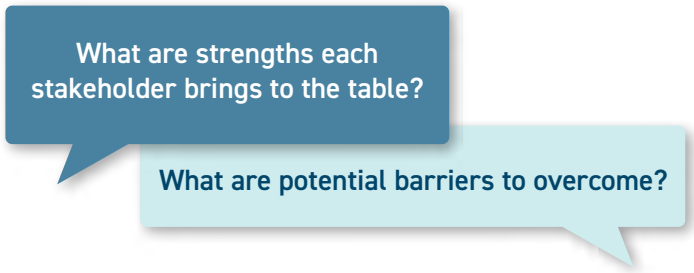
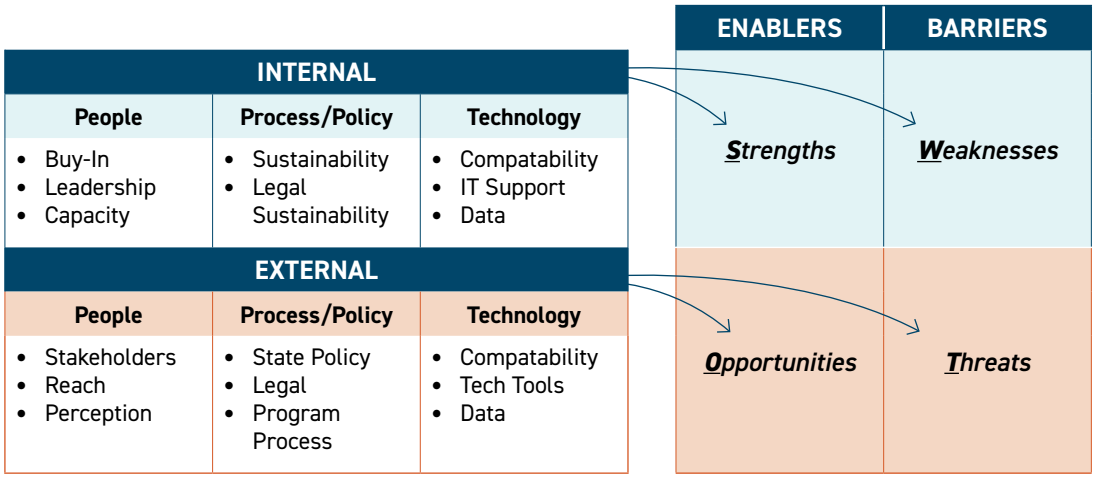


FIGURE 8. INTERNAL AND EXTERNAL BARRIERS AND SWOT TEMPLATES



CHECKLIST

- ☐ Determine the best method for hospital and law enforcement partners to share de-identified data to the "honest broker" or public health agency that does the geospatial coding and provides the analysis to the community.
- ☐ Assess capacity to house and/or build a central repository for shared data, following privacy and security policies.
- ☐ Assess capacity for data sharing and/or data partnership building.
- ☐ Assess internal staff and resource capacity to conduct the work (e.g., skilled staff)

What are each organization's policies or processes around data sharing and exchange?

How can we work together to share data?

Data Partnerships

Data stewardship and governance principles or policies give health agencies direction on when they can share data, who's responsible for the data (e.g., data stewards, data management), how the data will flow from one entity to another, and how data can be used. Health agencies should first examine their internal data stewardship and governance policies to determine the appropriate method for data sharing. Data sharing can occur within a health agency's organizational units, departments, programs, and information systems. Sharing can also occur externally with organizations or entities upon request, including with governmental entities such as local health departments and federal agencies.

Sharing involves healthcare partner screening data (not medical records) and law enforcement data (specifically, violent crime data). Within the context of the Cardiff Model, the health agency is forming a partnership with the healthcare partner/emergency department and the law enforcement partner to send and house deidentified violent injury data to the "honest broker" or public health agency that conducts the geospatial coding and provides the analysis to the community.

One mechanism by which a health agency can engage in a data partnership is through a legal data sharing agreement or memorandum of understanding. ASTHO has worked with state and territorial health agencies, partners at the Network for Public Health Law and Public Health Informatics Institute, and others to collect, analyze, and define common elements that are present in successful data-sharing arrangements. The following section broadly defines a data-sharing agreement for health information and the common elements and language to include in such an agreement.

Types of Data Sharing

DATA SHARING AGREEMENT

- A formal or informal agreement that includes language about data access, use, and disclosure.
- An agreement signed by applicable parties when disclosing identifiable health data or sharing a limited dataset to the public health agency, unless disclosing that data is mandated
- Types of sharing can include a single data source, multiple data sources from one entity to another, or multiple data sources from two or more entities to one entity, either in contract or as a memorandum of understanding.

Data use agreement

Memorandum of understanding

Data sharing agreement

Contract to share data

RELATED PUBLICATIONS

Cardiff Model Toolkit Community Guidance for Violence Prevention

HIPAA Privacy Rule – Disclosure of protected health information for Public Health Activities

An economic evaluation of anonymized information sharing in a partnership

DATA SHARING AGREEMENT ELEMENTS	SAMPLE LANGUAGE
Party, or parties with whom data will be shared or exchanged	• Data sharing agreement by and between [department, program, or entire health agency] and [legal entity name of the recipient of the data] establishes terms and conditions under which the recipient may access, use, and disclose the data described.... • The purpose of data sharing activities will be to....[describes general purpose or reasons for sharing data].
Time period and frequency of exchange	• Term and termination: This agreement shall be effective upon signing and remains in effect as long as recipient retains the data [or some specific time period].
Nature/type of data	• Department agrees to disclose the following data to the recipient...[Defines the types of data to be shared, including file format and a description of the data with data elements] • Personal information, health data, protected health information, confidential pesonal information, specific datasets.
Use of data	• Disclosure of health agency data: Recipient shall only access, use, or store data solely for.... [describes public health activities, research, or healthcare operations performed by Recipient] • Recipient may not combine non-identifiable data with other data sources without prior written approval.
Disclosure requirements to include cofidentiality, safegaurding and data protection	• Recipient shall implement and maintain administrative, technical, and physical safeguards necessary to protect confidentiality of data [include examples or define what safeguards are].
Breach of privacy (loss/ theft of data) and security obligations	• The health agency retains all ownership rights to the data. Recipient does not obtain any right, title, or interest in any data provided by the health agency.
Data ownership	• The health agency retains all ownership rights to the data. Recipient does not obtain any right, title, or interest in any data provided by the health agency.
Process of data disposal following end of agreement	• Within [#] days after effective date of termination, Recipient shall immediately return or destroy all [list types of data] and include what happens if destruction of data is not feasible.
Risk assesment and audit of data use	• Upon reasonable request by the health agency, the Recipient shall allow the agency to conduct an inspection of facilities, systems, books, records, agreements, and policies/procedures.
Agreement violation consequnces and penalties	• If Recipient is a governmental entity...[insert who holds liability].
Assurance that Recipient will obey state and federal data use and liability laws	• If the Recipient is a non-governmental entity, Recipient shall be fully liable for actions of its agents and employees, etc. from all claims, losses, suits, actions, damages...

LOOKING FORWARD AND SUSTAINABILITY

The Georgia Department of Public Health and the Medical College of Wisconsin, and their respective partners, have demonstrated how state and local public health agencies can successfully adopt and implement the Cardiff Violence Prevention Model within their communities. Both examples serve as strong use cases, as their strategy and experiences can be translated across other state and local health agencies, hospitals, law enforcement, and local partners looking to adopt the Cardiff Model to address, respond to, and reduce community violence and injury. Both Georgia Department of Public Health and the Medical College of Wisconsin have expressed the need for continued funding and support from public health to state and local health agencies to sustain and expand the Cardiff Model across the United States.

The Cardiff Model is currently in the implementation phase in Georgia and Wisconsin, and state and local sites require additional time to collect data and information to fully demonstrate the outcome and efficacy of implementing the model to reduce and respond to violence and injury cases. Consistent funding to pilot sites will allow advanced sites, such as Georgia Department of Public Health and Medical College of Wisconsin, to lead the implementation of the Cardiff Model across the United States and support adoption by other public health agencies by providing direct consultation and proper resources for successful implementation.

EVALUATING AND SHARING THE PRE-IMPLEMENTATION EXPERIENCE

Scholarship

The CSP in Atlanta engages in regular discussions around promoting scholarship and building the evidence base for the Cardiff Model. Each partner decides upon the appropriateness of the opportunity, including which partner would be the best lead for the activity and most appropriate to present as lead author on the submission. Activities include:

- Abstract and poster submissions for national, regional, and local conferences.
- Technical workshops.
- Presentation and lecture panels.
- Journal articles.
- Ongoing research and analysis, such as cost-effectiveness and implementation science.

Dissemination

Implementation sites have been involved in sharing their Cardiff implementation process and progress in conference sessions, journal articles, poster presentations, presentations or panels, research grant/projects, and published abstracts. The table below lists a few Cardiff Model dissemination efforts that occurred between 2015-2022

TITLE	RESOURCE TYPE	YEAR
"Preventing Violence Through Cross-Sectoral Data Sharing and Implementation for the Cardiff Violence Prevention Model in the U.S." American Public Health Association Annual Meeting, San Francisco, CA.	Conference Session	(Oct.) 2020
"Replication of the Cardiff Violence Prevention Model: A Cross-Sectoral Partnership between Hospitals, Law Enforcement, Public Health and the Community." Safe States Annual Conference, Atlanta, GA.	Conference Session	2019
"Data-Driven Collaborations: Hospitals and Law Enforcement." Association for Community Health Improvement National Conference, Atlanta, GA.	Conference Session	2018
"Data for Violence Prevention: Atlanta Replication of the Cardiff Model for Violence Prevention." All-In National Conference, Denver, CO.	Conference Session	2018
"Atlanta Replication of the Cardiff Violence Prevention Model." Alliance for Health Equity Conference, Atlanta, GA.	Conference Session	2018
"Violence as a community priority: Illustrating the feasibility of cross-sectoral collaboration through the replication of the Cardiff Violence Prevention Model." American Public Health Association Annual Conference, Atlanta, GA.	Conference Session	2017
Nguyen P, Kohlbeck S, Levas M, et al. "Implementation and Initial Analysis of Population Health Data Collection on Violence in the Emergency Department Setting." *BMJ Open.* 2022. 12:e052344. doi: 10.1136/bmjopen-2021-052344.	Journal Article	2022
Kohlbeck S, Levas M, Hernandez-Meier J, et al. "Implementing the Cardiff Model for violence prevention: using the diffusion of innovation theory to understand facilitators and barriers to implementation." *Inj Prev.* 2021. doi: 10.1136/injuryprev-2020-044105	Journal Article	2021
Wu DT, Moore JC, Bowen DA, et al. "Proportion of Violent Injuries Unreported to Law Enforcement." *JAMA Intern Med.* 2019. 179(1):111-112. doi: 10.1001/jamainternmed.2018.5139	Journal Article	2019
Bowen DA, Kollar LMM, Wu DT, et al. "Ability of crime, demographic and business data to forecast areas of increased violence." *Int J Inj Contr Saf Promot.* 2018. 25(4):443-448. doi: 10.1080/17457300.2018.1467461	Journal Article	2018
Levas MN, Hernandez-Meier J, Piotrowski N, et al. "Integrating population health data on violence into the emergency department: A feasibility and implementation study." *J Trauma Nurs.* 2018. 25(3):149-158. doi: 10.1097/JTN.0000000000000361	Journal Article	2018
Jacoby SF, Kollar LMM, Ridgeway G, et al. "Health system and law enforcement synergies for injury surveillance, control and prevention: a scoping review." *Inj Prev.* 2018. 24:305-311. doi: 10.1136/injuryprev-2017-042416	Journal Article	2017
Shepherd JP, Sumner SA. "Policing and Public Health—Strategies for Collaboration." *JAMA.* 2017. 317(15):1525-1526. doi:10.1001/jama.2017.1854	Journal Article	2017
"Innovative Partnerships for Prevention: A Local Implementation of the Cardiff Violence Prevention Model." State of the Public's Health Conference, Athens, GA.	Journal Article	2016

"A scoping review of the evidence for health system and law enforcement collaboration in injury surveillance, control and prevention." Society for Advancement of Violence and Injury Research Conference, Ann Arbor, MI.	Poster Presentation	2019

TITLE	RESOURCE TYPE	YEAR
"Hospital Implementation of the Cardiff Violence Prevention Model." Trauma Center Association of America Annual Conference, Myrtle Beach, SC.	Poster Presentation	2017
Hospital Implementation of the Cardiff Violence Prevention Model. Trauma Center Association of America Annual Conference, Myrtle Beach, SC.	Poster Presentation	2017
"Building capacity for injury prevention: A process evaluation of a replication of the Cardiff Violence Prevention Program in the Southeastern United States." American Public Health Association Annual Conference, Atlanta, GA.	Poster Presentation	2017
"The Cardiff Model: Public Health, Community and Law Enforcement Partnerships to Prevent Interpersonal Violence." The Sixth International Conference on Law Enforcement and Public Health, Philadelphia, PA.	Presentation or Panel	2021
"Epidemiology and Criminology with Cardiff: A Public Health and Law Enforcement Partnership." International Association of Chiefs of Police Annual Conference. (Workshop, recorded due to COVID-19.)	Presentation or Panel	2021
"The Cardiff Model for Violence and Opioid Prevention." 28th Annual Wisconsin Emergency Medicine Research Forum, Madison, WI. (Due to a COVID-19-related conference cancellation, this peer-reviewed abstract was deferred for presentation at the 2020 Great Plains Regional Society for Academic Emergency Medicine Symposium, Milwaukee, WI.)	Presentation or Panel	2020
"Atlanta Replication of the Cardiff Model for Violence Prevention." Neighborhood Planning Unit-V Community Safety Advisory Council, Atlanta, GA.	Presentation or Panel	2020
"Violence Prevention." Atlanta Delegation Special Session, Atlanta, GA.	Presentation Panel	2019
"Partnership for Violence Prevention: Law Enforcement and Healthcare." Project Safe Neighborhoods, Kansas City, MO.	Presentation or Panel	2019
"Major Assessment Models: Atlanta Replication of the Cardiff Model for Violence Prevention." Emory Rollins School of Public Health Guest Lecture, Atlanta, GA.	Presentation or Panel	2018
"Cardiff Violence Prevention Model." Presented at a Strategies for Policing Innovation Meeting for Bureau of Justice Assistance Smart Policing Initiative (SPI) grantees in Washington, D.C.	Presentation or Panel	2018
"Hospital Participation in Community Violence Prevention." San Diego, CA.	Presentation Panel	2017
"Hospital Participation in Community Violence Prevention: Potential of the Cardiff Model." Nashville, TN.	Presentation or Panel	2017
"The Cardiff Model for Violence Prevention." Invited presentation at the meeting of the Dane County Criminal Justice Council, Madison, WI.	Presentation or Panel	2017
"Integrating data to reduce violence." Part of the educational seminar *Sharing Data for Violence Prevention: Lessons from Milwaukee*, hosted by the Strengthening Chicago's Youth Violence Landscape Project and sponsored by the Joyce Foundation. Ann & Robert H. Lurie Children's Hospital of Chicago, Chicago, IL.	Presentation or Panel	2017
"The Cardiff Model for Violence Prevention." Sponsored by the Joyce Foundation. Ann & Robert H. Lurie Children's Hospital of Chicago, Chicago, IL	Presentation Panel	2016

"The Cardiff Model: Building Capacity for Enhanced Law Enforcement, Health Care and Public Health Surveillance System to Address Violence." International Association of Crime Analysts Training Conference, Louisville, KY.	Presentation or Panel	2016
TITLE	***RESOURCE TYPE***	***YEAR***
The Cardiff Model: Building capacity for enhanced law enforcement, health care and public health surveillance system to address violence. Delivered at the 2016 International Association of Crime Analysts Training Conference, Louisville, KY.	Presentation or Panel	2016
"Integrating hospital and police data to reduce violence." Poster presented at the 24th Annual Emergency Medicine Research Forum, sponsored by the Department of Emergency Medicine, Medical College of Wisconsin, Milwaukee, WI.	Presentation or Panel	2016
"The Cardiff Model: Building Capacity for Enhanced Law Enforcement, Health Care and Public Health Surveillance System to Address Violence." Delivered at the 2016 International Association of Crime Analysts Training Conference, Louisville, KY.	Presentation or Panel	2016
"Reducing violence through the integration of hospital and police data." 2016 National Conference and Exhibition of the American Academy of Pediatrics, San Francisco, CA.	Presentation or Panel	2016
"Linking data from multi-sector partnerships for a comprehensive investigation of firearm possession policies: Benefits and challenges." 143rd Annual Meeting and Exposition of the American Public Health Association, Chicago, IL.	Presentation Panel	2015
"Linking data from multi-sector partnerships to comprehensively investigate firearm possession policies." Research seminar for the Clinical & Translational Science Institute of Southeast Wisconsin, Medical College of Wisconsin, Milwaukee, WI.	Presentation or Panel	2015
"The Cardiff Model: Partnerships to Address Opioid Abuse and Violence." West Allis Health Department, West Allis, WI.	Research Grant/ Projects	2018-2022
The Cardiff Model: Public Health Information-Sharing Partnerships to Address Violence. The Medical College of Wisconsin, Milwaukee, WI.	Research Grant/ Projects	2016-2019
The Cardiff Model: Building Capacity for Law Enforcement-Public Health Partnerships to Address Violence. The Medical College of Wisconsin, Milwaukee, WI.	Research Grant/ Projects	2016-2018
Integrating Emergency Department Data with Law Enforcement. The Medical College of Wisconsin, Milwaukee, WI.	Research Grant/ Projects	2015-2017
Hernandez-Meier JL, Xu Z, Kohlbeck S, et al. "Enhancing violence surveillance: The contribution of pediatric emergency department and paramedic assault incidents to police administrative data." *Inj Prev*. 2017. 23(Suppl 1), A11-A12.	Published Abstracts	2017

APPENDIX A: GUIDE DEVELOPMENT METHODS

ASTHO compiled multiple information sources that informed its guidance regarding promising practices for pre-implementation of the Cardiff Model. These resources include success factors and barriers recorded from observations during United States Injury Prevention Partnership (USIPP) Community Safety Partnership (CSP) meetings that took place from November 2018 to July 2019, sample templates, virtual listening feedback sessions with stakeholders around the U.S. who adapted the Cardiff Model, and evidence-informed strategies to build capacity for data and community safety partnerships.

Since 2019, ASTHO has consulted with and reviewed the guide with various Cardiff Model adaptation sites and their partners. Each partner then had several weeks to review and provide input on the guide. ASTHO also hosted specific virtual listening and feedback sessions. The process included:

- A kick-off session to discuss goals, the information ASTHO was seeking, and what guidance ASTHO was crafting for health agencies.
- Subsequent sessions that were divided into specific topic areas based on the kick-off meeting and which outlined information needs.
- Time set aside for partners to review the materials developed.

The sessions would then inform CDC's updates to the Cardiff Model Toolkit, and content generated from the sessions could be repurposed and shared through ASTHO's dissemination channels to health agencies interested in Cardiff Model.

Virtual listening session participating sites and stakeholders included:

- Medical College of Wisconsin
- Georgia Department of Public Health
- Milwaukee Police Department
- Milwaukee County Office of Emergency Management
- West Allis Health Department
- Children's Hospital of Wisconsin

ASTHO leveraged evidence-based principles of implementation science, including internal and external barriers, to inform the observational and thematic analysis it conducted on the information sources collected from stakeholders, interviews, and partnership meeting minutes. The material compiled within this guide reflects the experiences of one state health agency and one local health agency as they prepared to implement the Cardiff Model. Processes may undergo additional refinement after evaluation of costs, time, and effectiveness in meeting the goals outlined by USIPP and in consulting with other pilot sites across the United States.

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DATA AND INFORMATION SOURCES

- Interviews with other adaptation sites (e.g., MCW).
- Partnership meeting minutes.
- Observational analysis.
- Published research.
- Document review, including historical documents, contracts, position descriptions, training materials, and toolkits.

USES

- Pilot site experiences, to include enablers and barriers.
- Building the evidence-base for the Cardiff Violence Prevention Model.
- Developing resources and checklists for health agencies.
- Outlining contextual modifications for successful adaptation.

APPENDIX B: ENABLERS AND BARRIERS

Below are examples **of internal and external enablers and barriers all partner agencies** should consider when assessing capacity prior to the implementation of the Cardiff Model.

INTERNAL ENABLERS	INTERNAL BARRIERS
PEOPLE	**PEOPLE**
BUY-IN • Helpful and supportive office of trauma. • Executive leadership support. • Ability to utilize a hospital's chief medical information officer as a project officer. • Ability to coordinate with the existing state/territory injury prevention program, ensuring they support the adoption of the Cardiff Model for a violence prevention strategy. • Police department buy-in to expand to other hospitals, especially children's hospitals. • Interest and alignment with organizational mission, vision, and goals. **RESOURCES** • Hospital staff and resources already dedicated to similar projects. • Other available qualified/interested staff. • Academic hospitals (potential partner) that can engage several schools to conduct research.	**LEADERSHIP** • Difficulty maintaining leadership buy-in. • Elections/state-level administration changes for all state agency leadership. • Turnover and a lack of champions to lead the implementation. **STAFFING** • Time available. • Staff turnover. • Hospital staff time. • Appropriate staff capacity. • Hiring, retaining, and training employees (which can take 45-60 days). **CAPACITY** • Resources for screening. • Financial resources and an internal commitment to implement.
TECHNOLOGY	**TECHNOLOGY**
IT SUPPORT • The hospital system has IT support to integrate the Cardiff screening tool into the electronic health record system. • Compatible Electronic Health Record System • The hospital's electronic health record system is compatible with the Cardiff screening tool. • It's easy to use the Cardiff screening tool within the hospital system's electronic health record and to train others to input data.	**IT SUPPORT** • IT support needed to implement the Cardiff screening tool into an electronic health record system. • If hospitals can't integrate Cardiff questions into the electronic health record, some sites may opt to collect information in other ways. **DATA** • Difficulty collecting data across departments (e.g., Emergency Care Center (ECC) vs. trauma). • Difficulty combining multiple data sources. • Complex data sharing requirements. • Low quality or incomplete data. • Discordant data definitions. • Data quality control and maintenance of standards.
PROCESS/ POLICY	**PROCESS POLICY**
LEGAL • Sustainable program processes through hospital's leadership and strategy. • Sustainability establishes the hospital system as a model and facilitates knowledge transfer to other hospital/medical facilities.	**LEGAL** • The public health agency's legal interpretation of the requirements to receive and disseminate data. • HIPAA compliance, including for data sharing. • The public health agency's process regarding contracting for data-sharing agreements. **TIME** • Contracts and procurements processing time. • Sustainability • Scope creep. • Processes and technology build required.

EXTERNAL ENABLERS	EXTERNAL BARRIERS
PEOPLE	**PEOPLE**
STAKEHOLDER RELATIONSHIPS • Established relationships between participating stakeholders and a will to work together. • The ability to secure initial external participation and funding to help boost morale/support. • Interest from the International Association of Chiefs of Police. **REACH** • Many trauma centers within the state/territory. • Interest from Level I and Level II trauma centers, which see the majority of violence-related injuries.	**STAKEHOLDER RELATIONSHIPS** • A need to identify and engage others (e.g., hospitals, police departments, community stakeholders). • A need to get all partners on board with a will to work together. • Partnership goals/objectives are still in the process of being developed while onboarding new partners. • Need to establish who is on the prevention board and how to engage them. **OVERCOMING PERCEPTIONS** • Stigma with patients providing accurate locations (fear of potential repercussions). • Overcoming public perception of working with police. **STAFF PARTICIPATION** • A need to identify program champions and advocates. • Fear of overwhelming hospital and/or police department staff. • Lack of staff commitment to implement and/or work with other partners. • Loss of external contacts and knowledge base and sustaining the partnership if/when key people leave.
TECHNOLOGY	**TECHNOLOGY**
TECHNOLOGY TOOLS • Low barrier to entry, as tools are not proprietary and do not require specific expertise (e.g., GIS, R). • Software and data file options (e.g., Excel, Shapefiles).	**DATA** • Incomplete information from hospitals. • Publicly available crime data may not be uniform. **COMPATIBLE ELECTRONIC HEALTH RECORD SYSTEM** • Not all groups use the same electronic health record system.
PROCESS/ POLICY	**PROCESS POLICY**
LEGAL • Established legal framework. **STATE POLICY** • Political will. **PROCESS** • Trauma center-verified injury prevention program implementation. • The model meets a trauma center's requirements for research.	**LEGAL** • A need to find out which data sharing agreements are required. • A need to work out differences in reporting mechanisms. • The time needed to negotiate/sign a legal agreement that meets HIPAA requirements. **STATE POLICY** • Lack of political will. • A situation where the state dictates data codifications. • A need to explain the program's return on investment.