

Youth Firearm Intentional Violence – Its Burden, Disparities, Complexity of Causes, and What We Can Do MUSC Turning the Tide Violence Intervention Program (TTVIP)

Ashley Hink, MD, MPH

Associate Professor Surgery, MUSC Department of Surgery
Medical Director, MUSC Turning the Tide Violence Intervention Program (TTVIP)

hink@musc.edu

TTVIP

Christa Green, Keith Smalls, Cat Yetman, Chantelle Mitchell, Beverly Crittendon

Why I Care About Victims of Violence

- I am a trauma & critical care surgeon and I love providing surgical, intensive care, and recovery for trauma patients.
- Violence is a leading cause of death in the U.S.
- Lives are changed in an instant.
- Victims of violence are disproportionately disenfranchised in society.
- Victims often have unmet health needs.
- They deserve to be treated with the same dignity and compassion that we give all our patients (and often are not).
- We interact with them at a time that is pivotal – ***we can help them change their lives, break cycles of trauma and promote recovery.***

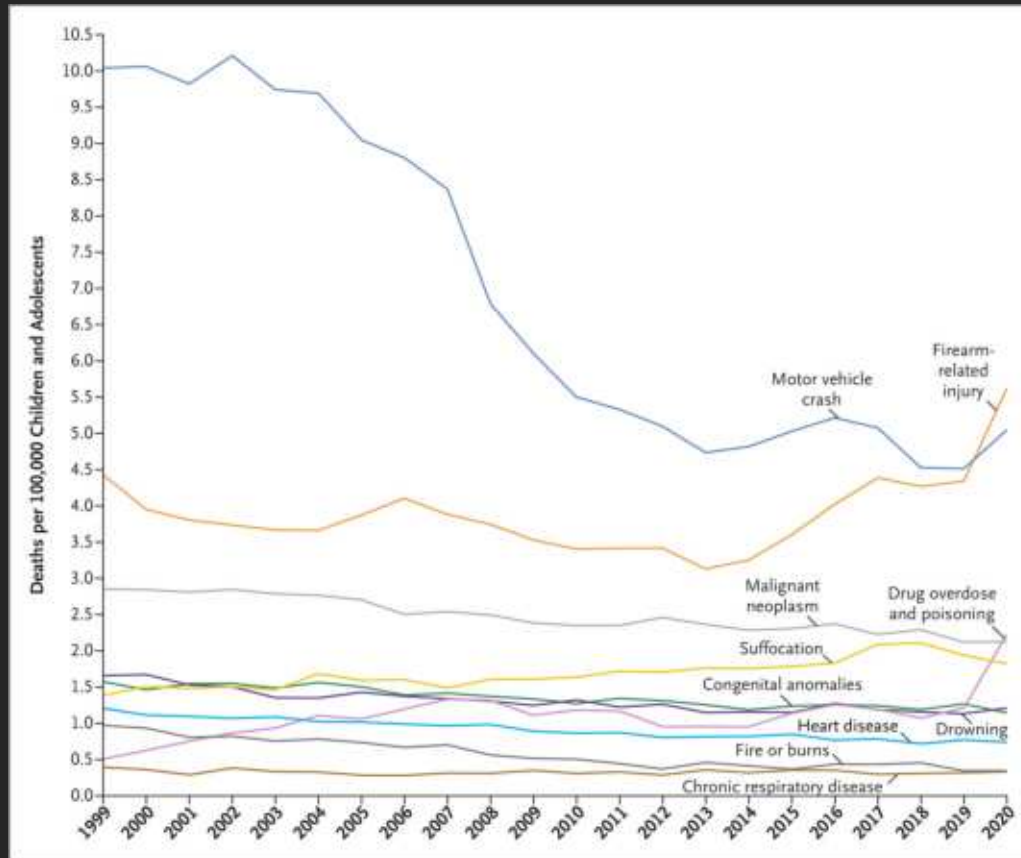
Meet *AJ

- AJ is a 16 yo male presenting for a well-child visit after not having one in the past 2 years. Was seen in the ED 1 year ago for minor injuries from a “fight at school”
- PMH: Asthma, ADHD
- PSH: Lives with grandmother, suspended from school, occasional ETOH abuse, marijuana use
- Denies depression, grandmother denies firearm access in home

10 Leading Causes of Death by Age Group, United States

2018, Both sexes, All ages, All races

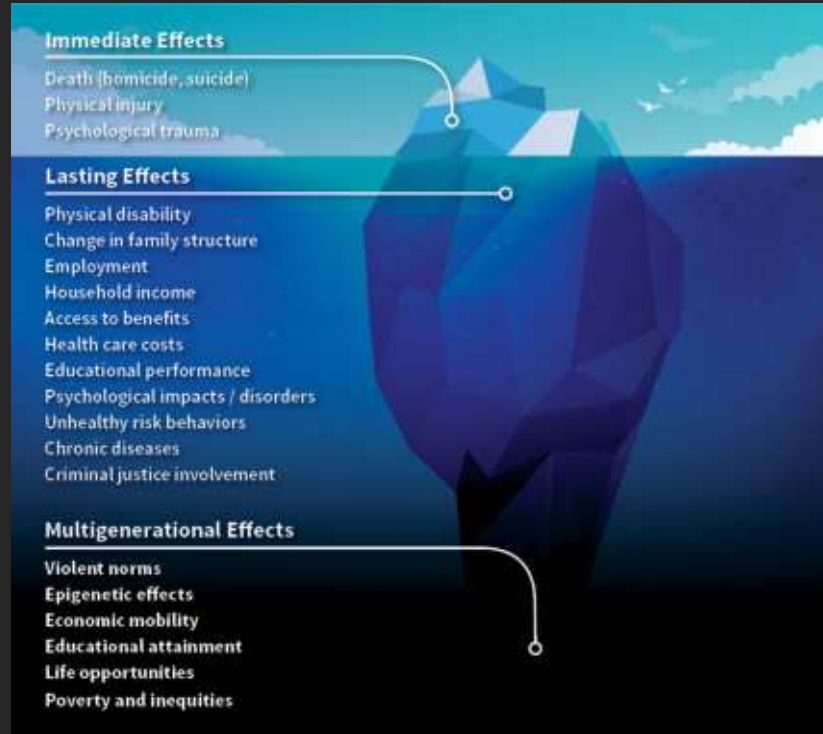
	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	All Ages
1	Congenital Anomalies 4,473	Unintentional Injury 1,226	Unintentional Injury 734	Unintentional Injury 692	Unintentional Injury 12,044	Unintentional Injury 24,614	Unintentional Injury 22,667	Malignant Neoplasms 37,301	Malignant Neoplasms 113,947	Heart Disease 526,509	Heart Disease 655,381
2	Short Gestation 3,679	Congenital Anomalies 384	Malignant Neoplasms 393	Suicide 596	Suicide 6,211	Suicide 8,020	Malignant Neoplasms 10,640	Heart Disease 32,220	Heart Disease 81,042	Malignant Neoplasms 431,102	Malignant Neoplasms 599,274
3	Maternal Pregnancy Comp. 1,358	Homicide 353	Congenital Anomalies 201	Malignant Neoplasms 450	Homicide 4,607	Homicide 5,234	Heart Disease 10,532	Unintentional Injury 23,056	Unintentional Injury 23,693	Chronic Low. Respiratory Disease 135,560	Unintentional Injury 167,127
4	SIDS 1,334	Malignant Neoplasms 326	Homicide 121	Congenital Anomalies 172	Malignant Neoplasms 1,371	Malignant Neoplasms 3,684	Suicide 7,521	Suicide 8,345	Chronic Low. Respiratory Disease 18,804	Cerebrovascular 127,244	Chronic Low. Respiratory Disease 159,486
5	Unintentional Injury 1,168	Influenza & Pneumonia 122	Influenza & Pneumonia 71	Homicide 168	Heart Disease 905	Heart Disease 3,561	Homicide 3,304	Liver Disease 8,157	Diabetes Mellitus 14,941	Alzheimer's Disease 120,658	Cerebrovascular 147,810
6	Placenta Cord Membranes 724	Heart Disease 115	Chronic Low. Respiratory Disease & Heart Disease 68	Heart Disease 101	Congenital Anomalies 354	Liver Disease 1,008	Liver Disease 3,108	Diabetes Mellitus 6,414	Liver Disease 13,945	Diabetes Mellitus 60,182	Alzheimer's Disease 122,019
7	Bacterial Sepsis 579	Perinatal Period 62	Heart Disease 68	Chronic Low. Respiratory Disease 64	Diabetes Mellitus 246	Diabetes Mellitus 837	Diabetes Mellitus 2,282	Cerebrovascular 5,128	Cerebrovascular 12,789	Unintentional Injury 57,213	Diabetes Mellitus 84,946
8	Circulatory System Disease 428	Septicemia 54	Cerebrovascular & Septicemia 34	Cerebrovascular 54	Influenza & Pneumonia 200	Cerebrovascular 567	Cerebrovascular 1,704	Chronic Low. Respiratory Disease 3,807	Suicide 8,540	Influenza & Pneumonia 48,888	Influenza & Pneumonia 59,120
9	Respiratory Distress 390	Chronic Low. Respiratory Disease 50	Chronic Low. Respiratory Disease 50	Influenza & Pneumonia 51	Chronic Low. Respiratory Disease 165	HIV 482	Influenza & Pneumonia 956	Septicemia 2,380	Septicemia 5,956	Nephritis 42,232	Nephritis 51,386
10	Neonatal Hemorrhage 375	Cerebrovascular 43	Benign Neoplasms 19**	Benign Neoplasms 30	Complicated Pregnancy 151	Influenza & Pneumonia 457	Septicemia 829	Influenza & Pneumonia 2,339	Influenza & Pneumonia 5,858	Parkinson's Disease 32,988	Suicide 48,344



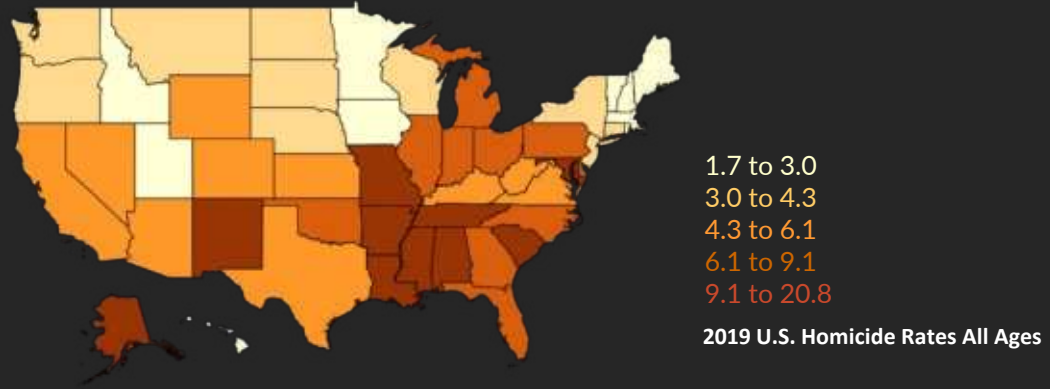
Leading Causes of Death for Children and Adolescents, 1999-2020
NEJM, 2022

Outcomes of Experiencing Firearm Violence

For every firearm assault that ends in homicide, another *4-5 individuals survive....*



Violence-Related Deaths... Significant Burden to S.C. Children, Minorities



4th highest homicide rate in U.S. ages <1 – 18 (4.8 per 100k)

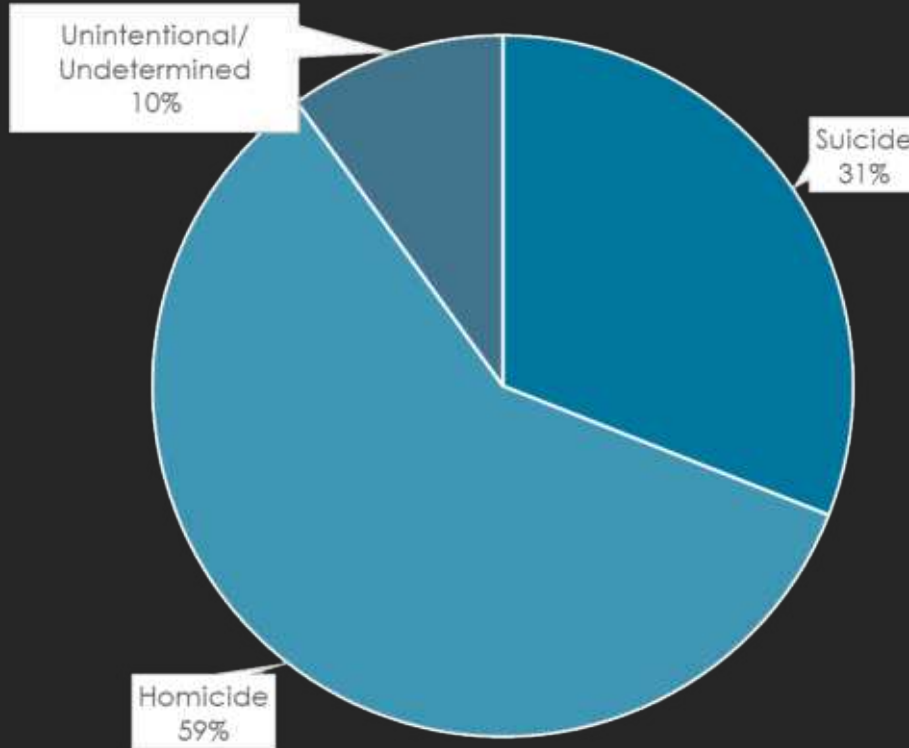
80% of S.C. pediatric homicides are committed with firearms, **98%** ages 15-19

Homicide rates in S.C. have increased 50% between 2017 and 2020

Homicide is the leading cause of death in S.C. for Black male youth – 5.7x more likely to die from homicide compared to white males at a rate of 23 per 100,000k

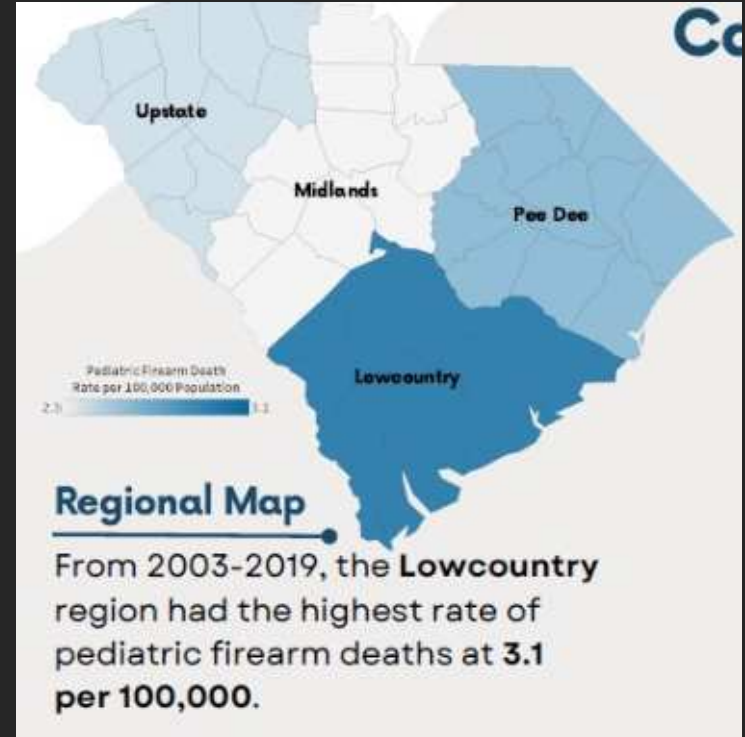
Firearm injuries are now the **LEADING cause of death for children and teens in SC - mostly due to assault**

Pediatric Firearm Death by Intent, SC



Lowcountry / Tri-County Area

- In the tri-county area, Charleston county comprises nearly 2/3 of pediatric firearm deaths
- 2/3 of all pediatric firearm deaths in tri-county are **homicides**
- Black children experience firearm death at a rate 42% higher than white children



Childhood Firearm Injuries in the United States

Katherine A. Fowler, PhD,^a Linda L. Dahlberg, PhD,^a Tadesse Haileyesus, MS,^b Carmen Gutierrez, MA,^c Sarah Bacon, PhD^d

- Firearm homicides ages 0-12
 - 85% occurred in the home
 - 70% involved perpetrator >25
 - 50% had multiple victims
 - 42% the perpetrator committed suicide
 - Significantly more likely to involve IPV
- Most teenage firearm homicide is peer-on-peer community and interpersonal violence

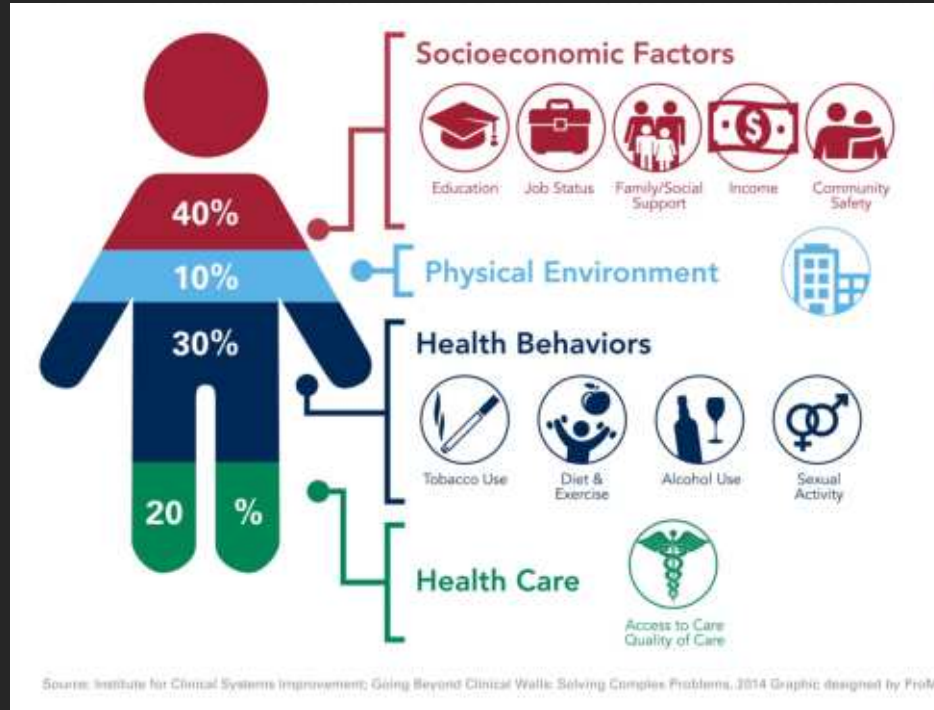
What are *Associations* and *Risks* of Experiencing Violence?

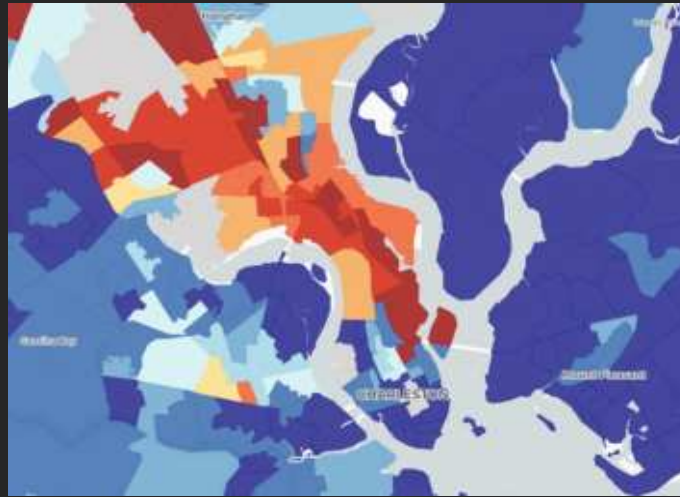
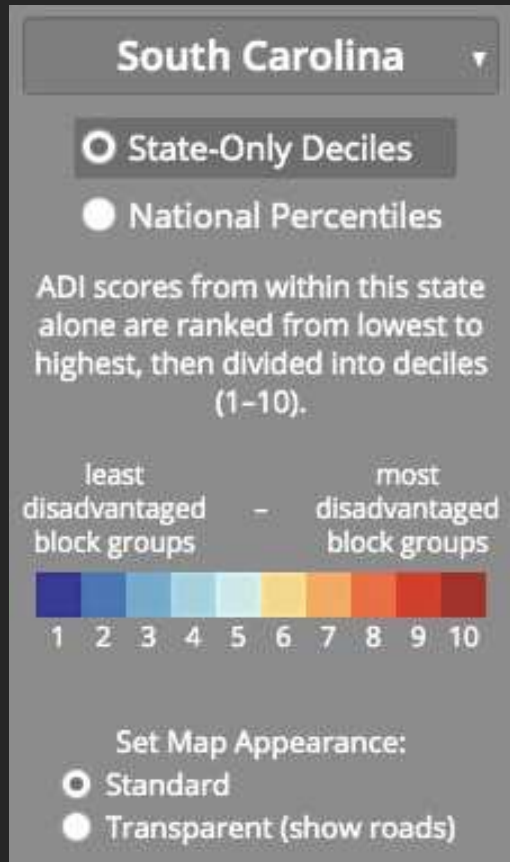
Homicides & Assaults

- Young (<30)
- Male, Black, Hispanic
- Previous assaults
- Norms, witnessing violence
- Urban areas
- Prior arrests
- Adverse child experiences
- Neglected urban space
- Single-parent homes
- Illegal firearm carrying
- Intimate partner violence
- Poor social, economic mobility and social capital
- Community crime
- Neighborhood disparity
- PTSD, Depression
- Alcohol Abuse
- Access to firearms
- Poverty
- Unemployment
- Residing in state with weak firearm restriction laws
- Older (>60)
- Male, White
- Life stressors
- Military service
- Medical illness
- Rural areas
- Recent suicides in community

Suicides & Suicide Attempts

Social Determinants...





Area Deprivation Index

Income, education, housing quality and
employment

[https://www.neighborhoodatlas.medicine.wisc.edu
/#about-anchor](https://www.neighborhoodatlas.medicine.wisc.edu/#about-anchor)

Reducing Violence = Understanding and Addressing it as a Public Health Problem – Application of the Social Ecological Model

Individual

- Demographics
- Acceptance of violence
- Conflict resolution
- Substance abuse
- Poverty
- Employment
- Mental illness
- Firearm access
- Firearm safety & storage

Interpersonal

- Family violence, dysfunction
- Lack of support
- Exposure to violence
- Past abuse
- Reinforcement vs. discouragement in social circles
- Cultural norms

Organizational

- Supportive & protective institutions
- Access to substance abuse, mental health care
- Employment opportunity
- Prevention efforts

Community

- Community violence
- Levels of poverty, inequality
- Economic opportunity
- Policing strategies
- Neighborhood characteristics
- Access to illegal weapons

Policy

- Prosecution of crime, penalties
- Firearm and crime laws
- Housing, economic, health, employment policy
- Funding for violence prevention



Hospitals Are Trying To Do What Politicians Haven't: Stop Gun Violence

Not content to simply patch up injuries, hospital-based violence intervention programs around the U.S. are helping to change the lives of survivors.

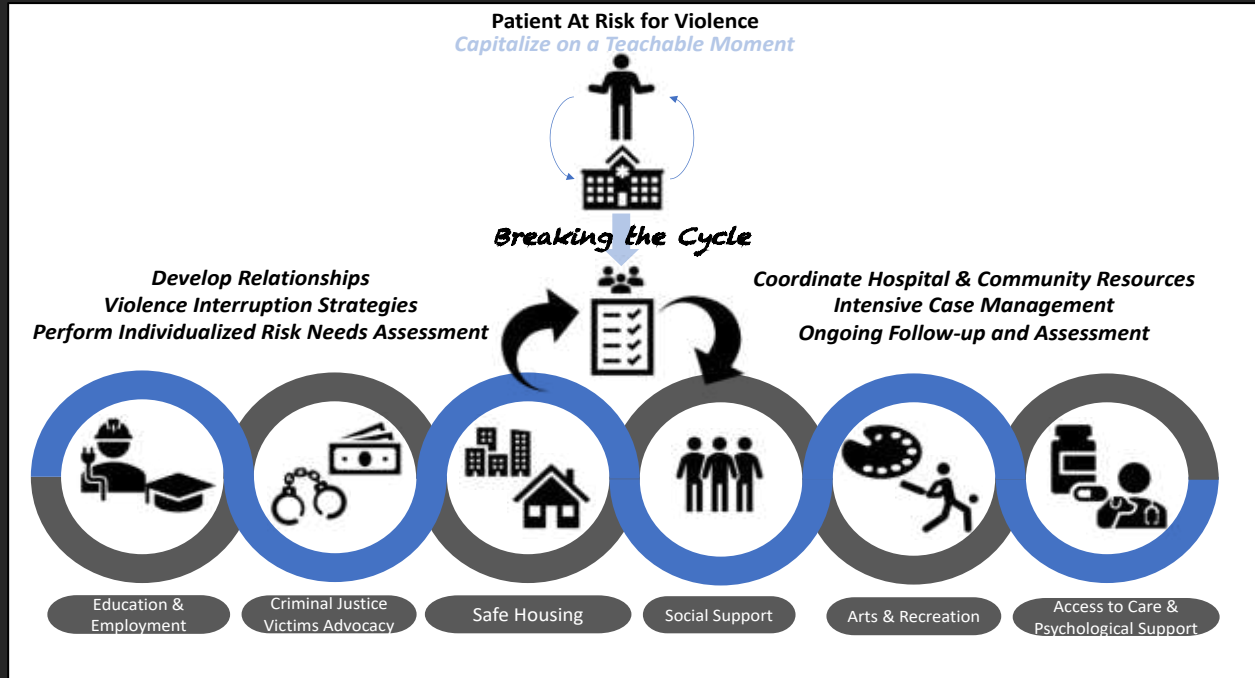
By Nick Wing | 11/23/2018 02:13 pm ET

Huffington Post

What is a Hospital Based Violence Intervention Program?

An integrated healthcare and community violence prevention & intervention program for patients and their families that aims to prevent and reduce violent injuries and improve outcomes after violent injury.

Model of the MUSC Turning the Tide Violence Intervention Program (TTVIP)



Reduction in violent injury recidivism and community violence
Improving receipt of services and outcomes after violent injury
Improved community outreach and empowerment to reduce violence

Who do We Serve?

- Data, evidence and resource driven...
 - Who is most at risk? Who is most likely to benefit? Who wants and is open for assistance and change?
 - How many GSW assault patients seen from tri-county area? How many can we support with 3 advocates with 50% enrollment (25 cases per year each)?
- Focus for wraparound services: Patients ages 12-30 admitted with a GSW assault injury from the tri-county area
- We consider special inclusion of others based on need and risks
 - *Example:*
 - *14 yo shoots himself in the foot while carrying a concealed firearm – high risk!*
 - *15 yo presents to ED after getting in school fight, found to have family stress, declining grades, truancy, friend recently shot – high risk!*

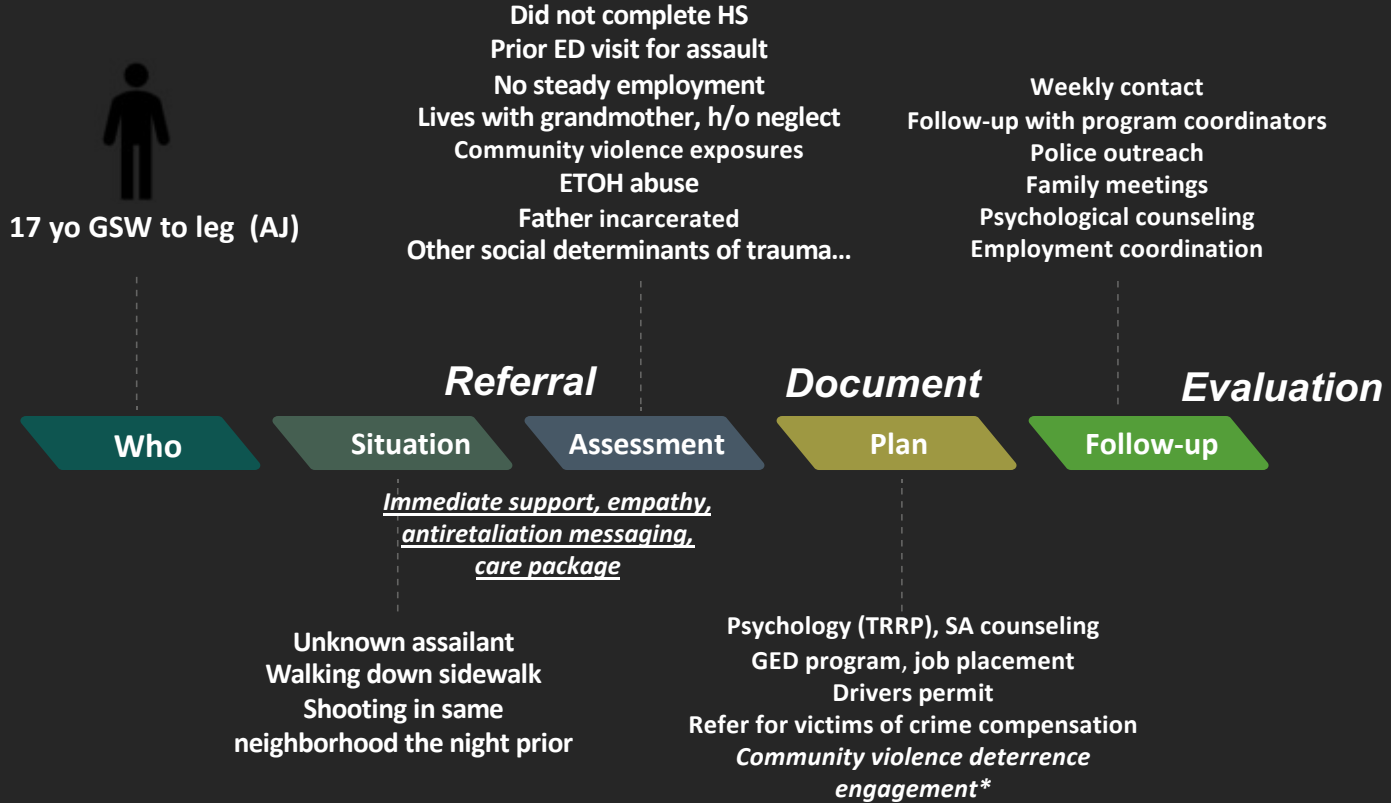
How do we Identify Patients – Integrate into System!

- On-call team member 24/7
- Paging system, work phone
 - Trauma pages
 - Referrals

A screenshot of the SIMONWeb web application. The interface includes a top navigation bar with the MUSC logo and "SIMONWeb" text. Below this is a tabbed menu with options: "On Call", "Paging", "Personal Profile", and "MUSC Call Center Home Page". A secondary menu includes "Today", "Search", "Block Assignment", "Scheduler Assignment", "Calendar Assignment", "History", and "Quick View". The "Search" tab is active, showing "Enter Search Criteria" with fields for Group Name (containing "violence"), Group ID, Person Name, Start Date (30 July 2021, 04:04 PM), and End Date (30 August 2021). Search and Cancel buttons are present. The "Search Results" section shows a list of groups, with "TURNING THE TIDE VIOLENCE INTERVENTION PROGRAM [21114]" circled in red. To the right of the results is a sidebar with "Hide Tree", "Calendar", "Word", and "Excel" icons, and a table header for "Group" with columns "Page/Msg", "Msg ID", and "Name".

Group
MAP SW (ABUSE & NEGLECT-DOMESTIC VIOLENCE) [20755]
TURNING THE TIDE VIOLENCE INTERVENTION PROGRAM [21114]

What Does This Look Like for a Patient & Family?





"I feel like a human being."

-MUSC TTVIP Client

“

A lot of the guys tell us that this is the first time someone actually cared what happened to them.

—Dr. Sean Benoit, co-director of the Capital Region Violence Intervention Program

Hospital Violence Intervention Programs

Successful and Cost Effective

- Systematic review of trauma center based youth violence programs (Ages 10-24)
- 90% demonstrated improved outcomes
 - >50% showed lower recidivism
- Individual + intensive community-based case management are most successful

Hospital-centered violence intervention programs: a cost-effectiveness analysis



Vincent E. Chong, M.D., M.S.^a, Randi Smith, M.D., M.P.H.^a, Arturo Garcia, M.D.^a, Wayne S. Lee, M.D.^a, Linnea Ashley, M.P.H.^b, Anne Marks, M.P.P.^b, Terrence H. Liu, M.D., M.P.H.^a, Gregory P. Victorino, M.D.^{a,*}

^aDepartment of Surgery, Highland Hospital, University of California, San Francisco-East Bay, 1411 East 31st Street, QIC 22134, ^bYouth ALIVE!, 3300 Elm Street, Oakland, CA, USA

AAST 2014 PLENARY PAPER

Saving lives and saving money: Hospital-based violence intervention is cost-effective

Catherine Juillard, MD, MPH, Randi Smith, MD, MPH, Nancy Anaya, MD, MS, Arturo Garcia, MD, James G. Kahn, MD, MPH, and Rochelle A. Dicker, MD, San Francisco, California

CURRENT OPINION

Hospital-based violence intervention programs save lives and money

Jonathan Purtle, MPH, MSC, Rochelle Dicker, MD, Carnell Cooper, MD, Theodore Corbin, MD, MPP, Michael B. Greene, PhD, Anne Marks, MPP, Diana Creaser, MS, RN, Deric Topp, MPH, and Dawn Moreland, RN, BSN

Beyond the Bedside...

Propagation of Trauma Informed Care

Advocacy

Community Engagement

Research

He Was Shot by a Stranger but Treated Like a Criminal When He Reached the ER



Greg Jackson, gun violence survivor and National Advocacy Director with the Community Justice Action Fund, speaks at the National Mall in Washington D.C. on April 29, 2021. Leah Millis—Reuters/Alamy

"I was seen as a criminal first and a person second."

“Trauma-informed care shifts the focus from:
‘What’s wrong with you?’ to
‘What happened to you?’”

This place can provoke more trauma and fail to address the underlying risks that brought people here...



Education of Staff – Changing Hearts and Minds



- Education and outreach to staff, students, employees on...
 - Community and youth violence
 - Trauma informed care
 - Program details
- Who and how?
 - Presentations to attending physicians, residents, students, nurses, public safety, pastoral care
 - Web-based diversity education
 - Integration during team rounds, family meetings, morning report/sign out
 - MUSC media coverage
 - Website, newsletter



Advocacy

As trusted public health professionals, we have a duty to advocate for investment and adoption of evidence-based strategies addressing health issues that impact the communities we serve.

Policies to Enhance Economic and Household Stability



Housing
assistance



Childcare
subsidies



Tax credits
Livable wages

Physical and Social Characteristics of Communities



Clean
vacant lots



Plant grass and
trees in high-risk areas

Efforts to Protect Those at Greatest Risk



Promote safe
firearm storage



Street
outreach



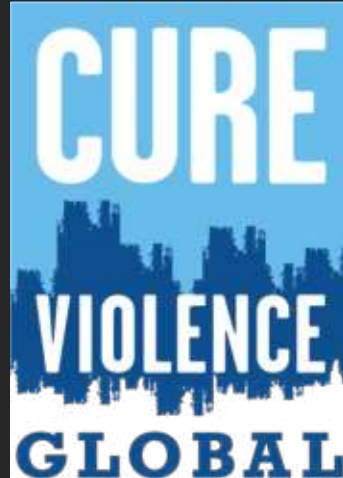
Hospital-based
prevention programs

Investment in Evidence-Informed Community Violence Intervention Programs

Hospital Violence Intervention Programs (HVIPs)



Community Violence Intervention (CVI)



Changing the Landscape, Building Community



E. South, NYT, 2021

Violence is a leading cause of death
in children and teens.

Violence prevention and
intervention should *be a part* of
health care...

... And Central to a Community

