Violence Prevention and the Social Determinants of Health

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A Proposed Surgeon’s Scope of Practice

• Focus on the individual’s acute needs *then*
• Concentrate on the broader context
• **ASK BIGGER QUESTIONS**
• Apply principles of public health and chronic disease

• *Observe patterns with an eye on the population in need—What factors determine poor health*
Surgery and Public Health?

Perceptions of Surgery

– Curative

– Focus is on the Individual

– High-tech, high-skills

– Not Cost-effective
Surgery and Public Health

Public Health

– Prevention approach
– Focuses on Populations
– Low-tech
– More cost-effective
– Equity
INJURY Kills 6 Million Per Year
Injury IS a Public Health Problem
Figure 1. Firearm-related mortality for high-income World Health Organization Member States (most recent year available between 1990 and 2000). (Note: A firearm is defined as a weapon [e.g., handgun, rifle, or shotgun] in which a shot is propelled by gunpowder.)
Severity and Disparity of Homicide in Youth and Young Adults

#1 cause of death in young African Americans, 15-34 years old
#2 in Latinos, 15-34 years old

53 per 100,000 African Americans
20 per 100,000 in Latinos
The Urban America Story
“Violence is a public health issue”

C. Everett Koop, US Surgeon General, 1984
Surveillance

- 76% of homicide and assault victims had criminal histories
- African American men are 13 times more likely to be injured (15-34)
- 2 per 1000 AA men are injured from violence
- 4% of population and 60% of gunshot victims
Age-Adjusted Average Annual Rate of Firearm Injury Deaths in Denver by Percent of Census Tract Below Federal Poverty Level, 1/1/2011–12/31/2015

Number of People Killed by Firearms per 100,000 Person-Years

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Data Source: COVDRS
Chicago Surveillance-The Disparity

- 762 homicides in 2016
- 58% increase in homicides in 2016
- 75% of victims are African American
  – 20% Hispanic
- 33% of Chicago’s population is African American
- 66% of victims are 17-35 years old
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<td>Suicide</td>
<td>Unintentional Falls</td>
<td>Homicide Cut/Pierce</td>
<td>Unintentional Drowning</td>
<td>Suicide Falls</td>
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<tr>
<td></td>
<td>YPLL = 106,913</td>
<td>Firearm</td>
<td>YPLL = 69,240</td>
<td>YPLL = 33,153</td>
<td>YPLL = 28,888</td>
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<td><strong>Female</strong></td>
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<td>YPLL = 10,122</td>
<td>YPLL = 7,743</td>
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</table>

Ten Leading Causes of Injury-Related Years of Potential Life Lost by SPA, Race/Ethnicity, Gender, and Age Group Among Los Angeles County Residents, 2008-2012
The Public Health Model

Define the problem

Identify risk and protective factors

Develop and test prevention strategies

Assure widespread adoption
## Social Determinants of Health

<table>
<thead>
<tr>
<th>Economic Stability</th>
<th>Neighborhood and Physical Environment</th>
<th>Education</th>
<th>Food</th>
<th>Community and Social Context</th>
<th>Health Care System</th>
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<tbody>
<tr>
<td>Employment</td>
<td>Housing</td>
<td>Literacy</td>
<td>Hunger</td>
<td>Social integration</td>
<td>Health coverage</td>
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<tr>
<td>Income</td>
<td>Transportation</td>
<td>Language</td>
<td>Access to healthy options</td>
<td>Support systems</td>
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<td>Expenses</td>
<td>Safety</td>
<td>Early childhood education</td>
<td>Social integration</td>
<td>Community support systems</td>
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<td>Debt</td>
<td>Parks</td>
<td>Vocational training</td>
<td>Community engagement</td>
<td>Provider availability</td>
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<td>Medical bills</td>
<td>Playgrounds</td>
<td>Higher education</td>
<td>Discrimination</td>
<td>Provider linguistic and cultural competency</td>
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<td>Support</td>
<td>Walkability</td>
<td></td>
<td></td>
<td>Quality of care</td>
<td></td>
</tr>
</tbody>
</table>

### Health Outcomes
- Mortality
- Morbidity
- Life Expectancy
- Health Care Expenditures
- Health Status
- Functional Limitations
Factors that Affect Health

- Counseling & Education
- Clinical Interventions
- Long-lasting Protective Interventions
- Changing the Context to make individuals’ default decisions healthy
- Socioeconomic Factors

Examples:
- Eat healthy, be physically active
- Rx for high blood pressure, high cholesterol, diabetes
- Immunizations, brief intervention, cessation treatment, colonoscopy
- Fluoridation, 0g trans fat, folic acid fortification, iodization, smoke-free laws, tobacco tax
- Poverty, education, housing, inequality
Los Angeles
Violence and Urban Health
Los Angeles
Violence and Urban Health
Los Angeles
Violence and Urban Health
Los Angeles Violence and Urban Health

Power-Extremity Diabetic Amputations Per 1,000 Adults Fifty And Older With Diabetes, Los Angeles County, 2012

[Map showing distribution and concentration of amputations in different areas of Los Angeles County.]
Social Determinants of Health

• Complex interplay of social and economic systems
• What this means for PREVENTION
• Health and Wealth: Population Health in 2050 and implications for the US
Risk Factors for Violence: SOCIAL DETERMINANTS OF HEALTH

- Poverty
- Family dysfunction
- Access to Guns
- Mental Illness
- RECIDIVISM
- Intergenerational Health and Chronic Disease
- Substance abuse
- Lack of role models
- Educational deficiencies
- Hopelessness
- Joblessness
- Environment
- Normalization
Protective Factors

- Adult mentorship
- Mental Health
- Interpersonal skills
- Commitment to school
- Access to resources
- Community morés:
  - Social cohesion + willingness to intervene for the common good = reduction in violence

*Science* RJ Sampson, SW Raudenbush, F Earls. Vol 277; 15 August 1997
Scared safe? Abandoning the use of fear in urban violence prevention programmes

Purtle J, Cheney R, Wiebe DJ, Dicker RA
Injury Prevention 2015;21:140-141
WHO
WHA Resolution 49.25
Violence is a Worldwide Public Health problem

“Preventing youth violence requires a comprehensive approach that addresses the social determinants of violence, such as income inequality, rapid demographic and social change, and low levels of social protection”
The Trauma Center’s Role in Public Health and Prevention

- The Teachable Moment:
  - Precedent for it

- Risk reduction strategies
  - Public Health Model
  - Culturally Competent Case Management
  - Community and City partnerships
The Public Health Model

Define the problem

Identify risk and protective factors

Develop and test prevention strategies

Assure widespread adoption
THE WRAPAROUND PROJECT: A HOSPITAL BASED VIOLENCE INTERVENTION PROGRAM

Cornerstones

The Public Health Model for Injury Prevention

Seizing the Teachable Moment

Long-term Culturally Competent Case Management

Providing Links to Risk Reduction Resources
The Wraparound Project

AIMS

– Provide intervention to reduce recidivism and incarceration

– Reestablish **standard of care** for violent injury in trauma centers serving communities affected by violence
**FEASIBILITY**

**Sustainability**
- Collaboration with community
- Community “ownership”
- Renewable $$$
- Leadership
- Positive image
- Strong host organization
- Strong program advocates

**Target Population**
- Cultural relevance
- Willingness to accept
- Permission to collect data
- Access to...

**Organizational Climate**
- Willingness to accept
- Fit with existing programs
- “Buy-in” from leaders and staff

**Community Climate**
- Willingness to accept
- Fit with existing programs
- Permission to collect data
- Access to referral networks

**Resources**
- Costs
- Training
- Space
- Access to equipment and materials
- Incentives
- Collaborative partners

**Evaliability**
- Available baseline data
- Access to clients over time
- Simple program design
- Access to statistical skills and funding
Intervention Program Design

INJURY

HOSPITAL CARE

RECOVERY

Teachable Moment

Initial Trauma Care

Assessment by Case Managers at Bedside

High Risk

Low Risk

Referral to Appropriate Resources

The Wraparound Project
Key Partnerships

• Community morés:
  – Social cohesion + willingness to intervene for the common good = reduction in violence
• Community Response Networks
• Glide Memorial Church
• Carecen tattoo removal
• Family Mosaic of Bayview
• Arriba Juntos
• Community GED Programs
• Instituto Familia de la Raza
• Healthright 360
• Friends of the Urban Forest
• Trauma Recovery Center
Injury Surveillance

Research

Prevention & Control

Advocacy

Services

Policy

Evaluation

Public Health
## Current Needs Assessment

<table>
<thead>
<tr>
<th>Need</th>
<th>Need Status</th>
<th>Notes</th>
<th>Date Identified</th>
<th>Date Resolved</th>
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</thead>
<tbody>
<tr>
<td>Housing</td>
<td>Identified</td>
<td></td>
<td>04/01/2010</td>
<td>09/01/2020</td>
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<tr>
<td>Education</td>
<td>Identified</td>
<td></td>
<td>04/01/2010</td>
<td></td>
</tr>
<tr>
<td>Mental Health</td>
<td>Met</td>
<td></td>
<td>04/01/2010</td>
<td></td>
</tr>
<tr>
<td>Family Counseling</td>
<td>Not Needed</td>
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<td>04/01/2010</td>
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<tr>
<td>Court Advocacy</td>
<td>Met</td>
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<td>09/01/2020</td>
<td>04/01/2010</td>
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<tr>
<td>Vocational</td>
<td>Not Needed</td>
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<td>04/01/2010</td>
<td></td>
</tr>
<tr>
<td>Employment</td>
<td>Not Needed</td>
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<td>04/01/2010</td>
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<tr>
<td>Drivers License</td>
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<td>Incarceration</td>
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<td>Probation</td>
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<tr>
<td>Other</td>
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<tr>
<td>(not found)</td>
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</tbody>
</table>
COMPONENTS OF PROGRAM EVALUATION

Formative Evaluation

Process Evaluation

Independent Predictors of Success

Impact Evaluation

Outcome Evaluation
Hospital-based violence intervention: Risk reduction resources that are essential for success

Randi Smith, MD, MPH, Sarah Dobbins, MPH, Abigail Evans, BA, Kimen Balhotra, BS, and Rochelle Ami Dicker, MD, San Francisco, California

Journal of Trauma and Acute Care Surgery
2013; 74:976-982
Specific Aims

1. **PROCESS EVALUATION**: To determine the screening, approached and enrollment rates of clients

2. **IMPACT EVALUATION**: To determine capacity at meeting individual risk reduction needs

3. **OUTCOME EVALUATION**: To determine the overall injury recidivism rate and compare it to our historical institutional control

4. To determine which risk reduction resources are independent predictors of program completion and success
<table>
<thead>
<tr>
<th>Need</th>
<th>Success Rate</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mental Health</td>
<td>86%</td>
<td>5.97</td>
</tr>
<tr>
<td>Employment</td>
<td>86%</td>
<td>4.41</td>
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<tr>
<td>Housing</td>
<td>75%</td>
<td>1.12</td>
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<tr>
<td>Education</td>
<td>72%</td>
<td>0.63</td>
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<td>Family Counseling</td>
<td>80%</td>
<td>2.26</td>
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<tr>
<td>Court Advocacy</td>
<td>76%</td>
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<tr>
<td>Vocational Training</td>
<td>70%</td>
<td>0.69</td>
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<tr>
<td>Driver’s License</td>
<td>89%</td>
<td>3.53</td>
</tr>
<tr>
<td>Other</td>
<td>66%</td>
<td>1.48</td>
</tr>
</tbody>
</table>
Study Conclusions

• Providing mental health care and employment opportunities is predictive of success.

• The value of early “high dose” intensive case management is essential.
• 466 clients enrolled
• Most common needs: Mental health, housing, employment
• Recidivism rate: 50% less than historical controls
• Meeting education needs was associated with success
• Housing: A risk factor?
The Costs of Violence

Physical
- PTSD
- Depression
- Anxiety
- Fear

Economic
- Hospital Costs
- Lost Wages

Emotional
- PTSD
- Depression
- Anxiety
- Fear

Societal
- Unsafe Neighborhoods

$282 Billion Each Year

- Hospital Care
- Skilled Nursing
- Rehabilitation
- Functional Impairment
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
Specific Aims

1. To determine the mean cost of trauma per individual at our institution
2. To determine the mean cost of our hospital-centered violence intervention program per individual
3. To compare the cost-utility of hospital-based violence intervention programs to no intervention in young adults victims of interpersonal violence
Markov Analysis

Injured Victim

- Intervention Program
  - Reinjured
  - Rehabilitated

- No Intervention Program
  - Reinjured
  - Rehabilitated
Hospital-centered violence intervention programs cost money but cost less than caring for patients after re-injury.
WHO FUNDS THIS?
What do they want to see?

• Mayors and Supervisors
• Departments of Public Health
• Foundations
• Federal government
• Private donors
• ...POLICY CHANGE
Public Health

- Injury Surveillance
- Research
- Prevention & Control
- Evaluation
- Advocacy
- Services
- Policy
National Network of Hospital-Based Violence Intervention Programs

• Now over 30 programs
• Multiple working groups
• Best practices and curriculum development
• New health care taxonomy development
  – California AB 1629 through Crime Victims Compensation Program
• Annual conferencing with Cure Violence
American College of Surgeons Committee on Trauma

• Set criteria for Trauma Center verification

• Subcommittee: Hospital Based Violence Intervention:
  – Best practices guide-Primer
  – Research agenda
  – Potentially change criteria
  – Stakeholder Power Point
A primer for developing a comprehensive program for trauma centers

by Rochelle A. Dicker, MD, FACS; Barbara A. Gaines, MD, FACS; Stephanie Bonne, MD, FACS; Thomas Duncan, DO, FACS; Pina Violano, PhD, MSPH, RN-BC, CCRN, CPS-T; Michel Aboutanos, MD, MPH, FACS; Lisa Allee, MSW, LICSW; Peter A. Burke, MD, FACS; Peter Masiakos, MD, FACS; Ashley Hink, MD; Deborah A. Kuhls, MD, FACS, FCCM; and David Shapiro, MD, FACS
Successful HVIP initiation requires both sequential and continuous components. The sequential component outlines steps to program implementation, and the continuous component represents relationships that need to be built and maintained for successful implementation. Actual timeline is highly variable by program; shown is a rough estimate based on a two year implementation plan.

**Sequential component:**
- 6 months-1 year
  - Step 1: Define the problem
    - Find the target population
    - Investigate existing violence prevention programs in community
  - Step 2: Find champions and collaborators
    - Face-to-face discussions
    - Hospital administrators
    - Social services
    - Community-based organizations
- 6 months-1 year
  - Step 3: Develop essential resources
    - Case management hiring and training
    - Commitment of hospital champion
    - Build relationships with mental health and job training services
    - Obtain funding
- 1 year
  - Step 4: Implementation
    - Draft consents and MOUs
    - Work space and capital purchases
    - Build relationships with other community stakeholders
- 3-6 months
  - Step 5: Maintenance
    - Maintain relationships with community services
    - Community-wide victim services coordination
    - Sustain funding
    - Join NNHVIP

**Continuous component:**
- Evaluation and improvement
  - IRBs
  - Data collection
  - Case manager feedback
  - Qualitative and quantitative feedback
- Create sustainable funding
  - Private grants
  - Hospital funding
  - Public or city funding
  - Tattoo removal
  - Employment services
  - Justice system and court advocacy
- Find and build community partnerships
  - Pediatrics and adolescent medicine
  - Psychiatry
  - Emergency medicine
- Build bridges to other departments
Future Directions

• Multi-Institutional Database
  – Sponsored by California Wellness
  – Over 4000 clients
• Policy to incorporate “Trauma Informed Care”
• Development of screening criteria
• Demonstrating value beyond recidivism
Explicating Hospital-Based Violence Intervention Program Risk-Assessment via Qualitative Analysis

Erik J. Kramer BA\textsuperscript{1,2}, James Dodington MD\textsuperscript{1}, Ava Hunt BA\textsuperscript{1}, Terrell Henderson BA\textsuperscript{2}, Rochelle Dicker MD\textsuperscript{2}, Catherine Juillard MD, MPH\textsuperscript{2}; Yale School of Medicine\textsuperscript{1}, University of California San Francisco\textsuperscript{2}

Erik J. Kramer BA
Yale School of Medicine
M.D. Candidate 2019
WHY Health Care Providers?