CDC’s Firearm Surveillance Through Emergency Rooms (FASTER): Overview and Updates

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Board of Scientific Counselors
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Background on Syndromic Surveillance
Syndromic Surveillance

Collaborative effort between local and state health departments, CDC, and other partners
Syndromic Surveillance in the United States

- BioSense Platform covers 73% of the nation’s emergency department visits

Source: https://www.cdc.gov/nssp/participation-coverage-map.html
The Potential of Syndromic Surveillance

+ Provide timely and actionable ED visit data at the state and local level
+ Detect trends, clustering, and changing patterns of ED visit data
Elements Included in Syndrome Definitions

**Discharge Diagnosis Codes**
- ICD-9-CM
- ICD-10-CM
- SNOMED

**Keywords to query chief complaints**
- Keywords
- Misspellings and typos
- Acronyms and abbreviations
- Clinical and lay terms
- Negation terms
Syndrome Definition Collaborators

- The National Syndromic Surveillance Program
- Their community of practice which is now led by CSTE
- Several local and state health departments were important collaborators, particularly the Houston Health Department and the New York City Department of Health and Mental Hygiene, who both had existing case definitions we were able to build upon.
ICD-9-CM Codes for Firearm Injury Syndrome

+ E922(.0-.3, .8-.9) Accident cause by firearm
+ E955(.0-.4, .9) Suicide and self-inflicted injury by firearms
+ E965(.0-.4) Assault by firearms
+ E970 Injury due to legal intervention by firearms
+ E979.4 Terrorism involving firearms
+ E985(.0-.4) Injury by firearms, undetermined intent
ICD-10-CM Codes for Firearm Injury Syndrome

Includes codes for the following injury intents due to firearms:
+ Unintentional
+ Intentional self-harm
+ Assault
+ Undetermined intent
+ Legal intervention
+ Terrorism

• Includes codes for initial encounters only
Excludes codes for:

+ Gas, air, or spring-operated guns (such as air guns, BB guns, paintball guns)
+ Rubber bullets
+ Rifle pellets
+ War operations
+ Military operations
### SNOMED-CT Codes for Firearm Injury Syndrome

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>41430008</td>
<td>Shotgun slug, device (physical object)</td>
</tr>
<tr>
<td>56768003</td>
<td>Gunshot wound (morphologic abnormality)</td>
</tr>
<tr>
<td>63409001</td>
<td>Struck by firearm discharge (event)</td>
</tr>
<tr>
<td>69861004</td>
<td>Firearm, device (physical object)</td>
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<tr>
<td>77301004</td>
<td>Shotgun shot, device (physical object)</td>
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<tr>
<td>86122002</td>
<td>Bullet, device (physical object)</td>
</tr>
<tr>
<td>111050005</td>
<td>Bullet fragment, device (physical object)</td>
</tr>
<tr>
<td>219257002</td>
<td>Injury due to legal intervention by firearm (disorder)</td>
</tr>
<tr>
<td>283545005</td>
<td>Gun shot wound (disorder)</td>
</tr>
<tr>
<td>218081007</td>
<td>Accident caused by firearm missile (event)</td>
</tr>
<tr>
<td>218086002</td>
<td>Accident caused by automatic shotgun (event)</td>
</tr>
<tr>
<td>218082000</td>
<td>Accident caused by handgun (event)</td>
</tr>
<tr>
<td>218087006</td>
<td>Accident caused by hunting rifle (event)</td>
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<tr>
<td>218088001</td>
<td>Accident caused by military firearms (event)</td>
</tr>
<tr>
<td>269796009</td>
<td>Shotgun accident (finding)</td>
</tr>
<tr>
<td>242869008</td>
<td>Assault by firearms (event)</td>
</tr>
<tr>
<td>219190009</td>
<td>Assault by handguns (event)</td>
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<td>219200007</td>
<td>Assault by pistol (event)</td>
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<tr>
<td>219201006</td>
<td>Assault by revolver (event)</td>
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<tr>
<td>219204003</td>
<td>Assault by hunting rifle (event)</td>
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<tr>
<td>219205002</td>
<td>Assault by military firearm (event)</td>
</tr>
<tr>
<td>219203009</td>
<td>Assault by shotgun (event)</td>
</tr>
<tr>
<td>219198001</td>
<td>Assault by firearms and explosives (event)</td>
</tr>
<tr>
<td>219142001</td>
<td>Suicide or self-inflicted injury by firearms and explosives (navigational concept)</td>
</tr>
<tr>
<td>219143006</td>
<td>Suicide or self-inflicted injury by handgun (navigational concept)</td>
</tr>
<tr>
<td>219144000</td>
<td>Suicide or self-inflicted injury by shotgun (navigational concept)</td>
</tr>
<tr>
<td>219145004</td>
<td>Suicide or self-inflicted injury by hunting rifle (navigational concept)</td>
</tr>
<tr>
<td>219146003</td>
<td>Suicide or self-inflicted injury by military firearm (navigational concept)</td>
</tr>
<tr>
<td>287184008</td>
<td>Attempted suicide - firearms (event)</td>
</tr>
<tr>
<td>287193009</td>
<td>Suicide - firearms (event)</td>
</tr>
</tbody>
</table>
Keywords to Query Chief Complaints

Keywords (and common spellings and misspellings) to include:

+ GSW
+ Gunshot, buckshot (and gun shot, gun shoot, gun shout)
+ Firearm, handgun, pistol, revolver, rifle, shotgun
+ Been shot, I was shot, I got shot
+ (Hit, ricochet, or graze) and (Bullet)
+ (Gun) and (Wound)
Keywords to Query Chief Complaints - Continued

Negation terms (and common spellings and misspellings) to exclude:

- No gun
- Remove gun
- Heard or hearing gun
- Hit head or hit my head
- Kickback
- Water, pellet, BB, rubber, paint, nerf, air, spring, nail, staple, stun, laser or Taser guns
- Pistol whip
- Bloodshot
- Scope

- Fake
- Allergy or injection shot
- Follow up
- Chronic
- Wound check, care, or infection
- Drainage
- History of GSW
- Ago, past, prior, previous, or old GSW
- Z51.89 (after care)
FASTER Initiative
FASTER Objectives

+ **Increase the timeliness** of aggregate reporting of ED visits for nonfatal firearm injuries
+ **Disseminate surveillance findings** to key stakeholders working to prevent or respond to firearm injuries
FASTER Recipients

+ 10 health departments funded in Fall 2020
- District of Columbia
- Florida
- Georgia
- New Mexico
- North Carolina
- Oregon
- Utah
- Virginia
- Washington
- West Virginia
FASTER
Objective 1

Increase timeliness of aggregate reporting of ED visits for firearm injuries

• Share real-time and historical case-level syndromic surveillance data
• Create, validate, and monitor quality of indicator syndrome definitions
• Verify state and county aggregate quarterly reports
• Share methodology and aggregated reports with CDC
Disseminate surveillance findings to key stakeholders

- Create a dissemination plan by August 2021
- Build and strengthen relationships with key stakeholders
- Implement dissemination strategies
Year 1 Timeline for FASTER

- **September 2020**: Kick-off call with 10 funded recipients
- **October 2020**: Data access granted to CDC FASTER team
- **January 2021**: First quarterly report due
- **April 2021**: Second quarterly report due
- **May 2021**: Reverse site visit
- **July 2021**: Third quarterly report due
- **August 2021**: Recipient dissemination plans complete
Limitations of Syndromic Surveillance in Monitoring Firearm Injuries

- Results are not generalizable to facilities not participating in NSSP
- Healthcare facility participation in NSSP can vary across months.
- Data on patient demographics, including race/ethnicity, incomplete
- Data transmitted to NSSP in near real-time and not considered finalized data sets
Questions?