POLICE PLANNING AND PROBLEM-SOLVING THROUGH INCIDENT-BASED DATA
Police Planning and Problem Solving
Through Incident-Based Reporting Data

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Overview

- Project Significance
- State Incident-Based Reporting System
- Muskogee Demographics
- Research Methodology and Findings
  - Descriptive Statistics
  - Content Analysis
  - Mapping
- Practical Implications for Muskogee Police Department
- Statistical Resource Guide
- Crime Analysis Program
Project Significance

- Data collected are not being used in planning and problem solving
  - Local jurisdictions collect and submit data
  - OSBI convert data to summary format for reporting purposes
- Domestic violence incidents continue to consume limited resources
  - Researchers estimate 1 in 4 calls are related to domestics
  - Muskogee identified domestic violence calls as one of its ongoing problems
- Serve as a model for other jurisdictions
  - Designed to demonstrate the utility of SIBRS to current users
  - Designed to demonstrate the capabilities of SIBRS for future users
State Incident-Based Reporting System

Evolution of Crime Data Reporting in Oklahoma

- 1973 – Pursuant to O.S. § 74-150.10, law enforcement were required to submit crime data to OSBI in summary format
- 2002 – An advisory board (composed of UCR contributing agencies) recommended transitioning data collection efforts to incident-based reporting
- 2003 – OSBI began construction of the State Incident-Based Reporting System (SIBRS)
- 2004 – Agencies began submitting crime data to SIBRS
- 2009 – Received official NIBRS Certification and SAC moved to OSBI
SIBRS Agency Participation
SIBRS Coverage in Oklahoma

- Total number of agencies contributing data to SIBRS: 302
  - Sheriffs’ Offices: 58 (75%)
  - Police Departments: 176 (80%)
  - Tribal Law Enforcement: 4
  - Campus Law Enforcement: 15
- Population under SIBRS jurisdiction - 39%
- Index Crimes captured in SIBRS - 22%
- Agencies serving populations of less than 15,000 - 88%
- Only 12 agencies serve populations of at least 25,000
- The largest jurisdictions still report crime statistics in summary format
Why Domestic Violence? Why Muskogee?

Research focuses on incidents of domestic violence for two reasons:

1. Domestic violence is prevalent in communities across Oklahoma
2. Muskogee Police Department identified domestic violence as a relevant issue

Muskogee Police Department was selected for two reasons:

1. Muskogee PD is a medium-sized jurisdiction – ensuring adequate sample size
2. Muskogee PD consistently contributes data to SIBRS
## Demographics

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Muskogee</th>
<th>Oklahoma</th>
<th>United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>39,223</td>
<td>3,751,354</td>
<td>308,747,508</td>
</tr>
<tr>
<td>Persons under 18</td>
<td>25.3%</td>
<td>24.8%</td>
<td>23.7%</td>
</tr>
<tr>
<td>Persons 65 old and older</td>
<td>15.0</td>
<td>13.5</td>
<td>13.3</td>
</tr>
<tr>
<td>Females</td>
<td>52.3</td>
<td>50.5</td>
<td>50.8</td>
</tr>
<tr>
<td>White</td>
<td>55.9%</td>
<td>72.2%</td>
<td>78.1%</td>
</tr>
<tr>
<td>Black</td>
<td>16.1</td>
<td>7.4</td>
<td>13.1</td>
</tr>
<tr>
<td>American Indian</td>
<td>15.3</td>
<td>8.6</td>
<td>1.2</td>
</tr>
<tr>
<td>Asian</td>
<td>0.9</td>
<td>1.7</td>
<td>5.0</td>
</tr>
<tr>
<td>Native Hawaiian/Pacific Islander</td>
<td>**</td>
<td>0.1</td>
<td>0.2</td>
</tr>
<tr>
<td>High School Graduates</td>
<td>82.8%</td>
<td>85.9%</td>
<td>85.4%</td>
</tr>
<tr>
<td>Bachelor’s Degree</td>
<td>17.6</td>
<td>23.0</td>
<td>28.2</td>
</tr>
<tr>
<td>Median Household Income</td>
<td>$33,196</td>
<td>$44,287</td>
<td>$52,762</td>
</tr>
<tr>
<td>Persons Below Poverty</td>
<td>25.7%</td>
<td>16.3%</td>
<td>14.3%</td>
</tr>
</tbody>
</table>

Source: US Census Bureau
### Officer Assaults in Muskogee, 2009 and 2010

<table>
<thead>
<tr>
<th>Call Type</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disturbance Call</td>
<td>19</td>
<td>55.9%</td>
</tr>
<tr>
<td>Attempting Arrest</td>
<td>4</td>
<td>11.8%</td>
</tr>
<tr>
<td>Traffic Pursuit</td>
<td>4</td>
<td>11.8%</td>
</tr>
<tr>
<td>Mental Health Call</td>
<td>2</td>
<td>5.9%</td>
</tr>
<tr>
<td>Transport</td>
<td>2</td>
<td>5.9%</td>
</tr>
<tr>
<td>Burglary</td>
<td>1</td>
<td>2.9%</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>5.9%</td>
</tr>
<tr>
<td><strong>Total Assaults</strong></td>
<td>34</td>
<td></td>
</tr>
</tbody>
</table>

**Officer Injured:**
- Disturbance calls – 73.7%
- All other calls – 40.0%

**Firearms Present:**
- Disturbance calls – 21.1%
- All other calls – none

Source: Crime in Oklahoma Report
Methodology

Incidents identified using incident type and relationship code

Variables:

- Report Month, Date, Time
- Incident Number
- Code (Offense), Domestic Violence Code (A-B-C-D)
- Victim and Offender Name
- Relationship
- Victim: Race, Ethnicity, Sex, DOB, Age, Residency Status, Injuries
- Offender: Race, Ethnicity, Sex, DOB, Age, Residency Status, Injuries
- Location Type
- Location Address
- Weapon Type
- Suspected Use Type (Alcohol, Computer, Drugs)
- Number of Offenders
- Narrative
Methodology

Calculated variables:

- Day of the week
- Zip codes (using addresses from SIBRS)
- Longitude/Latitude (using addresses from SIBRS)
- Victim/Offender IDs (alphabetical order by first name)
- Victim/Offender Age Groups
- Presence of Weapon

Separate datasets were created to determine:

- Total number of victims and offenders
- Total number of repeat victims and offenders

Narratives - variables:

- Injuries
- Weapons
- Presence of children
- Drugs/alcohol
- Victim/offender activity
Methodology

Crime Mapping:

- Added missing zip codes (using addresses from SIBRS)
- Longitude/Latitude (SIBRS addresses and BatchGeo.com)
- Analysis conducted using CrimeStat III
  - Nearest Neighbor Clustering was used to identify clusters of domestic violence
  - Kernel Density Interpolation was used to determine calls for service for domestic violence
Findings

Descriptive Statistics (N=1,509)

- In 2009 and 2010, 13.5% of individuals were repeat victims and 14.9% were repeat offenders;
- The majority (67.3%) of domestic violence incidents were simple assaults;
- Law enforcement responded to the most calls between 9:00 pm and 11:59 pm;
- The majority of incidents occurred in the residence/home (87.9%);
- Personal weapons were the most common weapon used during the incident (69.4%);
- The majority of incidents (39.7%) involved boyfriend/girlfriend relationships;
- The victim was female in 72% and the offender was male in 74% of reported incidents;
- The average age of the victim was 31 and the average age of the offender was 33;
Of the 8,108 incident reports Muskogee entered into SIBRS, 18.6% were domestic disturbances.
Domestic Violence, by Day of Week (%)

Domestic violence calls were evenly distributed across the days of the week.
Domestic Violence, by Time of Day (%)

Law enforcement responded to the most calls between 9:00 pm and 11:59 pm
## Incident Type

<table>
<thead>
<tr>
<th>Incident Type</th>
<th>2009</th>
<th>2010</th>
<th>Total</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homicide (09A)</td>
<td>**</td>
<td>2</td>
<td>2</td>
<td>0.13%</td>
</tr>
<tr>
<td>Forcible Rape (11A)</td>
<td>3</td>
<td>6</td>
<td>9</td>
<td>0.60</td>
</tr>
<tr>
<td>Forcible Sodomy (11B)</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>Sexual Assault w/an Object (11C)</td>
<td>**</td>
<td>1</td>
<td>1</td>
<td>0.07</td>
</tr>
<tr>
<td>Forcible Fondling (11D)</td>
<td>22</td>
<td>12</td>
<td>34</td>
<td>2.25</td>
</tr>
<tr>
<td>Aggravated Assaults (13A)</td>
<td>138</td>
<td>99</td>
<td>237</td>
<td>15.71</td>
</tr>
<tr>
<td>Simple Assaults (13B)</td>
<td>502</td>
<td>513</td>
<td>1,015</td>
<td>67.26</td>
</tr>
<tr>
<td>Intimidation (13C)</td>
<td>128</td>
<td>83</td>
<td>211</td>
<td>13.98</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>793</td>
<td>716</td>
<td>1,509</td>
<td></td>
</tr>
</tbody>
</table>
## Incident Characteristics: Location

<table>
<thead>
<tr>
<th>Location</th>
<th>2009</th>
<th>2010</th>
<th>Total</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residence/Home</td>
<td>685</td>
<td>642</td>
<td>1,327</td>
<td>87.94%</td>
</tr>
<tr>
<td>Highway/Road/Alley</td>
<td>55</td>
<td>26</td>
<td>81</td>
<td>5.37</td>
</tr>
<tr>
<td>Parking Lot/Garage</td>
<td>8</td>
<td>9</td>
<td>17</td>
<td>1.13</td>
</tr>
<tr>
<td>Department/Convenience/Grocery Store</td>
<td>10</td>
<td>5</td>
<td>15</td>
<td>0.99</td>
</tr>
<tr>
<td>Bar/Night Club</td>
<td>3</td>
<td>5</td>
<td>8</td>
<td>0.53</td>
</tr>
<tr>
<td>Hotel/Motel</td>
<td>5</td>
<td>3</td>
<td>8</td>
<td>0.53</td>
</tr>
<tr>
<td>Restaurant</td>
<td>4</td>
<td>4</td>
<td>8</td>
<td>0.53</td>
</tr>
<tr>
<td>Commercial/Office Building</td>
<td>3</td>
<td>4</td>
<td>7</td>
<td>0.46</td>
</tr>
<tr>
<td>Government/Public Building</td>
<td>4</td>
<td>2</td>
<td>6</td>
<td>0.40</td>
</tr>
<tr>
<td>Drug Store/Doctor's Office/Hospital</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>0.27</td>
</tr>
<tr>
<td>Church/Synagogue/Temple</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0.20</td>
</tr>
<tr>
<td>Field/Woods/Fenced Enclosures</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>0.13</td>
</tr>
<tr>
<td>Jail/Prison</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0.07</td>
</tr>
<tr>
<td>Unknown</td>
<td>14</td>
<td>8</td>
<td>22</td>
<td>1.46</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>793</td>
<td>716</td>
<td>1,509</td>
<td></td>
</tr>
</tbody>
</table>
# Incident Characteristics: Weapon

<table>
<thead>
<tr>
<th>Weapon</th>
<th>2009</th>
<th>2010</th>
<th>Total</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Weapons (Hands, Feet, or Fist)</td>
<td>526</td>
<td>522</td>
<td>1,048</td>
<td>69.45%</td>
</tr>
<tr>
<td>Knife/Cutting Instrument</td>
<td>42</td>
<td>31</td>
<td>73</td>
<td>4.84</td>
</tr>
<tr>
<td>Motor Vehicle</td>
<td>24</td>
<td>15</td>
<td>39</td>
<td>2.58</td>
</tr>
<tr>
<td>Blunt Object</td>
<td>32</td>
<td>4</td>
<td>36</td>
<td>2.39</td>
</tr>
<tr>
<td>Firearm/Handgun/Rifle</td>
<td>11</td>
<td>10</td>
<td>21</td>
<td>1.39</td>
</tr>
<tr>
<td>Asphyxiation</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0.07</td>
</tr>
<tr>
<td>Fire/Incendiary Device</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0.07</td>
</tr>
<tr>
<td>Other</td>
<td>29</td>
<td>48</td>
<td>77</td>
<td>5.10</td>
</tr>
<tr>
<td>Unknown</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0.07</td>
</tr>
<tr>
<td>No Assault</td>
<td>129</td>
<td>83</td>
<td>212</td>
<td>14.05</td>
</tr>
<tr>
<td>Total</td>
<td>793</td>
<td>716</td>
<td>1,509</td>
<td></td>
</tr>
</tbody>
</table>
## Incident Characteristics: Injury to Victim

<table>
<thead>
<tr>
<th>Injury</th>
<th>2009</th>
<th>2010</th>
<th>Total</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor Injury</td>
<td>431</td>
<td>381</td>
<td>812</td>
<td>53.81%</td>
</tr>
<tr>
<td>Severe Lacerations</td>
<td>7</td>
<td>23</td>
<td>30</td>
<td>1.99%</td>
</tr>
<tr>
<td>Broken Bones</td>
<td>8</td>
<td>7</td>
<td>15</td>
<td>0.99%</td>
</tr>
<tr>
<td>Other Major Injury</td>
<td>5</td>
<td>7</td>
<td>12</td>
<td>0.80%</td>
</tr>
<tr>
<td>Gunshot Wound</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0.07%</td>
</tr>
<tr>
<td>Loss of Teeth</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0.07%</td>
</tr>
<tr>
<td>Internal Injury</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0.07%</td>
</tr>
<tr>
<td>Unconsciousness</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0.07%</td>
</tr>
<tr>
<td>No Injury</td>
<td>341</td>
<td>295</td>
<td>636</td>
<td>42.15%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>793</td>
<td>716</td>
<td>1,509</td>
<td></td>
</tr>
</tbody>
</table>
Victim and Offender, Sex

Victim Sex
- Female: 72%
- Male: 28%

Offender Sex
- Male: 74%
- Female: 26%
Victim and Offender, Race

Victim Race
- White: 71%
- Black: 23%
- American Indian: 5%
- Asian: 1%

Offender Race
- White: 66%
- Black: 28%
- American Indian: 6%
## Relationship Characteristics - Victim was a:

<table>
<thead>
<tr>
<th>Relationship</th>
<th>%</th>
<th>Intimate Relationship</th>
<th>%</th>
<th>Family</th>
<th>%</th>
<th>Other</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child</td>
<td>7.89</td>
<td>Boyfriend/Girlfriend</td>
<td>39.70</td>
<td>Parent</td>
<td>6.56</td>
<td>Roommate</td>
<td>1.33</td>
</tr>
<tr>
<td>Sibling</td>
<td>6.30</td>
<td>Spouse</td>
<td>17.23</td>
<td>Other Family Member</td>
<td>6.16</td>
<td>Ex-Roommate</td>
<td>0.13</td>
</tr>
<tr>
<td>Stepchild</td>
<td>2.19</td>
<td>Ex-Spouse</td>
<td>7.89</td>
<td>Stepparent</td>
<td>0.99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child of Boy/Girlfriend</td>
<td>1.66</td>
<td>Common-Law Spouse</td>
<td>0.40</td>
<td>Grandparent</td>
<td>0.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grandchild</td>
<td>0.73</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step-Sibling</td>
<td>0.07</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>18.82</strong></td>
<td><strong>Intimate Relationship</strong></td>
<td><strong>65.21</strong></td>
<td><strong>Family</strong></td>
<td><strong>14.51</strong></td>
<td><strong>Other</strong></td>
<td><strong>1.46</strong></td>
</tr>
</tbody>
</table>
Findings: Narrative

Issues
1. Narrative field in SIBRS is optional
2. Narratives were handwritten
3. Narratives were scanned and stored on one onsite computer

Methodology
1. Made 3 trips to Muskogee PD
2. Calculated sample size for 2009 narratives (N=309)
3. Typed Narratives (N=252 (57 incidents from the sample did not have a narrative))
4. Entered into SPSS Text Analytics for Surveys
5. Developed categories
   - Injuries
   - Weapons
   - Drugs/Alcohol
   - Presence of Children
   - Offender and Victim Activity
Findings: Narrative

- Entered 252 narratives;
- On average, narratives included 4 lines of typed text – the longest was 46 lines and the shortest was one line (“Victim/Suspect assaulted each other”);
- The majority of narratives only included date, time, location, and type of call;
- Information about the incident was captured on the Family Violence Report instead of the narrative, including:
  - Condition of victim/offender
  - Emotional state of victim/offender
  - Location of injuries
  - Description of scene (e.g., signs of struggle, property damage)
  - Presence of Children
Domestic Violence Incidents, 2009

Incident Count
- White: 5-14
- Light Gray: 15-24
- Dark Gray: 25-74
- Black: 75 up
Domestic Violence Incidents, 2010

Incident Count

- White: 5-14
- Light Gray: 15-24
- Dark Gray: 25-74
- Black: 75 up
Calls for Service Projection

Color Bands
- Blue: 0.2 up to 2
- Yellow: 2 up to 20
- Orange: 20 up to 99
- Red: 99 up to 158
- Black: 158 and up
Practical Limitations

1. Zip Codes
2. Narratives (populate field with information)
3. Family Violence Reports

Agency Level: Planning and Problem Solving

1. Descriptive statistics to understand trends and crime characteristics
2. Mapping to identify hot spots and for predictive policing
3. Populate the narrative field with text
4. Utilize the resource guide
Statistical Resource Guide

Contents of Statistical Resource Guide:
1. State Statutes Related to Domestic Violence
2. Dynamics of Domestic Violence
3. Project Findings
4. LEOKA Statistics and Officer Safety Tips
5. Victim Information (Victims’ Rights, Lethality Assessment)
6. Domestic Violence Reporting
7. Local and State Resources
8. Area for Notes
Crime Analysis Program

Goal: Provide crime analysis services to smaller SIBRS agencies

Stage I: Planning

1. Identify resources
2. Staffing
3. Initial meetings (agency administration, FUSION Center, universities)
4. Create policies and procedures
5. Better understand resources available

Stage II: Program Implementation

1. Identify SIBRS agencies (within population parameters)
2. Data quality (reports, narratives, and zip codes)
3. Conduct analysis
4. Present findings to administration
5. Offer solutions based on findings
Crime Analysis Program

Program Process

Request
Initial agreement with contributing agency

Research
Collect, analyze, and present findings to agency officials

Response
Offer recommendations and resources

Possible Responses (based on findings)
- Offer solutions – EBP and research available for identified problem
- Refer to FUSION Center
- Partner with university
- Other referrals, as needed
For More Information

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