Crime Analysis for Problem Solvers in 60 Small Steps

POP/IACA Conference
September 2010
Session Overview

► Who am I, and What am I doing here?

► Who are you?
  - Officers? Analysts? Researchers? Other?

► Who has read the 60 Steps book?

► Why is the 60 Steps book so valuable?

► What’s in it anyway???
Why is Problem Analysis important?

To reduce crime... we need to know what causes it.
Problem Analysis

An approach/process conducted within a law enforcement agency in which formal criminal justice theory, research methods, and comprehensive data collection and analysis procedures are used in a systematic way to conduct in-depth examination of, develop informed responses to, and evaluate crime and disorder problems.
Why Take a Problem Solving Approach?

- Offenders rarely caught
- High-intensity enforcement not sustainable
- Criminal Justice system overburdened
- Most of what police are expected to address isn’t crime
- Residents care most about non-crime issues
Why 60 Steps Book

► Rethinking the way we police (POP) and the current methods and roles
► Requires police to examine problems – in depth
► Analytical capacity in police departments has been lacking
► “One analyst, properly trained and utilized, has the potential to increase many times the productivity and effectiveness of perhaps hundreds of police officers.”
► Analysts must now explore sources of info and data well beyond those normally used and stick with a project much longer than traditionally.
1. Rethink your job

- Become a crime expert
- Know what works in policing
- Promote problem solving
- Take your place on the project team
- Learn about environmental criminology
- Hone your research skills
- Communicate effectively
- Enhance your profession
2. Be the local crime expert

- Get away from your computer
- Talk to officers about what they are seeing
- Go on ride-alongs and sit with dispatchers
- Visit crime scenes and examine reports
  - Check failed attempts
- Talk to city officials, businesses and private security
- Ask neighboring analysts about changes in crime targets and methods
- Ask officers to question offenders
- Get info from victims about when, where, how
- Help improve crime incident forms and data capture
3. Know what is effective
4. Become a POP expert

- Fundamentally about changing the conditions that give rise to recurring crime problems
- Being proactive vs. call/report focused reactive
- Dealing with long-term issues vs. one time event or series
5. Be true to POP
6. Be very crime specific

- **Why is it important to be specific?**
  - Correctly identifying the underlying problem
  - Asking the right analysis questions
  - Having the most appropriate response strategies

- Don’t settle for UCR categories!

- Responses/strategies for dealing with bank robbery is very different than street robbery...
7. Be guided by SARA

- **Identifying**
  neighborhood crime, disorder and fear problems

- **Understanding**
  the conditions that give rise to these problems

- **Developing/Implementing**
  long-term solutions tailored to relieve the problems

- **Determining the Impact**
  (effectiveness) of the solutions to the problem
8. Use the problem analysis  \( \Delta \)
Suppose all situational controls were to be abandoned: no locks, no custom controls, cash left for parking in an open pot for occasional collection, no library check-outs, no baggage screening at airports, no ticket checks at train stations, no traffic lights, etc. would there be no change in the volume of crime and disorder?

-- Gloria Laycock and Nick Tilley, Jill Dando Institute
10. Put yourself in offender’s shoes

- Try to see the crime from the offender’s perspective
  - Benefits (why), Effort (how), Risks (how)

11. Expect offenders to react

- Changes to offenders behavior
  - Displacement and Adaptation

- Positive unintended effects
  - Diffusion of benefits/Anticipatory benefits
12. Don’t be discouraged by displacement doomsters

► Geographical
  - Crime moves to a different place

► Temporal
  - Crime moves to a different time

► Target
  - Changes from 1 target to another

► Tactical
  - A new method of committing the crime occurs

► Crime Type
  - A different crime occurs
13. Expect diffusion of benefits

<table>
<thead>
<tr>
<th>Type</th>
<th>Definition</th>
<th>Displacement</th>
<th>Diffusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geographical</td>
<td>Geographic change</td>
<td>Switch to another building</td>
<td>Reduce burglaries in targeted building and in nearby buildings</td>
</tr>
<tr>
<td>Temporal</td>
<td>Time switch</td>
<td>Switch from day to evening</td>
<td>Reduce burglaries during day and evening</td>
</tr>
<tr>
<td>Target</td>
<td>Switching object of offending</td>
<td>Switch from apartments to houses</td>
<td>Reduce burglaries in apartments and houses</td>
</tr>
<tr>
<td>Tactical</td>
<td>Change in method of offending</td>
<td>Switch from unlocked doors to picking locks</td>
<td>Reduction in attacks on locked and unlocked doors</td>
</tr>
<tr>
<td>Crime Type</td>
<td>Switching crimes</td>
<td>Switch from burglary to theft</td>
<td>Reduction in burglary and theft</td>
</tr>
</tbody>
</table>
14. Use CHEERS test when defining problems

► Community
  - Who is affected?

► Harmful
  - What are the harms created?

► Expectation
  - What are the expectations for police response?

► Events
  - What types of events contribute to the problem?

► Recurring
  - How often do these events recur?

► Similarity
  - How are the events similar?
15. Know the kind of problem

<table>
<thead>
<tr>
<th>ENVIRONMENTS</th>
<th>BEHAVIORS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Predatory</td>
</tr>
<tr>
<td>Residential</td>
<td></td>
</tr>
<tr>
<td>Recreational</td>
<td></td>
</tr>
<tr>
<td>Offices</td>
<td></td>
</tr>
<tr>
<td>Retail</td>
<td></td>
</tr>
<tr>
<td>Industrial</td>
<td></td>
</tr>
<tr>
<td>Agricultural</td>
<td></td>
</tr>
<tr>
<td>Educational</td>
<td></td>
</tr>
<tr>
<td>Human service</td>
<td></td>
</tr>
<tr>
<td>Public ways</td>
<td>G</td>
</tr>
<tr>
<td>Transport</td>
<td></td>
</tr>
<tr>
<td>Open/Transition</td>
<td></td>
</tr>
</tbody>
</table>
16. Study the journey to crime

► Crime Pattern Theory
  ▪ Nodes
  ▪ Paths
  ▪ Edges

► Ways that offenders find suitable targets:
  ▪ Personal knowledge of victim
  ▪ Work
  ▪ Overlapping “activity spaces”

► Offenders – local vs. not local
17. Know how hot spots develop

► Crime Generators
  ▪ Places where large numbers of people are attracted for reasons unrelated to crime

► Crime Attractors
  ▪ Places affording many criminal opportunities well known to offenders

► Crime Enablers
  ▪ Situations when there is little regulation of behavior at places: rules of conduct are absent or not enforced

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crime Attractors</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Crime Generators</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Crime Enabler</td>
<td>Low (High)</td>
<td>High</td>
</tr>
<tr>
<td>Crime Neutral</td>
<td>Low</td>
<td>Low</td>
</tr>
</tbody>
</table>
18. Learn if the 80-20 rule applies

► Small proportion of X are responsible for a large proportion of outcomes

- Repeat Offenders
- Repeat Victims
- Hot Spots
- Hot Products
- Risky Facilities
<table>
<thead>
<tr>
<th>Address</th>
<th>No. Robberies</th>
<th>% Robberies</th>
<th>Cum. % Robberies</th>
<th>% Addresses (N=106)</th>
<th>Cum. % Addresses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 134 E Main St</td>
<td>25</td>
<td>9.23%</td>
<td>9.23%</td>
<td>0.94%</td>
<td>0.94%</td>
</tr>
<tr>
<td>2 254 S Clover Av</td>
<td>17</td>
<td>6.27%</td>
<td>15.50%</td>
<td>0.94%</td>
<td>1.89%</td>
</tr>
<tr>
<td>3 8012 N Grand Blvd</td>
<td>15</td>
<td>5.54%</td>
<td>21.03%</td>
<td>0.94%</td>
<td>2.83%</td>
</tr>
<tr>
<td>4 8210 N Grand Blvd</td>
<td>10</td>
<td>3.69%</td>
<td>24.72%</td>
<td>0.94%</td>
<td>3.77%</td>
</tr>
<tr>
<td>5 1430 E Main St</td>
<td>9</td>
<td>3.32%</td>
<td>28.04%</td>
<td>0.94%</td>
<td>4.72%</td>
</tr>
<tr>
<td>6 365 W Haverty Rd</td>
<td>9</td>
<td>3.32%</td>
<td>31.37%</td>
<td>0.94%</td>
<td>5.66%</td>
</tr>
<tr>
<td>7 3401 N Staple Dr</td>
<td>8</td>
<td>2.95%</td>
<td>34.32%</td>
<td>0.94%</td>
<td>6.60%</td>
</tr>
<tr>
<td>8 210 S Daisy Rd</td>
<td>7</td>
<td>2.58%</td>
<td>36.90%</td>
<td>0.94%</td>
<td>7.55%</td>
</tr>
<tr>
<td>9 4598 N Roan Rd</td>
<td>5</td>
<td>1.85%</td>
<td>38.75%</td>
<td>0.94%</td>
<td>8.49%</td>
</tr>
<tr>
<td>10 132 E Main St</td>
<td>5</td>
<td>1.85%</td>
<td>40.59%</td>
<td>0.94%</td>
<td>9.43%</td>
</tr>
<tr>
<td>Addresses with 4 (5)</td>
<td>20</td>
<td>7.38%</td>
<td>47.97%</td>
<td>4.72%</td>
<td>14.15%</td>
</tr>
<tr>
<td>Addresses with 3 (15)</td>
<td>45</td>
<td>16.61%</td>
<td>64.58%</td>
<td>14.15%</td>
<td>28.30%</td>
</tr>
<tr>
<td>Addresses with 2 (20)</td>
<td>40</td>
<td>14.76%</td>
<td>79.34%</td>
<td>18.87%</td>
<td>47.17%</td>
</tr>
<tr>
<td>Addresses with 1 (56)</td>
<td>56</td>
<td>20.66%</td>
<td>100.00%</td>
<td>52.83%</td>
<td>100.00%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>271</strong></td>
<td><strong>100.00%</strong></td>
<td></td>
<td><strong>100.00%</strong></td>
<td></td>
</tr>
</tbody>
</table>
19. Research your problem

- Center for Problem-Oriented Policing
  [www.popcenter.org](http://www.popcenter.org)
  (also note Problem Analysis Module on page)

- NCJRS Abstracts Database
  [www.ncjrs.gov](http://www.ncjrs.gov)

- Jill Dando Institute of Crime Science
  [www.jdi.ucl.ac.uk](http://www.jdi.ucl.ac.uk)

- Crime Reduction Website, Home Office
  [www.crimereduction.gov.uk](http://www.crimereduction.gov.uk)

- Australian Institute of Criminology
20. Formulate hypotheses

... about the causes of the problem

► Clearly state the hypotheses
  ▪ have an idea of what you should observe if your hypothesis is correct and what you’d observe if your hypothesis is wrong

► Don’t be wedded to them

► Use data to objectively test them
21. Collect your own data

- Crimes
- Arrests
- Calls for Service
- Field Interviews
- Traffic Data (cites and collisions)

Don’t restrict yourself to the common police data!
21. Collect your own data

- Visual assessments
- Environmental surveys
- Maps
- Time graphs
- Photos/video
- Intelligence info
- Police interviews
- Police records
- Stakeholder canvass
- Neighborhood surveys
- Business surveys
- Student surveys
- School personnel surveys
- Parent surveys
- Offender interviews
- Victim interviews
22. Examine data distributions

► Average case
  - Mean, Median and Mode

► Variation/Spread of cases
  - Range and Standard Deviation
23. Diagnose your hot spot

<table>
<thead>
<tr>
<th>Concentration, Mapping and Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Concentration</strong></td>
</tr>
<tr>
<td>---------------------</td>
</tr>
<tr>
<td>Places - at specific addresses, corners, or facilities</td>
</tr>
<tr>
<td>Victims</td>
</tr>
<tr>
<td>Streets - along streets or block faces</td>
</tr>
<tr>
<td>Area - neighborhoods</td>
</tr>
</tbody>
</table>
24. Know when to use high-def maps

- To understand why a particular location/building is having a crime problem, the crimes need to be divided into specific categories and their locations within the location/building need to be mapped.

- When would this be important?
Analysis of drugs on a school campus
25. Pay attention to rhythms

Source: Juvenile Offenders and Victims: 1996 Update on Violence.
26. Take account of long-term change

- Time course of a problem
  - Overall trend – getting worse or better
  - Cycles – seasonal, daily, weekly
  - Random fluctuations – caused by minor influences

- Time Series Analysis
  - Compare days or weeks or months
  - Not only used for analysis but assessment
  - Tells you what to expect if you do nothing about the problem
27. Know how to use rates and denominators

- Rates help to understand if the number of targets contributes to the problem.
  - Rates describe the number of crimes/incidents per target at risk

**Calculating rates**

- What denominator should be used for...
  - Residential burglary? Disorder in parks? Vehicle theft from parking lots?

- Emphasis on high numbers or rates?
Comparing Risk Rates

Which lot is riskier to park in?

**Swap meet**
- Huge (2,500 spaces)
- Open only 2 days a week
- Park time: 1.5 hours

**OR**

**H Street Trolley**
- Tiny (300 spaces)
- Open 7 days a week
- Park time: 8 hours

![Bar chart showing # of auto thefts in 2001 and risk rate for Swap Meet and H Street Trolley. Swap Meet has 42 auto thefts and a risk rate of 30, while H Street Trolley has 21 auto thefts and a risk rate of 21.](chart.png)
28. Identify risky facilities

► What are risky facilities?

► Why are they risky?
  ▪ Random variation
  ▪ Reporting practices
  ▪ Many targets
  ▪ Hot products
  ▪ Location
  ▪ Repeat victimization
  ▪ Crime attractors
  ▪ Poor management
29. Be ready for repeat victimization

- Focusing on RV increases police effectiveness
  - Direct limited resources to places/people most likely to suffer
  - Maximize impact on crime/disorder problems by focusing on those hardest hit

- “Virtual” or “near” repeats

Lightning Strikes Twice, But When?

The risk of a home being re-burglarized is highest:

A) within 24 hours
B) 1 to 3 days
C) 4 to 30 days
D) 1 to 2 months

B) 1 to 3 days
30. Consider repeat offending

► Why repeat offenders
  ▪ Impulsive individuals w/weak social attachments
  ▪ Exposure to more crime/disorder opportunities take advantage of them

► Successful offending leads to more offending
  ▪ Learning from doing
  ▪ Learning from others
  ▪ Prevention erosion
31. Know the CRAVED products

► Concealable
► Removable
► Available
► Valuable
► Enjoyable
► Disposable
32. Conduct case control studies

33. Measure association
34. Look for crime facilitators

- Crime facilitators help offenders commit crimes
- Each facilitator can counter specific crime prevention methods

<table>
<thead>
<tr>
<th>Crime prevention method</th>
<th>Type of facilitator used</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Physical</td>
</tr>
<tr>
<td>Increase Risk</td>
<td></td>
</tr>
<tr>
<td>Increase Effort</td>
<td></td>
</tr>
<tr>
<td>Reduce Rewards</td>
<td></td>
</tr>
<tr>
<td>Remove Excuses</td>
<td></td>
</tr>
<tr>
<td>Reduce Provocations</td>
<td></td>
</tr>
</tbody>
</table>
35. Understand the crime from beginning to end

► Approaches
  - Precursors, transactions, and aftermath
  - Pre-crash, crash, and post-crash
  - “Scripts” (standard actions performed in a particular order)

► Vehicle Theft for Joyriding
36. Be sure to answer the 5 “W” (and one “H”) questions

► **What** happened?

► **Where** did it happen?

► **When** did it happen?

► **Who** was involved?

► **Why** did they act as they did?

► **How** did the offender carry out the crime?
37. Know that to err is human

- Prediction errors
  - False Negative
  - False Positive

- Which error is worse?
  - Depends

- Pilot tests

---

**Table 1: Types of Prediction Errors**

<table>
<thead>
<tr>
<th>Actual Outcome</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>A. Accurate True Positives</td>
<td>B. False Negatives</td>
</tr>
<tr>
<td>NO</td>
<td>C. False Positives</td>
<td>D. Accurate True Negatives</td>
</tr>
</tbody>
</table>

- Accuracy Rate: \( \frac{A+D}{A+B+C+D} \)
- False Negative Rate: \( \frac{B}{A+B+C+D} \)
- False Positive Rate: \( \frac{C}{A+B+C+D} \)
38. Embrace your key role at response

- Be a part of the team!
- Become an expert on solutions
- Find out more about responses
- Know situational crime prevention
- Opt for solutions that bring rapid reduction
- Address situational causes
- Collect data on feasibility, costs and public acceptability
Situational Crime Prevention Works by Opportunity Blocking in 5 Ways

- Increasing Perceived Risk
- Increasing Perceived Effort
- Decreasing Perceived Reward
- Removing Excuses
- Reducing Provocations
39. Increase the effort of crime

► Harden targets
  ▪ Locks, screens, reinforcements

► Control access to facilities
  ▪ Keeping people up to no good out

► Screen exits
  ▪ People leaving with stolen goods/non-payment

► Deflect offenders
  ▪ Schedule and coordinate for potential problems

► Control tools and weapons
  ▪ Limit potential opportunities for weapon use
40. Increase the risks of crime

- Extend guardianship
  - More people around and aware

- Assist natural surveillance
  - Defensible space, lighting, etc.

- Reduce anonymity
  - Knowing people around you

- Use place managers
  - Increased surveillance and knowledge of environment

- Strengthen formal surveillance
  - Police, security guards, store detectives, etc.
41. Reduce the rewards of crime

- Conceal targets
  - Hiding likely theft (or other) items

- Remove targets
  - Eliminate potential theft (or other) items

- Identify property
  - Official and unofficial markings

- Disrupt markets
  - Stolen goods, drugs, etc.

- Deny benefits
  - Prevent criminal from gaining
42. Reduce provocations

► Reduce frustration and stress
  ▪ Improve service, waiting time, etc.

► Avoid disputes
  ▪ Prevent potential rivals from crossing paths

► Reduce arousal and temptation
  ▪ Avoid situations and goods that often lead to problems

► Neutralize peer pressure
  ▪ Keep negative peers away

► Discourage imitation
  ▪ Copycat crimes
43. Remove excuses for crime

► Set rules
  ◦ Regarding conduct

► Post instructions
  ◦ Work rules, regulations, road signs, etc.

► Alert conscience
  ◦ Posting signs that go beyond just noting illegal

► Assist compliance
  ◦ Provide alternative so crime is not easily committed

► Control drugs and alcohol
  ◦ Make it more difficult to consume as much (or at all)
Situational Crime Prevention?
54. Tell a clear story

► What kind of question do you want answered?
► Structure the account around problem analysis-related theories and approaches.
► Be sure there is logical flow from basic question, through the framework and findings, to the answers.

► Outline the story

1. What is the nature of the problem
2. What causes the problem?
3. What should be done about the problem?
4. Has the response reduced the problem?
55. Make clear maps

- Know what info anticipated audience will find useful
- Keep simple (eliminate features that don’t contribute to understanding the problem)
- Avoid graphics that draw too much attention
- Include details that help viewer understand the problem
- Include scale and compass
- Use meaningful color/size gradations to show intensity
- Apply the correct dimension of crime concentration
- Make use of tables and figures to go with the maps
San Diego County Recovery Rates

2001 Recovery Rates - Cars

2001 Recovery Rates - Trucks
Comparison of types of incidents by school

Legend
Selected Incidents: 2002-2003
Graduated by Enrollment
- Drug Finds
- Fights
- Disorderly Conduct
- Census Tracts
- School District Sub-Boundaries
- Streets

- Saint Joseph High School
- Saint Francis De Sales High School
- Lutheran High School
- Abraham Lincoln High School
- South High School
- Christian High School
56. Use simple tables

Organize tables to make sense

► All the causes go in the same direction (usually columns)

► Summation goes in the direction of the cause (down columns)

► Comparison of causes goes in the opposite direction (across rows, if causes are columns)
57. Use simple figures

► Keep simple. Don’t over-package.
  ▪ Only include content that needs to be conveyed and be sure it can be quickly, easily and accurately interpreted.

► Do not use superficial effects, like 3-D

► Use bar charts for data that comes in categories (avoid pie charts)

► Use line graphs for trends over time.

► Use labels effectively and choose titles carefully

► Make the figures stand on their own without help from the text.
58. Organize powerful presentations

► Begin with a basic question.

► Use a framework to move through a description of findings.

► End with a set of specific conclusions.

► Main focus should be to answer specific questions that will aid decision-making.

► Do not spend too much time describing methods (unless it’s the appropriate audience).
59. Become an effective presenter

- Preparation
- Check out room on presentation day
- Projector (and other AV)
- Presentation style
- Presentation software
- Individual slides
- Be safe (aka prepared for problems)!
60. Contribute to the store of knowledge

► Write things up
  ▪ Reports
  ▪ Professional periodicals
  ▪ Popular press articles

► Present
  ▪ Professional conferences
  ▪ Professional meetings

► Don’t limit yourself to the crime analysis field
  ▪ Policing
  ▪ Criminal justice
  ▪ GIS
  ▪ Crime-specific
Implementing Problem Analysis: Benefits and Challenges
Julie’s Bonus Step

► Get yourself and your colleagues a copy today!

Contact Info:

- Julie Wartell
- julie.wartell@att.net
- 858.204.3887