INTRODUCTION TO PROBLEM ANALYSIS

Int’l Problem-Oriented Policing Conference
Boulder, Colorado
August 2023
### UCR Category

<table>
<thead>
<tr>
<th>UCR Category</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Murder</td>
<td>8</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td>Rape</td>
<td>46</td>
<td>35</td>
<td>35</td>
<td>19</td>
<td>135</td>
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<tr>
<td>Robbery</td>
<td>87</td>
<td>74</td>
<td>74</td>
<td>31</td>
<td>266</td>
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<tr>
<td>Agg. Assault</td>
<td>231</td>
<td>211</td>
<td>253</td>
<td>133</td>
<td>828</td>
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<tr>
<td>Burglary</td>
<td>400</td>
<td>413</td>
<td>371</td>
<td>79</td>
<td>1,263</td>
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<tr>
<td>Theft</td>
<td>2,114</td>
<td>1,769</td>
<td>1,759</td>
<td>374</td>
<td>6,016</td>
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<td>Auto Theft</td>
<td>404</td>
<td>388</td>
<td>459</td>
<td>234</td>
<td>1,485</td>
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<tr>
<td>Grand Total</td>
<td>3,290</td>
<td>2,892</td>
<td>2,954</td>
<td>871</td>
<td>10,007</td>
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### Police District

<table>
<thead>
<tr>
<th>Police District</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
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<tbody>
<tr>
<td>1</td>
<td>1,332</td>
<td>1,284</td>
<td>1,408</td>
<td>526</td>
<td>4,550</td>
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<td>2</td>
<td>1,341</td>
<td>1,240</td>
<td>1,481</td>
<td>605</td>
<td>4,667</td>
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<td>3</td>
<td>867</td>
<td>785</td>
<td>922</td>
<td>342</td>
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<td>4</td>
<td>870</td>
<td>738</td>
<td>810</td>
<td>315</td>
<td>2,733</td>
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<tr>
<td>5</td>
<td>716</td>
<td>685</td>
<td>734</td>
<td>252</td>
<td>2,387</td>
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<tr>
<td>6</td>
<td>727</td>
<td>640</td>
<td>717</td>
<td>240</td>
<td>2,324</td>
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<tr>
<td>7</td>
<td>789</td>
<td>730</td>
<td>716</td>
<td>268</td>
<td>2,503</td>
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<tr>
<td>8</td>
<td>522</td>
<td>456</td>
<td>462</td>
<td>198</td>
<td>1,638</td>
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<tr>
<td>Grand Total</td>
<td>7,164</td>
<td>6,558</td>
<td>7,250</td>
<td>2,746</td>
<td>23,718</td>
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### SHIFT

<table>
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<tr>
<th>SHIFT</th>
<th>Sun</th>
<th>Mon</th>
<th>Tue</th>
<th>Wed</th>
<th>Thu</th>
<th>Fri</th>
<th>Sat</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>765</td>
<td>998</td>
<td>987</td>
<td>972</td>
<td>971</td>
<td>922</td>
<td>891</td>
<td>6506</td>
</tr>
<tr>
<td>B</td>
<td>1297</td>
<td>1494</td>
<td>1451</td>
<td>1410</td>
<td>1339</td>
<td>1459</td>
<td>1380</td>
<td>9830</td>
</tr>
<tr>
<td>C</td>
<td>1329</td>
<td>1098</td>
<td>897</td>
<td>938</td>
<td>1010</td>
<td>1095</td>
<td>1392</td>
<td>7759</td>
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<tr>
<td>TOTAL</td>
<td>3391</td>
<td>3590</td>
<td>3335</td>
<td>3320</td>
<td>3320</td>
<td>3476</td>
<td>3663</td>
<td>24095</td>
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### Comparing Analytic Products

Group 2

<table>
<thead>
<tr>
<th>Burglary Type</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burglary Non-Residence</td>
<td>204</td>
<td>204</td>
<td>174</td>
<td>48</td>
<td>630</td>
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<tr>
<td>Burglary of Coin-Op Machine</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>Burglary of Residence</td>
<td>98</td>
<td>125</td>
<td>137</td>
<td>24</td>
<td>384</td>
</tr>
<tr>
<td>Burglary of Shed/Garage/Storage</td>
<td>97</td>
<td>84</td>
<td>60</td>
<td>7</td>
<td>248</td>
</tr>
<tr>
<td>Burglary of Vehicle</td>
<td>903</td>
<td>770</td>
<td>686</td>
<td>138</td>
<td>2497</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1307</td>
<td>1187</td>
<td>1060</td>
<td>219</td>
<td>3773</td>
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</table>

<table>
<thead>
<tr>
<th>Location Type</th>
<th>Count</th>
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</thead>
<tbody>
<tr>
<td>Residence / Home</td>
<td>364</td>
</tr>
<tr>
<td>Hotel / Motel / Etc.</td>
<td>13</td>
</tr>
<tr>
<td>Commercial / Office Building</td>
<td>2</td>
</tr>
<tr>
<td>Parking / Drop Lot / Garage</td>
<td>2</td>
</tr>
<tr>
<td>Construction Site</td>
<td>1</td>
</tr>
<tr>
<td>Hwy / Road / Alley / Street / Sidewalk</td>
<td>1</td>
</tr>
<tr>
<td>Rest Area</td>
<td>1</td>
</tr>
</tbody>
</table>

Residential Burglaries by Day and Hour

Location Type

- **Residence / Home**: 364
- **Hotel / Motel / Etc.**: 13
- **Commercial / Office Building**: 2
- **Parking / Drop Lot / Garage**: 2
- **Construction Site**: 1
- **Hwy / Road / Alley / Street / Sidewalk**: 1
- **Rest Area**: 1
Why is analysis important for POP?

To reduce crime…

we need to know what causes it.
PROBLEM ANALYSIS

• Approach/method/process

• Uses formal criminology theory, research methods, comprehensive data collection and analysis procedures

• Systematic way to:
  1. conduct in-depth examination of,
  2. develop informed responses to, and
  3. 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
• 1,200 CFS per year (27 motels)

- Most common CFS: disturbance

• 5 motels accounted for 28% of rooms, but 53% of CFS

• Most motel users local
ANALYZING A LONG-TERM PROBLEM

- Initial CFS analysis
- Observations
- Motel “user” surveys
- Manager interviews
- Environmental surveys
- Literature review/site visits
- Investigating causes
INVESTIGATING CAUSES

- Bad neighborhood
- Low room price
- Local clientele
- Insufficient police attention
- Poor management practices
Northwest Chula Vista Motels and Hotels by Annual CFS Per Room Ratios: 2003

Legend
- Gray: High CFS Hotspot Area

Motels by Annual CFS Per Room Ratios
- Blue: Less than 0.5 CFS
- Yellow: 0.5 to 1.0 CFS
- Red: Greater than 1.0 CFS
CALLS FOR SERVICE RATE

$44-$60/night + local guests

$45-$55/night + local guests
CITIZEN-INITIATED CALLS NOT AFFECTED BY ENFORCEMENT
DEVELOPING RESPONSES:
GOLDSMITH HIERARCHY

- Bringing a civil action
- Legislation mandating prevention
- Charging a fee for police service
- Withdrawing police service
- Public shaming
- Creating organization to assume ownership
- Engaging another existing organization
- Targeted confrontational requests
- Straightforward informal requests
- Educational programs
Collaborative effort of 7 city agencies

Required annual permit to operate

City could deny permit based on CFS

City standard was median for 2005
Motels decided what steps to take

- Guest/visitor screening
- Access control
- Private security
- Rules
CFS TO MOTELS DOWN 41%
CRIMES AT MOTELS REDUCED 70%
Don’t settle for broad crime categories!

DEFINING PROBLEMS WITH SPECIFICITY AND ACCURACY

Why is it important to be specific?

- Correctly identifying the underlying problem
- Asking the right analysis questions
- Having the most appropriate response strategies
- Focus on local problem, not just generic explanations of the crime
Repeat offenders attacking different targets at different places.

Different offenders and different targets interacting at the same place.

Repeat victims repeatedly attacked by different offenders.
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
Diagnose your hot spot


- **Places**: Show as dot, action at facility, corner or address. Ex: CCTV in a parking garage or bar regulations.

- **Streets**: Show as line, action at path, street, etc. Ex: change traffic patterns or parking regs.

- **Victims**: Show as dot, action at victim location(s). Ex: educating victims or target hardening.

- **Areas**: Show as area, action at neighborhood, area, etc. Ex: comm partnerships, neighborhood redev.
### Vehicle type Comparison

<table>
<thead>
<tr>
<th>Vehicle type</th>
<th>Camden</th>
<th>Clerkenwell (n)</th>
<th>Clerkenwell(%)</th>
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</thead>
<tbody>
<tr>
<td>Car</td>
<td>51%</td>
<td>41</td>
<td>18%</td>
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<tr>
<td>Sports or convertible</td>
<td>3%</td>
<td>5</td>
<td>2%</td>
</tr>
<tr>
<td>Scooter or moped</td>
<td>26%</td>
<td>95</td>
<td>42%</td>
</tr>
<tr>
<td>Motor cycle</td>
<td>13%</td>
<td>70</td>
<td>31%</td>
</tr>
<tr>
<td>Van</td>
<td>5%</td>
<td>3</td>
<td>1%</td>
</tr>
<tr>
<td>Other</td>
<td>2.0%</td>
<td>10</td>
<td>4%</td>
</tr>
<tr>
<td>Not known</td>
<td>0.5%</td>
<td>0</td>
<td>0%</td>
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</table>
ANALYZING “HOT” PLACES
• There are 1,539 rental properties in University Area Housing (UAH).

• BPD received 18,415 calls for service to UAH rental properties between January 2018 and April 2021.
There were 7,522 calls for service to 215 Apartment Complexes (top 20% = 57.5%).

There were 2,811 calls for service to 602 Single Family Dwellings (top 20% = 55.4%).
USING HIGH DEF MAPS
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
LEARN IF THE 80-20 RULE APPLIES

- Pareto Principle – 80% of consequences stem from 20% of causes
- Crime is highly concentrated across people (offenders and victims) and places
- Visualized as a j-curve:

\[
\text{Offenders} \quad \rightarrow \quad \text{Victims} \quad \rightarrow \quad \text{Places}
\]

Most Crime

\[
\begin{align*}
&\text{A few have most of the crime} \\
&\text{Some have a modest amount of crime} \\
&\text{Most experience little or no crime}
\end{align*}
\]
<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>
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<tr>
<td>134 E Main St</td>
<td>25</td>
<td>9.23%</td>
<td>9.23%</td>
<td>0.94%</td>
<td>0.94%</td>
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<td>254 S Clover Av</td>
<td>17</td>
<td>6.27%</td>
<td>15.50%</td>
<td>0.94%</td>
<td>1.89%</td>
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<tr>
<td>8012 N Grand Blvd</td>
<td>15</td>
<td>5.54%</td>
<td>21.03%</td>
<td>0.94%</td>
<td>2.83%</td>
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<td>8210 N Grand Blvd</td>
<td>10</td>
<td>3.69%</td>
<td>24.72%</td>
<td>0.94%</td>
<td>3.77%</td>
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<td>1430 E Main St</td>
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<td>3.32%</td>
<td>28.04%</td>
<td>0.94%</td>
<td>4.72%</td>
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<tr>
<td>365 W Haverty Rd</td>
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<td>3.32%</td>
<td>31.37%</td>
<td>0.94%</td>
<td>5.66%</td>
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<tr>
<td>3401 N Staple Dr</td>
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<td>2.95%</td>
<td>34.32%</td>
<td>0.94%</td>
<td>6.60%</td>
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<td>210 S Daisy Rd</td>
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<td>2.58%</td>
<td>36.90%</td>
<td>0.94%</td>
<td>7.55%</td>
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<td>4598 N Roan Rd</td>
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<td>1.85%</td>
<td>38.75%</td>
<td>0.94%</td>
<td>8.49%</td>
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<td>132 E Main St</td>
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<td>1.85%</td>
<td>40.59%</td>
<td>0.94%</td>
<td>9.43%</td>
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<td>Addresses with 4 (5)</td>
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<td>7.38%</td>
<td>47.07%</td>
<td>4.72%</td>
<td>14.15%</td>
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<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>
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<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>
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<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>
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<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>
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REPEAT VICTIMIZATION

➢ Hot Dots
➢ Hot Products
➢ Hot Spots
➢ Hot Targets
➢ Hot People
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

D) 1 to 2 months
Once a home has been burglarized, the risk of re-victimization increases:

A) By a factor of 2
B) By a factor of 4
C) By a factor of 6
D) By a factor of 8

B) Once hit, a house is 4 times more likely to be burglarized than those never burglarized.
REPEAT OFFENDING

Proactive use of prolific offender analysis in Portland, Or

Established Capacity-Based Cutoff Scores on DVRS-r

<table>
<thead>
<tr>
<th>Priority Levels</th>
<th>DVRS-r Scale Scores</th>
<th>% Cases</th>
<th>% Any New Criminal Incident</th>
<th>% New DV Incident</th>
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</thead>
<tbody>
<tr>
<td>Highest - 1</td>
<td>10 to 13</td>
<td>13%</td>
<td>86%</td>
<td>60%</td>
</tr>
<tr>
<td>2</td>
<td>7 to 9</td>
<td>24%</td>
<td>77%</td>
<td>43%</td>
</tr>
<tr>
<td>3</td>
<td>3 to 6</td>
<td>37%</td>
<td>59%</td>
<td>30%</td>
</tr>
<tr>
<td>Lowest - 4</td>
<td>0 to 2</td>
<td>26%</td>
<td>37%</td>
<td>17%</td>
</tr>
</tbody>
</table>
Which lot is riskier to park in?

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

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

![Bar graph showing number of auto thefts and risk rates for Swap Meet and H Street Trolley. Swap Meet had 42 auto thefts and a risk rate, while H Street Trolley had 21 auto thefts and a higher risk rate.](image-url)
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
## Collect Your Own Data

<table>
<thead>
<tr>
<th>Visual assessments</th>
<th>Environment-al surveys</th>
<th>Maps</th>
<th>Time graphs</th>
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<tbody>
<tr>
<td>Photos/videos</td>
<td>Intelligence info</td>
<td>Police interviews</td>
<td>Police records</td>
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<tr>
<td>Stakeholder canvass</td>
<td>Neighborhood surveys</td>
<td>Business surveys</td>
<td>Student surveys</td>
</tr>
<tr>
<td>School personnel surveys</td>
<td>Parent surveys</td>
<td>Offender interviews</td>
<td>Victim interviews</td>
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</tbody>
</table>
DATA COLLECTION FOR PROBLEM ANALYSIS IN PORTLAND, OR

DIVING DEEPER INTO PROBLEM AREAS
AND DEEPER...
RESOURCES TO SUPPORT PROBLEM ANALYSIS

- Center for Problem Oriented Policing
  - [http://www.popcenter.org/](http://www.popcenter.org/)
  - [http://www.popcenter.org/learning/60steps/](http://www.popcenter.org/learning/60steps/)
  - [http://www.popcenter.org/problems/](http://www.popcenter.org/problems/)

- Drug Dealing in Privately Owned Apartment Complexes
  - Ronald V. Clarke & John E. Eck

- Analyzing Crime Displacement and Diffusion
  - Rob T. Guerette
Thank you

Questions? Comments?

Julie Wartell
julie.wartell@gmail.com