APD Calls for Service Analysis

Public Safety Committee
August 6, 2020
1. Purpose of the analysis
2. Caveats about the data
3. Dashboards & visuals
   a. General
   b. Dispatched vs officer initiated (live demo)
   c. Mental health dashboard
   d. Initial call type and disposition visual
   e. False alarm data visual
4. Next steps & future analysis
5. Closing - how might we reference calls for service data to reimagine public safety?
6. Appendix - definitions
Purpose of the analysis

A. How might we use police calls for service and related data to reimagine public safety?
B. Iteration: **Get feedback** on the dashboards for future development along a longer time series.
C. Of note: The dashboard is created with *January 2020 data*. We do not yet offer conclusions, given the time limitation of the data. As we discuss data caveats, we needed to correctly architect the data framework.
Data caveats
We have to consider the **process + the data**...

**Process ->** Pre-scene arrival  
On scene

**Data ->**

Initial Problem Code  
Priority Code

- **Caller**  
- **Call Taker**  
- **Dispatcher**  
- **Primary**  
- **Backup (s)**
...and that the system was built administratively...

Pre-scene arrival
- Caller
- Call Taker
- Dispatcher

On scene
- Primary
- Backup (s)

Post incident

Arrest records

Data Sources ->
- Computer-Aided Dispatch (CAD)
- Records Management System (RMS)

Data Element ->
- Initial Problem Code
- Priority Code

- 86 Primary Type Codes
- Plus Dispatcher Codes
- And Final Type Codes

(5 Codes)
...that problem definition certainty changes over time...

Pre-scene arrival
- Caller
- Call Taker
- Dispatcher

On scene
- Primary
- Backup(s)

Post incident
- Disposition Code
- Disposition Code Update

Arrest records
- Arrest records

Computer-Aided Dispatch (CAD)
- Initial Problem Code
- Problem Code Update
- Priority Code
- Priority Code Update

Records Management System (RMS)
- Certain

Less certain -> Certain
...and how **time spent** analysis works...

**Pre-scene arrival**
- Caller
- Call Taker
- Dispatcher
- Response Timestamp

**On scene**
- Primary
- Backup (s)
- Arrived Timestamp
- Arrived Timestamp

**Post incident**
- Call cleared Timestamp

**Computer-Aided Dispatch (CAD)**

**Reliability issues ->**

**12k out of 48k records have no backup arrival timestamp**

**Records Management System (RMS)**
Data differences - AH Datalytics report and this work

Pre-scene arrival
- Caller
- Call Taker
- Dispatcher
- Incident Type
- Officer initiated
- Response Timestamp
- Initial Problem Code
- Priority Code
- Problem Code Update

On scene
- Primary
- Backup (s)
- Time arrived Timestamp
- Time call cleared Timestamp
- Priority Code Update

Post incident *
- Disposition Code
- Disposition Code Update

Arrest records *
- NIBRS Codes (FBI Offense Codes)

Computer-Aided Dispatch (CAD)
Records Management System (RMS)
...so therefore, we are working with **Jan 2020 data**

Architect with a smaller sample size to work through complexity

Honor, unpack, and align data to the **lines of inquiry** council that council members and aides, civil society groups, and management gave us

Get your feedback on the dashboards, and iterate based on suggested changes

Then update the dashboards with more time series data

**Example lines of inquiry:**

- Time spent on mental health calls
- Time spent analysis
- Repeat properties & signals for preventative intervention
- Does “no report” signal we can solve for something differently
- What are the ranges of different problem types, like “disturbance”
- What is the time spent on specific problem types
- What is the day in the life of an officer according to the data
Dashboards and visuals
CALLS FOR SERVICE TRENDS - JANUARY 2020
DISPATCHED VS. OFFICER INITIATED

Count of Calls for Service
- Dispatched Calls: 29,163
- Officer Initiated: 12,186

Category of Calls - List View
- Traffic Stop: 4
- Disturbance Other: 102
- On Site Incident: 99
- Suspicious Person: 65
- Alarm Burglar: 65

Category of Calls - Relational View
- 2,506 Disturbance Other
- 1,782 Check Welfare
- 1,467 Suspicious
- 1,147 Alarm Burglar
- 1,024 Trespass

Calls Received by hour of the day
- Count of Calls over time

Count of Calls by Disposition
- 0 - Reassigned call: 1
- 1 - Report Written: 1,784
- 2 - Supplement Written: 255
- 3 - Unable To Locate: 297
- 4 - False Alarm: 2136
- 5 - Non-Police Matter: 388
- 6 - No Report: 6,310

Count of Calls by Police Sectors
- ADAM PD
- APT
- BAKER PD
- CHARLIE
- DAVID PD
- EDWARD
- FRANK P.
- GEORGE
- HE
- HENRY P.
- IDA PD

Count of Calls by Priority

Time Spent Analysis
- Avg. Resolve Time:
  - 1: 23.32
  - 2: 43.04
  - 3: 52.69
  - 4: 4.88
Mental Health Related Trends - January 2020

Count of Calls for Service
- Count of Calls for Service
  - No or unknown MH component: 7,995
  - Confirmed or potential MH component: 3,823
  - Counselor transfer eligible: 242
  - No or unknown MH component: 29,332
  - Not Categorized: 17

Count of Calls by Disposition
- Count of Calls by Disposition
  - 1 - Report Written: 936
  - 2 - Supplement Written: 603
  - 3 - Unable To Locate: 1,190
  - 4 - False Alarm: 800
  - 5 - Non-Police Matter: 17
  - 8 - 10/8 From Traffic: 1,800
  - 11 - Report Written MH: 2,000
  - 12 - No Report MH: 1,000
  - C - Cancelled Incident: 1,000

Count of Calls by Top Initial Problem Categories
- Count of Calls by Top Initial Problem Categories
  - Initial Call Problem
    - Check Welfare Urgent: 798
    - Check Welfare Service: 474
    - Disturbance Other: 474
    - Suspicious Person: 431
    - Trespass Urgent: 330
    - Service: 256
    - Disturbance Urgent: 17
    - *Assist Non Emergency: 177
    - Nature Unknown Urgent: 136
    - Disturbance HS: 99

Calls Received by Hour of the Day
- Calls Received by Hour of the Day
  - District count
    - 0: 200, 2: 19, 3: 13, 4: 176, 5: 2, 6: 19, 7: 2, 8: 2, 9: 2, 10: 2, 11: 2, 12: 2, 13: 2, 14: 2, 15: 2, 16: 2, 17: 2, 18: 2, 19: 2, 20: 2, 21: 2, 22: 2, 23: 2

Time Spent Analysis
- Time Spent Analysis
  - Response Time
    - Confirmed or potential MH component: 600
    - Counselor transfer eligible call, however: 200
    - Not Categorized: 600
  - Time on Scene
    - Confirmed or potential MH component: 600
    - Counselor transfer eligible call, however: 200
    - Not Categorized: 600

Count of Primary and Backup Police Officer Responses
- Count of Primary and Backup Police Officer Responses
  - Primary and Backup Police Officer Responses
    - Confirmed or potential MH component: 613
    - Counselor transfer eligible call, however: 10,297
    - Not Categorized: 200
### Initial Call Problem Category by Disposition and Priority

<table>
<thead>
<tr>
<th>Initial Call Problem</th>
<th>Call Disposition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic Stop</td>
<td>6 - No Report</td>
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<tr>
<td></td>
<td>1 - Report Written</td>
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<tr>
<td></td>
<td>3 - Unable To Locate</td>
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<td></td>
<td>8 - 10/8 From Traffic</td>
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<td></td>
<td>5 - Non-Police Matter</td>
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<td></td>
<td>10 - District Representative</td>
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<tr>
<td>Disturbance Other</td>
<td>6 - No Report</td>
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<tr>
<td></td>
<td>1 - Report Written</td>
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<td></td>
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<tr>
<td>On Site Incident</td>
<td>6 - No Report</td>
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<tr>
<td></td>
<td>C - Cancelled Incident</td>
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<tr>
<td></td>
<td>T - Test Call</td>
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<tr>
<td></td>
<td>0 - Reassigned call</td>
</tr>
<tr>
<td>Suspicious Person</td>
<td>6 - No Report</td>
</tr>
</tbody>
</table>

**Count of Calls**

2,306

**Priority**

- [ ] (All)
- [ ] 111 CELL PHONE HANG UPS
- [ ] Attempted Suicide HS
- [ ] Bomb HS
- [ ] Burglary HS
- [ ] Crash HS
- [ ] Disturbance HS
- [ ] Gun HS
- [ ] Kidnapping Abduction HS
- [ ] Missing HS
- [ ] Officer Needs Assistance HS
- [ ] Pedestrian on HSR
- [ ] Prowler HS
- [ ] Robbery HS
- [ ] Sex Crime HS
- [ ] Shoot/Stab HS
- [ ] Traffic Hazard HS
- [ ] Wrong Way Motorists on HSR
- [ ] Assist Code 3
- [ ] Assist Non Emergency
- [ ] Call From TCSO - Emergency
- [ ] Call From TCSO - Non Emergenc
- [ ] Public Safety Assist Urgent
- [ ] ABANDONED VEHICLE
- [ ] ABUSE OF 911
- [ ] AGG Assault
- [ ] AGG RAPE
- [ ] AGG ROBBERY/DEADLY WEAPON
False Alarm Indicator

Calls which have "alarm, robbery, burglary" word in the initial call problem are considered. Call disposition shows how many of them are False.

Count of Calls by Disposition

Count of Calls by Initial Problem Category

Count of Police Officer Responses by Disposition
Next steps & future analysis

1. Extending the dashboards to longer time horizons
2. Call problem transformation - continue w/ RMS data
3. Call outcomes - continue w/ RMS data
4. False Alarm - continue analysis; consider how modeling and prediction can help
5. Location based analysis
6. Gentrification maps and calls for service correlation
7. Incident-level analysis - range of officer count per incident/ range in types of incidents.
8. Journey maps - a day in the life of an officer responding to calls
9. Open Data - Dallas and San Antonio each have slightly different representation of calls for service data in their open data portal
“Analysis of calls for service data provides a huge and largely untapped opportunity for researchers and practitioners to inform and transform policy and practice.”

- Vera Institute of Justice, July 2019

The 911 Call Processing System: A Review of the Literature as it Relates to Policing
Priority definitions

Priority 0 - An incident involving physical harm or injury to person or property, which is in progress and/or all involved parties are still on scene. (E.g. shooting/stabbing)

Priority 1 - An incident involving physical harm or perceived threat to person(s) or property, which just occurred and/or suspect(s) may still be in the area; where a quick response might aide in apprehension. (E.g. robbery)

Priority 2 - In progress property crimes or just occurred crimes against persons. An incident warranting a rapid police response, however, poses a minimal threat or no immediate threat, which either is in progress or just occurred. (E.g. Suspicious Person)

Priority 3 - Incidents where life or property is not at risk and an immediate police response will not likely prevent further injury, loss of property or adversely affect an investigation. (E.g. DOC/City Ordinance Violation)

Priority 4 - Incidents where a police response is not required, however, the incident does require the documentation and/or dissemination of information to law enforcement personnel.
Disposition definitions

0 – Reassigned Call: The call was reassigned (CAD system does not provide the reason)
1 – Report Written: An officer wrote a report for the call
2 – Supplement Written: An officer wrote a supplement either to the report or another report
3 – UTL: Unable to locate the complainant
4 – False Alarm: When a Burglar or Robbery Alarm was not an actual break-in or robbery.
5 – Non-Police Matter: Civil Matter
6 – No Report: The officer did not write a report
8 – 10/8: Back in Service from a call for service or a Traffic Stop
10 – District Representative: Call transferred to a District Representative
11 – Report Written MH: Mental Health component to the call and the officer wrote a report
12 – No Report MH: Mental Health component to the call and the officer did not write a report
C – Cancelled Incident: The complainant cancelled police response before officers arrived on scene
P – Primary Unit will advise: Should not be used as a disposition
T – Test Call: Used during testing or training at Emergency Communications.
N – No 911 Call Entered: The complainant cancelled the call prior to the 911 Operator entering the calls for patrol response.
Top initial call problem definitions

*Assist Non Emergency: Any request for non-emergency assistance from another agency.

Alarm Burglar: Activations for premise(s) indicating unlawful entry that are in progress.

Auto Theft Service: Incidents where a motor vehicle is missing and the complainant does not know when it was taken, who may have taken it, and/or subject is refusing to return the vehicle. Incidents involving found motor vehicle thefts, and/or unauthorized use of a motor vehicle (UUMV’s). Any report of an attempted auto theft.

Checking Area: An officer patrolling a high crime area for criminal activity.

Check Welfare Service: Incidents where the well-being of an individual and/or property is being questioned that does not require immediate police response and is not likely to negatively impact an investigation.

Check Welfare Urgent: Any person down due to an unknown circumstance and/or police response is warranted. Any report of abandoned/endangered person(s) that exposes the subject to intentional risk or imminent danger. Any person who is contemplating/threatening suicide; or having suicidal/homicidal thoughts.
Crash Urgent: Collisions involving unknown/non-life threatening injuries and/or that are blocking secondary roadways. HSR collisions that have since been pulled to the shoulder or median and are no longer blocking.

Directed Patrol: An officer patrolling an area requested by a citizen for extra patrol, or an area identified by a supervisor or District Representative/Crime Analyst as a high crime area.

Disturbance HS: An incident involving physical harm or immediate threat of injury to person that is in progress and all involved parties are still on scene; which may or may not involve a weapon.

Disturbance Other: Incidents involving non-violent (verbal) disturbances that are in progress or just occurred (within five (5) minutes).

Disturbance Service: Any violent or non-violent incident that is no longer in progress, did not just occur, and no longer poses an immediate threat.

Disturbance Urgent: An incident involving physical harm or perceived threat of injury to person(s), which may or may not involve a weapon that just occurred (within five (5) minutes).

DOC / C.O. Violation: Any city ordinance violation that requires a law enforcement response.
Top initial call problem definitions con’t

**Hang-ups:** Any call received from a business or coin phone that is either abandoned, or a hang up; communicated to be a misdial by the caller; or an open line with no apparent disturbance heard in the background.

**Nature Unknown Urgent:** An unclear incident that is in progress with a perceived threat to person(s) and/or property.

**On Site Incident:** An officer initiated call for service because an officer was waived down by a citizen or observed a law or city ordinance violation.

**Service:** Any incident that does not fit into any other call type category and does not pose an immediate threat to life, public safety, or property.

**Suspicious person:** An incident involving person(s) suspected of some suspicious and/or lewd activity that is in progress or just occurred (within five (5) minutes).

**Suspicious unknown:** Unclear incident(s) that may be significant but do not pose an immediate threat to person(s) and/or property.

**Suspicious vehicle:** Incident involving vehicle(s) suspected of suspicious activity that is in progress or just occurred (within five (5) minutes).
Top initial call problem definitions, con’t

**Subject Stop:** An officer initiated call for service for an officer stopping a pedestrian because the officer observed suspicious activity or observed a law or city ordinance violation.

**Theft:** Incidents that are in progress or just occurred (within five (5) minutes) where a person intentionally takes property that is not their own without consent.

**Traffic Hazard:** Impediments located on minor roadways not posing an immediate hazardous situation, however, if not addressed could cause future problems. Persons soliciting at a high speed roadway (HSR) or major thoroughfare. Pedestrians in a lane of travel on a minor roadway.

**Traffic Hazard HS:** Any hazard on high speed roadways (HSR), including frontage roads, which may cause a collision, injuries, or otherwise cause undue traffic congestion except pedestrians or solicitors at HSR intersections or thoroughfares.

**Traffic Stop:** An officer initiated stop of a motor vehicle for a traffic/equipment violation.

**Trespass Urgent:** Any person on a premise without consent and/or refusing to leave that is in progress.

**Working Traffic:** An officer patrolling a designated location or intersection where there have been a high number of traffic violations or collisions. Working a school zone while school is in session may also fall into this category.