Using Data to Determine High Visibility Enforcement/Engagement

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OVERVIEW

• Introduce data-driven strategies, and place-based and evidence-based concepts and how they can be effective for crime and crash reductions AND improving the quality of life for your community.
• Metro/Nashville Police Department – High Visibility Enforcement – Koper Curve – Hot Spot Research

WHY WE ARE HERE

37,731 Fans at Fenway
36,120 crash deaths occurred
WHY WE ARE HERE

Fill Fenway Stadium 224 times equals one year of property crimes in USA

\[ x \ 224 = \text{USA Yearly Property Crimes (Approx. 8.2 million)} \]
Data-Driven Activities

January 2011 thru December 2012

- 3,395 Traffic Stops
- 2,515 Citations
- 1,899 Verbal or Written Warnings
- 170 Field Contact Cards
- 165 Arrests
- 4,425 Hours of "Discretionary Time"
- 10,416 Contacts
- Discretionary Time = No $ Increase
Why a Data-Driven Approach?

Crashes and crime often occur in close proximity.
Social harms often involve motor vehicles.
Crashes are a significant drain on agency resources.
Vehicle stops can yield valuable intelligence.
Increasing Demands and Limited Resources

Kansas City, KS Police Department

“We let the data tell us where we need to place our resources because it will be based upon historical data not just what is popping up now.”
~ Chief (ret.) Terry Zeigler,
Kansas City, KS Police Department

What is meant by “evidence based”? 

A program that has stood the test of rigorous experimental evaluations (Oregon Research Institute, 2017):
- Has shown that it is supported by data, not just based on theory
- Has been repeatedly tested and is more effective than standard care or an alternative practice, &
- Can be reproduced in other settings (generalization).
Place-Based Policing

• Also known as “Hot spots” policing
• It is a data-driven strategy within community policing, problem-oriented policing, and predictive policing.
• Placed-based policing (PBP) has been developed, practiced, and researched over the last 30 years.
• The method implemented correctly (using data to identify problem areas) has been regarded as effective.
• Effectiveness = crime reduction
• It is also considered an evidence-based strategy.

“Facts” About Crime:

Crime is not geographically random
Repeat victimization of certain people and places is common
Highly motivated offenders are responsible for approximately half of crimes committed.

DDACTS as a Data-Driven Premise

The basic premise of DDACTS is the use of Highly Visible traffic Engagement (HVE/Contact) in areas that have been shown to experience high levels of both crime and traffic problems and is an efficient and effective way to improve the safety of the public.
Data Sources and Quality

- Data Sources
  - Call for Service (CAD)
  - Incidents (CAD/RMS)*
  - Crashes
  - Police Activity
- MV Stops
- Citations & Warnings
- Field Contacts
- Arrests/Summons
- Directed Patrols

Data Quality
- Accurate
- Timely
- Complete
- Accessible
- Querying flexibility

Chronic Problem: Drivers texting and emailing during morning commuter.
Hot Spot: Entrance/exit to major shopping center.
Pattern: New construction zone causing frequent illegal turns.
Repeat Offender: Brett Railey runs a local drag-racing club.

Chronic Problem: Teenagers speeding when leaving high school.
Hot Spot: Poorly-configured freeway on-ramp and off-ramp.
Random Stuff
WHY DDACTS?

Opportunities to build trust exist in every call, every meeting, every conversation.

And:

DDACTS is the ONLY crime AND crash reduction model that puts structure and emphasis on community outreach using a transparent and data-driven strategy.
Using Data to Determine a High Visibility Enforcement Dosage

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High Visibility Enforcement

- "HVE combines highly visible and proactive law enforcement targeting a specific traffic safety issue." - NHTSA
- Departure from traditional, every-day enforcement
- Designed to make enforcement efforts obvious to the public
- Gain voluntary compliance with the law, change behaviors
- Deterrence Theory

Koper Curve Hypothesis

- 1995 study by Dr. Christopher Koper
- Found that police could maximize reduction of crime by making 10-15 minute stops at locations on a random, intermittent basis
- Maximize deterrence and minimize time spent in hot spots
- Hypothesis: Deploy HVE on a random, intermittent basis in crash hotspots. Is there an ideal "dosage?"
Believing the “HIPE”

• Harm focused
• Intelligence led
• Problem oriented
• Evidence Based

(Credit: Dr. Jerry Ratliff – Temple University)

Genesis of the Plan

• Officers spend 100 minutes completing each crash
• 33,419 crashes in 2018
• 81 fatal crashes
• 9,143 injury crashes
• 24,195 property damage
• 526 square miles
• 3 major interstates
• 2,200 miles of right-of-way

Identifying Hotspots

• Top Crash Intersections – past 12 weeks
• Roadway Characteristics
• Roadway Segments rather than intersections
Top Crash Intersections
- Weekly Compstat Reports
- Past 12 weeks
- Plotted to closest intersection
- Recent fatal crashes

Roadway Segments
- Data showed several intersections within close proximity as being top crash intersections
- Crashes were not necessarily intersection related
Collecting the Data
- Crash Counts
- Contributing Factors
- Temporal Analysis

Contributing Factors
- List of relevant crashes sent to State for analysis
  - First Harmful Event
  - Person Action
  - Person Condition
  - Following too Closely
  - Distracted Driving
  - Speeding
  - Failure to Maintain Lane

Officer Instructions
- Team given roadway segments
- Instructed to focus on driving activities that are contributing to the crash problem
- Told that number of stops is not the goal, rather stopping the right offenders
- Officers included in entire process resulting in buy-in
Spring 2017 Outcomes

- Dosage uncovered
- Initial plan – waves once a month
- Data showed that during the 3rd to 4th week after an HVE wave crashes began to increase
- Conducting the operations every three weeks on two random consecutive days was found to be optimal

Spring 2017 Outcomes

- Crash reduction
- Cyclist killed
- Congestion due to wave
- Average time to crash
- Lowest week had crashes, property damage, injury
Spring 2017 Outcomes

Week Before vs. After Implementation

Control Site vs. Site 1 vs. Site 2

Scaling Up – Spring 2019

- Developed a rotating schedule of hotspots
- Two days a week/4 hours a day/hot spot
- Over seven hotspots for six weeks
- Enforcement at each hotspot 4 days over the six weeks

Spring 2019 Plan

- Same Officer Instructions
- Same Concentration on Contributing Factors
- Limitation: Hot Spot Specific Contributing Factors not identified
Spring 2019 Outcomes

- 22.5% Reduction in Crashes Overall
- Reduction in Crashes at 6 of 7 hot spots
- One Hot Spot with 50% Reduction in Crashes
- Five Hot Spots with 10-20% Reduction
- Environmental Factors at Hot Spot with Increase?

Spring 2019 Outcomes

Experiment 2 Results

December 2019 – Mini Trial

- One Month – Two Hotspots
- Two Days a Week
- Two Different Times
- Alternated Hot Spots/Times by Week
December 2019 Trial

- 20% Crash Reduction at Hot Spot 1
- 11% Crash Reduction at Hot Spot 2

Lessons Learned

- Plan did not go as planned
- Not all of the HVE aspects were executed
- Weather, manpower, and outside events impacted deployments

Commitment to the plan and dosage is required for success

Outside events can impact plan depending on priorities
Future Research/Next Steps

- Improving internal data analysis capability
- Sustaining enforcement as standard practice
- Randomized Control Trial
  - Stronger Evidence of Outcome
  - Dosage likely depends on several factors/could be location specific

Sustaining the Program

- Motor Unit Reorganization – November 2020
- Schedule of eight hotspots created
- 4 hours per day – 2 hot spots per day
- Unallocated time to address neighborhood/citizen requests
- Evaluation soon!

DDACTS 2.0

Moving from high visibility enforcement to high visibility engagement.
Moving from HVE to HVE

- Officers and agencies are hesitant to do high visibility traffic enforcement, especially in marginalized communities.
- So crashes and crime are increasing.
- Agencies can conduct highly visible engagement in these same hot spots areas, that can be positive and approved by community members.

Justification for High Visibility Engagement

Overwhelming majority of the people committing crimes are driving to and from those crimes!

Overcoming Concerns Regarding Traffic Engagement

The purpose of traffic engagement is not to issue tickets. It is to
- provide public safety,
- interact with the public in a professional manner to impact behavior and
- reduce crime through increased contact with habitual offenders.

George Kelling (April 2015)
**Enforcement/Engagement**

Must Be Consistent

- Continuous presence in problem areas.
- Stopping drivers for behavior that actually causes crashes.
- At a time and place where dangers are most likely to exist.
- Intelligently deployed in data.

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**Intelligently Deployed**

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**High Visibility Engagement Activities**

- Meet with community members in the DDACTS zones to determine what types of activities THEY want and they believe in.
- Get out of your car and have conversations with residents and business owners about what has been happening around them.
- Use traffic safety signage and speed detection equipment at key locations.
- Look for traffic safety violations, e.g., speeding, DWI, erratic lane changing, distracted driving, and conduct traffic stops if violations are found.
- Gather driver's information and issue the least enforcement-oriented action, e.g., warning tickets, verbal warnings, etc.
- When stopping a car, explain to the operator why this activity is happening specifically in the DDACTS zone and how they can help to reduce crashes and crime.
How can using a data-driven approach improve quality of life for your citizens?

- Renews emphasis on traffic safety and making meaningful stops
- Increases agency accountability & productivity
- Strengthens relationships with partners & stakeholders by keeping them informed
LAW ENFORCEMENT CHALLENGES

- Agencies not communicating effectively with citizens, media, partners & stakeholders.
- Agency CEOs and administrative staff not communicating effectively with staff and line officers.
- Agencies not having analytical resources, i.e., full time analysts, CAD/RMS systems are antiquated, limited software.
- Myth that agencies “do not have the time” to implement a new program due to reactive policing.

Resources

There are numerous articles, references and training materials on Data-Driven, Evidence-Based decision making. Here:

- https://www.iadlest.org/training/ddacts/documents
- Also, click on NLEARN and join today!

2021 DDACTS Program Deliverables

- Seven DDACTS workshops.
- Three Evidence-Based Strategic Decision-Making Workshops.
- Eight Webinars, began February 18th, describing the elements of each Guiding Principle.
- Two “Analytical” Training Workshops.
- 10-part Microsoft Analytical online training series.
- Eight roll-call training blocks designed in 10-minute increments for agencies to use to teach their officers.
- Technical Assistance, upon request using Log-me-in software.
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