Using Data to Determine High Visibility Enforcement/Engagement

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WHY WE ARE HERE

37,731 Fans at Fenway
37,461 crash deaths per year

Peggy Schaefer:
Ask group to guess how many people can fill Fenway park.

Then ask them about the number of crash deaths per year.

This is Fenway Stadium in Boston, MA. It houses 37,731 fans every game. According to NHTSA, there are a similar count of people who are killed in motor vehicle crashes EVERY YEAR!

In 2016, National Highway Traffic Safety Administration (NHTSA) estimated 7,277,000 police-reported traffic crashes, in which 37,461 people were killed and an estimated 3,144,000 people were injured. (NHTSA Traffic Safety Facts. 2016. https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812580).

People want to live in safe communities. Often, safety is judged based on crime, particularly homicide. Many people consider large cities, where homicides occur in higher numbers, to be more dangerous than other places.

The point is that while violent crime makes the news, traffic crashes often present a greater threat. While there are some exceptions, most agencies could do more to improve the
overall safety of their communities by ensuring that traffic safety is a continuous priority.
WHY WE ARE HERE

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

\[ \times \quad 224 \quad = \quad \text{USA Yearly Property Crime (8 million)} \]

United States - 2014
Total Population = 318,857,056
Violent Crime = 1,197,987
Property Crime = 8,277,829
Burglary = 1,729,806
MV Theft = 689,527

WORKSHOP OVERVIEW

• Introduce data-driven, evidence-based concepts and how they can be effectively used for crash and crime reductions and improving the quality of life for your citizens.

• Metro/Nashville Police Department
  – High Visibility Enforcement
  – Koper Curve – Hot Spot Research
  – Data Collection Process and Plan Development
  – Results of Three Trials
  – Lessons Learned/Further Research

• HVE Challenges
Crashes, crimes and other social harms may appear to happen randomly, with no rhyme or reason, but more often than not there is a pattern. This purse, for example, is practically begging for a motivated offender to act. This may be a student union area, a mall or restaurant where such thefts are common and calls for service are frequent.

It is likely that the weather conditions may have been a contributing factor to this crash, but perhaps drivers routinely drive too fast on this long, straight stretch of highway and in this case the driver was probably going too fast for the current conditions. Sometimes crime is of a more threatening and violent nature, however we know that in most cases, the parties know each other and tend to conduct operations in consistent locations.

So we know that crashes, crimes and other social harms tend to cluster. They may cluster around a known and frequent offender. They may cluster around types of locations, such as an ATMs, motels, convenience stores or parks. What all these clusters have in common is that they all happen at a place. If we can identify those locations where incidents tend to cluster in time and place, we can deploy effective strategies and tactics and achieve reductions in crashes, crimes and other social harms.
Every city, every town and every county has them – intersections, parks, buildings, street segments, squares and other discreet locations in which multiple incidents occur. Whether crashes, crimes or both.

This cluster here might be pedestrian collisions caused by students walking unsafely from the school in the northeast corner. Or it might be street robberies influenced by a drug house on a side street. Or it might be graffiti at the intersection of several gang territories. Whatever the specific composition of the hot spot, because these incidents occur as a group, in a cluster, we can address them as a unit. We can analyze, predict and respond to them together and prevent more incidents from occurring.

Success in DDACTS, success in policing, means taking care of these patterns, these long term problems, these hot spots, these groups of incidents. And to this end, DDACTS, while supporting a number of different approaches to reducing crime and increasing traffic safety, follows a very simple model.

Larry Sherman, Professor, Cambridge University, MA says that crime is 6 times more predictable by location than by offender.
These slides show the DDACTS effect in Winter Park Florida.

This slide shows the crash data in Winter Park Florida, prior to their DDACTS implementation. The larger the circle, the more crashes.
This map shows the felony crime data in Winter Park Florida, prior to their DDACTS implementation. The larger the circle, the more felony crime.
This map shows the traffic enforcement data in Winter Park Florida, prior to their DDACTS implementation. The larger the circle, the more tickets.
This map shows the all of the crashes, crime and enforcement efforts for Winter Park Florida. What do you notice? The Green traffic enforcement and pink selective enforcement is NOT where the actual crime and crashes are occurring.
This map shows Winter Park Florida’s DDACTS efforts. Enforcement activities are more aligned with crimes and crashes, hence their subsequent reductions. The value of Guiding Principle #6 is demonstrated here. But notice there is still work to do. Management should direct resources specifically to where the blue and red overlap.
### January 2011 thru December 2012
#### Data-Driven Activities

- 3305 Traffic Stops
- 2515 Citations
- 1859 **Verbal or Written** Warnings
- 170 Field Contact Cards
- 165 Arrests
- 4425 Hours of **“Discretionary Time”**
- 10,416 Contacts
- Discretionary Time = No $ Increase

This slide serves as an example of Winter Park Police Department’s increased outputs and outcomes. Note the “discretionary time” earned when officers began to focus their on-duty time in a DDACTS zone. In Winter Park, the officers began working the hot spot areas in 15 minute daily time increments utilizing their “down” or “discretionary” time. The city of Winter Park was able to log all these extra hours without any additional officers, or money allocated to DDACTS.
Why a Data-Driven Approach?

- **Crashes and Crime Often Occur in Close Proximity**
  - ex: This is more common than you might think. Your data will support it.

- **Social Harms Often Involve Motor Vehicles**
  - ex: Criminal offenders drive those vehicles and by stopping them, you can stop potential crime.

- **Crashes are a significant drain on agency resources**
  - ex: Even minor crashes can tie up one or more officers at the scene to assist the drivers, document damage, wait for the tow, clear the scene, complete report, etc.

- **Vehicle Stops Can Yield Valuable Intelligence**
  - ex: FI Cards; Puts individuals at crime scenes and areas of crime; Puts vehicles in crime areas; Items involved in criminal activity can be found in these same cars.

- **Increasing Demands and Limited Resources**
  - ex: schools needing more resource officers; agencies experience manpower cuts.

Jan 2019: Arrest made by Officer while on DDACTS patrol- MV stopped for faulty headlight. In MV officer located a bag in the bag was large amount of a green leafy substance in a clear plastic bag, labeled "purple crystal." also found in the bag was a white envelope containing approximately $1,129.00, a small scale, white envelopes. In the front pocket of the backpack, officer found several small sealed
bags, with a green leafy substance. All money were seized for civil forfeiture. Both parties were arrested. LIVINGSTONE has past history of MV theft in Everett.

Steven A. Mazzie
Chief of Police
Justification for High Visibility Engagement:

95% of the people committing crimes are driving to and from those crimes!
Over 37,000 die in road crashes each year in the US with more than half of all road traffic deaths occurring among young adults ages 15 - 44.

We must also address the rise of crashes involving young people, texting and distracted driving.
The basic premise of DDACTS is that 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 is an efficient and effective way to improve the safety of the public.
“Place-based policing is not simply the application of police strategies to a unit of geography. Traditional policing in this sense is place-based, since police routinely define their units of operation in terms of large areas such as precincts and beats. Place, in place-based policing, refers to a different level of geographic aggregation. Places in this context are small micro units of analysis such as buildings or addresses, block faces or street segments, or clusters of addresses. Such places where crime is concentrated are commonly called “‘hot spots.’” (Weisburd, 2011)
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
- So, it is also considered an evidence-based strategy.
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).

Information comes from:
http://www.ori.org/resources/what_does_it_mean_to_be_evidencebased

Photo:
https://www.google.com/search?biw=1024&bih=463&tbm=isch&sa=1&ei=JaPxW6aTCc60ggejyoLADg&q=evidence+based+practice&oq=evidence+based+&gs_l=img.1.1.0i67j0l9.18550.18550..20643...0.0..82.82.1......1....1..gws-wiz-img.YimQsCLf34Q#imgrc=Y6EeUAXWr0XWYM:
Known “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.

- Weisburd, et al, 2017

As agencies consider how to implement place-based patrol frameworks, the results of Weisburd’s study suggest that high-intensity interventions may be a promising avenue for crime control benefits across large areas with minimal risk of crime displacement. At the same time, the researchers cautioned that empirical hot spots interventions often have not reached the same level of intensity as the “high intensity” simulated hot spots intervention in this particular model. Researchers suggested that the results presented in this study indicate that hot spots policing may be more effective at relatively higher levels of concentration. Additionally, the finding of a possible citywide effect of hot spot tactics may explain at least a small part of the observed national crime rate drops in the last two decades particularly in high-crime areas, as numerous police departments across the nation began to adopt hot spot techniques starting in the 1990s.


PHOTO: https://www.dailymail.co.uk/sciencetech/article-4685798/Fear-crime-CONTAGIOUS.html
Using Data to Determine a High Visibility Enforcement Dosage

Sgt. James T. Williams
Metropolitan Nashville Police Department
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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 and disorder in a hotspot 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 rights-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
Teen to face vehicular homicide charges in Antioch crash that killed 2
Posted: Jan 31, 2017 8:04 AM CST
Updated: Feb 14, 2017 8:04 AM CST
Posted by Kara Apel
Reported by Briana Armstrong
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
One Hot Spot

One week per month

Two days a week

Two hours per day (1500 to 1700 hours)

Spring 2017 Trial
Spring 2017 Outcomes

- Crash reduction
- Citywide trend was up
- Comparison site was static

- At start average over 12 crashes/week, 7 property damage and 5 injury
- After three months average 8 crashes, 5 property damage, 3 injury
- Lowest week had 5 crashes, 3 property damage, 2 injury
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

4 Week Before vs After HVE Waves

- Control
- Site 1
- Site 2
- Site 1 + 2

Weeks Before  Post HVE Wave 1  Post HVE Wave 2
Developed a rotating schedule of hotspots

Two days a week/two 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

- Total Crashes 6 Weeks Before HV/E
- Total Crashes 6 Weeks After HV/E
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
Lessons Learned

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 – standard practice
- Randomized Control Trial
  - Stronger Evidence of Dosage
  - Dosage likely depends on several factors/could be location specific
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.

Agencies may experience DDACTS implementation challenges that are listed.

Chief: This slide is yours.

Image source:
https://www.google.com/search?tbm=isch&source=hp&biw=1280&bih=579&ei=SbrxW5SxLqnl_Qa9tY7ABg&q=challenges&oq=challenges&gs_l=img.3..0l10.2399.5346..5522...2.0..0.78.658.11......3....1..gws-wiz-img.....0..35i39j0i10.QflWcsw8C84#imgrc=BBuYoPT7Z7gO-M:
Strategic Operations

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)

George Kelling (Broken Windows author) provided this opinion of traffic enforcement and making contact with individuals. His major point is that we do not conduct traffic enforcement and make contact just to issue tickets (generate revenue or harass the public); it is to provide public safety and professionally interact with the public to positively impact their behavior, thereby reducing crime and building trust.
Chief Ed Flynn is a DDACTS proponent in Milwaukee WI.

We recommend addressing any racial conflict in the workshops by emphasizing minority communities as important “stakeholders” of DDACTS. We should explicitly recommend that every agency—or, at least the ones in more diverse communities—create a public advisory board to review the plan and to continually participate in monitoring and adjustment. There maybe other creative ways to engage stakeholders living in marginalized communities as well.

We also recommend exercising caution when the DDACTS target zone is in, or adjacent to, residential areas, particularly with minority populations. In such situations, we should be extra careful to emphasize visibility and CONTACTS—positive, productive contacts—rather than the negative aspects of vehicle stops such as tickets and searches.
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

Peggy Starts back to end presentation.

Increases agency accountability and productivity - Produces a plan to deploy agency resources in a more effective manner and illuminates the process to stakeholders
Builds stronger relationships with stakeholders and partners by keeping them informed.
Greenville, NC

Officers are more effective when they are stopping cars!
Greenville NC
Monitor, Evaluate & Adjust

Kansas City KS 2017 data. This is even more pronounced in their DDACTS zone. Traffic Safety IS PUBLIC SAFETY!!
Resources

There are a plethora of articles, references and supporting Data-Driven, Evidence-Based documents and a comprehensive video here:

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

Encourage individuals to join NLEARN to get news blasts and other pertinent LEO information.
"What you do makes a difference, and you have to decide what kind of difference you want to make."

~Jane Goodall
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