

THE PHILADELPHIA PREDICTIVE POLICING EXPERIMENT

SUMMARY OF THE EXPERIMENTAL DESIGN

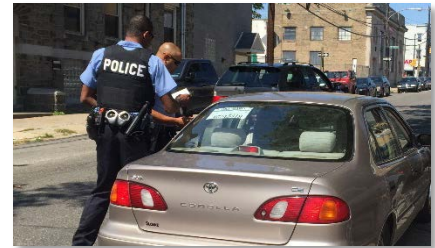
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Overview

The Philadelphia Predictive Policing Experiment represents a two-year collaboration between Temple University's Center for Security and Crime Science, housed in the Department of Criminal Justice at Temple, and the Philadelphia Police Department. This National Institute of Justice funded research project was the first place-based, randomized experiment to study the impact of *different* patrol strategies on violent and property crime in predicted criminal activity areas. The experiment hopes to learn whether different but operationally-realistic police responses to crime forecasts estimated by a predictive policing software program can reduce crime.

WHAT IS PREDICTIVE POLICING?

Predictive policing is an emerging tactic relying in part on software forecasting the likely locations of criminal events. Predictive policing, while sometimes applied to offenders, is also frequently applied to high crime places. In this context, it involves “the use of historical data to create a spatiotemporal forecast of areas of criminality or crime hot spots that will be the basis for police resource allocation decisions with the expectation that having officers at the proposed place and time will deter or detect criminal activity”¹.

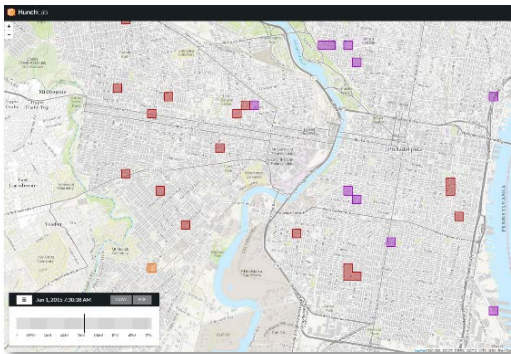


Experimental design

The research team from Temple University and the Research and Analysis Unit of the Philadelphia Police Department randomly assigned 20 Philadelphia Police Department (PPD) districts into one of four experimental conditions. Block randomization, for both the property and violent random assignments, assured that each of the four groups were comparable on the relevant crime, and on key demographic features. Five districts acted as controls, with a business-as-usual patrol strategy ('control' districts). In five districts, officers were made aware of the predicted high crime activity area at roll call and asked to concentrate there when able ('awareness' districts). Five districts received the awareness model treatment and also dedicated a patrol car to the predicted crime areas ('marked car' districts). Finally, five districts received the awareness model treatment as well as dedicating an unmarked unit to the predicted crime areas ('unmarked car' districts). Officers in marked and unmarked cars were from the local district

¹ Ratcliffe, JH (2014) "What is the future... of predictive policing?" *Translational Criminology*, 2014 (Spring) pg. 4

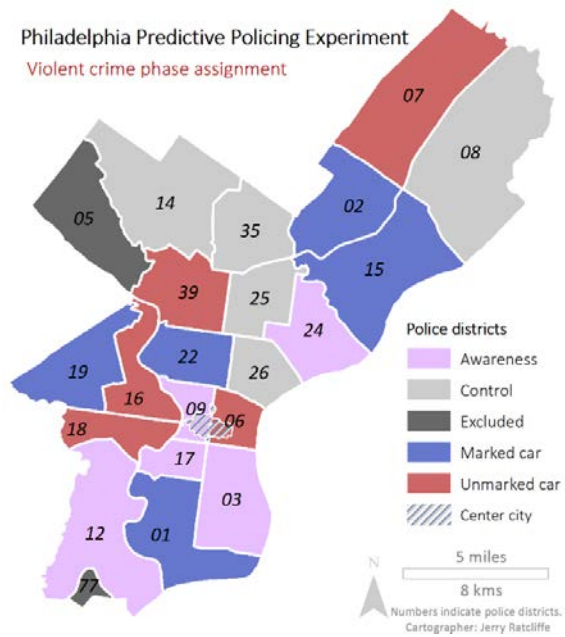
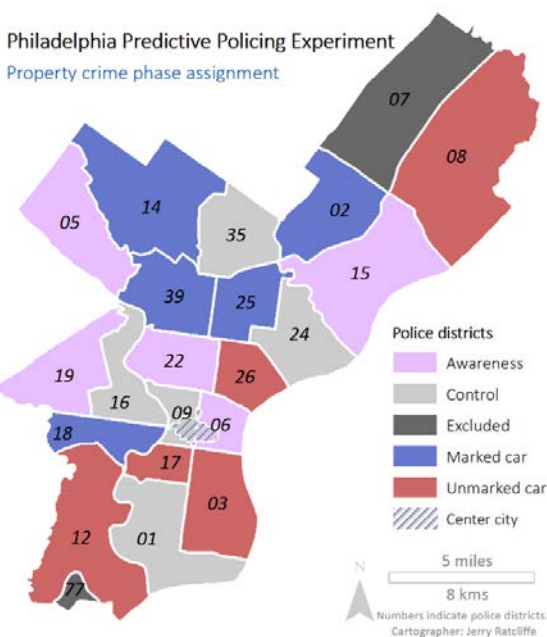
station, but were exempt from answering radio calls outside of their areas. They were encouraged to respond to related radio calls (property or violent crime) *inside* their predicted grid areas.



The predictive policing software used was the HunchLab program designed by Azavea. Hunchlab is a web-based predictive policing system that accesses real-time Philadelphia Police data to produce crime forecasts for the city. It incorporates statistical modeling that considers aoristic temporal analysis, seasonality, risk terrain modeling, near repeats, and collective efficacy. Officers at police district buildings in the marked and unmarked conditions could log in and print out maps for forthcoming 8-hour shifts. Azavea adapted the software at our request

to generate three predicted 500 foot square grids per district per shift. They also included a slight randomization component to reduce the possibility that the same grid cells were predicted every day.

The software forecasted property crime areas from 8am to 4pm every day across Philadelphia from June 1st to August 29th, 2015. Property crime comprised residential and commercial burglary, motor vehicle theft, and theft from vehicles. After the three month property crime phase, the experiment paused to in recognition of Philadelphia Police Department preparations for the visit of Pope Francis and the World Meeting of Families in Philadelphia from 22-27 September. Subsequently, the violent crime phase ran from November 1st 2015 to January 31st, 2016. Predicted violent crime areas were projected every day from 6pm until 2am of the next day. Violent crime comprised shootings, robberies, aggravated assaults, and homicides.

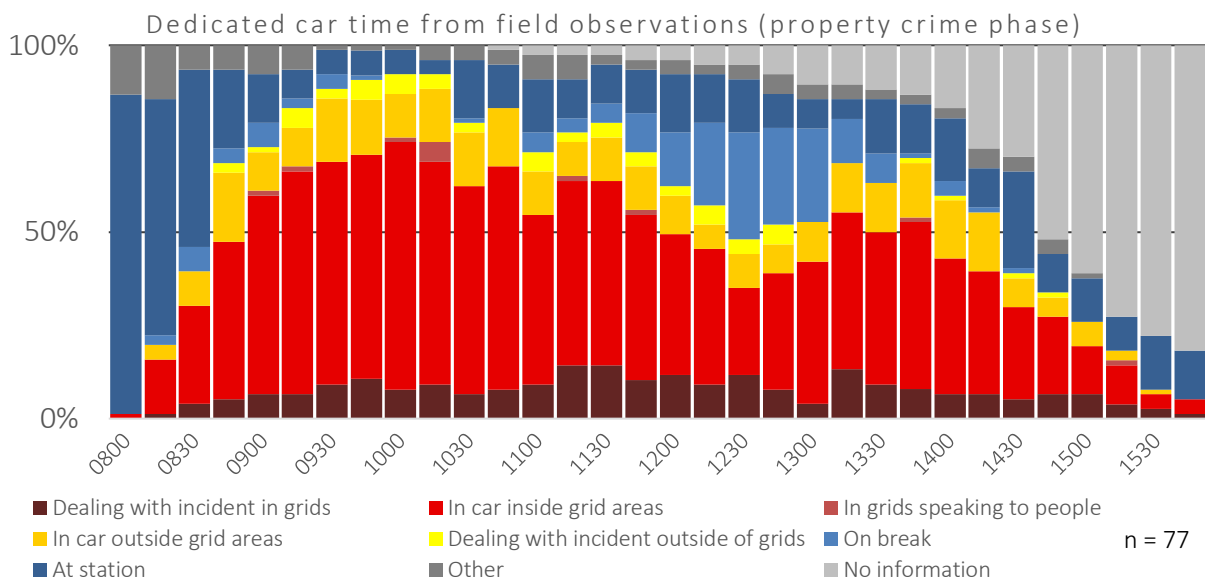


Implementation and fidelity

Prior to the experiment, researchers and senior officers involved in the experimental design provided briefings to command staff, researchers and staff from the PPD research and analysis section created short videos explaining the software and to explain what was expected of field personnel, and in the early stages of the experimental work they visited districts to help with software and implementation issues.

Every day, supervisors were asked to complete a one-page survey sheet asking them about their view regarding the accuracy of the predicted areas and what level of policing occurred in the predicted areas. Officers in marked and unmarked cars also completed a one-page summary form after every shift that asked how busy the grid areas were, and how often they were in the grid areas. These forms were gathered by the crime analysts in each district, and forwarded to police headquarters and the researchers. A senior analyst at police headquarters monitored compliance with the forms. The senior analyst also provided a centralized source to field personnel for questions related to the experiment.

Trained researchers accompanied marked and unmarked cars on over 100 ride-alongs during the experiment. These researchers noted police activities, amount of time spent in grid areas, and gathered information from the patrol officers regarding their views about predictive policing. Observers recorded field notes as soon as practical after each ride-along, and completed a time sheet detailing the main police activity and car location relative to the grids assigned for 15 minute blocks throughout the shift (see example below).



Further information

For additional and current information, please visit the project website at bit.ly/CSCS_3PE

Suggested citation: Ratcliffe, JH & Taylor, RB (2017) *The Philadelphia Predictive Policing Experiment: Summary of the Experimental Design*. December 2017. Online at bit.ly/CSCS_3PE. 3 pages.