

**CEDs and Houston:
What do the Statistics Say?**

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In December 2004, the Houston Police Department (HPD) initiated a Conductive Energy Device (CED) program. Popularly referred to as *Tasers*, Conductive Energy Devices (CEDs) have been used throughout HPD since the spring of 2005. In 2007, City of Houston Controller Annise Parker commissioned a performance audit of HPD's CED program with the accounting firm Mir-Fox and Rodriguez. The University of Houston Center for Public Policy conducted the statistical analysis for the audit.

Due to the controversial nature of CEDs, we think that before discussing methodology and providing a summary of the primary research questions and results, it is important to note that *CED deployments are very rare in Houston*. For every 10,000 incidents involving an officer and suspect, eight incidents result in a CED being deployed.

Let's begin our discussion by providing some background information on basic research design issues. First, this statistical analysis uses social science research methods. It does so in order to distinguish systematic effects of the CED policy from random chance. Claims of causation unsubstantiated by rigorous empirical research only harm the process of public policy decision making. A scientific approach requires we set the barrier high before making any causal pronouncements.

A second matter is the exploratory nature of this statistical analysis. To date, no major metropolitan area has conducted a study of CED policy that asks the questions posed by the City of Houston. As a consequence, there is no preexisting structural model or established toolbox of analytic techniques to follow. The best that can be done is to include as many variables and statistical controls that on the surface could be potential causal factors that help answer the research questions.

To summarize, the statistical study examined not only the raw numbers but many possible causes for any changes in those numbers by trying to isolate competing

explanations and factors. We also believe further work is necessary to address a variety of data and design challenges. In particular, more and better data are needed that describe but are not limited to the context surrounding officer-suspect interaction, officer arrest productivity, suspect arrest records — and how they are all linked.

With this background in mind, we address several of the principal claims made by supporters and opponents of CEDs in Houston. When HPD adopted the CEDs, it highlighted some principal benefits provided by these devices. First, their use would reduce the number and severity of injuries and subsequent expenditures suffered by officers and suspects as the result of physical altercations. Second, an officer's ability to deploy a CED instead of an alternative intermediate weapon (for example, a baton) could lead to a substitution of the CED for alternative intermediate weapons that can create greater physical harm to the officer and suspect. A third potential benefit is that — *in limited situations* — the introduction of the CED policy could lead to a reduction in the use of lethal weapons such as firearms.

Have Houston's CEDs provided these benefits? To determine whether the CED program has led to these predicted effects, we completed a data analysis beginning in January 2000 and ending in June 2007. Including incidents occurring nearly 5 years before the first CED was deployed allows for a "before" and "after" comparison of the impact of CED use.

In regard to officer injuries, we found that during the CED deployment period reviewed (December 2004 to June 2007), officer injuries and expenditures for injury claims declined (18% and 49% respectively). However, we also discovered this decline began *before* the adoption of CEDs. While this downward trend has continued, we *cannot conclude at this time* that the adoption of CEDs is associated with the decline in the number and severity of officer injuries and the corresponding expenditures. More data over a greater period of time is essential in confirming this association due to CED

use. In addition, the necessary data to evaluate the impact of CEDs on suspect injuries are unavailable, and thus no evaluation of that potential benefit could be conducted.

The issue of using the CED as a substitute for other intermediate weapons such as the baton could not be analyzed. There are no existing data on intermediate weapon usage. When we turn to lethal weapons such as firearms, we considered nine variables measuring firearm discharge. We find that only two of the nine variables — accidental discharge and citizen death — have a statistically significant change. Yet we cannot say these changes are solely related to the CED program because both variables show changes occurring prior to the introduction of the CEDs.

Critics of the adoption and use of CEDs by HPD have been primarily concerned with potential racial and ethnic bias in CED deployment. The most prominent criticism is that members of racial and ethnic minority groups are more likely to be the subject of a CED event than are Anglos. To examine this criticism, we carried out a multivariate analysis of approximately 570,000 unique incidents involving a HPD officer and a suspect between December 2004 and June 2007. In this particular analysis, we used various statistical controls for a variety of contextual and individual factors that are likely to influence the probability of a CED being utilized in an interaction between a HPD officer and a suspect. However, due to data limitations on suspect characteristics (aspects such as physical size, past criminal record, prior disposition to cooperate with law enforcement officers) and the fact that CED events are very rare in Houston, *it is imperative that these results be considered tentative pending further study.*

The results of our analysis indicate that in interactions between HPD officers and suspects, a CED is much more likely to be utilized when the suspect is African American than when the suspect is Latino or Anglo. When comparing Latino and Anglo suspects, we find that Latino suspects are moderately more likely to have a CED utilized in their interaction with HPD officers than Anglo suspects. However, in this case, it is interesting

to note that the principal reason why CEDs are more likely to be used when the suspect is Latino than a Anglo is because Latino officers tend to utilize their CED more when a suspect is a Latino than when they are an Anglo (African American and Anglo officers are equally likely to utilize a CED when a suspect is an Anglo or Latino).

Another finding we wish to highlight is the differential utilization of the CED by HPD officers based on the officers' race and ethnicity. In their deployment of CEDs, Anglo and Latino officers are virtually identical in their behavior, utilizing CEDs at similar rates. By way of comparison, African American officers are less likely to use their CED than are their Anglo and Latino colleagues. The main source of this notable difference among the HPD officers is the much lower probability of African American officers (compared to Anglo and Latino officers) deploying their CED when the suspect is an African American. A complete explanation of this differential CED use by African American and Anglo/Latino officers awaits future study. This follow up study, could among other things, address optimal or sub-optimal utilization of the CED, and examine whether the HPD officer-African American suspect interaction is less likely to be confrontational when the officer is an African American.

For interactions involving Anglo suspects, African American, Anglo, and Latino officers deploy their CEDs at similar rates. When the suspect is a Latino, African American officers deploy their CEDs at a similar rate to Anglo officers, and moderately less than Latino officers.

Again, due to the low number of incidents during a relatively short period of time and the lack of essential data, the statistical findings should be reviewed with caution. Causality cannot be determined with certainty at this time. Only further analysis with additional data can provide such iron-clad results.

A more complete review of our analysis can be found at www.uh.edu/cpp.