



EFFECTS OF SB1636 ON PROCESSING AND DISPOSITIONS OF SEXUAL ASSAULT CASES IN TEXAS



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EXECUTIVE SUMMARY

The purpose of this study is to determine the impact of SB1636 upon reporting and processing of sexual assault cases in Texas. Texas was one of the first states to enact legislation mandating universal DNA testing of sexual assault kits (SAKs). In addition to requiring testing of SAKs in all cases going forward, the 2011 statute also required law enforcement agencies across the state to report how many SAKs remained untested in their custody by October 15, 2011, and to submit all such evidence connected to an active criminal case to the Department of Public Safety (DPS) or another accredited public laboratory. DPS, in turn, was tasked with developing DNA profiles and uploading them to the state and federal DNA databases to determine if a link could be found to an offender or to another case.

The Police Foundation in collaboration with partners National Center for Victims of Crime and the Joyful Heart Foundation assessed the impact of Texas Senate Bill 1636 with funds from the Communities Foundation of Texas. We sought to determine the extent to which the policy of testing all SAKs is producing the benefits expected by advocates such as increased reporting of sexual assaults; increased identification of serial offenders, and increased rates for arrest, prosecution, and conviction. We also examined strains on the criminal justice system that result from (a) testing previously untested SAKs from cases arising prior to August, 2011 and (b) universal testing of all SAKs going forward.

The assessment used a combination of quantitative and qualitative methods at both state and local levels to assess the impacts of the Texas universal testing law. At the state level, we worked with DPS and state DNA laboratories to examine trends over time in criminal justice indicators (arrests, prosecutions, and convictions), state lab workloads and efficiency, and number of serial rapists identified. We also examined the result of DNA testing for the archival cases – the proportion that resulted in CODIS hits and the proportion of those hits that were useful in investigations.

At the local level, we collected descriptive statistics on sexual assault case characteristics and criminal justice system outcomes, including arrests, charge filings, and convictions. Anecdotal accounts suggested that the impact of the universal testing law varied across different municipalities according to the size of SAK backlogs and previous policies regarding testing. In our research, therefore, we examined the experiences of four cities in Texas (Dallas, Fort Worth, Arlington, and Austin) that each had had different experiences with implementing the universal testing law. We supplemented the quantitative data with interviews with sexual assault detectives, prosecutors, advocates and state and local laboratory administrators.

Principal findings from the study included the following:

- *We did not find an impact of SB1636 on reporting or arrests in sexual assault cases statewide or in the four study sites.*

We did not see any evidence that SB1636 increased the number of sexual assault cases reported in Texas, the proportion of cases resulting in arrest, or the proportion of court cases resulting in conviction. Sexual assault reports and arrests trended gradually downward over the period of time we studied (both statewide and in the three local counties examined). Arrest and conviction rates were essentially flat during the time period. Of course, there are many confounding factors, other than SB1636, that may have influenced these trends over this period of time. It should be noted that these findings are based on the SB1636 requirement for universal testing of sexual assault kits in current cases. Because CODIS hits from the pre-August 2011 cases are still being returned to local law enforcement agencies, it is unclear how that portion of the law is affecting local criminal justice agencies. DPS experience to date suggests that of the 7,600+ untested kits submitted by Dallas, Fort Worth, Austin, and Arlington, 3,000 will yield testable DNA and 40% of those, or 1,200 cases, will generate matches to unknown suspects or other cases. To date, however, our analyses suggest that SB1636 has not affected sexual assault reports or arrests.

- *While DPS received over 19,000 archived SAKs from law enforcement agencies across the state, the kits have come from just 156 of the 2,100 agencies in Texas.*

SB1636 did not contain provisions for enforcement of the requirement to submit kits untested at the time the law took effect in August/2011. Fortunately, the largest agencies in the state have submitted archived SAKs for testing. While many of the smaller agencies may see few sexual assault cases, and the smallest may not see any, the numbers suggest that compliance with this provision of SB1636 was low.

- *The impact of SB1636 on workloads so far has varied among various parts of local criminal justice systems. The requirement of SB1636 that all current SAKs be tested is having a significant impact on the workloads of local and state DNA labs, less on local police, and least on prosecutors. The requirement that archived SAKs be tested is starting to have a significant effect on police agencies, but (so far) minimal effect on district attorney workloads.*

Looking across sites, we see similarities in how they have adapted to SB1636. First of all, the heaviest burden of SB1636 has fallen on local crime labs. The requirement that all kits going forward be tested coincided with substantial increases in lab workloads and turnaround time. (The exact amount of the increase due to SB1636 is hard to determine because of other confounding factors including trends toward more DNA evidence being collected in sexual assault cases by SANEs and a statute requiring DNA testing of all evidence in capital cases.) Fort Worth and Dallas have had to adopt new methods of prioritizing cases as turnaround time has increased to unacceptably high levels. The Arlington Police Department switched local DNA labs to reduce the higher costs it was experiencing as a result of the increase in samples tested.

Sexual assault investigator workloads have also been affected by SB1636 mainly through the requirement that older untested kits be submitted for laboratory analysis. This is true both because of the effort required in the process of inventorying pre-August/2011 kits and because of the time needed to review cases, contact victims, and investigate cases where CODIS hits are returned. Only Arlington, which has not yet had CODIS hits returned, has escaped much of this work temporarily.

Being the furthest downstream, prosecutors have been least affected by SB1636, either from the requirement that pre-August/2011 cases be tested or that all sexual assault cases be tested going forward.

- *So far, it looks like roughly 10% of CODIS hits, or 1-5% of all pre-August/2011 cases submitted by local agencies for DNA testing have resulted in an arrest. We expect that there will be convictions in most of the arrest cases.*

The testing process for the cohort of pre-August/2011 SAKs is well advanced in Dallas and in Fort Worth. In both of these cities, we were able to calculate initial estimates of the proportion of CODIS hits from the cohort that result in arrest. In Fort Worth, it was 14%, in Dallas 4%. These are not final figures and, even in Dallas and Fort Worth, it is too early to estimate prosecutions and convictions stemming from these SAKs. In Austin, CODIS hits have just recently started coming back and in Arlington they will still be a while in coming. A new grant from the National Institute of Justice will allow us to continue to track the CODIS hits and determine the number of cases in which serial rapists are identified and the number that result in convictions over the next year and a half.

- *Overall, criminal justice officials support universal testing requirement of SB1636*

In general, criminal justice officials spoke in positive terms about the statute. This was especially true of prosecutors, who believed that the SB1636 would result in more identification of serial rapists and more convictions. Of course, prosecutors are also the group of officials whose workload is least affected by the statute. Some police investigators felt that the law went too far in taking away from police the discretion not to test in cases where they believed testing was not probative – cases in which a consensual defense was mounted, cases in which a guilty plea had already been entered, or cases in which victims “refused to cooperate.” Some officials supportive of the law also argued that jurisdictions ought to receive state funds to cover the increased costs they were experiencing

I. BACKGROUND

According to the National Intimate Partner and Sexual Violence Survey, sexual violence remains pervasive. Nearly 1 in 5 - or 22 million - women in the United States have been raped in their lifetimes (Black et al., 2010). Sexual violence severely harms individual victims and, collectively, society. These harms include higher rates of substance abuse for victims, lower levels of employment, lower levels of educational attainment, higher levels of depression and PTSD, and higher suicide rates (Campbell, 2008). Thus, reducing sexual violence has become a national priority.

Sexual assault victims are routinely encouraged to get a sexual assault medical forensic examination, in order to preserve evidence of the offense. The evidence is collected through use of sexual assault forensic evidence kits, commonly referred to as sexual assault kits (SAKs), by a specially trained sexual assault nurse examiner (SANE) or sexual assault forensic examiner (SAFE). Originally developed in the 1960s, use of SAKs became widespread by the late 1970s (Weaver et al., 1978). Typical kits include materials for the collection and storage of biological specimens such as cotton swabs, syringes, test tubes, boxes, microscope slides, and sealable bags. Though SANEs are trained to minimize discomfort and to avoid re-traumatizing the victim, the exam is intrusive, uncomfortable, and lengthy. It includes swabbing the vagina, anus and/or mouth to collect any potential DNA evidence; collecting loose hairs by combing the head and pubis, and in some cases plucking head and pubic hairs; clipping fingernails to obtain any potential DNA if the victim scratched the offender; making a detailed record of the victim's history; and assessing the victim's emotional state. SANEs also photograph, document, and treat injuries; give emergency contraception to reduce the chance of pregnancy occurring; and provide prophylactic medicine to prevent sexually transmitted diseases (Campbell et al, 2009; Ledray 1999). They also give referrals to community resources and support services. The completed SAK is transferred to law enforcement custody, and from there may be sent to the lab for analysis.

There is good reason to believe that competently collected SAK evidence is associated with positive criminal justice system outcomes. Empirical studies examining the determinants of sexual assault case processing decisions have demonstrated positive associations between the completion of a physical/ forensic exam and prosecution and conviction in the United States, Canada, and the U.K. (Wiley et al., 2003; McGregor et al., 2002; Feist et al., 2007; Campbell et al., 2009). This evidence is consistent with studies of SANE programs, many of which suggest that SANE programs increase prosecution rates because they provide more reliable forensic evidence to crime investigators. Crandall and Helitzer (2003), for example, present qualitative evidence from prosecutor interviews indicating that thorough forensic examinations substantially improve prosecutors' ability to establish guilt in sexual assault cases. Similarly, in a multi-site SANE evaluation study, Nugent-Borakove et al. (2006) indicate that almost all of the impact of SANE programs on increased prosecution is attributable to greater collection of DNA evidence. Forensic DNA evidence can not only establish the identity of the defendant, but it can establish the elements of the crime, reconstruct the sequence of events, and corroborate or disprove witness statements (Johnson et al., 2012).

Despite the increased collection of forensic evidence and the growing understanding of its importance, many SAKs have been sitting untested in law enforcement evidence rooms. As early as fifteen years ago, the National Institute of Justice began raising alarms about this issue (NIJ, 2002). The Bureau of Justice Statistics' 2002 and 2005 *Census of Publicly Funded Forensic Crime Laboratories* documented substantial growth in DNA backlogs (Durose, 2008). Addressing this issue of SAK backlog, NIJ published a report, "The Road Ahead: Unanalyzed Evidence in Sexual Assault Cases," that presented a comprehensive outline of the current problems, contributing factors, and potential repercussions and solutions (NIJ, 2011).

The report estimated that “18% of unsolved alleged sexual assaults that occurred from 2002 to 2007 contained forensic evidence that was still in police custody,” and therefore had yet to be submitted to a crime lab for analysis (Ritter, 2011). In a similar vein, Peterson et al. (2012) found that sexual assault kits (SAKs) were collected by crime scene investigators only about half the time and, of these, approximately one-third of SAKs were submitted to a crime lab for screening, and just 5 percent were examined.

Why Are Rape Kits Not Tested?

Lack of funding has been cited as a barrier to SAK testing (Prottas & Noble, 2007). In a sample of 137 victim advocates, prosecutors, DNA lab employees, and law enforcement professionals surveyed by the National Center for Victims of Crime, 42% cited lack of funding as the primary reason sexual assault kits are not tested (NCVC, 2008). The cost of laboratory testing of DNA evidence can run to as much as \$1,000 or more per submission (O’Connor 2003).

In some cases – especially those involving a rape by a sexual partner - investigators may opt against submitting sexual assault kits for testing because the DNA results are not probative (Ritter, 2012). In these cases, defendants often mount a defense that stipulates that sex occurred, but was consensual, so DNA results generally do not help the prosecution make its case. In a significant number of these cases, victims recant, and so police investigators may elect to wait on testing evidence in SAKs until they are sure that the victim wants to proceed (Ritter, 2012). Similarly, in cases where a suspect has already confessed, investigators may not see a need for submitting the sexual assault kit for analysis. Other factors also may be influencing the decision to test SAKs. A 2013 examination of the processing of SAKs from adolescent victims found that kits from older victims (16-17) were half as likely to be forwarded for testing as those from younger victims (13-15), and that cases with a single or unknown perpetrator were more likely to be forwarded than those with multiple offenders (Shaw & Campbell, 2013).

Federal Action

The federal government provided significant funds to encourage jurisdictions to submit backlogged DNA material for laboratory analysis. The DNA Analysis Backlog Elimination Act of 2000 (PL 106-546) provided federal funding for processing of existing DNA evidence at the local level, including evidence from SAKs, and for the entry of relevant DNA information into CODIS. This program was later expanded by the Debbie Smith Justice for All Act of 2004 (PL 108-405), which was reauthorized to provide an additional five years with \$151 million in annual funding in 2008. The same Act also provided funding for the training of law enforcement and corrections officers to ensure the proper collection of forensic evidence and a National Forensic Science Commission to assess issues related to the use of forensic technology in the criminal justice system. Local and national efforts have been underway since the early 2000’s to identify and test SAKs that were entered into police property storage facilities but never submitted to a crime lab for testing (see O’Donnell, 2015; Office of Justice Systems Analysis, 2002).

In Detroit and Houston, federal officials invested substantial sums in demonstration programs to eliminate the backlog of untested rape kits (see <http://www.nij.gov/unsubmitted-kits/Pages/default.aspx> and <http://www.houstonsakresearch.org>). The aims of the projects were to ascertain the number of unsubmitted kits in each jurisdiction, determine reasons why kits were not tested, and create sustainable responses. In Houston, the mayor allocated several million dollars for testing SAKs, in addition to \$2.2 million in federal backlog reduction funds, enabling the city to use private laboratories to help take the burden of the new cases off of the state lab. The Detroit team received an infusion of \$4 million from the Michigan Attorney General’s Office to test all previously unsubmitted kits.

Calls for Testing All SAKs

Survivors of sexual assault and victim advocates have long pushed for policies to analyze all untested SAKs and to routinely test all evidence being collected now. A majority of respondents in the National Center's previously mentioned survey (75 percent) stated that it was "very important" to test all sexual assault forensic kits; another 21 percent deemed it "somewhat important" (NCVC 2013).

Those calling for testing all sexual assault kits assert that such testing often corroborates the victim's story, promote an improved response to sexual assault victims, and increase the rate at which victims report sexual assault to law enforcement (Ritter 2012; Bashford, 2013). They also note that a "test all kits" policy is easy to apply and prevents SAKs from getting lost in the system (Ohio Attorney General 2011). One of the most cited reasons for testing all sexual assault kits is that by doing so, police can identify serial rapists (Ritter 2012).

Texas was one of the first states to enact legislation mandating universal testing of sexual assault kits. Authored by former state senator Wendy Davis in 2011, the statute required law enforcement agencies across the state to report how many SAKs remained untested in their custody by October 15, 2011, and to submit all evidence connected to an "active criminal case" to the Department of Public Safety (DPS) or another accredited public laboratory by April 1, 2102, subject to lab capacity. The law requires the DPS to report to the governor and the Texas House of Representatives about the numbers of SAKs across the state and to request the funding necessary to test all kits.

Texas Senate Bill 1636 represents a fundamental change for sexual assault victims in the state. Victims no longer have to wonder if forensic evidence is being evaluated and exploited to its maximum potential. Advocates of the bill anticipated that there would be an increase in arrests, prosecutions, and convictions of sex offenders. They believed that more serial rapists should be identified as the number of entries in the DNA database of sexual assault cases grew. Such developments were expected to give victims greater confidence in coming forward and telling their stories to hospital staff, police, and prosecutors.

One of the requirements of the Texas law was that all untested sexual assault kits (where the statute of limitations had not been reached at the time the law went into effect) had to be submitted for laboratory DNA analysis. Law enforcement agencies were mandated to submit all untested sexual assault kits to the state DPS. DPS, in turn, was tasked with developing DNA profiles and uploading them to CODIS. To date, nearly 11,800 such kits (not including 6,663 Houston cases that were included in the federal project) have been submitted to DPS, which has outsourced most of the work of developing DNA profiles to private labs. So far, 6,529 cases have been completed.

The Police Foundation in collaboration with partners National Center for Victims of Crime and the Joyful Heart Foundation assessed the impact of Texas Senate Bill 1636 with funds from the Communities Foundation of Texas. We sought to determine the extent to which the policy of testing all SAKs is producing the benefits expected by advocates such as increased reporting of sexual assaults; increased identification of serial offenders, and increased rates for arrest, prosecution, and conviction. We also examined strains on the criminal justice system that result from (a) testing previously untested SAKs from cases arising prior to August, 2011 and (b) universal testing of all SAKs going forward. The ultimate question is whether the costs of testing previously untested "backlog" cases and universal testing of SAKs going forward is justified by getting bad actors off the streets who would otherwise have remained at liberty.

II. OUR APPROACH

We used a combination of quantitative and qualitative methods at both state and local levels to assess the impacts of the Texas universal testing law. At the state level, we worked with DPS and state DNA laboratories to examine trends over time in criminal justice indicators (arrests, prosecutions, and convictions), state lab workloads and efficiency, and number of serial rapists identified. We also examined the result of DNA testing for the archival cases – the proportion that resulted in CODIS hits and the proportion of those hits that were useful in investigations.

At the local level, we collected descriptive statistics on sexual assault case characteristics and criminal justice system outcomes, including arrests, charge filings, and convictions. Anecdotal accounts suggested that the impact of the universal testing law varied across different municipalities according to the size of SAK backlogs and previous policies regarding testing. In our research, therefore, we examined the experiences of four cities in Texas (Dallas, Fort Worth, Arlington, and Austin) that each had had different experiences with implementing the universal testing law. We supplemented the quantitative data with interviews with sexual assault detectives, prosecutors, advocates and state and local laboratory administrators.

The table below links the research objectives to the methods we used, each explained in more detail in the text that follows.

Goal: To Assess the Effect of SB1636 on Justice System Processing of Sexual Assault Cases	Study Methods
Objective (a): Effect of the law on statewide criminal justice indicators in sexual assault cases.	Time series analysis comparing pre- and post-law arrests, prosecutions, and convictions statewide and in four Texas cities.
Objective (b): Examine how requirements of the Texas law are being implemented by four local jurisdictions and how implementation is affecting workloads of detectives, prosecutors, and victim advocates.	Interviews with sexual assault detectives and victim advocates in four Texas cities. Interviews with detectives and prosecutors about effects of law on caseloads and analysis of caseload to staff ratios pre- and post- new state requirements.
Objective (c): Determine the percentage of cold case CODIS hits that identify serial rapists and the percentage that result in an arrest or prosecution. Identify the factors that prevent cases with CODIS hits from being successfully prosecuted.	Track cold case CODIS hits returned by the state lab to local police agencies in the four study sites. For CODIS hits not resulting in an arrest or prosecution, note the reasons why the case did not proceed.

Objective (a): Examine statewide criminal justice indicators in sexual assault cases

Advocates of SB1636 hoped that testing all SAKs would lead to an increase in arrests, prosecutions, and convictions in sexual assault cases. Both statewide and in the four cities targeted for study, we collected data to determine how the new state law affected criminal justice processing of sexual assault cases.

We examined the state law's effects on the numbers of sexual assault offenders identified, the numbers of arrests, the numbers of prosecutions for sexual assault, and the number of sexual assault convictions.

We used interrupted time series analysis to determine whether a shift in the trends for these justice system outcomes occurred coincident with the introduction of SB1636. Interrupted time series analysis is a type of quasi-experimental design used to make population-level inferences about the mean effect of an intervention or policy. It is appropriate where a series of measures is broken up by the introduction of an intervention that occurs at a specific point in time. Using this method, we examined statewide data from DPS and local data from the three study sites over a six-year span so that we have data from the three years prior to implementation of the new law and the three years subsequent to implementation. (The pre-law period ran from September 2008 through August 2011, and the post-implementation period ran from September 2011 through August 2014.) The time series analysis indicated whether any changes in arrests, prosecutions, and convictions coincident with the introduction of SB1636 could be attributed to the law's implementation.

Objective (b): Examine how requirements of the Texas law are being implemented by four local jurisdictions and how implementation is affecting workloads of local laboratories, detectives, prosecutors, and victim advocates

We anticipated that the Texas law would increase the number of sexual assault DNA samples submitted for testing by local crime labs. If that were true, it would have consequences for the volume and processing time at the local crime labs.

Submitting more SAKs for testing may not only overload crime labs, but – since more cases might be returned for investigative review or returned with DNA suspect matches – create more work for detectives who must then perform investigative work on these cases (contacting and interviewing victims, suspects, and witnesses; reviewing medical and other physical evidence) as well as prosecutors who may receive more sexual assault cases to prosecute. This was one of the important lessons learned from the NIJ project in Houston. Victim advocates might also experience increased workloads in jurisdictions with mandatory SAK testing policies.

We assessed the effects of the law on caseloads using quantitative and qualitative methods. We worked with administrators in police and prosecutor sexual assault units and victim advocate organizations in the local study sites to determine whether and how much caseloads per staff person changed since the new statutes were implemented. We also conducted interviews and collected data from officials at the local crime labs that serviced each of our four study sites.

We interviewed sexual assault investigators, prosecutors, and victim advocates in each of the sites to obtain information on how their work had been affected by SB'636 and their opinions about the law. The 20-30 minute interviews were conducted in person using a semi-structured format. In all four sites, we conducted additional interviews over the course of the data collection period.

Objective (c): Determine the percentage of cold case CODIS hits that identify serial rapists and the percentage that result in an arrest or prosecution. Identify the factors that prevent cases with CODIS hits from being successfully prosecuted

Until recently, the state of knowledge about the value of submitting untested DNA to laboratory analysis was anecdotal, based on sensational media accounts in which DNA testing has identified perpetrators

years later or identified serial rapists. Recently, however, some research is beginning to emerge and provides information about the value of laboratory analysis in these cases. Gabriel et al. (2010) examined 110 CODIS hits from San Francisco, and identified 11 sexual assault offenders who were connected to two or more unsolved sexual assaults. (It is not specified in the article how sexual assault kits were chosen for testing, although it appears that the hits resulted from testing of kits in selected cases.) Approximately one in three of the cases resulted in a conviction (Gabriel et al., 2010, p. 400). The most common reason for the lack of court resolution was unwillingness by the prosecutor or the victim to pursue charges.

In the NIJ Detroit project, Campbell et al. (2015) identified 127 serial rapists among 455 CODIS hits generated from *all* untested sexual assault kits in the custody of the Detroit Police Department. From a subsample of 41 CODIS hit cases, victims were located in 31 cases and over half “wanted to participate in the investigation and prosecution process” (Campbell et al., 2015, p. viii). The investigators did not track criminal justice outcomes.

A multi-agency partnership in New Orleans tested and measured the outcomes of 83 CODIS hits stemming from sexual assault kits that were in police storage and had not been tested at the time of the original investigation. The sample resulted in 24 arrests and six convictions (Nelson, 2013). It is important to note that the study included only kits from cases that had not been adjudicated and the statute of limitations had not expired.

Peterson et al. (2012) examined 347 CODIS hits stemming from untested kits in the custody of the Los Angeles Police Department in which CODIS hits were returned. No new arrests were generated from the sample: In the 147 cases that ended in arrest, all of the arrests occurred before sexual assault kit testing.

Wells, et al. (2016) tracked outcomes of 58 CODIS hits from *all* untested kits in the Houston project.¹ At the time of their report, only one case had resulted in charges being filed, while seven other cases were in the investigative stage. As in the other studies, the most common reason why investigations did not proceed was the inability to find the victim or victim unwillingness to cooperate.

The Campbell et al (2015) and Gabriel et al (2010) studies suggest that submitting previously untested sexual assault kits for laboratory analysis can identify previously unknown offenders and offenders who have committed more than one sexual assault: In the case of the Campbell et al study, more than one in four CODIS hit cases involved offenders with ties to more than a single sexual assault. However, the sample size in the Gabriel et al (2010) study was quite modest (N=110). Importantly, none of these studies has demonstrated that submitting previously untested kits for laboratory analysis results in any significant number of arrests and convictions.

The implementation of SB1636 in Texas presents a unique opportunity to study the benefits of submitting untested SAKs for analysis. According to DPS, to date, there have been hits in 40% of CODIS uploads either to an unknown offender or to another case. From the 7,600+ untested kits submitted to DPS by Dallas, Fort Worth, Austin, and Arlington, DPS experience to date suggests that roughly 3,000 will yield testable DNA and 40% of these, or 1,200 cases will generate matches to unknown suspects or other cases. This sample eventually will contain by far the largest number to date of CODIS hits stemming from untested sexual assault kits.

1 The complete sample of 104 included 46 cases in which the statute of limitations had run out.

Study	Sample Size (CODIS Hits)	Identification of Serial Rapists	Criminal Justice Outcomes
Gabriel et al. (2010)	110 cases	11 serial rapists uncovered	Convictions in 30% of cases
Campbell et al. (2015)	455 cases	127 serial rapists uncovered	Not reported
Nelson (n.d.)	83 cases	4 serial rapists uncovered	24 arrests, 6 convictions
Peterson et al. (2012)	347 cases	Not reported	147 arrest confirmations; no new arrests made
Wells et al. (2016)	58 cases	Not reported	1 prosecution; 7 under investigation
Texas study	1,000+	TBD	TBD

At present, there have been 422 CODIS hits from the pre-August/2011 cohort returned to the Dallas Police Department, 144 to the Fort Worth Police Department, and 46 to the Austin Police Department (none yet to the Arlington Police department). Working with these departments, we examined investigative and prosecution outcomes for cold cases where a match had been obtained through CODIS to a person or another case. For CODIS hits not resulting in an arrest or prosecution, we examined the extent to which victim cooperation and other factors are responsible for failure to move forward in prosecuting cases where COIS hits have been obtained.

III. EFFECT OF SB1636 ON SEXUAL ASSAULT INCIDENTS, PROSECUTIONS, CONVICTIONS, AND IDENTIFICATION OF SERIAL RAPISTS

Advocates of universal testing of sexual assault kits (SAKs) have argued that such a policy might have the effect of encouraging more victims to come forward and report sexual assaults because they would have greater confidence that their complaint taken seriously by the police and prosecutor. From this, we develop the hypothesis that:

- H1: Universal testing of SAKs will lead to an increase in sexual assault reports

Second, it could also be expected that universal testing of SAKs would lead to more arrests since testing would uncover the identities of offenders previously unknown or uncover patterns of serial rapists. From this, we hypothesize that:

- H2: Universal testing of SAKs will lead to an increase in the proportion of sexual assault reports that result in an arrest

Third, with more SAKs tested, we might also expect an increase in prosecutable cases. So we hypothesize that:

- H3: Universal testing of SAKs will result in an increase in the proportion of arrests that result in court filings and convictions

To test these hypotheses, we conducted time series analyses that examined trends in reporting between 2008 and 2015 statewide (between 2010 and 2015 for crime reports due to data availability). Data were provided by Texas DPS. If SB1636 has had an effect on any of these measures, we would expect to see a discontinuity in the trend data around the time that the law was implemented in August, 2011. In other words, if the law had the hypothesized effects, rather than an even trend line across the years studied, we would see an upward shift in the trend line following implementation. During the post-implementation period, the trend line should be upward and distinct from the pre-law trend line.

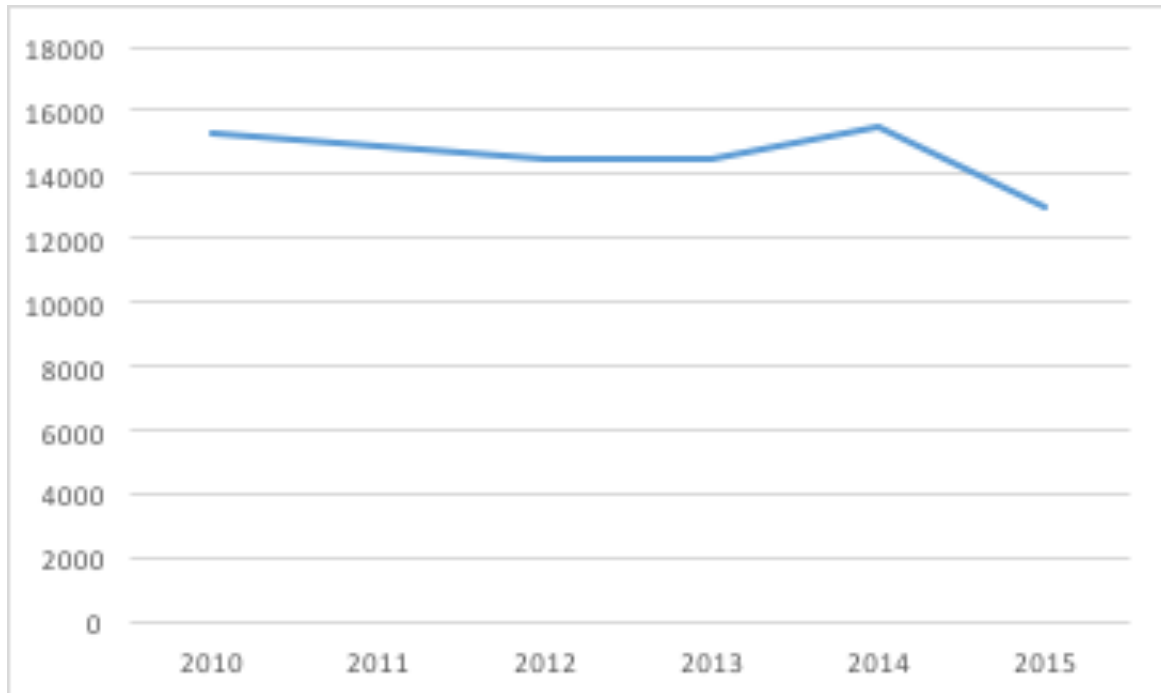
Below, we summarize findings from a series of *interrupted time series analyses* that we used to test these hypotheses. Interrupted time series analysis yields two statistics that test for the effect of an intervention, program, or – in this case – a law. One statistic tests whether there is an immediate effect of the intervention while the other tests whether the direction of the trend line changes: One tests for short-term changes while the other examines long-term effects. We present visual trends in the summary below and describe whether the statistical tests yielded significant or reliable indications that SB1636 had an effect on criminal justice outcomes. Detailed results of the time series analyses are presented in Appendix A and the interrupted time series methodology is contained in Appendix B. For visual clarity, in the summary results below we display criminal justice indicators by year: The interrupted time series tests, however, analyzed data month by month.

We test all three of our hypotheses using statewide data. We also examine trends in crime reports and arrests for the four local jurisdictions that are the focus of our investigation: Dallas, Fort Worth, Arlington, and Austin.

H1: Universal testing of SAKs will lead to an increase in sexual assault reports

Figure 1 depicts statewide sexual assault reports from 2010 through 2015. Visually, it appears that the number of assaults reported has trended slowly downward during the period, with a larger (10%) drop off in 2015. Time series analysis reported in section A1 of Appendix A did not show a change immediately after implementation of SB1636 in August 2011, nor did it indicate that the trend lines were significantly different pre- and post- implementation. Therefore, we conclude that implementation of SB1636 did not coincide with a change in reporting of sexual assault incidents.

Figure 1: Statewide Sexual Assault Reports 2010 to 2015

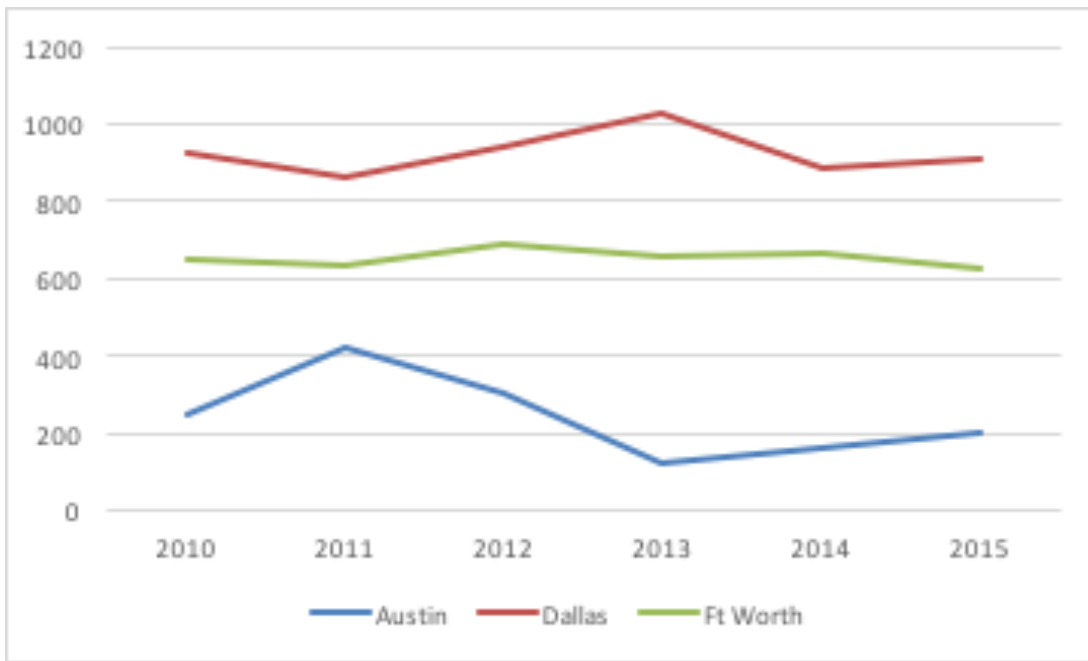


Local Trends in Sexual Assault Reporting

We were able to look at local trends in sexual assault reports in three agencies – Dallas, Austin, and Fort Worth between 2010 and 2015 (see Figure 2). In Dallas, with the largest number of sexual assault reports, there was little change from 2010 to 2015. Fort Worth similarly had a flat trend line during that period. For both Dallas and Fort Worth, the interrupted time series analysis reported in section A1 of Appendix A confirmed that there were no changes in the number of sexual assaults reported coincident with the implementation of SB1636 and no change in the trend line pre- and post-implementation of the universal testing statute.

In Austin, however, the data analysis showed both that there was a significant drop in reports coinciding with the time the law was implemented and that the trend lines pre- and post-law were significantly different, with a significant upward trend in reports pre-implementation and a significant downward trend post-implementation.

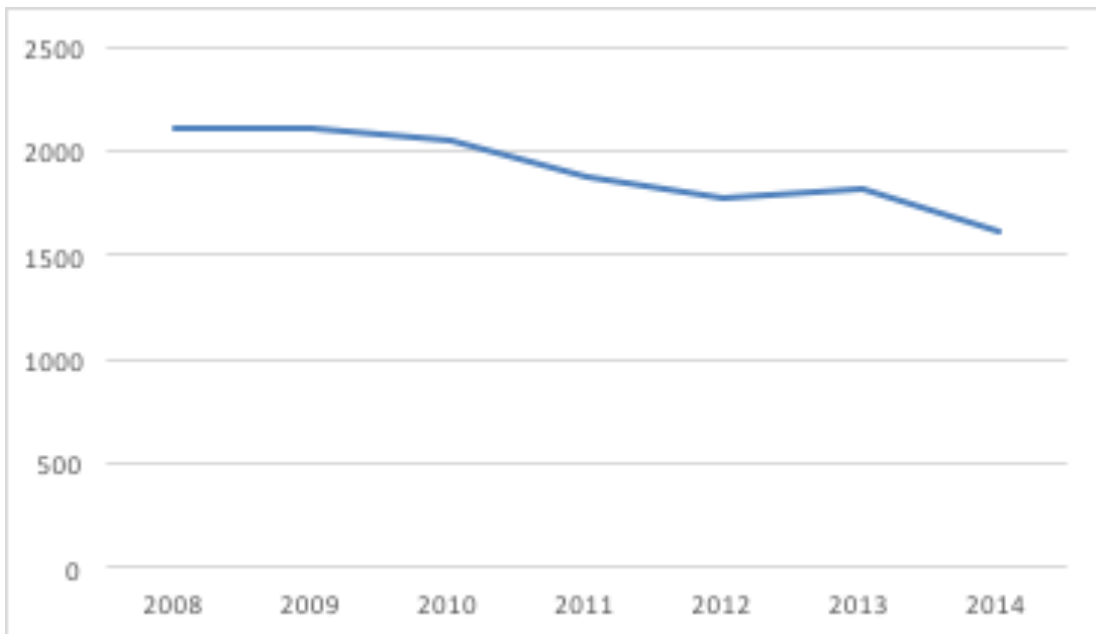
Figure 2: Sexual Assault Reports in Three Police Agencies 2010 to 2015



H2: Universal testing of SAKs will lead to an increase in the proportion of sexual assault reports that result in an arrest

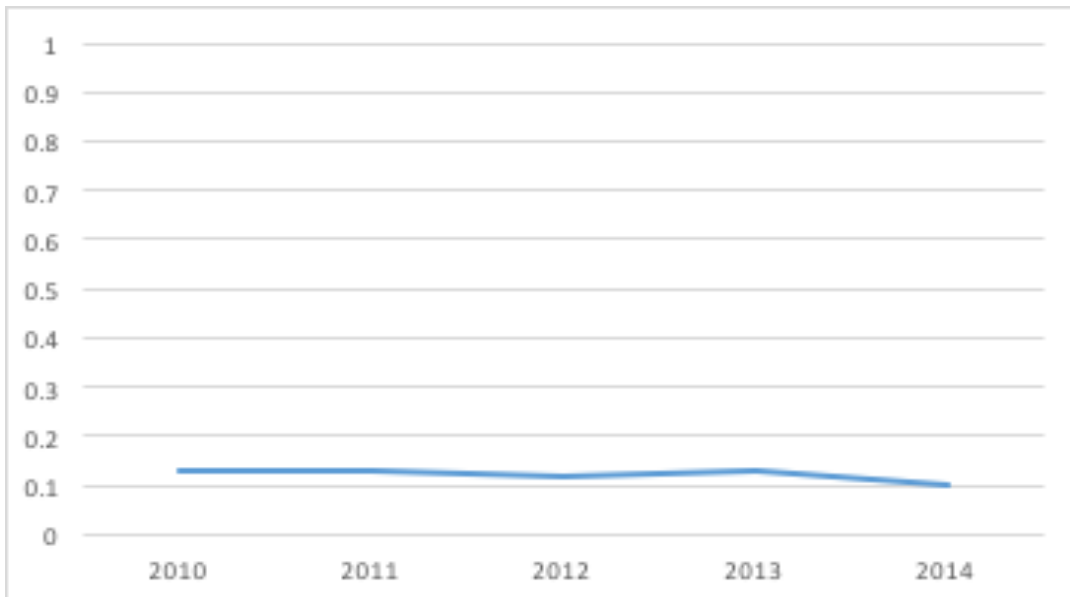
Figure 3 displays statewide trends in sexual assault arrests between 2008 and 2014. The graph shows a pronounced downward trend in arrests during this time period. This is the opposite of what we would have expected if SB1636 had led to a significant number of serial rapists identified through expanded DNA testing whose past crimes would otherwise have gone undetected

Figure 3: Statewide Sexual Assault Arrests 2008 to 2014



Still, the more relevant measure is the *proportion* of sexual assault reports that led to an arrest. That trend is displayed in Figure 4. Although the number of sexual assault reports and the number of arrests have both declined somewhat in recent years, the figure shows that the arrest rate has remained quite stable during the period between 2010 and 2014. A time series analysis reported in section A2 of Appendix A. The analysis showed that there was no change in the percentage of reports that resulted in arrests coinciding with the time that SB1636 was implemented, and that the trend lines are essentially the same pre- and post-implementation – both flat (not different from a zero slope). Over this period, about one in ten reported sexual assaults resulted in an arrest.

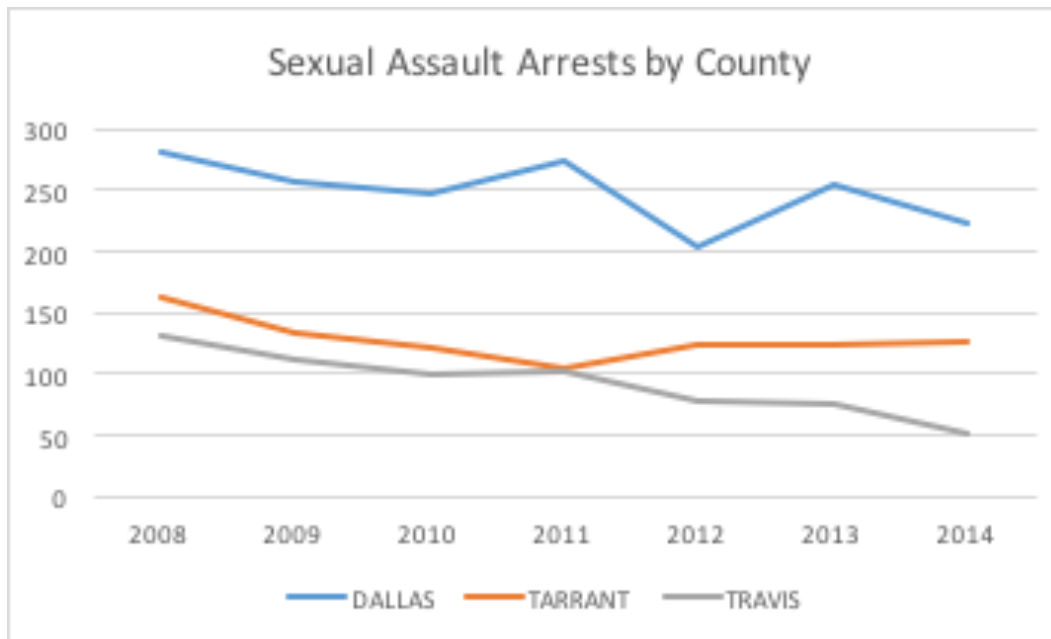
Figure 4: Statewide Sexual Assault Arrest Rate 2010 to 2014



Local Trends in Arrests

Figure 5 depicts the number of sexual assault arrests in Dallas, Tarrant, and Travis counties between 2008 and 2014. Mirroring the statewide data, the trend in arrests was slightly downward in each county during this time period: In Travis County, time series analysis indicated that the downward trend was statistically significant (see section A2 of Appendix A for results of the time series analysis). However, there was no evidence from the time series results in any of the counties that implementation of SB1636 resulted in any immediate change in the number of sexual assault arrests or changed the trend lines. (The data provided by DPS did not allow us to compute trends in arrest rates since the arrest data was compiled by county and sexual assault reports were compiled by agency.)

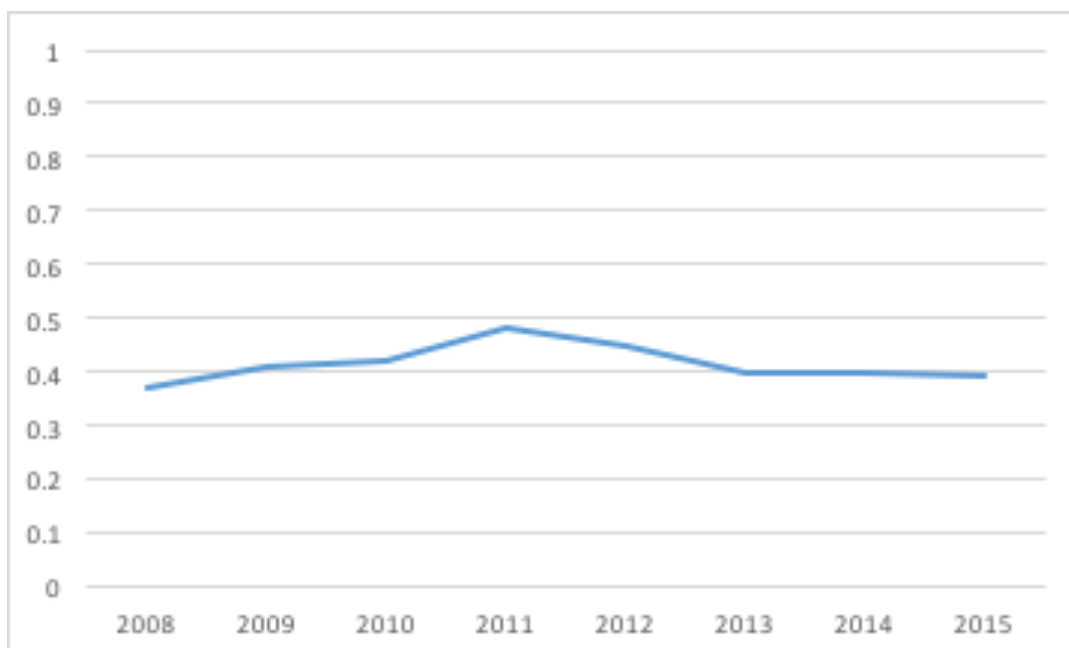
Figure 5: Sexual Assault Arrests in Three Counties 2008 to 2014



H3: Universal testing of SAKs will result in an increase in the proportion of filings that result in court filings and convictions

Finally, we examined trends in conviction rates during the period 2008 through 2015. As depicted in Figure 6, statewide conviction rates were relatively flat during this period, averaging about 40%. The interrupted time series analysis reported in section A3 of Appendix A did not reveal any immediate change in the conviction rate following implementation of SB1636, nor did it indicate any change in the trend line.

Figure 6: Statewide Sexual Assault Conviction Rate 2008 to 2015



IV. EFFECT OF SB1636 ON CRIMINAL JUSTICE AGENCIES

SB1636 required that all SAKs be submitted for DNA testing going forward and that law enforcement agencies submit for DNA testing SAKs not previously tested from cases occurring from 1996 to August/2011. We conducted a series of interviews with DPS staff over the course of the project which formed the basis for the discussion which follows.

A couple of years after passage of SB1636 the state of Texas provided \$10.8 million to DPS to conduct the testing. There is no enforcement mechanism within SB 1636. After the law's passage, DPS sent letters to the approximately 2,100 law enforcement agencies in Texas informing them about the requirements of SB1636. DPS also forwarded a message from former Senator Wendy Davis's office to law enforcement agencies encouraging compliance.

DPS initially received about 18,000 kits from agencies around the state. (Of these, 6,600 were Houston kits which conducted the testing themselves at their own expense.) DPS used its own labs to conduct testing, but the large volume of cases necessitated that it contract with private labs as well. DPS had initially hoped to have all testing completed by the end of 2016, but issues with the private lab has made it necessary to extend the timeframe for completing testing. DPS currently estimates that testing of all kits (now at roughly 19,000) in its possession by fall of 2017. To date, just 156 of the 2,100 law enforcement agencies across the state have submitted kits for testing. Larger agencies have complied, and it may well be that many very small agencies did not have any untested SAKs. Still, it seems safe to say that noncompliance with the statute is significant. Without a means of verifying, it cannot be determined how poor compliance has been.

While most of the DNA samples from previously untested cold cases are developed by private labs, the state crime labs are responsible for uploading the DNA profiles to state and federal DNA databases. When we spoke to the director of the Garland state lab, she said that the lab's turnaround time for all types of cases averaged 18-20 months and growing, far from her ideal of 30-90 days. However, she attributed the backlog to a state law upping requirements for testing material in homicide cases, not SB1636.

Overview of 1636 Effects on Local Criminal Justice Agencies

In each of the four study sites (Dallas, Fort Worth Arlington, and Austin), we interviewed police investigators in sexual assault units, sexual assault prosecutors, staff of local DNA labs, and victim advocates. In the interviews, we asked subjects about the effect of SB1636 on their workloads and their opinions about the law. In addition, we sought data to examine trends in the caseloads of police sexual assault units and local crime lab testing of SAKs. We composed site visit reports for each of four cities which are presented in this section of the report. Prior to these case studies, we present a synopsis of what we learned at each of the sites and an overall picture of the effects of SB1636 across the sites.

The effects of SB1636 on local criminal justice agencies varied across the four sites that were included in our study. Overall, we were able to obtain a clear picture of the SB1636 requirement for universal testing of SAKs in current cases. Because CODIS hits from the pre-August/2011 cases are still being returned to local law enforcement agencies, we can only provide a preliminary opinion on how that portion of the law is affecting local criminal justice agencies.

In Dallas, local crime lab staff acutely felt the effects of SB1636 on new cases, and procedures changed and new staff are to be added as a result of the law. The Dallas Police Department was also feeling the effects of the aspect of the law that required retroactive submission of SAKs that had not been previously

tested. The CODIS hits returned from the testing of pre-August/2011 cases are adding significantly to DPD's sexual assault unit workload. Staff that we spoke to at the Dallas District Attorney's Office said they feel the least impact of SB1636 since they are further "downstream" in the criminal justice system. Moreover, an NIJ grant to prosecute cold sexual assault cases has acted to further buffer that office from any significant effects of increased sexual assault prosecutions. Through the \$1.5 million grant, they have been able to hire two investigators who will work at DPD on investigations stemming from cold case CODIS hits. The grant also provides for two more prosecutors, a victim advocate, and a legal coordinator. This will supplement the two existing sexual assault prosecutors.

In Fort Worth, sexual assault police investigators said that SB1636 had increased their in-house crime lab workload and led to a change in the methods used to screen and prioritize SAKs. The workload of the unit's cold case sex crimes investigator's workload increased immediately because of the requirement to inventory SAKs to determine which needed to be targeted for DNA testing. Because Fort Worth was early in getting its kits to DPS, all of the 144 kits submitted that resulted in CODIS hits have now been returned to the police department. As discussed below, investigations stemming from those cases have added significantly to the unit's workload. Overall, FWPd personnel felt SB 1636 was not a positive influence because it is "bogging down the system." Specifically, testing is required in cases in which the forensic testing results would not be probative, such as "when cases are unfounded" and "when victims cannot recall details." Personnel also held the belief that comprehensive testing was not beneficial for identifying serial offenders or in domestic and date rape cases. In contrast, sexual assault prosecutors in the Tarrant County District Attorney's Office did not perceive an impact of SB1636 and do not anticipate greater work demands because of the law. As we discuss later in the report, their workload has not increased appreciably because only a small proportion of the CODIS hits from the pre-August/2011 cases have been referred for prosecution.

In Austin, the impact of SB 1636 has been most directly felt at the crime lab level. The turn-around time for testing sexual assault kits has increased due to the increased demand on the lab. This, in turn, has negatively affected both law enforcement investigations and to a lesser extent, prosecutions. In July, 2016 the APD lab voluntarily shut down due to deficiencies identified by the Texas Forensic Science Commission. The APD lab is currently revamping its procedures as well as hiring new personnel, and anticipates reopening in 2017. Until the lab can be reopened, testing of current cases is conducted by DPS and the University of North Texas Center for Human Identification. The combination of the crime lab closing and additional evidence testing demands has resulted in turn-around times for evidence testing of more than 12 months.

Initially, SB 1636 did not have an impact on Arlington Police Department operations because of the way that the department interpreted the law. The Department believed that if evidence in a sexual assault kit had been screened for the presence of foreign biological evidence then their procedures complied with SB 1636. The Tarrant County Medical Examiner's Office had been screening all kits for the presence of foreign biological evidence but had not been conducting more advanced DNA testing when foreign evidence had been detected. The influence of SB 1636 started to emerge in late 2015 when APD started a comprehensive audit to identify SAKs that had screened positive for foreign DNA evidence but had not undergone DNA testing. SB 1636 also led APD leaders to change the crime lab the Department used, because of costs concerns. Staff at the Tarrant County Medical Examiner's Office reported that APD cases dropped from 12 to 14 per month to about 2 to 3 per month after APD started submitting kits to the University of North Texas Center for Human Identification (UNTCHI). As mentioned in the Fort Worth paragraph above, Tarrant County sexual assault prosecutors have not seen a discernable effect of SB 1636. They argued that comprehensive SAK testing does not result in greater numbers of probative CODIS hits because many sexual assaults involve known offenders. Because Arlington only recently submitted pre-August/2011 cases for DNA testing, we were unable to determine whether CODIS hits returned from those cases will have a significant effect on investigators and prosecutors.

The following sections provide detail on the interviews conducted at each of the four study sites.

DALLAS SITE REPORT

Methods

In Dallas, we conducted interviews on one or more occasions with:

- Two supervisors in the sexual assault unit of the DPD
- Two sexual assault prosecutors with the Dallas District Attorney's Office
- Two staff members of the Dallas Area Rape Crisis Center (DARCC)
- Two staff members of the Southwestern Institute of Forensic Sciences (SWIFS), the local forensic lab that handles DPD DNA testing

In addition, we collected trend data on the number of cases handled by the sexual assault unit of DPD over time and trends in the number of cases per investigator.

Sexual Assault Kit Procedures

Victims presenting at a Dallas area emergency room for a forensic exam have the option of having their sexual assault kit (SAK) turned over to law enforcement or having the exam but not reporting. In cases where the victim chooses not to report, the rape kit is stored by Texas DPS for two years, then destroyed. Most victims receive their exams from one of three area hospitals with SANE programs. Other hospitals and the local hotline encourage victims to transfer to one of the hospitals with SANE programs. However, since there is no standard means of transporting victims from one emergency room to another, victims often drive themselves.

The Dallas Area Rape Crisis Center (DARCC) runs a hospital accompaniment program that has advocates on call 24-7 to assist victims receiving forensic exams through the Presbyterian Hospital SANE program. DARCC commits to having an advocate on scene within one hour to answer victim questions and link them to services.² In cases where the victim wants to report, DPD sends an investigator to the hospital to take the report. DARCC is present during the exam and ER process, but not during the investigator interview.

Once a SAK has been collected in Dallas County, evidence is stored in lock boxes kept at the hospitals with SANE programs. The local DNA lab makes pick-ups from these lock boxes several times per week.

Sexual assault cases in the City of Dallas are investigated by the DPD sexual assault unit which is comprised of a sergeant and seven detectives. The unit's caseload remained relatively constant from 2009 through 2014. In 2015, there was a huge spike in cases due to the CODIS hits from the pre-August/2011 untested cases coming back from Texas DPS for possible further investigation and prosecution. In fact, as shown in the table below, the unit's caseload more than doubled from 2014 to 2015.

² Serving all of the north Texas area, DARCC has a budget of approximately \$571,000 with the funding sources coming from federal and state, foundations, religious organizations, third party sources, corporations and individual

Dallas Police Department Sex Crime Unit Workload Trends^a

Year	Sex crime cases	Caseload per detective
2009	590	0.89
2010	558	0.71
2011	502	0.81
2012	549	0.88
2013	553	0.82
2014	439	0.84
2015	1086	0.93

^a Source: DPD sex crimes unit.

The increase in police detective caseloads has been mirrored in the workload of the local DNA lab. Most law enforcement agencies in Dallas County use the Southwestern Institute of Forensic Sciences (SWIFS) for DNA analysis. This includes both DPD and Sheriff agencies as well as police departments in Carrollton, Irving, and Richardson. SWIFS is part of the Dallas County Government and supports itself by billing per test, meaning that its clients pay for services based on the number of DNA samples that they send to the lab.

Through 2002, all sexual assault kits at SWIFS were tested. Starting in 2003, SWIFS moved to a new policy in which law enforcement was given 30 days to decide if they needed the kit to be tested. Around 60% of kits resulted in law enforcement asking for testing; the remaining 40% were returned to law enforcement. This remained standard practice until passage of SB1636. With the passage of SB1636 in 2011, SWIFS returned to a policy of testing all SAKs. SWIFS was able to manage the increased workload for a while but, as time went on, the lab started falling behind. The lab workload has increased further because there has been a general trend by SANEs to collect more swabs out of an abundance of caution (for example, collecting oral swabs even without a claim of oral penetration).

In order to operate most efficiently, SWIFS is now prioritizing sexual assault kit testing based on law enforcement request. This is a relatively informal system and only requires a call or email from an officer asking SWIFS to test the evidence. Priority cases take 60 days for DNA screening and 60 additional days for DNA testing. Because SWIFS cannot keep pace with the current volume of kits, there is a growing backlog of the unprioritized kits that are not being tested. In order to try to get back on top of the workload, in next year's county budget, SWIFS has requested six new scientists to add to the five existing positions.

With the testing of more kits and the inclusion of more swabs per kit, DPD has felt economic pressure to try to reduce its DNA testing expenses. DPD has asked SWIFS to determine what evidence is most probative and test only that evidence initially. If the lab succeeds in extracting testable DNA from that evidence, then they can submit the sample to CODIS and stop further testing. If they do not find a useable DNA sample, then SWIFS can select the next most probative piece of evidence and test that one. However, while this system may be cost saving, it slows down the testing process significantly. SWIFS is currently trying to figure out a workable system that is both efficient and relatively prompt.

SB 1636 Impact and Opinions of Criminal Justice System Personnel

After passage of SB1636, district attorney staff called all county law enforcement agencies to ask about untested kits. They instructed agencies to test all cases where sufficient DNA could be extracted. As of the time of our interview with prosecutors, from the pool of previously untested pre-August/2011 cases, two suspects had been linked to six to eight rapes each. Because one of these was an interpersonal violence case, the kit was not probative; however, the defendant was linked to other rapes through CODIS. Because of cases like these, the Dallas District Attorney wanted to expand the list of offenders who have DNA taken to include domestic violence, robbery, and burglary.

While the sexual assault prosecutors we talked to said that their office had not been significantly affected yet by the pool of untested kits from pre-August/2011, the office had received a \$1.5 million BJA grant to hire two investigators. The investigators work at DPD on investigations stemming from CODIS hits from the 4,000 DPD untested kits. The office also hired two more prosecutors, a victim advocate, and a legal coordinator. The new staff supplemented the two sexual assault prosecutors that the office now has.

The prosecutors we interviewed believed that in the older CODIS hit cases victim engagement may be a challenge. In some cases, kits were not originally tested because the victim was seen as “uncooperative” or unreliable. Dallas made a decision to follow the “Harris County Protocol.” Victims are approached by advocate, investigator, and prosecutor. DPD staff interviewed said that they are very proactive about reaching out, even to victims who other law enforcement agencies might be hesitant to engage – those who are “known to be prostitutes or drug users, or who are initially uncooperative.”

DPD staff said they were concerned about containing costs: With more kits to be tested (SWIFS staff estimated that SB1636 resulted in a 2/3 increase in the number of kits tested) and the inclusion of more swabs in kits, testing is getting more expensive. DPD has asked SWIFS to determine which evidence is most probative and test only that piece with the most probative value first. If they obtain useable DNA from that sample, it can be uploaded to CODIS without testing additional samples. If the first piece of evidence does not turn out to be useful, then SWIFS can select the next piece of evidence with the most probative value and test that one. While this system may be cost saving, it slows down the testing process and can be difficult for a forensic scientist to keep track of, particularly when they are doing this with multiple kits.

Besides noting that SB1636 had considerably increased their workload, lab personnel interviewed also had thoughts on SB1191. They worried that the law would result in an increased number of SANE programs and thus, less standardization among the variety and types of evidence submitted to SWIFS in sexual assault kits. Before SB1191, all forensic exams in the county were done by emergency room doctors at Parkland Hospital using SAKs designed by SWIFS. Now exams are also done at Methodist and Presbyterian hospitals. SWIFS hopes to work with the rest of the SANE programs in the area to standardize the kits and the evidence submitted to them.

In spite of concerns about workload and cost increases, all of the staff interviewed held generally favorable opinions of SB1636. A DPD supervisor said that, “The program has paid for itself even if we never make another arrest.” The supervisor further added that it would be good to have a similar law for homicides. A victim advocate thought that the law was beneficial because more SAKs would be tested. But she added that more funding was needed for agencies to cope with increased sexual assault caseloads. A sexual assault prosecutor agreed that the state legislature should have provided funding for both testing and follow-up investigations. The prosecutor thought that prosecutions arising from the pre-August/2011 cases would pose a challenge for the office. However, she believed that, once these cases are closed, the universal testing required by SB1636 would not pose undue burdens on her office.

FORT WORTH SITE REPORT

Methods

Three members of the research team conducted a group interview with six personnel from the FWPDP, representing the crime lab and the adult sex crimes investigation unit. A group interview was also conducted with two members of the Tarrant County Criminal District Attorney's Office (TCDAO). The interview with TCDAO personnel addressed topics relevant to the Arlington Police Department and FWPDP, since the TCDAO jurisdiction included both police departments.

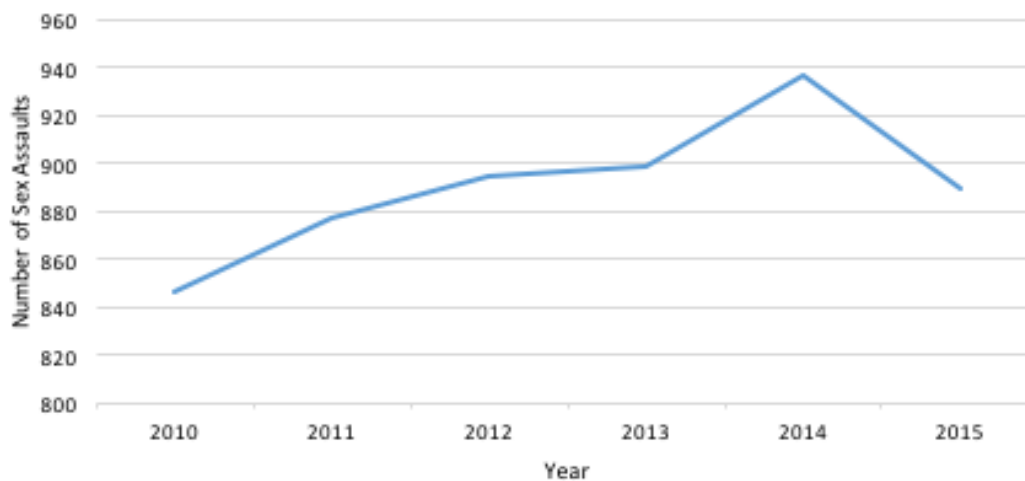
Sexual Assault Kit Procedures

The Special Victims Section within the FWPDP Investigative and Support Command is responsible for investigating sex crimes, domestic violence, and crimes against children. In early 2016 there were six investigators who worked adult-victim sexual assault cases, including a designated cold case sex crimes investigator. A cold case investigator position was created in early 2012. Although the position was not created as a direct result of SB 1636, investigators reported that the timing was ideal because cold case investigations would increase due to SB 1636 and because of a new to audit the department's sexual assault kits.

FWPDP operates a crime lab accredited by the American Society of Crime Laboratory Directors (ASCLD) in 2012. The lab started conducting DNA testing in mid-2012 and the lab was granted access to CODIS in 2014). FWPDP occasionally sends evidence to University of North Texas Center for Human Identification (UNTCHI) for forensic examination when workloads increase. UNTCHI has grant funding that facilitates the ability to test evidence for law enforcement agencies.

Cases handled by the FWPDP have increased substantially since 2010, just before SB1636 was enacted (see figure below). Cases reached a peak in 2014 and declined somewhat in 2015.³

Sexual Assault Trends in Fort Worth: 2010 – 2014



³ Texas House Bill 76 required sexual assault crime data collection to begin in 2008. This was intended to overcome some of the limitations with the UCR definition of rape. The sexual assault counts include the following six offenses: continuous sexual abuse of a child, indecency with a child by contact, indecency with a child by exposure, sexual assault, aggravated sexual assault, and sexual performance by a child. Data in Figure 1 are available from the Texas Department of Public Safety at http://dps.texas.gov/administration/crime_records/pages/crimestatistics.htm

Despite the downward trend from 2014 to 2015 in Figure 1, FWPD reported an increase in the number of victims served by the Sex Crimes Unit, from 460 in 2014 to 510 in 2015 (a nearly 11% increase) (Fort Worth Police Department, 2016). FWPD sex crimes investigators who were interviewed for the study reported receiving about six to eight new cases each month. One investigator indicated the unit's workload has increased in recent years, but other investigators who were interviewed had not been assigned to the unit long enough to notice changes in workload over time.

When a sexual assault forensic medical exam is completed at a hospital and a kit is collected, FWPD personnel pick up the kit and enter it into the FWPD property storage facility. The lab and property storage facility are located in the same building. Prior to 2012, when the FWPD crime lab began DNA testing, the lab screened samples in kits for the presence of foreign DNA and then sent probative samples to UNTCHI for DNA testing. In early 2016 the typical turnaround time for testing results to be available for detectives was approximately 200 days. FWPD personnel reported that this time lag has been stable over the past couple of years.

The FWPD sex crimes cold case investigator conducted the Department's audit of sexual assault kits, starting in February 2012. The detective selected all cases from 1996 – 2011 and read each case file report to understand key features of the case, including closure and testing status. The detective identified 1,083 cases with sexual assault kits that were not tested. Not all 1,083 kits required testing because, in some instances, there was no evidence in the kit to be tested or the evidence had already screened and results were negative. The FWPD audit identified 648 kits that needed to be submitted for testing.

The FWPD cold case sex crime investigator receives testing results from the lab. Lab personnel report that this investigator's workload is high. When a CODIS hit occurs in a case the cold case investigator begins working the case and starts the investigation again. The cold case investigator notifies victims when a CODIS-hit is returned using multiple methods, including phone calls and in-person contacts. While victim advocates share the building with investigators, they are not involved during the initial phase of contacting victims following a CODIS hit.

SB 1636 Impact and Opinions of Criminal Justice System Personnel

Interview data with criminal justice system personnel in Fort Worth revealed mixed views about impact on workload and operations. Most detectives in the adult sex crimes investigative unit reported not observing changes over time, but this can largely be attributed to their short tenure in the unit. A longer serving employee indicated workloads have increased, including workloads for the lab because testing occurs more frequently than in the past.

Interviewees reported that crime lab workloads and turnaround times have increased. In response, a new aspect of the lab's prioritization system was added; SB 1636 led to a change in the FWPD crime lab prioritization system. In anticipation of more frequent testing, the department created a priority system that allows detectives to provide the lab with a list of their "top ten priority" cases. Personnel reported that the turnaround time for the priority cases is about one or two months. The FWPD crime lab can then determine if it has the capacity to test these priority cases or outsource the priority cases to other labs. For cases not on detectives' top-ten lists, the lab uses a priority system that ranks cases with suspect samples first (because these are most likely to advance to prosecution, then cases with known suspects (but no suspect sample), and then cases without suspects.

Police investigators saw some problems with SB1636 in practice. Detectives maintained that they each get 2-3 cases per month where victims report a sexual assault, but cannot provide details on what happened. The lab employee indicated that in these cases they have a lot of swabs to test because nurses collect swabs from multiple locations on the victim's body. Detectives also maintained that they often encounter cases that "really aren't going any place," but the kit still needs to be tested and that "bogs down the system."

The individuals interviewed in the Tarrant County District Attorney's Office did not indicate they had observed an increased in CODIS hit cases (and therefore an increase in investigative work) after August 2011. Investigators argued that, if universal testing resulted in a greater numbers of CODIS hits, that would be a good outcome. At the same time, these individuals did not believe their office would be inundated with CODIS hit cases even when comprehensive kit testing occurs because many sexual assaults involve known offenders.

ARLINGTON SITE REPORT

Methods

In Arlington, researchers interviewed key local staff on five separate occasions. Interviewees included the sergeant in charge of sexual assault cases, two members of the Tarrant County District Attorney's Office, and two individuals in the Tarrant County Medical Examiner's Office.

Sexual Assault Kit Procedures

In January 2016 a distinct, adult-victim sex crimes unit was formed. APD also operates a Victim Services Program that provides support, advocacy, crisis counseling, court accompaniment, and community service referrals for 900-1,300 crime victims each month.

The table below shows the workload trends for the sex crimes unit for the 2011 – 2015 five-year period of time and UCR counts of rape. The table shows a substantial increase in the sexual assault unit's workload. However, a change in the UCR definition of rape in 2014 created a broader category of offenses that likely accounts for much of the increase.

Arlington Police Department Sex Crime Unit Workload and UCR Rape Counts

Year	Sex crime cases ^a	UCR Rapes ^b
2011	147	136
2012	195	135
2013	170	105
2014	194	206*
2015	235	222

^a Source: APD sex crimes unit.

^b Source: <http://www.arlington-tx.gov/police/wp-content/uploads/sites/9/2016/08/UCR-Crime-Summary.pdf> Accessed October 7, 2016

The Arlington Police Department, until spring 2016, relied on the Tarrant County Medical Examiner's Office (TCMEO) to screen sexual assault kits for foreign DNA and then conduct testing on the foreign DNA. When a sexual assault forensic medical exam was conducted and a sexual assault kit collected, the hospital would drop the kit in one of two drop-boxes. The TCMEO would then collect kits from the drop-boxes. The TCMEO screened evidence in all kits they collected from drop boxes but would rely on investigators to request DNA testing. In other words, investigators used their discretion when deciding to request DNA testing after TCMEO screened evidence from a sexual assault kit. The TCMEO reported handling about 200 kits each year, from about 40 to 50 police agencies in the county. Turnaround time for screening was about 30 – 45 days for evidence screening, which costs \$80 per sample. DNA analysis costs \$530 per sample. TCMEO personnel reported support for the investigator discretionary decision-making approach because it allows for triaging of cases.

During an interview with APD personnel in summer 2015 the research team learned about the APD interpretation of SB 1636: Local officials decided that the existing practice of comprehensive screening, -- but discretionary testing -- was consistent with SB 1636 requirements. During that interview, members of the research team suggested the local interpretation might not be consistent with the spirit behind SB 1636. APD then re-examined their procedures, consulted with individuals in the Texas Department of Public Safety, and determined their procedures needed to change. As a result, APD decided to conduct a comprehensive audit of all sexual kits in their possession, dating back to 1996, in order to initiate a process of testing all sexual assault kits. The audit would determine the forensic examination conducted on evidence in the kits (i.e., screening and DNA testing) so kits that screened positive for foreign DNA could be submitted to a crime laboratory for DNA testing. Because APD conducted its audit and determined how to proceed with untested kits and follow-up investigations, during the time period of the study, important outcome measures, including impact of SB 1636 on investigative workloads, CODIS uploads and hits, and CODIS-hit investigations were not available during the course of the research project. The sexual assault kit audit revealed there were 398 cases that occurred between September 1, 1996 and August 31, 2011 (i.e., pre-SB 1636 kits). The audit was completed in late July 2016, too late for the kits to be submitted to DPS as part of its archival testing program. Therefore, APD is using the University of North Texas Center for Human Identification (UNTCHI) to screen and test kits.

In early 2016 APD decided to change the crime lab they would use for testing sexual assault kits because of cost concerns. The decision to change labs was made because TCMEO charged for each kit; other funding sources would reduce costs to APD. Kits are now sent to the to the University of North Texas Center for Human Identification (UNTCHI) which has grant funds to test evidence in kits and will, thus, reduce costs to APD.

SB 1636 Impact and Opinions of Criminal Justice System Personnel

During the course of our interviews and data collection, the effects of SB 1636 can be characterized as “unfolding” and “delayed.” APD took a closer look at SB 1636 and its interpretation when we started to request meetings with personnel. This led to changes in APD procedures. The research team was unable to determine the effects of testing greater numbers of SAKs by APD because of the study's timeframe. TCMEO personnel did not express opinions in support of SB 1636. Personnel felt a triage approach that allowed investigators to make testing decisions was appropriate. TCDAO personnel did not report changes in CODIS cases coming to their office, but they viewed potential CODIS hits as a positive result. Individuals in the TCDAO did not expect to see substantial increases in CODIS hit cases coming to their attention.

AUSTIN SITE REPORT

Methods

Small group interviews (between 2-5 persons each) were conducted in November of 2015 with all members of the APD Sex Crimes Unit, including victim services counselors. Standardized interview questions were utilized and researchers asked clarifying and additional questions in areas of interest. Follow up emails were made on several occasions with the Sex Crimes Unit Sergeants during the Spring, Summer and Fall of 2016. Additional interviews were also conducted with two prosecutors from the Travis County District Attorney's Office (November 2015), four employees of SafePlace, the local rape crisis center (November 2015), and a manager in APD's forensic lab (March 2016).

Sexual Assault Kit Procedures

The table below shows case load trends for the APD Sex Crimes Unit as well as UCR counts of Known Rape Offenses in Austin between 2009-2015. The table shows no clear trend in sex cases during the time period since SB1636 was implemented.

Austin Police Department Sex Crimes Unit Case Load, Reported Sexually Violent Crimes and UCR Rape Counts

Year	Sex crime cases ^a	Sexually Violent Crimes ^b	UCR Rapes ^c
2009	530	--	265
2010	587	496	265
2011	555	674	211
2012	514	503	209
2013	403	323	217
2014	604	332	571*
2015	562	390	487

^a Source: APD sex crimes unit.

^b Source: Texas Department of Public Safety. Data not available for 2009. Represents the number of sexual violence reports in six categories: Continuous Sexual Abuse of Young Child, Indecency with a Child by Contact, Indecency with a Child by Exposure, Sexual Assault, Aggravated Sexual Assault and Sexual Performance by a Child.

^c Source: Texas Department of Public Safety.

* The UCR definition of rape changed in 2014 to a broader definition.

Medical forensic exams of adult victims in Austin are conducted at Eloise House, a stand-alone clinic specifically created for conducting medical forensic exams. SANEs are on-call 24 hours every day. Eloise House is a project of the local rape crisis center, SafePlace, and came into existence, in part, due to SB 1191. For many years previous to SB 1191, medical forensic exams in Austin were conducted at St. David's Hospital which had a SANE program. When SB 1191 became law on September 1, 2013, discussion began on how the Austin area could best offer medical forensic exams at all hospitals in order to meet the requirements of the law. For a while, it seemed that the SANE program at St. David's would

transition into a mobile unit, responding to survivors at hospitals across the area instead of having all sexual assault survivors come to St. David's. However, this transition was complicated and, compounded by some disagreement among the SANEs at St. David's, the SANE Program was disbanded. As of May 30, 2015 all survivors of sexual assault in Austin and some of the surrounding areas are directed to Eloise House for medical forensic exams.

Eloise House is on pace to conduct over 700 medical forensic exams in 2016, higher than the 475 yearly average seen at St. David's hospital in previous years. Rape crisis center advocates theorize that Eloise House has been able to successfully reduce the barriers for victims to receive an exam. By offering the exam in a clinic designed specifically for sexual assault survivors, survivors are the top priority. They are seen more quickly than in an emergency room, they are confidently and correctly informed that they will never receive a bill for their care, and they avoid the confusion and sometimes misinformation that can come with an emergency room visit. Interestingly, survivors have come to Eloise House from twenty-eight law enforcement jurisdictions around Austin, a far greater area than the Austin/Travis County.

Sexual assault victims come to Eloise house in several ways. They may be brought by law enforcement, they may be referred after a medical screening at a local hospital, or arrive of their own volition after contact with rape crisis center. After the exam, sexual assault kits are stored in a refrigerator at Eloise House and are picked up twice a week by APD Detectives who transfer them to the evidence room. The case is then assigned to a detective and the detective requests the kit to be tested through the Laboratory Information Management System (LIMS).

In the Fall of 2015, DNA testing took 11-12 months to complete, although detectives could request expedited testing of high priority cases. Results of testing are emailed to the lead detective as well as a generic 'sex crimes folder.' The sex crimes unit conducts a self-audit every month to ensure they are up to speed with all testing results.

In July 2016, the APD forensic lab voluntarily shut down due to deficiencies identified by the Texas Forensic Science Commission (Texas Forensic Sciences Commission, 2016) after audits conducted in the summer of 2016. The APD lab had been using an arbitrary, observational technique known as the "quant-based stochastic threshold" in their DNA analysis. While the quant-based ST is one step in DNA analysis it must be followed up with a second test based on analytical data. The Austin lab was not subjecting their DNA analysis to a second, analytical test (The Austin Chronicle, 2016). The lab closure is highly unusual and has required APD to send all evidence in current cases to either the TXDPS crime lab in Austin or to private labs for analysis. The APD lab is currently revamping its procedures as well as hiring and training new personnel and anticipates being able to open again in 2017. It is unclear how many criminal cases are affected by the lab deficiencies. Since the closing, Austin PD expects the time for forensic testing to take even longer than the previous 10-11 month wait, but it is unclear exactly how long testing will take.

SB 1636 Impact and Opinions of Criminal Justice System Personnel

Overall, APD sex crimes unit leadership and detectives were supportive of SB 1636. The Lieutenant noted that it is important to process all kits because of serial predators who may be overlooked because they do not look like the 'boogie' man. She said, "Every SAFE kit needs to be submitted."

APD personnel and victim advocates expressed concerns about notifying victims of forensic testing results in the very old cases. APD's concerns revolved primarily around the difficulty of locating victims, but also

the possible negative reaction they may receive from some victims. Rape crisis center advocates noted that notification of an old case moving forward could open old wounds. APD has started an information line available to sexual assault survivors who have questions about the status of evidence testing in their case which can allow victims to contact law enforcement on their own terms.

APD detectives cited SB 1636 as a significant reason for an increased load on their crime lab, resulting in a 10-11 month wait for testing to be completed. While some cases can be fast-tracked, most cases are subject to the long wait time. This delay was cited as a serious detriment to their investigations. Detectives explained that after 10-11 months, some victims are no longer interested in pursuing their case and other victims cannot be located. One detective commented that, "people's lives are on hold," during this time and a victim service counselor noted that the wait is "anxiety provoking for victims." In addition, because of the lag in testing and the rotation of detectives from one unit to another, it is not unusual that the original detective is gone from the unit by the time testing is complete.

Unfortunately, the 'dark side of SB 1636' is the increase in forensic evidence testing time due to the added demands placed on the lab. Since the older, untested kits are being outsourced to private labs, the increased demand on the APD lab is a result of the SB 1636 requirement that all current sexual assault kits be tested. Travis county prosecutors indicated both TXDPS and APD take a minimum of 12 months for testing.

APD crime lab personnel agreed that the requirement to test all new cases has impacted the lab. The lab estimated that in 2010 they had approximately 150-200 DNA cases waiting to be tested (backlogged). As of March 2016, they had over 1,200 DNA cases backlogged. They attributed at least part of this backlog to the 'mixture interpretation' problem that crime labs across the county have been facing. This 'mixture interpretation' problem stems from a notice by the Federal Bureau of Investigation in May 2015 of errors in the FBI-developed population database. Labs across the country have been affected.

From a prosecutorial perspective, SB1636's blanket testing of all sexual assault kits has produced positive results. The prosecutor's office is seeing increased evidence that might not have been found otherwise. For example, testing was conducted on a sexual assault kit in which the survivor had blacked out. The survivor reported only digital penetration, but testing detected semen. Before SB 1636, they might not have submitted this case for testing and would have missed out on this valuable evidence.

V. DISPOSITIONS OF CODIS HITS FROM PRE-AUGUST/2011 SAKS

An important part of SB1636 was its requirement that law enforcement agencies inventory sexual assault kits they had collected in cases going back to 1996 (the ending date for the statute of limitations on prosecution of sex abuse cases). Advocates across the country argued that SAKs that law enforcement agencies decided not to submit for DNA testing might, if now tested, lead to arrest and prosecution of offenders, and especially those offenders who had committed multiple crimes. Comparing samples from these untested kits to samples in state and federal DNA databases would expose such offenders who would otherwise have remained hidden.

DPS provided results of their testing process to date at each of the state DNA labs. The first two columns in the table below represent samples uploaded to the state and national DNA databases, respectively. Conviction matches represent matches made to offenders already convicted of the crime. The most interesting columns are hits to a known arrestee in the database, hits to a convicted offender in the database, and hits to a profile ordered by a judge (legal index hits). Each of these categories of hits typically provide new suspect information to investigators. Finally, forensic hits represent case to case hits – indicating that an offender has sexually assaulted a number of victims.

Lab	# Cases Uploaded to SDIS	# Cases Uploaded to NDIS	# Conviction Match	# Arrestee Hit	# Offender Hit	# Forensic Hit	# Legal Index Hit
Austin	705	664	44	11	222	29	
Garland	732	707	38	18	283	52	7
Lubbock	363	341	23	5	131	11	3
Totals	1800	1712	105	34	636	92	10

Data provided by DPS through 1/9/2017

Texas, with 19,000 untested kits now in the hands of DPS provides an excellent opportunity to determine the value of testing old SAKs in which law enforcement agencies apparently saw no merit in testing at the time of the report. So the question stands: Is whether there is a significant number of these SAKs in which offenders could be prosecuted and, after the passage of time, can the victims in these cases still be found and are they willing to testify?

We worked with the sexual assault units at our four sites to determine the dispositions of CODIS hits returned from the batch of previously untested pre-August/2011 kits. At this time, we can only present a preliminary look at these dispositions since testing is still proceeding for a portion of the kits. Since Arlington has only recently submitted its pre-August/2011 kits for testing, we have no data for that site. What we know at this point from the other sites is presented below. Because each law enforcement agency is maintaining its own unique database on dispositions of these cases, categories differ across sites.

Dallas

Dallas submitted the largest number of untested pre-August/2011 kits to DPS. It submitted 3,163 kits for testing: So far, 1805 kits have been tested with 718 DN profiles uploaded to CODIS. These have resulted

in 328 hits, or 45% of those uploaded to CODIS – a similar proportion to the hit rate in other cities across the country. The table below reveals that the arrest rate for returned CODIS hits is 4%. In one third of the CODIS hit cases, the victim declined to prosecute. Other common reasons why an arrest was not made include matches to other cases (but not to a suspect) and cases where an arrest had already been made: Each of these reasons accounted for about a quarter of the CODIS hit dispositions. In smaller numbers of CODIS hits, the case was not determined to constitute an offense (7% of dispositions) or the victim could not be located or was deceased (13% of dispositions).

Arrest confirmation	81 (24%)
Case to case matches	81 (24%)
Case did not constitute an offense	23 (7%)
Victim not located/deceased	44 (13%)
Victim declined to participate	115 (35%)
Suspect deceased	5 (2%)
Suspect arrested	13 (4%)
Total	328*

* Categories sum to more than 100% because some categories are not mutually exclusive

FORT WORTH

As of June, 2016, Fort Worth Police Department had 144 CODIS hits returned by DPS. The Fort Worth Police Department is not maintaining statistics on the dispositions of these cases, but is recording the dispositions in an Excel spreadsheet. Unfortunately, the spreadsheet logs dispositions for all CODIS hits – not just those from the pre-August/2011 cases sent to DPS. Project researchers went through the database tallying dispositions on cases that apparently were from the pre-August/2011 batch based on the timing of the information returned by DPS. We believe that we were able to identify cases in the pre-August/2011 cohort with a good degree of accuracy.

The rate of arrests was somewhat higher than Dallas – 14%. Further about a third of the cases were still listed as “pending” in the Fort Worth Excel spreadsheet, so it is possible that the arrest rate will go up further (although many of the pending cases had been pending for months – it seems likely that most will be closed with no further action taken). As in Dallas, the largest obstacle to arrest was victims who were unwilling or unable to engage with prosecution or victims who could not be found. Surprisingly, there were no cases identified in Fort Worth database as arrest confirmations (recall that this category constituted about a quarter of the Dallas CODIS hits). Also, Fort Worth classified 17% of the cases as “closed by exceptional means” or “DA refused to charge” – both ambiguous categories that do not elucidate what the reasons were for the failure or inability to arrest. Finally, the proportion of cases labelled as “unfounded” in Fort Worth (12%) was nearly twice what was recorded in Dallas (7%).

Outcomes of CODIS hits from pre-8/2011 cases as of June 2016:	
Arrested	8%
Case filed	4%
Convicted	2%
Total action taken	14% (20 cases)
Victim refused/unwilling	20%
Unfounded	12%
Closed by exceptional means	10%
DA refused to charge	7%
No suspect (case match)	2%
Unable to locate victim	2%
Victim deceased	1%
Total no further action taken	53% (76 cases)
Pending	33%
Total pending	33% (48 cases)
Total cases	100% (N=144)

Austin

When SB 1636 became law, APD conducted an internal audit of sexual assault kits in their possession in accordance with the law and notified DPS of findings. While APD identified approximately 1,700 untested sexual assault cases in their possession, there was some confusion at first if all of the untested kits would need to be tested. As a result, APD informed DPS of only 407 kits that needed to be tested. After discussions with forensic and legal communities, APD determined that all of the kits needed to be tested and they so notified DPS. Since by that time DPS had already allocated all available funding, APD committed to testing the remaining kits themselves using a DANY (District Attorney of New York) grant for \$2 million.

The table below summarizes Austin Police Departments testing of older, previously untested sexual assault kits per SB1636. Although 46 CODIS hit cases have been returned to APD and 36 cases reopened, so far no arrests have been made.

Number of sexual assault kits submitted	Screening and testing completed	Uploaded to CODIS	CODIS Hit	Cases Re-opened
1546	399	78	46	36

VI. CONCLUSIONS

We began this assessment with three questions in mind: (a) How has SB1636 affected sexual assault reports, arrests, and convictions? (b) How has SB1636 affected police agencies, prosecutors, and DNA labs? and (c) What are the benefits of submitting previously untested SAKs for DNA testing? We came away with thoughts of the impact of SB1636 in each of these areas:

- *We did not find an impact of SB1636 on reporting or arrests in sexual assault cases statewide or in the four study sites.*

We did not see any evidence that SB1636 increased the number of sexual assault cases reported in Texas, the proportion of cases resulting in arrest, or the proportion of court cases resulting in conviction. Sexual assault reports and arrests trended gradually downward over the period of time we studied (both statewide and in the three local counties examined). Arrest and conviction rates were essentially flat during the time period. Of course, there are many confounding factors, other than SB1636, that may have influenced these trends over this period of time. It should be noted that these findings are based on the SB1636 requirement for universal testing of sexual assault kits in current cases. Because CODIS hits from the pre-August 2011 cases are still being returned to local law enforcement agencies, it is unclear how that portion of the law is affecting local criminal justice agencies. DPS experience to date suggests that of the 7,600+ untested kits submitted by Dallas, Fort Worth, Austin, and Arlington, 3,000 will yield testable DNA and 40% of those, or 1,200 cases, will generate matches to unknown suspects or other cases. To date, however, our analyses suggest that SB1636 has not affected sexual assault reports or arrests.

- *While DPS received over 19,000 archived SAKs from law enforcement agencies across the state, the kits have come from just 156 of the 2,100 agencies in Texas.*

SB1636 did not contain provisions for enforcement of the requirement to submit kits untested at the time the law took effect in August/2011. Fortunately, the largest agencies in the state have submitted archived SAKs for testing. While many of the smaller agencies may see few sexual assault cases, and the smallest may not see any, the numbers suggest that compliance with this provision of SB1636 was low.

- *The impact of SB1636 on workloads so far has varied among various parts of local criminal justice systems. The requirement of SB1636 that all current SAKs be tested is having a significant impact on the workloads of local and state DNA labs, less on local police, and least on prosecutors. The requirement that archived SAKs be tested is starting to have a significant effect on police agencies, but (so far) minimal effect on district attorney workloads.*

Looking across sites, we see similarities in how they have adapted to SB1636. First of all, the heaviest burden of SB1636 has fallen on local crime labs. The requirement that all kits going forward be tested coincided with substantial increases in lab workloads and turnaround time. (The exact amount of the increase due to SB1636 is hard to determine because of other confounding factors including trends toward more DNA evidence being collected in sexual assault cases by SANEs and a statute requiring DNA testing of *all* evidence in capital cases.) Fort Worth and Dallas have had to adopt new methods of prioritizing cases as turnaround time has increased to unacceptably high levels. The Arlington Police Department switched local DNA labs to reduce the higher costs it was experiencing as a result of the increase in samples tested.

Sexual assault investigator workloads have also been affected by SB1636 mainly through the requirement that older untested kits be submitted for laboratory analysis. This is true both because of the effort required in the process of inventorying pre-August/2011 kits and because of the time needed to review cases, contact victims, and investigate cases where CODIS hits are returned. Only Arlington, which has not yet had CODIS hits returned, has escaped much of this work temporarily.

Being the furthest downstream, prosecutors have been least affected by SB1636, either from the requirement that pre-August/2011 cases be tested or that all sexual assault cases be tested going forward.

- ***So far, it looks like roughly 10% of CODIS hits, or 1-5% of all pre-August/2011 cases submitted by local agencies for DNA testing have resulted in an arrest. We expect that there will be convictions in most of the arrest cases.***

The testing process for the cohort of pre-August/2011 SAKs is well advanced in Dallas and in Fort Worth. In both of these cities, we were able to calculate initial estimates of the proportion of CODIS hits from the cohort that result in arrest. In Fort Worth, it was 14%, in Dallas 4%. These are not final figures and, even in Dallas and Fort Worth, it is too early to estimate prosecutions and convictions stemming from these SAKs. In Austin, CODIS hits have just recently started coming back and in Arlington they will still be a while in coming. A new grant from the National Institute of Justice will allow us to continue to track the CODIS hits and determine the number of cases in which serial rapists are identified and the number that result in convictions over the next year and a half.

- ***Overall, criminal justice officials support universal testing requirement of SB1636***

In general, criminal justice officials spoke in positive terms about the statute. This was especially true of prosecutors, who believed that the SB1636 would result in more identification of serial rapists and more convictions. Of course, prosecutors are also the group of officials whose workload is least affected by the statute. Some police investigators felt that the law went too far in taking away from police the discretion not to test in cases where testing was not probative – cases in which a consensual defense was mounted, cases in which a guilty plea had already been entered, or cases in which victims “refused to cooperate.” Some officials supportive of the law also argued that jurisdictions ought to receive state funds to cover the increased costs they were experiencing.

APPENDIX A: RESULTS OF INTERRUPTED TIME SERIES TESTS

A1: Trends in Sexual Assault Reporting

To determine whether SB1636 had an effect on reporting of sexual assaults, we conducted time series analyses that examined trends in reporting between 2008 and 2015 statewide (between 2010 and 2015 for reports due to data availability). If SB1636 did affect reporting, we would expect to see an increase in the number of reports after the law’s implementation in August 2011 and/or a change in the trends pre- and post-August 2011.

Statewide Reporting Trends

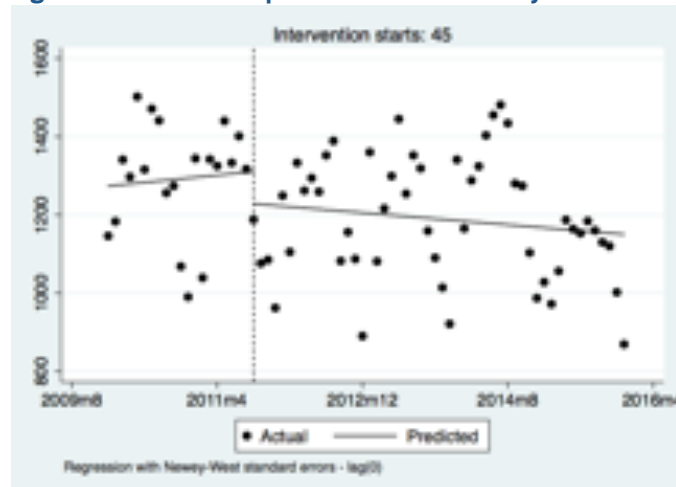
Summary Statistics Table A1 compares summary statistics before and after the implementation of SB1636 for the number of sexual assault reports per month in January 2010 through December 2015. Furthermore, Table 1 shows the percentage of cases that resulted in arrests and the percentage of arrests that resulted in filings.

Table A1. Summary Statistics of Sexual Assault Reports in Texas before and after Implementation of SB1636

	Mean # of cases		Standard deviation		Range	
	Pre-law	Post-law	Pre-law	Post-law	Pre-law	Post-law
Reported Cases	1291	1203	142	150	990 - 1502	890 - 1481
% of Cases that Resulted in Arrests	12.6%	11.5%	1.3%	1.8%	10.6% - 16.2%	8.4% - 18.1%

Figure A1 breaks up the number of reported sexual assaults per month in Texas into pre- and post-SB1636 periods. It shows that there was no change in reports coinciding with the time the law was implemented ($p = 0.21$). The trend lines pre- and post-law are essentially the same pre- and post-implementation ($p = 0.24$) and neither is significantly different from 0, or a flat trend ($p=0.65$ pre-law and $p=0.43$ post-law). In sum, statewide, the law led to no changes in sexual assault reporting.

Figure A1. Statewide Reported Sexual Assaults by Month with pre- and post- Implementation Trend Lines



Local Trends in Reporting

Table A2 compares summary statistics before and after the implementation of SB1636 for the number of sexual assault reports per month for Austin Police Department, Dallas Police Department, and Fort Worth Police Department from January 2010 through December 2015.

Table A2. Summary Statistics of Sexual Assault Reports before and after Implementation of SB1636 for Austin, Dallas, and Fort Worth Police Agencies

	Mean # of cases		Standard deviation		Range	
	Pre-law	Post-law	Pre-law	Post-law	Pre-law	Post-law
Reported Cases in Austin	27.55	17.09	10.24	11.49	10-44	1-57
Reported Cases in Dallas	76.5	78.13	15.40	18.55	54-110	35-116
Reported Cases in Fort Worth	54.35	55.57	9.30	10.26	33-77	39-81

Figure A2 breaks up the number of reported sexual assaults per month in Dallas Police Department into pre- and post-SB1636 periods. It shows that there was no change in reports coinciding with the time the law was implemented ($p = 0.28$). The trend lines pre-and post-law are essentially the same pre- and post-implementation ($p = 0.64$) and neither is significantly different from 0, or a flat trend ($p=0.34$ pre-law and $p=0.42$ post-law). In sum, the law does not appear to have led to changes in sexual assault reporting in Dallas.

Figure A2. Reported sexual assaults in Dallas Police Department by Month with pre- and post- Implementation Trend Lines

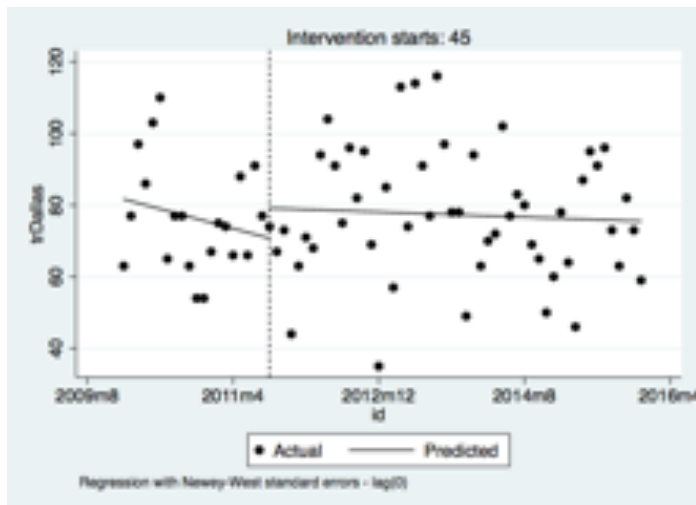


Figure A3 breaks up the number of reported sexual assaults per month in Fort Worth Police Department into pre- and post-SB1636 periods. It shows that there was no change in reports coinciding with the time the law was implemented ($p = 0.38$). The trend lines pre-and post-law are essentially the same pre- and

post-implementation ($p = 0.49$) and neither is significantly different from 0, or a flat trend ($p=0.49$ pre-law and $p=0.67$ post-law). In sum, in Fort Worth, there is no evidence that the law led to changes in sexual assault reporting.

Figure A3. Reported Sexual Assaults in Fort Worth Police Department by Month with pre- and post- Implementation Trend Lines

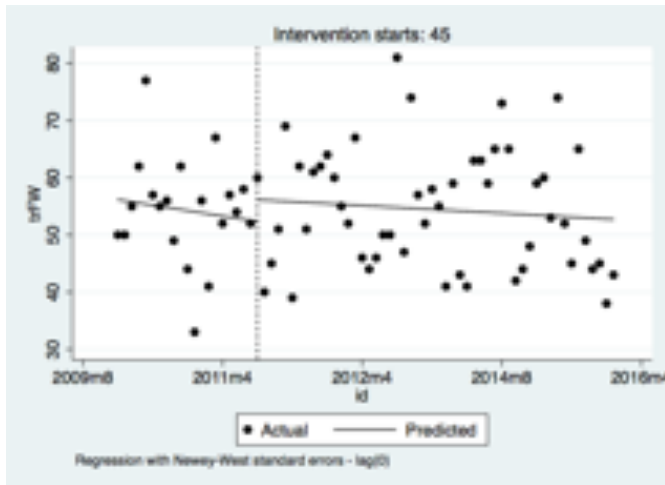
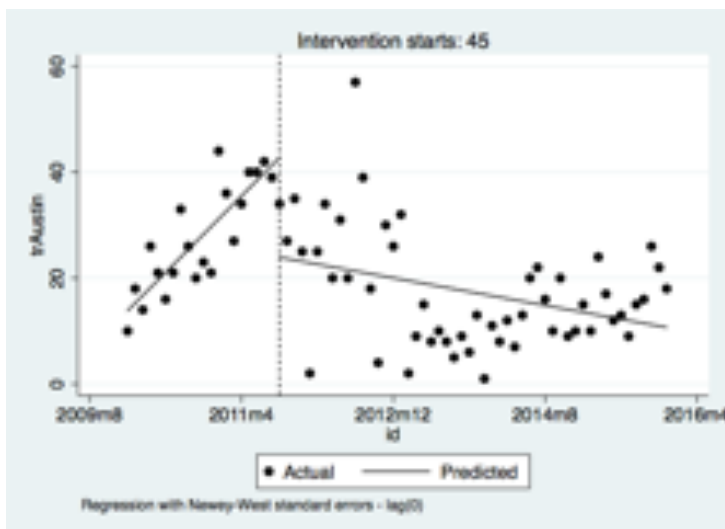


Figure A4 breaks up the number of reported sexual assaults per month in Austin Police Department into pre- and post-SB1636 periods. It shows that there was a significant drop in reports coinciding with the time the law was implemented ($p < 0.001$). The trend lines pre- and post-law were significantly different ($p = 0.01$), with a significant increase pre-implementation ($p < 0.001$) and a significant decrease post-implementation ($p < 0.001$). In sum, the law coincided with a decrease in sexual assault reporting in Austin Police Department.

Figure A4. Reported sexual assaults in Austin Police Department by month with pre and post implementation trend lines



A2: Trends in Percentage of Reports that Result in Arrests

Statewide Reporting Trends

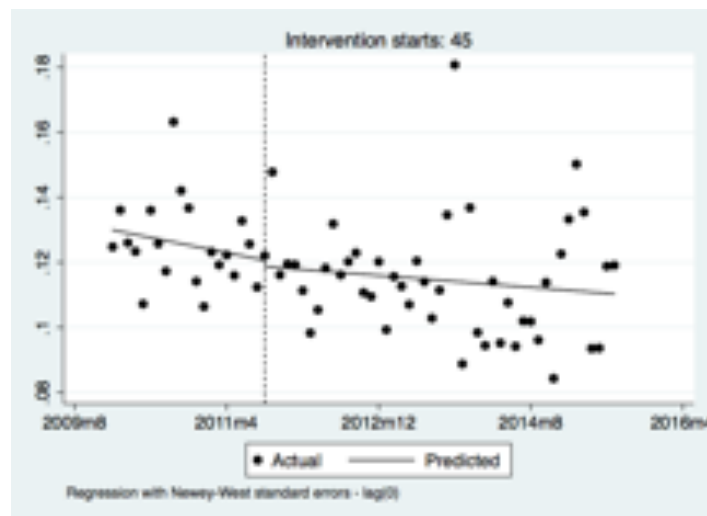
Summary Statistics Table A3 compares summary statistics before and after the implementation of SB1636 for the percentage of cases that resulted in arrests.

Table A3. Summary Statistics for Statewide Percentage of Sexual Assault cases Resulting in Arrest before and after Implementation of SB1636

	Mean # of cases		Standard deviation		Range	
	Pre-law	Post-law	Pre-law	Post-law	Pre-law	Post-law
% of Cases that Resulted in Arrests	12.6%	11.5%	1.3%	1.8%	10.6% - 16.2%	8.4% - 18.1%

Figure A5 breaks up the percentage of sexual assault reports that resulted in arrests per month in Texas into pre- and post-SB1636 periods. It shows that there was no change in the percentage of reports that resulted in arrests coinciding with the time the law was implemented ($p = 0.73$). The trend lines pre- and post-law are essentially the same pre- and post-implementation ($p = 0.31$) and neither is significantly different from 0, or a flat trend ($p=0.16$ pre-law and $p=0.45$ post-law). In sum, statewide, the law led to no changes in the percentage of sexual assault reports that resulted in arrests.

Figure A5. Statewide Percentage of Cases that Result in Arrest by Month with pre- and post- Implementation Trend Lines



Local Trends in Arrests

Summary Statistics At the local level, DPS data does not allow us to match up sexual assault reports (reported by law enforcement agencies) and arrest data (reported by county). Then analyses below, therefore, are based on number of arrests, rather than arrest rate. Table A4 compares summary statistics before and after the implementation of SB1636 for the number of sexual assault arrests per month in

Texas overall, as well as Dallas, Tarrant, and Travis Counties from January 2008 through July 2015. We excluded cases involving children from analyses.

Table A4. Summary Statistics of Sexual Assault Arrests before and after Implementation of SB1636 in four Local Jurisdictions

	Mean # of cases		Standard deviation		Range	
	Pre-law	Post-law	Pre-law	Post-law	Pre-law	Post-law
Texas	166	137	22	20	113-217	90-197
Dallas County	22	19	6	6	12-30	9-40
Tarrant County	11	10	4	4	5-23	2-23
Travis County	9	6	3	3	2-6	1-14

Figure A6 breaks down the number of sexual assault arrests per month in Dallas County pre and post the law’s implementation. There was no immediate change in arrests during the first month after implementation of SB1636 ($p = 0.39$). Nor was there a significant difference in the trend of sexual assault arrests pre v. post the law’s implementation ($p = 0.34$). Both pre and post-SB1636, the trend lines were essentially flat ($p = 0.82$ pre-law and $p = 0.17$ post-law). In sum, there is no evidence change in sexual assault arrests in Dallas County coinciding with implementation of SB1636.

Figure A6. Dallas County Sexual Assault Arrests by Month with pre- and post- Implementation Trend Lines

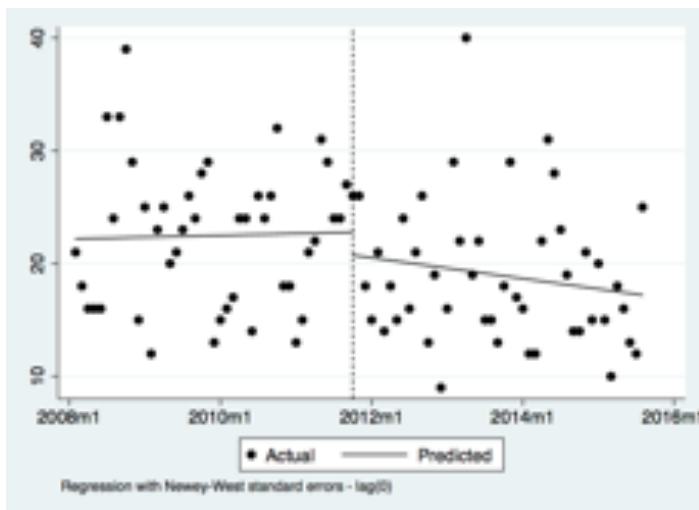


Figure A7 displays Tarrant County trend lines pre and post implementation of SB1636. Prior to implementation of the law, sexual assault arrests were on a downward trend, declining by an average of 0.13 cases per month ($p = 0.01$). In the first month of the intervention, there was no immediate change in arrests ($p = 0.2$). However, in the post-implementation period, the trend in sexual assault arrests flattened out, ending the previous downward trend ($p = 0.85$). There was a significant difference in the trend lines of sexual assault arrests pre v. post the law’s implementation, with 0.14 more arrests per month on average post-intervention ($p = 0.03$). In sum, arrests were on the decline prior to the law’s implementation, but leveled off after the law went into effect.

Figure A7. Tarrant County Sexual Assault Arrests by Month with pre- and post- Implementation Trend Lines

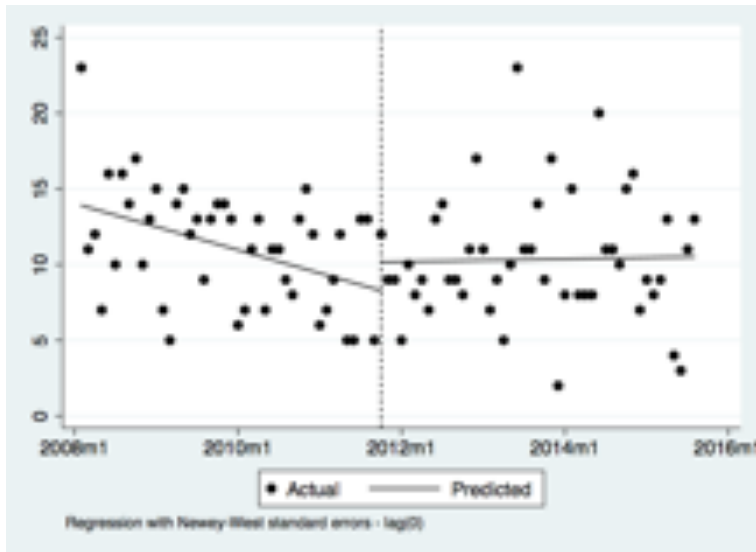
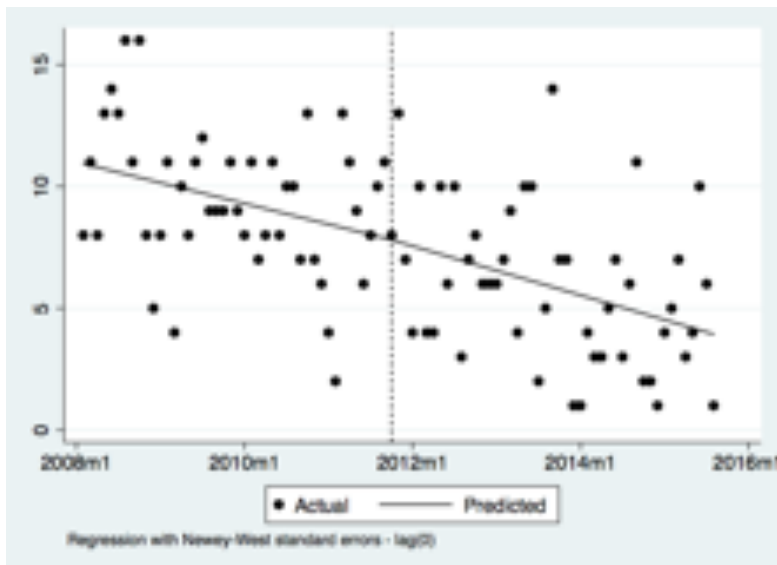


Figure A8 shows trends in the number of sexual assault arrests per month in Travis County broken down into pre- and post- law periods. There was no change in the number of arrests from the pre-law period to the first month after implementation ($p = 0.99$). In both pre- and post-law periods, there was a significant decline over time in the number of sexual assault arrests ($p = 0.06$ and $p = 0.01$, respectively). There was not a significant difference in the trend of sexual assault arrests pre v. post the law's implementation ($p = 0.79$). In sum, sexual assault arrests were declining over the entire period, and that downward trend was not affected by implementation of SB1636.

Figure A8. Travis County Sexual Assault Arrests by month with pre- and post- Implementation Trend Lines



A3: Trends in Sexual Assault Filings that Result in Convictions

Summary Statistics

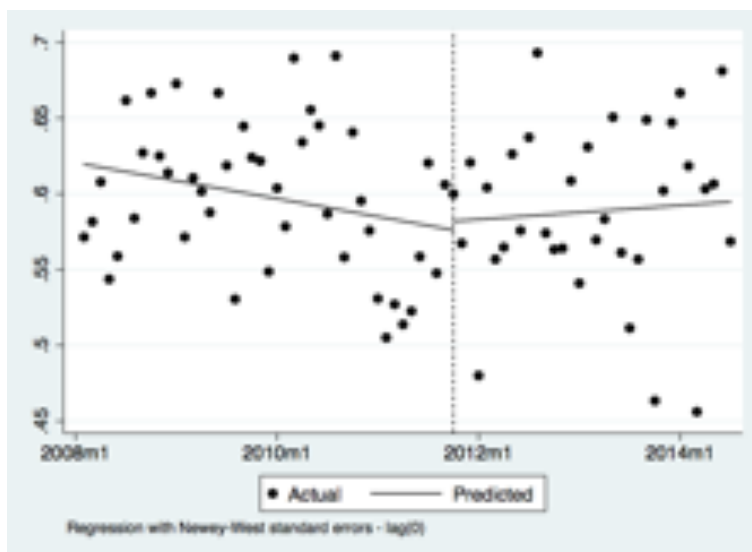
Table A5 shows summary statistics for the percentage of sexual assault cases (excluding cases involving children) that result in convictions per month in Texas from January 2008 through June 2014. We also excluded cases from late 2014 and 2015 since most of these cases had not yet reached a disposition. Conviction rates statewide are virtually identical (60% vs. 59%) before and after implementation of SB1636.

Table A5. Summary Statistics for the Monthly Conviction Rate pre- and post- Implementation of SB1636 (January 2008 through June 2014)

	Mean # of Cases/ Month	Conviction Rate (Mean)		Conviction Rate (Standard Deviation)		Conviction Rate (Range)	
		Pre	Post	Pre	Post	Pre	Post
% filings that resulted in conviction	101	60%	59%	5%	5%	51-69%	46-69%

Figure A9 shows the conviction rate per month in Texas with trend lines from pre and post the law's implementation. Both pre and post-SB1636, the trend in convictions was not significantly different from flat ($p = 0.08$ and $p = 0.24$, respectively). There was no immediate change in the conviction rate in the first month of the post-implementation period ($p = 0.79$). Nor was there a significant difference in convictions trends pre v. post the law's implementation ($p = 0.71$). In sum, there is no evidence of a change in convictions rates for sexual assault cases in Texas coinciding with implementation of SB1636.

Figure A9. Statewide Monthly Conviction Rate with pre- and post- Implementation Trend Lines



APPENDIX B: INTERRUPTED TIME SERIES ANALYSIS (ITSA) METHODOLOGY

Interrupted time series analysis is used to make inferences about the average effect of an intervention or policy. In this analysis, the dependent variable has multiple, equally spaced observations pre and post an intervention that may interrupt the time series by disrupting its level and/or trend. If the intervention has an impact, then the pre-intervention and post-intervention series will have different slopes and/or levels.

An interrupted time series model for a single group estimates the following regression equation:

$$Y_t = \beta_0 + \beta_1 T_t + \beta_2 X_t + \beta_3 X_t T_t$$

In this model, Y_t is the aggregated outcome of interest measured at each equally-spaced time point, t . T_t is the number of time points from the *start of the data*. X_t is a dummy variable representing the *intervention* (coded 0 before the intervention and 1 after the intervention), while $X_t T_t$ is the interaction term for the time period immediately following the intervention. The intercept, β_0 , is the starting point for the outcome variable. β_1 is the slope of the outcome variable in the pre-intervention period. β_2 is the change in the level of the outcome variable for the period immediately after the intervention. Finally, β_3 is the difference in pre and post intervention slopes of the outcome variable.

Table B1 shows the results of interrupted time series analyses⁴, which test the impact of the law’s implementation on the number of sexual assault reports, the percentage of those reports that result in arrest, and the percentage of reports that result in filings. If β_2 is significant, then the law has an impact immediate impact on the outcome. If β_3 is significant, then the law has an effect over time.

Table B1. Interrupted Time Series Model Results – Number of Sexual Assault Reports, Percentage of Reports that Result in Arrests, and Percentage of Arrests that Result in Filings

	Pre Law Slope (β_1)	Impact in Month Immediately after Intervention (β_2)	Difference in Slope from Pre to Post Law (β_3)	Post Law Slope ($\beta_1 + \beta_3$)
Reported Cases	1.86 (4.09)	-82.51 (64.79)	-3.39 (4.29)	-1.52 (1.30)
% of Cases that Resulted in Arrests	-0.0005 (0.0003)	-0.002 (0.006)	0.0003 (0.0004)	10-0.0002 (0.0002)
% of Arrests that Resulted in Filings	-0.0002 (0.0005)	0.02 (0.002)	-0.006* (0.001)	-0.007* (0.001)

Table B2 shows the results of interrupted time series analyses⁴, which test the impact of the law’s implementation on the number of reported sexual assaults in Austin Police Department, Dallas Police Department, and Fort Worth Police Department. If β_2 is significant, then the law has an impact immediate impact on the outcome. If β_3 is significant, then the law has an effect over time.

⁴ The Box-Jenkins method was used for diagnostics prior to analyses.

Table B2. Interrupted Time Series Model Results – Number of Sexual Assault Reports by Police Department

	Pre Law Slope (β_1)	Impact in Month Immediately after Intervention (β_2)	Difference in Slope from Pre to Post Law (β_3)	Post Law Slope ($\beta_1 + \beta_3$)
Reported Cases in Austin	1.44* (0.15)	-18.80* (3.99)	-1.70* (0.18)	-0.26* (0.10)
Reported Cases in Dallas	-0.54 (0.56)	8.39 (7.70)	0.47 (0.58)	-0.07 (0.15)
Reported Cases in Fort Worth	-0.19 (0.27)	3.82 (4.32)	0.12 (0.29)	-0.07 (0.10)

* $p < 0.05$

Table B3 shows the results of interrupted time series analyses, which test the impact of the law’s implementation on the number of sexual assault arrests. If β_2 is significant, then the law has an impact immediate impact on the outcome. If β_3 is significant, then the law has an effect over time.

Table B3. Interrupted Time Series Model Results – Number of Sexual Assaults Arrests

	Pre Law Slope (β_1)	Impact in Month Immediately after Intervention (β_2)	Difference in Slope from Pre to Post Law (β_3)	Post Law Slope ($\beta_1 + \beta_3$)
Texas	-0.28 (0.25)	-17.31* (8.11)	0.03 (0.31)	-0.25 (0.18)
Dallas County	0.01 (0.08)	-2.03 (2.36)	-0.09 (0.09)	-0.08 (0.06)
Tarrant County	-0.13* (0.05)	1.88 (1.46)	0.14* (0.06)	0.01 (0.04)
Travis County	-0.07 (0.04)	-0.002 (1.24)	-0.01 (0.05)	-0.08* (0.03)

* $p < 0.05$

Table B4 shows the results of interrupted time series analysis⁵, testing the impact of SB1636 on the statewide conviction rate for sexual assault cases. Again, if β_2 is significant, then the law has an impact immediate impact on the outcome. If β_3 is significant, then the law has an effect over time.

Table B4. Interrupted Time Series Model Results – Conviction Rates

	Pre Law Slope (β_1)	Impact in Month Immediately after Intervention (β_2)	Difference in Slope from Pre to Post Law (β_3)	Post Law Slope ($\beta_1 + \beta_3$)
Statewide	-0.001 (0.001)	0.006 (0.02)	0.001 (0.001)	0.0004 (0.001)

* $p < 0.05$

Source: Linden, A. (2015). Conducting interrupted time-series analysis for single-and multiple-group comparisons. *Stata Journal*, 15(2), 480-500.

5 The Box-Jenkins method was used for diagnostics prior to analyses.

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