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# TECHNICAL REPORT

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## Cold-Case Investigations

An Analysis of Current Practices  
and Factors Associated with  
Successful Outcomes

Robert C. Davis, Carl Jensen, Karin E. Kitchens

Sponsored by the National Institute of Justice



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## Summary

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### Introduction

With modern clearance rates (which represent the proportion of cases solved divided by the number of cases opened during a given time period) far below those in the 1960s and DNA forensic technology having improved, law enforcement agencies have shown increasing interest in attempting to solve homicides and other serious crimes that seemed intractable during initial investigation, in what are called *cold-case investigations*. Fueled by the popularity of television shows focusing on forensic investigation, such cold-case investigations have captured the imagination of the American public, and cold-case investigations have become increasingly commonplace in law enforcement agencies.

Yet, despite the increasing number of cold-case units and the expenditure of significant resources to fund them, we know virtually nothing about the return on this investment. Does it make sense for law enforcement agencies to devote significant resources to solving cold cases, or are those resources better deployed in solving recent cases? How can agencies best organize and support cold-case work? What kinds of cold cases are most susceptible to being solved? What is the payoff to solving a cold case: Does solving a case always lead to arrest, prosecution, and conviction?

To better understand the efficacy of the cold-case investigations, we conducted a research study designed to address the following two objectives:

- Assess current practices in cold-case investigations and agency policies and procedures, and determine which are most effective in solving cold cases.
- Determine which types of cases are most likely to be solved, and develop models, based on case characteristics, for prioritizing cold-case investigations.

To address these two objectives, we relied on a two-step approach. We started by developing and fielding a national-level Internet survey of police and sheriffs' departments to determine organizational characteristics associated with cold-case solvability. The national survey was then used to help us identify four large metropolitan police agencies with cold-case units—the District of Columbia, Baltimore, and Dallas, where the focus was on cold-case homicides, and Denver, where the focus was on sexual-assault cases—that we visited. Working with the cold-case units in the four agencies, we examined cold-case files to try to identify which case and investigative variables are associated with clearance.

## Key Findings from the National Cold-Case Survey

Of the 5,000 surveys mailed out, 1,051 were completed—for a response rate of about 20 percent. Based on the survey responses, the following emerge as key findings on current cold-case practice in law enforcement agencies:

- Most agencies do little cold-case work, with only 20 percent having a protocol for initiating cold-case investigations, 10 percent having dedicated cold-case investigators, and 7 percent having a formal cold-case unit.
- Cold-case funding is tenuous: Twenty percent of cold-case work is funded through line items in the budget, with most funded by grants or supplemental funds.
- Success rates for cold-case investigations are low: About one in five cases cleared; respondents estimated that one in 20 cold-case investigations resulted in arrest and that one in 100 cold-case investigations resulted in conviction.
- Agency factors associated with higher clearance rates included level of funding and access to investigative databases.

As noted, the survey findings are based on 1,051 returns from 5,000 surveys mailed out. Although this makes extrapolation from the sample data questionable, it is likely that many agencies that did not conduct any significant number of cold-case investigations saw little reason to complete a survey that centered completely on the process of conducting cold-case investigations. For this reason, the survey findings on the proportion of agencies that have dedicated cold-case investigators or units or formal protocols are best regarded as upper limits.

## Key Findings from the Analysis of Cold-Case Files

Working with each of the four sites, we reviewed up to 200 case files of solved and unsolved cases that have been assigned to cold-case squads and extracted attributes of the crime and of the investigation that affected cold-case solvability. Based on that examination, the following key findings emerged:

- One can identify factors that predict whether a cold-case investigation will be successful, including the basis for initiating the cold-case investigation (e.g., family pressure, passage of time since crime occurred); characteristics of the victim and crime (e.g., age of case, location of body, victim age and gender, victim known to be a drug user); progress made during the initial investigation (e.g., known motivation for the crime, identification of a suspect during the initial investigation); and actions of cold-case investigators (e.g., developing a new theory of the crime and suspect motivation and conducting lineups).
- Clearing a cold case does not automatically lead to making an arrest. A substantial portion of successful investigations in all sites (from one in three to one in two) did not result in an arrest for a variety of reasons, including the inability to locate witnesses, uncooperative witnesses, a suspect being deceased or incarcerated, or DNA results that implicated multiple individuals or were otherwise inconclusive.
- In sexual-assault cold cases, even when a suspect DNA match has been made, about one-third of cases are not filed because of problems with victim cooperation, credibility, or

availability of suspects who are deceased or in prison. However, those cases that are prosecuted resulted in convictions and lengthy prison terms more than 90 percent of the time.

- Cooperation between police and prosecutors can improve both the efficiency and effectiveness of cold-case investigations. Typically, a prosecutor is not brought into the picture until a cold-case investigation has produced results. But, when police consult with prosecutors beginning at case screening, as they do in Denver, prosecutors can offer advice on whether the case is likely to produce a conviction if cleared and on what kinds of evidence will be most compelling in court.

We note that the three homicide sites that we selected for case-file work were chosen for reasons of convenience, access, and feasibility; they were not chosen randomly from among the 12 agencies that we identified from our Internet survey. We do not know whether findings from these sites are representative of agencies that conduct a high volume of cold-case investigations. Also, because we needed to rely on staff at the four sites for a selection of the cases, we cannot know whether the cases we received were representative of the entire set of cold-case investigations. However, because the numbers we requested represented a large proportion of cold cases worked at each site, the samples are likely fairly representative of cold-case investigations for each jurisdiction sampled.

## Conclusions and Recommendations

According to this research, there are three types of cold-case investigations. The first type is the classic cold-case investigation, in which a detective picks up a case file because of a family or media inquiry or during a procedural review of cases that have remained unsolved for a specified length of time. These are the least common types of cold-case investigations.

The second type is based on availability of forensic tests. Forensic material from old cases once thought not to be amenable to DNA testing might now be testable due to advances in DNA technology. Federal funds are making this type of cold-case investigation increasingly common.

The third type consists of those cases opened because an individual charged with a crime confesses to the outstanding crime as part of a plea deal or because an eyewitness announces a willingness to finger a suspect in return for leniency after the witness is arrested for participating in a crime.

Each of these types of investigations has implications for cost and for the likelihood of success. The first type is likely to incur the highest costs and to have a low rate of success, even if judged by the lenient standard of exceptional clearances. Submitting or resubmitting DNA material for laboratory testing (the second type of case) is relatively inexpensive (the initial investment is the cost of DNA laboratory processing), but the rate of success from indiscriminant DNA testing of large numbers of cases is likely to be well below 50 percent. The third type of case involves little new investigation, and the cost of investigation is low. If the criterion for success is clearance, all such cases result in at least an exceptional clearance (one in which a suspect has been conclusively identified and evidence collected but prosecution is impossible because the offender is unavailable—is dead, is in prison, is unable to be located, or has entered into a plea bargain that precludes prosecution in the cold case), and a large majority are also

likely to result in conviction. Assessments of the value of cold cases need to draw these distinctions when estimating the value of investments made in resources to investigate cold cases.

Also, some of our findings echo the findings of a mid-1970s RAND study of investigations from the 1970s (Chaiken, Greenwood, and Petersilia, 1976; Greenwood, Chaiken, and Petersilia, 1977). Like the authors of the earlier RAND work, we found that systems that monitor investigations and investigators' actions are either weak or nonexistent. Both studies also found that investigators were oriented toward clearing cases rather than winning convictions in court. These similarities after 35 years are striking.

We come away from our investigation having more questions than answers about cold-case investigations. We were surprised at the lack of accountability in cold-case work. Specifically, there is little emphasis on convictions as a goal of cold-case investigations. If obtaining a conviction were the ultimate goal, then it would seem logical for cold-case investigators to work closely with prosecutors when screening cases so they could decide whether, if the case were to be solved, there would likely be a prosecutable case. This is the model that was being used in the Denver site for the sexual-assault cold-case project. Police investigators sat down with prosecutors to determine whether each case that had material that could be submitted for DNA testing was likely to result in a conviction, assuming that a Combined DNA Index System (CODIS) hit would be made on suspect DNA.

Also, we did not see evidence that cold-case units were tracking conviction rates or other basic information on the efficacy and efficiency of cold-case investigations. Agencies had basic statistics on the number of cold cases worked, the number cleared by arrest, and the number of exceptional clearances. But they did not generally have information on court filings, convictions, sentences, or the time spent on cold-case investigations relative to the number of clearances obtained. For agencies in which there is a fixed number of dedicated cold-case investigators, it is relatively straightforward to divide the hours worked by number of cases cleared. However, we observed that the number of cold-case investigators is not always fixed and that detectives switch back and forth between active and cold-case investigations.

After reviewing these results, we suggest two topics that should be researched to better understand the potential for cold-case investigations.

### **Conduct a Cost-Effectiveness Analysis of Investigator Time Spent on Cold Cases Versus New Cases**

Because of the paucity of data on cold-case investigations, we know little about the return on investment of investigative resources put into cold cases relative to active cases. For a police agency with a fixed investigation budget, the question of what proportion of resources should be diverted to cold cases is a practical decision with important consequences. Collecting information from several selected agencies would help inform those decisions. Using the data collected, it would be possible to develop cost-effectiveness models that relate the average amount of time spent on active and cold-case investigations to clearances and arrests. The models would specify the expected number of clearances and arrests per hour of effort expended on active case and cold-case investigations.

### **Assess the Conviction Rate for Cold Cases, and Determine Whether Prosecutor Involvement in Investigations Leads to a Higher Rate of Convictions**

From a sample of agencies that conduct a large number of cold-case investigations, one could determine the conviction rate for successful cold-case investigations (i.e., those investigations



that resulted in a clearance), what proportion of cleared cases are filed, and what proportion of the filings result in convictions. It would also be useful to collect reasons prosecutors gave for not filing cases and reasons for dismissal stated in prosecutor files for those cases that were filed but later dismissed. Interviews with detectives and prosecutors would provide further insight into the most-common reasons that cleared cold cases do not result in a conviction.