

Support for Forensic Science Research: Improving the Scientific Role of the National Institute of Justice

Reliable and valid forensic science techniques are critical to a credible and fair justice system. There is widespread agreement that the scientific foundation of some currently available forensic science methods needs strengthening, and that additional, more-efficient and more-effective techniques are urgently needed. These needs can only be met through sustained research programs dedicated to those goals.

The National Institute of Justice (NIJ), the U.S. Department of Justice's research arm for issues of crime and justice, asked the National Academies of Sciences, Engineering, and Medicine to examine its recent efforts to advance forensic science research and to recommend ways to improve its research program. The Academies appointed a committee of experts in criminology, forensic science, and related fields to conduct the study.

NIJ has made progress in the past five or six years toward improving its research operations and expanding efforts to build a research infrastructure in forensic science, the committee's report concludes. Given this progress, NIJ is now better positioned as a science agency. However, although these improvements are commendable and important, more work is needed to bolster NIJ's ability to advance forensic science research. The report offers recommendations to strengthen the role, capacity, and commitment of NIJ in supporting this research.

NIJ'S RECENT PROGRESS

NIJ has made some very useful changes to its process for soliciting and awarding research grants, thereby improving the agency's scientific capability. These improvements include:

- making its processes to identify the needs of forensic science practitioners more transparent;
- increasing the level of autonomy and independence for its peer review process;
- obtaining final sign-off authority for its research awards;
- expanding the size of its research and development portfolio across forensic science disciplines;
- expanding outreach and dissemination to the practice and research communities;
- attracting new investigators to forensic science research;
- increasing the number of graduate student fellowships; and
- formalizing partnerships with other federal agencies involved in forensic science research.

Taken together, these efforts have addressed some previous concerns about NIJ's independence and contributed to the building of a research infrastructure necessary to develop and sustain research that advances forensic science methods.



BLUEPRINT FOR THE FUTURE

Recent improvements made by NIJ have strengthened its scientific capacity. However, additional improvements are still needed.

NIJ should develop a formal and comprehensive strategic plan for its forensic science research and development program. A long-term, strategic research agenda is badly needed to help provide leadership for the field. The priority issues currently emphasized in the agency's solicitations, however, appear to be reactive to short-term needs and do not sufficiently take into account the perspective of the research community itself. Thus, it is not clear how the priorities announced by NIJ relate to an overall research agenda. The development of a strategic plan with short-, mid-, and long-term goals and priorities will help NIJ build a portfolio of cumulative knowledge and provide stability for researchers. The strategic plan should be based on a thorough understanding of the state of the science, an analysis of NIJ's past and current research portfolios, and extensive consultation with both the research and practice communities.

NIJ should establish a research advisory board that includes a broad array of scientists, including forensic science researchers and practitioners, in order to better integrate their perspectives into its processes for identifying and prioritizing research needs and to help monitor progress toward achieving NIJ's strategic plan for forensic science. NIJ's established technology working groups of forensic science practitioners are important, but they do not adequately represent the needs of the broad range of forensic science disciplines. Including researchers in an advisory capacity will enhance NIJ's ability to prioritize research areas and develop short- and long-term research agendas.

NIJ should increase efforts to expand forensic science research by recruiting researchers from the broader scientific community whose work may have a nexus with forensic science. At a minimum, NIJ should promote greater cross-field collaboration, conduct more outreach to research communities in adjacent disciplines that do not currently focus on forensic science applications, and increase institutional knowledge within NIJ of relevant technology developments in other fields that might have forensic uses.

All of NIJ's forensic science funding, including capacity building investments such as backlog reduction, should include a research component and/or an evaluation component. NIJ administers grant programs to reduce casework backlogs and fund improvements in state and local forensic laboratories. Given its science mission, it could require these and other assistance grants to include a research component with the potential to bring marked increases in casework processing and accuracy and/or an evaluation component that will help provide an evidence base that could be used to improve the outcomes of future efforts. Especially in light of shrinking resources and increased demand for services, NIJ needs the ability to invest in innovative scientific research that could yield new technologies or methods to enhance laboratory capability by orders of magnitude in order to address growing demand.

Federal policymakers should ensure that the National Institute of Justice has the ability to advance forensic science research and development through dedicated, adequate, and stable appropriations coupled with funding flexibility to help support both short- and long-term research strategies. The committee believes that the current level of funding available to support NIJ's program of forensic science research and development is sorely inadequate to the task. In order to ensure funding stability from year to year, policymakers should designate a dedicated funding stream for research and development that is of sufficient magnitude to address the challenges facing forensic science.

In concert with the development of a strategic plan, the National Institute of Justice should develop and implement a strategic communication plan that directs its messages in ways appropriate to its various constituencies. This plan should include valuable in-person activities, such as hosting national conferences and workshops. Implementation of a well-thought out communications plan will help the agency achieve its goal of advancing forensic science by encouraging the uptake of innovative evidence-based practices by practitioners and more actively recruiting researchers from related disciplines.

As part of its strategic plan, the National Institute of Justice should support transfer to end users of technologies developed in its research and development portfolio. The NIJ-funded Forensic Technology Center of Excellence has served an important role in delivering information on evidence-based solutions to the forensic science community and facilitating knowledge transfer. However, the center's efforts have not been aligned with a strategic R&D or communication plan. To advance the field of forensic science, NIJ's communication efforts will need to encourage and facilitate the adoption into practice of evidence-based practices, identified and validated through research.

The National Institute of Justice should develop an appropriate set of metrics to measure outcomes regularly and to evaluate the impact of its forensic science research portfolio. NIJ should develop metrics that go beyond primarily tracking outputs to a process that also measures the outcomes resulting from the activities it supports—for example, increased accuracy of particular forensic methods, the use of NIJ-sponsored research to set legal precedent, and the implementation of new methods and techniques in laboratories. These metrics, measuring both outputs and outcomes, should be used to continuously evaluate NIJ's impact.

IN CONCLUSION

The need to improve the scientific basis for some forensic disciplines is high. Because of the volume of forensic transactions processed annually in the United States, even the smallest of error rates can have great consequences and erode the public's confidence in a fair and credible criminal justice system. Given NIJ's mission to serve state and local law enforcement as well as its ties to forensic science research and practitioner communities, the agency has a unique and critical role to play in efforts to advance forensic science research.

NIJ has made progress in the past five or six years toward improving its research operations and expanding efforts to build a research infrastructure in forensic science. Given this progress, it is now better positioned as a science agency. Although

these improvements provide a solid foundation, more work is necessary to bolster NIJ's ability to advance forensic science research. However, NIJ's ability to improve forensic science research in the foreseeable future will be constrained without adequate support from federal policy makers across both the executive and legislative branches. Support from DOJ leadership is particularly essential, given that NIJ's placement within the department has been perceived as a potential source of conflict of interest.

Assuming these recommendations are fully implemented and any barriers overcome, this committee believes NIJ has the potential to lead a strong forensic science research portfolio, a role with clear and striking consequences for the criminal justice system.

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