STRENGTHENING FORENSIC SCIENCE IN THE UNITED STATES: A PATH FORWARD

Statement of

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Chairman Leahy, other members of the Committee, thank you for inviting me to appear today. My name is Harry T. Edwards, and I am a Senior Circuit Judge and Chief Judge Emeritus of the U.S. Court of Appeals for the D.C. Circuit. I am also a Visiting Professor of Law at the New York University School of Law, where I have taught for the past 19 years.

I am appearing in my capacity as co-chair of the Committee on Identifying the Needs of the Forensic Science Community at the National Academy of Sciences. The Committee recently issued a report entitled, "Strengthening Forensic Science in the United States: A Path Forward." The impetus for the report came in 2005, when Congress passed the Appropriations Act of 2006. Pursuant to this legislative action, the Attorney General was directed to provide funds to the National Academy of Sciences to create an independent committee to, among other things,

- "assess the present and future resource needs of the forensic science community,"
- "make recommendations for maximizing the use of forensic techniques,"
- "make recommendations . . . [on how to] increase the number of qualified forensic scientists and medical examiners,"
- "disseminate best practices and guidelines . . . to ensure quality and consistency in the use of forensic technologies and techniques," and
- "make recommendations for programs that will increase the number of qualified forensic scientists and medical examiners."

This congressional action came at the strong instigation of the Consortium of Forensic Science Organizations that sought to establish national support for funding and good policies for the forensic science disciplines at all levels of government. In other words, Congress passed the legislation in response to a call for help from professionals in the forensic science community.

Given the breadth of the congressional charge, it was no mean feat for our committee to complete its work. The committee was composed of a diverse and talented group of professionals, some expert in various forensic science disciplines, others in law, some in higher education, and others in different fields of science, engineering, and medicine. It was gratifying to work with my co-chair, Dr. Constantine Gatsonis, the Director of the Center for Statistical Sciences at Brown University, and with the other wise and dedicated members of the committee as we waded through the complex maze of science, law, and policy issues before us.

During the more than two years that we worked on the report, the committee heard from and reviewed materials published by countless experts, including forensic science practitioners, heads of public and private laboratories, directors of medical examiner and coroner offices, scientists, scholars, educators, government officials, members of the legal profession, and law enforcement officials. The picture that these experts and their research painted of the forensic science community was compelling.

I started this project with no preconceived views about the forensic science community. Indeed, as best I can recall, when I commenced my work as co-chair of the committee, I had never heard an appeal in which a criminal defendant challenged the admission of forensic evidence at trial. And I do not watch CSI programs on television, so I was not affected by Hollywood's exaggerated views of the capacities of forensic disciplines. Rather, I simply assumed, as I suspect many of my judicial colleagues do, that forensic science disciplines typically are grounded in scientific methodology and that crime laboratories and forensic science practitioners generally are bound by solid practices that ensure that forensic evidence offered in court is valid and reliable. I was surprisingly mistaken in what I assumed. The truth is that the manner in which forensic evidence is presented on television – as invariably conclusive and final – does not correspond with reality.

A SYSTEM PLAGUED BY A PAUCITY OF GOOD RESEARCH, FRAGMENTATION, INCONSISTENT PRACTICES, AND WEAK GOVERNANCE. For decades, various forensic science disciplines have produced valuable evidence that has contributed to the successful prosecution and conviction of criminals, and also the exoneration of innocent people. In recent years, advances in forensic science disciplines, especially the use of DNA technology, have demonstrated that some areas of forensic science have great additional potential to help law enforcement agencies identify criminals. There are scores of talented and dedicated people in the forensic science community, and the work that they perform is very important. They are often strapped in their work, however, because of (1) a paucity of strong scientific research, (2) a lack of adequate resources and national support, and (3) the absence of unified and meaningful regulation of crime laboratories and practitioners. It is clear that change and advancements, both systemic and scientific, are needed in a number of forensic science disciplines – to ensure the reliability of the disciplines, establish enforceable standards, and promote best practices and their consistent application.

The committee found that the forensic science community is plagued by fragmentation and inconsistent practices in federal, state, and local law enforcement jurisdictions and agencies. The quality of practice in forensic science disciplines varies greatly. And the quality of practice often suffers greatly because of

- the frequent absence of solid scientific research demonstrating the validity of forensic methods, quantifiable measures of the reliability and accuracy of forensic analyses, and quantifiable measures of uncertainty in the conclusions of forensic analyses;

- the paucity of research programs on human observer bias and sources of human error in forensic examinations;

- the paucity of interdisciplinary scientific research to support forensic disciplines and forensic medicine;

- the absence of solid scientific and applied research focused on new technology and innovation;

- the lack of autonomy of forensic laboratories (which are often subject to the administrative control of law enforcement agencies or prosecutors' offices);

- a gross shortage of adequate training and continuing education of practitioners;

- the absence of rigorous, mandatory certification requirements for practitioners;

- the absence of uniformly mandatory accreditation programs for laboratories;

- failures to adhere to robust performance standards;

- the failure of forensic experts to use standard terminology in reporting on and testifying about the results of forensic science investigations; and

- the lack of effective oversight.

A few examples of the problems uncovered by the committee amplify the needs of the forensic science community:

EXAMPLE ONE – SUBJECTIVE INTERPRETATIONS, EXAGGERATED TESTIMONY, AND A PAUCITY OF RESEARCH. Often in criminal prosecutions and civil litigation, forensic evidence is offered to support a claim that an evidentiary specimen is a "match" to a particular individual or other source. With the exception of nuclear DNA analysis, however, no forensic method has been rigorously shown to have the capacity to consistently, and with a high degree of certainty, demonstrate a connection between evidence and a specific individual or source. Yet, for years, the courts have been led to believe that disciplines such as fingerprinting stand on par with DNA analysis. For example, in a decision issued by the Seventh Circuit, the court reported that an FBI fingerprint expert had "testified that the error rate for fingerprint comparison is essentially zero." In a later decision issued by the Fourth Circuit, that court cited the Seventh Circuit opinion approvingly, noting that an expert from the FBI had testified that the error rate for fingerprint comparison was "essentially zero." The committee's report rejects as scientifically implausible any claims that fingerprint analyses have "zero error rates." A "zero error rate" is a myth in fingerprint analyses and in all other forensic disciplines. That is no surprise, however, because there is no such concept as a zero error rate in good scientific analysis. Of greater concern is the dearth of solid research to establish the limits and measures of performance and to address the impact of the sources of variability and potential bias in most disciplines.

Another serious concern is contextual bias. Some studies have demonstrated that identification decisions on the same fingerprint can change solely by presenting the print in a different context. In one study, for example, fingerprint examiners were asked to analyze fingerprints that, unknown to them, they had analyzed previously in their careers. Contextual biasing was introduced – that is, examiners were told that the "suspect confessed to the crime" or the "suspect was in police custody at the time of the crime." In one-third of the examinations that

included contextual manipulation, the examiners reached conclusions that were different from the results they had previously reached.

EXAMPLE TWO – INCONSISTENT PRACTICES IN CRIME LABORATORIES. In recent years, the integrity of crime laboratories has been called into question, with some highly publicized cases highlighting (1) unqualified practitioners, (2) sometimes lax standards that have generated questionable or fraudulent evidence, and (3) the absence of quality control measures to detect questionable evidence. In one notorious case, a state-mandated review of analyses conducted by a West Virginia State Police laboratory employee revealed that the convictions of more than 100 people were in doubt because the employee had repeatedly falsified evidence in criminal prosecutions. At least 10 men had their convictions overturned as a result, and subsequent reviews questioned whether the lab employee was ever qualified to perform scientific examinations.

Other scandals, such as one involving the Houston crime laboratory in 2003, highlight the sometimes blatant lack of proper education and training of forensic examiners. In the Houston case, several DNA experts went public with accusations that the DNA/Serology Unit of the Houston Police Department Crime Laboratory was performing grossly incompetent work and was presenting findings in a misleading manner designed to unfairly help prosecutors obtain convictions. An audit by the Texas Department of Public Safety confirmed serious inadequacies in the laboratory's procedures, including routine failure to run essential scientific controls, failure to take adequate measures to prevent contamination of samples, failure to adequately document work performed and results obtained, and routine failure to follow correct procedures for computing statistical frequencies.

This past fall, it was reported that the Detroit police crime lab was shut down after an outside audit found errors in evidence used to prosecute cases involving murder and other crimes. The audit found erroneous or false findings in 10 percent of 200 random cases, subpar quality control compliance, and a "shocking level of incompetence" in the lab. It was also reported that the chief of the police crime lab in Baltimore was fired after it was revealed that DNA samples had been contaminated by lab employees.

EXAMPLE THREE – SWGS. There are a number of Scientific Working Groups (SWGs) for forensic disciplines. For example, the SWGDRUG group recommends minimum standards for the forensic examination of seized drugs and seeks the international acceptance of these standards. An official from the Drug Enforcement Administration, who was the chair of SWGDRUG, testified before the committee and explained how his SWG group operates. His answers to my questions indicated that some SWG standards undoubtedly incorporate good technical protocols that should enhance forensic science analyses; however, his testimony also confirmed that, as a general matter, SWGs are of questionable value. Why? Because

- SWG committees meet irregularly and have no clear or regular sources of funding.

- There are no clear standards in place to determine who gains membership on SWG committees.

- Neither SWGs nor their recommendations are mandated by any federal or state law or regulation.

- SWG recommendations are not enforceable.

- A number of SWG guidelines are too general and vague to be of any great practical use.

- SWG committees have no way of knowing whether state or local agencies even endorse the standards.

- Complaints are not filed when a practitioner violates a SWG standard.

- SWG committees do not attempt to measure the impact of their standards by formal study or survey.

In other words, even if we were to assume that some SWG standards make sense and result in good practice, there is nothing to indicate that the standards are routinely followed in a way to ensure best practices in the forensic science community.

EXAMPLE FOUR. THE CORONER SYSTEM. In 1928, the National Academy of Sciences strongly recommended that the coroner system should be abolished in the United States. In 2008, the committee determined that 28 states still operate with coroners, instead of medical examiners. Less than one-third of the states with coroners require training for those who hold the positions. Recently, in Indiana, a 17-year-old high school senior successfully completed the coroner's examination and was appointed a deputy coroner. Obviously, the teenager was not a trained physician; and, like many coroners, she was not qualified to conduct an autopsy or make sophisticated assessments of the dead for disease, injury, medical history, and laboratory studies, assessments that we need from qualified medical examiners and pathologists in the wake of homicides, natural disasters, suicides, and breaches of homeland security.

THE OBVIOUS NEED TO OVERHAUL THE EXISTING SYSTEM. Problems such as these highlight some glaring weaknesses in the forensic science community. Existing data suggest that forensic laboratories and medical examiner offices are under-resourced and understaffed, which contributes to case backlogs and likely makes it difficult for laboratories to do as much as they could to (1) inform investigations, (2) provide strong evidence for prosecutions, and (3) avoid errors that could lead to imperfect justice. Being under-resourced also means that the tools of forensic science – and the knowledge base that underpins the analysis and interpretation of evidence – are not as strong as they could be, thus hindering the ability of the forensic science disciplines to excel at informing investigations, providing strong evidence, and minimizing errors.

The work of the forensic science community is critically important in our system of criminal justice. Indeed, as one scholar has noted, "forensic science is but the handmaiden of the legal system." The goal of law enforcement actions is to identify those who have committed crimes and to prevent the criminal justice system from erroneously convicting the innocent. Forensic science

experts and evidence are routinely used in the service of the criminal justice system. So it matters a great deal whether an expert is qualified to testify about forensic evidence and whether the evidence is sufficiently reliable to merit a fact finder's reliance on the truth that it purports to support. As one commentator has aptly noted:

> Forensic evidence, especially DNA evidence, is heavily relied upon as a means to not only convict the guilty but also protect the innocent. When flawed or false forensic evidence makes its way into the courtroom, the integrity of the entire criminal justice system is called into question. Individuals are at risk of being wrongfully convicted and the public's trust in our system of justice is eroded.

Unfortunately, the adversarial approach to the submission of evidence in court is not well suited to the task of finding "scientific truth." The judicial system is encumbered by, among other things, judges and lawyers who generally lack the scientific expertise necessary to comprehend and evaluate forensic evidence in an informed manner, defense attorneys who often do not have the resources to challenge prosecutors' forensic experts, trial judges (sitting alone) who must decide evidentiary issues without the benefit of judicial colleagues and often with little time for extensive research and reflection, and very limited appellate review of trial court rulings admitting disputed forensic evidence. Furthermore, the judicial system embodies a case-by-case adjudicatory approach that is not well suited to address the systematic problems in many of the various forensic science disciplines. Given these realities, there is a tremendous need for the forensic science community to improve. Judicial review, by itself, will not cure the infirmities of the forensic science community.

Simply increasing the number of staff within existing crime laboratories and medical examiners' offices will not solve the problems of the forensic science community. What is needed is an upgrading of systems and organizational structures, better training, the widespread adoption of uniform and enforceable best practices, and mandatory certification and accreditation programs. The forensic science community and the medical examiner/coroner system must be upgraded if forensic practitioners are to be expected to serve the goals of justice.

Apart from improving forensic practices, the committee was also very concerned about the paucity of solid interdisciplinary scientific research to support forensic disciplines. Adding more dollars and people to the enterprise might reduce case backlogs, but it will not address fundamental limitations in the capabilities of forensic practices to pursue scientific research to confirm the validity and reliability of existing disciplines and to achieve technological advancements.

In the course of its deliberations and review of the forensic science enterprise, it became obvious to the committee that, although congressional action will not remedy all of the deficiencies in forensic science methods and practices, truly meaningful advances will not come without significant concomitant leadership from the federal government. The forensic science enterprise lacks the necessary governance structure to improve upon its current weaknesses. In other words, the committee found that, not only does the forensic science community lack adequate resources, talent, and mandatory standards; it also lacks the necessary governance structure to address its

current weaknesses. The forensic science community needs strong governance to adopt and promote an aggressive, long-term agenda.

THERE ARE NO EXISTING AGENCIES THAT ARE WELL SUITED TO GOVERN THE FORENSIC SCIENCE COMMUNITY. In thinking about how best to address the problems that now encumber the forensic science community, the committee first considered whether a governing entity could be established within an existing federal agency. We concluded that no existing agency has the capacity or appropriate mission to take on the roles and responsibilities needed to govern and improve the forensic science community.

The Committee considered the National Institute of Standards and Technology ("NIST"), for example, but rejected the idea of this agency assuming the role of leader of the forensic science community. NIST is a non-regulatory federal agency within the Department of Commerce. The agency's mission is to promote innovation and industrial competitiveness. NIST Laboratories, located in both Gaithersburg, Maryland, and Boulder, Colorado, conduct research in a wide variety of physical and engineering sciences, responding to industry needs for measurement methods, tools, data, and technology (*e.g.*, from automated teller machines and atomic clocks to mammograms and semiconductors). However, a key goal for the new agency that will oversee the forensic science community will be to build up the research base and educational infrastructure that will enable the forensic science disciplines to move forward. NIST has little or no experience in establishing and running an extramural research program, and its ability to stimulate new academic programs and strengthen existing ones is untested.

Another key goal for the agency that will oversee the forensic science community will be to strengthen the practice of forensic science disciplines. While NIST has expertise in establishing laboratory standards, it has never assumed sweeping responsibilities of the sort that should be assigned to any entity that is authorized to oversee the forensic science community. These responsibilities will include establishing a coherent set of standards for laboratory practice, reporting, and professionalism (including codes of ethics), along with standards and practices for laboratory accreditation and professional certification and incentives for their widespread adoption. This work is of a very different character than the traditional work of a measurement and standards laboratory that is performed by NIST.

The committee also considered the National Science Foundation ("NSF"), but concluded that this agency should not be assigned the role of leader of the forensic science community. NSF is an independent federal agency created to promote the progress of science. The agency is the funding source for approximately 20 percent of all federally supported basic research conducted by America's colleges and universities. In many fields such as mathematics, computer science, and the social sciences, NSF is the major source of federal backing. NSF fills its mission chiefly by issuing limited-term grants – currently about 10,000 new awards per year, with an average duration of three years – to fund specific research proposals that have been judged the most promising by a rigorous and objective merit-review system. Obviously, NSF has good ties to the academic community and it understands the demands of rigorous scientific research; but the agency has very thin ties to the forensic science community and very little expertise in building and reinforcing the foundations of areas of applied science and practice such as are found in the forensic science disciplines.

In addition, there is nothing to indicate that NSF has the relevant expertise needed to strengthen the practices of forensic science. Nor does it appear that NSF could build a coherent set of standards for laboratory practice, reporting, and professionalism (including codes of ethics), along with standards and practices for laboratory accreditation and professional certification and incentives for their widespread adoption.

Neither NIST nor NSF has experience in running a comprehensive regulatory program, which will be a major role for any agency that is assigned to develop and promulgate standards and incentives to oversee and effectively "regulate" the forensic science community. Neither NIST nor NSF has any meaningful expertise in legal issues that invariably will affect the work of any agency that is assigned a major governance role over the forensic science community – *e.g.*, designing federal programs that attempt to influence state and local choices and overseeing staff with knowledge of the criminal justice system and the role of forensic evidence and experts within the legal system. And, of course, neither NSF nor NIST has expertise in or meaningful experience with the medicolegal death investigation system or in the matters that need to be addressed to strengthen that system.

There was also a strong consensus in the committee that no existing or new division or unit within the Department of Justice ("DOJ") would be an appropriate location for a new entity governing the forensic science community. DOJ's principal mission is to enforce the law and defend the interests of the United States according to the law, not to pursue serious scientific research and education. Agencies within DOJ operate pursuant to this mission. The FBI, for example, is the investigative arm of DOJ and its principal missions are to produce and use intelligence to protect the Nation from threats and to bring to justice those who violate the law. The work of these law enforcement units is critically important to the Nation, but the scope of the work done by DOJ units is much narrower than what is necessary to create and oversee a strong forensic science community. Forensic science serves more than just law enforcement; and when it does serve law enforcement, it must be equally available to law enforcement officers, prosecutors, and defendants in the criminal justice system.

The entity that is established to govern the forensic science community cannot be principally beholden to law enforcement. The potential for conflicts of interest between the needs of law enforcement and the broader needs of forensic science are too great. In addition, the committee determined that the research funding strategies of DOJ have not adequately served the broad needs of the forensic science community. This is understandable, but not acceptable when the issue is whether an agency is best suited to support and oversee the Nation's forensic science community. In sum, the committee concluded that advancing science in the forensic science enterprise is not likely to be achieved within the confines of DOJ.

Finally, there is little doubt that some existing federal entities are too wedded to the current "fragmented" forensic science community, which is deficient in too many respects. Most notably, these existing agencies have failed to pursue a rigorous research agenda to confirm the evidentiary reliability of methodologies used in a number of forensic science disciplines. These agencies are not good candidates to oversee the overhaul of the forensic science community in the United States.

CONGRESS SHOULD ESTABLISH A NEW, INDEPENDENT AGENCY – THE NATIONAL INSTITUTE FOR FORENSIC SCIENCE ("NIFS") – TO OVERSEE THE FORENSIC SCIENCE COMMUNITY. The committee believes that what is needed to support and oversee the forensic science community is a new, strong, and independent entity that could take on the tasks that would be assigned to it in a manner that is as objective and free of bias as possible – one with no ties to the past and with the authority and resources to implement a fresh agenda designed to address the problems found by the committee and discussed in the report. A new organization should not be encumbered by the assumptions, expectations, and deficiencies of the existing fragmented infrastructure, which has failed to address the needs and challenges of the forensic science disciplines.

With these considerations in mind, the committee's principal recommendation is that Congress should authorize and fund the creation of an independent federal entity, the National Institute of Forensic Science, or NIFS. This new agency should have a full-time administrator and an advisory board with members who have expertise in research and education, forensic science disciplines, the physical and life sciences, forensic pathology, engineering, information technology, measurements and standards, testing and evaluation, law, national security, and public policy.

NIFS, as the committee envisions it, will, as appropriate, establish, enforce, oversee, and/or encourage:

- best practices (including the enforcement of robust performance standards);
- mandatory accreditation of forensic science laboratories;
- mandatory certification of forensic science practitioners;
- peer-reviewed interdisciplinary scientific research and technical development to support forensic science disciplines and forensic medicine;
- improved forensic science research and educational programs;
- the funding of state and local forensic science agencies, independent research projects, and educational programs, with conditions that aim to advance the credibility and reliability of forensic science disciplines and achieve technological advancements;
- education standards and the accreditation of forensic science programs in higher education;
- programs for lawyers and judges to better understand the forensic science disciplines and their limitations;
- the development and introduction of new technologies in forensic investigations; and
- programs to improve medical examiner services in the United States.

The committee was convinced that if NIFS is established as envisioned, it will serve our country well, as a new, strong, and independent entity, with no ties to the past dysfunctions of the forensic science community, and with the authority and resources to implement a fresh agenda designed to address the many problems found by the committee.

THE COMMITTEE REPORT IS NOT A LAW REFORM PROPOSAL. The findings and recommendations of the committee do not mean to offer any judgments on any cases in the judicial system. The report does not assess past criminal convictions, nor does it speculate about pending or future cases. And the report offers no proposals for law reform. That was beyond our charge. It will be no surprise if the report is cited authoritatively for its findings about the current status of the scientific foundation of particular areas of forensic science. And it is certainly possible that the courts will take the findings of the committee regarding the scientific foundation of particular types of forensic science evidence into account when considering the admissibility of such evidence in a particular case. However, each case in the criminal justice system must be decided on the record before the court pursuant to the applicable law, controlling precedent, and governing rules of evidence. The question whether forensic evidence in a particular case is admissible under applicable law is not coterminous with the question whether there are studies confirming the scientific validity and reliability of a forensic science discipline.

Although the report offers no proposals for law reform, the committee believes, that with more and better educational programs, mandatory accreditation and certification, sound operational principles and procedures, and serious research to establish the limits and measures of performance in each discipline, forensic science experts will be better able to analyze evidence and coherently report their findings in the courts.

Good science includes two attributes that the law needs from the forensic disciplines: (1) reliable methodologies that enable the accurate analysis of evidence and reporting of results, and (2) practices that minimize the risk of results being dependent on subjective judgments or tainted by error or the threat of bias. Because of the many problems presently faced by the forensic science community and the inherent limitations of the judicial system, the forensic science community as it is now constituted cannot consistently serve the judicial system as well as it might. As the committee's report makes clear, what is needed is a massive overhaul of the forensic science system in the United States, both to improve the scientific research supporting the disciplines and to improve the practices of the forensic science community. And the creation of NIFS is the keystone for such an overhaul.

THE HONORABLE HARRY T. EDWARDS

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Harry T. Edwards was appointed to the United States Court of Appeals for the District of Columbia Circuit by President Carter in 1980. He served as Chief Judge from September 15, 1994 until July 16, 2001, and he took senior status on November 3, 2005. He has continued as an active member of the court since taking senior status. Before joining the bench, Judge Edwards was a tenured Professor of Law at the University of Michigan Law School (1970-75 and 1977-80) and at Harvard Law School (1975-77). He practiced law in Chicago with Seyfarth, Shaw, Fairweather & Geraldson from 1965 to 1970.

Judge Edwards received a B.S. degree from Cornell University in 1962 and a J.D. degree from the University of Michigan Law School in 1965. He graduated from law school with distinction and was a member of the Michigan Law Review and the Order of the Coif; he also received American Jurisprudence Awards for outstanding scholarship in Labor Law and Administrative Law. He has been admitted to practice in Illinois, Michigan, and the District of Columbia.

He is currently the co-chair of the Forensic Sciences Committee established by the National Academy of Sciences, and a member of the Board of the Institute of Judicial Administration at NYU Law School. He is a member of the American Law Institute; the American Academy of Arts and Sciences; the American Judicature Society; the American Bar Foundation; the American Bar Association; the Supreme Court Historical Society; and an advisor to the Unique Learning Center in Washington, D.C., a volunteer program to assist disadvantaged inner-city youth.

Judge Edwards has received numerous awards, including the Society of American Law Teachers Award (for "distinguished contributions to teaching and public service"); the 2001 "Judicial Honoree Award" presented by the Bar Association of the District of Columbia; and the 2004 Robert J.Kutak Award presented by the American Bar Association Section of Legal Education and Admission to the Bar "to a person who meets the highest standards of professional responsibility and demonstrates substantial achievement toward increased understanding between legal education and the active practice of law." He has also received a number of Honorary Doctor of Laws degrees.

Judge Edwards is the coauthor of five books. His most recent book, EDWARDS & ELLIOTT, FEDERAL STANDARDS OF REVIEW, was published by Thomson West in 2007. He has also published scores of articles and booklets and presented countless papers and commentaries, dealing with administrative law, labor law, equal employment opportunity, labor arbitration, higher education law, alternative dispute resolution, federalism, judicial process, comparative law, legal ethics, judicial administration, legal education, and professionalism.

Following his appointment to the U.S. Court of Appeals, Judge Edwards has continued to teach law on a part-time basis. Since 1980, he has taught at a number of law schools, including Duke, Georgetown, Harvard, Pennsylvania, and Michigan. He is presently a Visiting Professor of Law at NYU Law School, where he has taught since 1990.