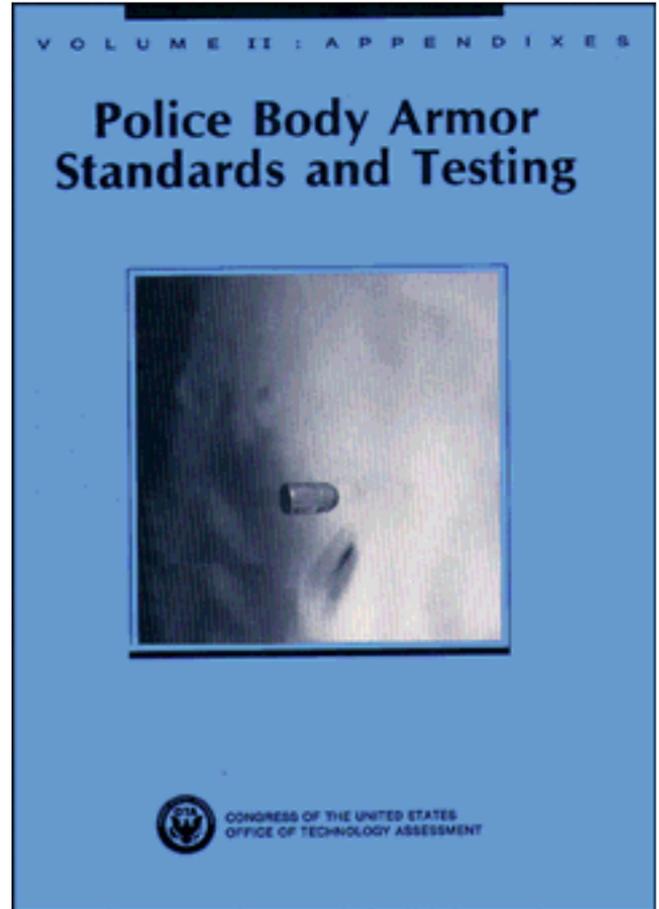


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# Foreword

For two decades, the number of police officers shot to death each year has been declining while the number of officers shot has been increasing. The decrease in the lethality of shootings is partly attributable to the increase in wearing of bullet-resistant body armor, especially soft, inconspicuous armor designed to be worn full-time.

A prospective purchaser can see how much of the body an armor garment covers but cannot see whether it will stop a particular kind of bullet at a particular velocity and protect the wearer from the impact. To provide benchmarks for protection, the National Institute of Justice issued NIJ Standard 0101.03 in 1987. It specifies standard procedures for testing samples of armor. If samples of a model pass, the NIJ or the manufacturer may certify that the model has the type of ballistic resistance for which it was tested.

The standard has been controversial since it was issued. This report describes the origin of the standard, the rationale for particular provisions, and the main points of controversy, which concern acceptable risks, the validity and discrimination of the test, and the reproducibility of results. OTA finds that resolving these controversies will require specifying acceptable risks quantitatively, performing additional research to test validity (the correspondence of test results to performance in service), and implementing a quality-control program.

To date, all armor of NIJ-certified models has performed as rated in service-but uncertified armor, including armor that would fail the test specified by the standard, has also performed as advertised. This has provoked charges that the NIJ test is too stringent and fails to discriminate some safe armor from unsafe armor. The validity and discrimination of the test are technical issues that are susceptible to scientific analysis-if the NIJ specifies maximum acceptable risks quantitatively. The report describes illustrative specifications of acceptable risks and an experimental method for deciding whether the current test, or any proposed alternative, limits the risks as required.

NIJ does not inspect or test marketed units of certified models to see whether they are like the samples that passed the model-certification test. Without a quality-control program, NIJ has no basis for assuring police that the garments they buy and wear are like the samples NIJ deemed adequate. Indeed, samples of some NIJ-certified models have failed retests and in some cases differed from the samples originally tested for certification. This report describes and compares several options for a quality-control program.

This assessment was requested by Senator Joseph R. Biden, Jr. (Chairman), Senator Strom Thurmond (Ranking Minority Member), Senator Dennis DeConcini, and Senator Edward M. Kennedy of the Senate Committee on the Judiciary; Congressman John Joseph Moakley, Chairman of the House Rules Committee; and Congressman Edward F. Feighan of the House Committee on the Judiciary and of its Subcommittees on Crime and on Economic and Commercial Law.

OTA's findings and analysis of options were reported in *Policy Body Armor Standards and Testing: Volume Z* in August 1992. This volume contains all appendices to the report.

  
**U** JOHN H. GIBBONS  
Director

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