



Highlights of [GAO-06-992T](#), a testimony before the Committee on Environment and Public Works, U.S. Senate

Why GAO Did This Study

Scientific evidence links exposure to particulate matter—a widespread form of air pollution—to serious health problems, including asthma and premature death. Under the Clean Air Act, the Environmental Protection Agency (EPA) periodically reviews the appropriate air quality level at which to set national standards to protect the public against the health effects of six pollutants, including particulate matter. EPA proposed revisions to the particulate matter standards in January 2006 and issued a regulatory impact analysis of the revisions' expected costs and benefits. The estimated benefits of air pollution regulations have been controversial in the past, and a 2002 National Academies report to EPA made recommendations aimed at improving the estimates for particulate matter and other air pollution regulations.

This testimony is based on GAO's July 2006 report *Particulate Matter: EPA Has Started to Address the National Academies' Recommendations on Estimating Health Benefits, but More Progress Is Needed* (GAO-06-780). GAO determined whether and how EPA applied the National Academies' recommendations in its estimates of the health benefits expected from the January 2006 proposed revisions to the particulate matter standards.

www.gao.gov/cgi-bin/getrpt?GAO-06-992T.

To view the full product, including the scope and methodology, click on the link above. For more information, contact John B. Stephenson at (202) 512-3841 or stephensonj@gao.gov.

PARTICULATE MATTER

EPA Needs to Make More Progress in Addressing the National Academies' Recommendations on Estimating Health Benefits

What GAO Found

While the National Academies' report generally supported EPA's approach to estimating the health benefits of its proposed air pollution regulations, it included 34 recommendations for improvements. EPA has begun to change the way it conducts and presents its analyses of health benefits in response to the National Academies' recommendations. For its particulate matter health benefit analysis, EPA applied, at least in part, about two-thirds of the Academies' recommendations. Specifically, EPA applied 8 and partially applied 14. For example, in response to the Academies' recommendations, EPA evaluated how benefits might change given alternative assumptions and discussed sources of uncertainty not included in the benefit estimates. Although EPA applied an alternative technique for evaluating one key uncertainty—the causal link between exposure to particulate matter and premature death—the health benefit analysis did not assess how the benefit estimates would vary in light of other key uncertainties, as the Academies had recommended. Consequently, EPA's response represents a partial application of the recommendation. Agency officials said that ongoing research and development efforts will allow EPA to gradually make more progress in applying this and other recommendations to future analyses.

EPA did not apply the remaining 12 recommendations to the analysis, such as the recommendation to evaluate the impact of using the assumption that the components of particulate matter are equally toxic. EPA officials viewed most of these 12 recommendations as relevant to the health benefit analyses but noted that the agency was not ready to apply specific recommendations because of, among other things, the need to overcome technical challenges stemming from limitations in the state of available science. For example, EPA did not believe that the state of scientific knowledge on the relative toxicity of particulate matter components was sufficiently developed to include it in the January 2006 regulatory impact analysis. The agency is sponsoring research on this issue.

We note that continued commitment and dedication of resources will be needed if EPA is to fully implement the improvements recommended by the National Academies. In particular, the agency will need to ensure that it allocates resources to needed research on emerging issues, such as the relative toxicity of particulate matter components, and to assessing which sources of uncertainty have the greatest influence on benefit estimates. While EPA officials said they expect to reduce the uncertainties associated with the health benefit estimates in the final particulate matter analysis, a robust uncertainty analysis of the remaining uncertainties will nonetheless be important for decision makers and the public to understand the likelihood of attaining the estimated health benefits.