

**IMPROVING THE SCIENTIFIC ADVICE
PROVIDED BY THE CLEAN AIR SCIENTIFIC
ADVISORY PM SUBCOMMITTEE**

by

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ABSTRACT

- The U.S. EPA's Clean Air Scientific Advisory Committee's subcommittee on Particulate Matter (CASAC-PM) advises the EPA Administrator on setting National Ambient Air Quality Standards. Although the Committee and staff are qualified and dedicated, the process could be improved in the interest of the public good.
- The current EPA focus is too narrow. Isolating individual pollutants, not considering PM composition, ignoring health tradeoffs, and imposing national standards, are problematic. This focus may lead to overregulation of some technologies, industries, and regions.
- The Risk Assessment process should be changed from a focus on individual PM mass fractions to a focus on the health-related consequences of PM standards. The public must live with all of the consequences of new standards, including unintended adverse consequences.
- The process is linear without opportunities to discuss compliance feasibility, economic hardships, or unintended health effects that vary regionally. Such limited advice can mislead the EPA Administrator and the public with respect to the adequacy of the scientific advice provided by CASAC.
- Although the CASAC-PM scientific advisory process is efficient and consistent with EPA's mandate, it is flawed.

INTRODUCTION

- The U.S. EPA Clean Air Scientific Advisory Committee on Particulate Matter (CASAC-PM) advises the EPA Administrator on setting National Ambient Air Quality Standards.
- The author served on CASAC from September 2007 to 2010 (end date uncertain).
- The advisory process is highly-evolved, but needs to be improved

OBJECTIVES

- Provide an overview of the CASAC-PM process
- Suggest “big-picture” improvements that might interest statistical professionals
- Ultimately improve the impact of the EPA on overall public health

PROBLEMS NEEDING IMPROVEMENT

- Restrictive mandate
- Linear incrementalism
- Defining “Particulate Matter”
- Risk Assessment is too narrow
- Public input
- Inadequate advice to Administrator
- Misperceptions (public and scientists)

EPA NAAQS Mandate

- 5 year review cycle
- 6 pollutants, national standards
- Primary & secondary effects
- Cost & feasibility excluded
- Adequate margin of safety
- Independent scientific review

The Mandate Problems

- 5 Year cycle does not permit new technologies time to develop
- National standards ignore regional differences in PM composition
- Costs also have health effects
- “Margin of safety” can lead to problems

Isolating Individual Pollutants

- One-at-a-time approach can lead to greater risks
- Air chemistry is complex & important
- Decreasing level of one pollutant can increase levels of other pollutants

PM Mass Fractions

- Mass is a poor indicator of toxicity
- Cutoff sizes have problems for some regions
- Mass of ultrafine particles is negligible

Risk Assessment

- One pollutant at a time is improper
- Tradeoffs are not considered
- The “regulatory decision” not each pollutant’s risk should be addressed
- The public must live with all of the consequences of the air standard

Ethics

- “Informed consent” is a fundamental ethical principle
- Informed consent is not possible using the current procedures
- There is a lack of full disclosure of all risks & consequences

Conclusions

- The current CASAC-PM advisory process is sophisticated, but over-managed
- The focus is too narrow
- Information relevant to public health is not included
- Neither the Administrator nor the public are adequately informed about tradeoffs