

## **Federal Aviation Administration: Air Traffic Control Performance**

*Researchers analyzed operational error data among Air Traffic Control Specialists by age, found no difference in error rates, suggested that the current age limitations may not be necessary, and called for further research.*

### **Lead Agency:**

Department of Transportation (DOT) - Federal Aviation Administration (FAA), Office of Aerospace Safety (AVS) – Office of Aerospace Medicine (AAM) - Civil Aerospace Medical Institute (CAMI) - Aerospace Human Factors Research Division (AAM-500)

### **Agency Mission:**

FAA: Federal Aviation Administrations mission is to provide the safest, most efficient aerospace system in the world.

Aviation Safety and the Office of Aerospace Medicine's mission is to enhance aerospace safety through surveillance, research, education, medical standards, and the prevention of illness and injury.

### **Principal Investigators:**

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### **Partner Agency:**

FAA Human Factors Research and Engineering Group (AJP-61)

### **General Description:**

This study analyzed operational error data among Air Traffic Control Specialists above and below the age of 55. The results indicated no difference in error rates, suggesting that the current age limitation may not be necessary. U.S. federal law requires that air traffic control specialists (ATCSs) hired after May 16, 1972 retire at age 56 on the premise that the risk of adverse events such as operational errors (OEs) increases with age (U.S. House of Representatives, 1971). OE count was modeled as a function of en route ATCS age and exposure to test that premise using Poisson regression. The odds of OE involvement for older (age 56 and older) and younger (age 55 or less) ATCSs were equal. These results suggest that the rationale for mandatory retirement of controllers might need to be reexamined through continued research. While recognizing that the results called into question the safety benefits of the law, they acknowledge that policy

change would require replication of their findings and extension of analyses to other sources of data. They also discussed the competition of changes in cognitive function with age to accrual of experience with change. As such, the research represents a good start towards balancing our desire to avoid unwarranted discrimination with our desire to prevent errors and safety concerns that may be associated with cognitive changes.

***Excellence:*** What makes this project exceptional?

This project was exceptional in its authors' recognition of Operation Error data potential to address aging effects and the careful conceptual approach taken to interpreting the data. The opportunity to examine the impact of aging on error frequency was presented by the age limitation decision by Congress in 1971. The authors made use of operational error data collected by the Air Traffic Organization to examine possible age effects. Their interpretation of findings was appropriately limited to the dataset, but asked some fundamental questions about aging and suggested possible policy reassessment.

***Significance:*** How is this research relevant to older persons, populations and/or an aging society?

The work is relevant to an aging society because it questions the impact of known trends in cognitive performance with age upon job performance. It suggests that while tactically-oriented cognitive speed and flexibility decreases with age may be accompanied by some degree of strategic compensation – experience may lead controllers to prevent situations that would require novel or speedy tactical interventions. Were this finding further validated, it would cause us to reassess most policies providing for firm age limits for a job category in favor of more individual-assessments of cognitive function, leading to a potentially more fair set of decisions.

***Effectiveness:*** What is the impact and/or application of this research to older persons?

The impact of the research has been limited, however, in that follow up activities were not sponsored or funded within the agency.

***Innovativeness:*** Why is this research exciting or newsworthy?

The research is worthy of recognition because it challenges how we think about age limitations in air traffic control. The error data, at least, does not support our current policy. This calls for further reassessment. The authors' thoughtful interpretations call for more fundamental research about how controllers perform their jobs as they age.