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Questions and Answers Logan Airport Health Study

1. **Q: Why did the Massachusetts Department of Public Health, Bureau of Environmental Health (MDPH/BEH) conduct a health study for Logan Airport?**

A: The Acts of 2000 originally included a line item directive that “the Director of the Bureau of Environmental Health Assessment of the department shall conduct an environmental risk assessment of the health impacts of the General Lawrence Logan Airport in the East Boston section of the City of Boston or any community that is located within a 5 mile radius of the airport and is potentially impacted by the airport.” Despite varying levels of resources and line item directives over the past decade, the MDPH/BEH conducted the Logan Airport Health Study to respond to this directive.

2. **Q: How was community input received in designing the Logan Airport Health Study (LAHS)?**

A: MDPH/BEH held a number of community meetings to hear health concerns of residents and to share information from the medical literature on health impacts evaluated in other studies involving community environmental concerns associated with living near airports. MDPH/BEH also formed a Community Advisory Committee (CAC) composed of residents, local health departments, and technical experts in epidemiology, biostatistics, survey design and administration, and air modeling. With input from community meetings and the CAC, MDPH/BEH designed and implemented a cross-sectional disease and symptom prevalence study evaluating potential associations between exposure to airport emissions and adverse health outcomes.

3. **Q: What was the overall goal of the LAHS?**

A: The overall goal of the LAHS was to determine whether residents living in areas with greater potential for airport-related exposures were more likely to experience respiratory, cardiovascular, or auditory effects compared to those residents living in areas with lesser potential for airport-related exposures.

4. **Q: What environmental conditions did the LAHS evaluate?**

A: MDPH/BEH considered the potential health impacts on local communities of both noise and environmental conditions associated with Logan Airport. Air pollution sources at the airport included aircraft (takeoff, landing, taxiing, and use of auxiliary power units), ground service equipment, passenger and commercial motor vehicle fleets operating and parking on airport property, and the airport power plant. The primary sources of noise from the airport were aircraft takeoff and landing operations.

5. **Q: Who was included in the study?**

A: Information on more than 8,000 residents (6,072 adults and 2,215 children) was collected in the survey. Residents interviewed were randomly selected so that the survey results could be considered representative of the study area.

6. **Q: How did MDPH/BEH determine exposure opportunities within the 5-mile radius of Logan Airport?**

A: The study area was geographically categorized into three exposure areas based on the best available data for predicting ambient concentrations of air pollution associated with airport operations and noise associated with aircraft operations.

7. **Q: How did MDPH/BEH determine if residence near Logan Airport was or was not likely to impact the health of nearby residents?**

A: Results from the survey interviews enabled MDPH/BEH to address the complexity in assessing environmental impacts of airport operations. MDPH/BEH collected data on the prevalence of targeted health outcomes, demographic information, and various risk factor characteristics among residents living in the designated 5-mile radius study area. Statistical analyses were then conducted to determine whether residents living in areas with greater potential for airport-related exposures were more likely to experience the targeted health outcomes compared to residents living in areas with lesser potential for airport-related exposures.

8. **Q: Was the study peer reviewed?**

A: Yes, MDPH/BEH established an external peer review panel for the LAHS in 2002 to review the study design and statistical analyses protocol for conducting the work. The peer review committee has been involved in review of all activities associated with the LAHS. This included review and comment on the study design, statistical analyses protocol, statistical analyses, as well as the findings and recommendations contained in the report.

9. **Q: Who was on the peer review committee?**

A: The peer review committee consisted of well-known scientists including Dr. Thomas Burke, Associate Dean for Public Health Practice and Training at the Johns Hopkins Bloomberg School of Public Health; Dr. Thomas Mason, Professor, College of Public Health, Department of Environmental and Occupational Health, University of South Florida; and Dr. Philip Hopke, Bayard D. Clarkson Distinguished Professor, and Director of the Center for Air Resources Engineering and Science, at Clarkson University.

10. **Q: What did the study conclude about environmental exposures related to Logan Airport?**

A: Modeling indicated that the highest predicted pollutant concentrations associated with airport operations are near the perimeter of the airport and fall off rapidly with increased distance. Consistent with findings with other airport studies, modeled concentrations of the pollutants are low relative to measured background air pollutant concentrations (i.e., combined sources of all air pollution).

11. **Q: What did the study conclude about health?**

A: Evaluation of associations between airport-related exposures and health outcomes among the study area population revealed some elevations in respiratory health outcomes in the high exposure area (that is, nearest the perimeter of Logan Airport). Specifically, in adults, COPD was statistically significantly higher for residents who had lived 3 or more years in the high exposure area. Children in the high exposure area were estimated to be 3-4 times more likely of having probable asthma (undiagnosed asthma) compared with children in low exposure area. The study did not detect differences in cardiovascular or auditory (hearing loss) effects across the study area. Cardiovascular disease prevalence was lower in the study population as a whole.

12. **Q: What does the study recommend in response to findings?**

A: Follow-up recommendations of the LAHS include:

- The results of this study should be reviewed by Massport and others to determine mitigating steps that can be taken across the study area.
- Massport has undertaken initiatives to reduce air pollution impacts within their control (e.g., providing infrastructure for compressed natural gas (CNG) fuels and electricity charging stations, Alternative Fuel Vehicle Program). Similar initiatives could be considered in consultation with local communities that would serve to further reduce the burden of indoor and outdoor sources of air pollution on residents in closest proximity to the airport.

- Massport has also been working with the East Boston Neighborhood Health Center (EBNHC) to address workforce issues among Massport employees. Massport could expand these efforts with the EBNHC as well as other community health centers to better address respiratory health notably among children in closest proximity to the airport.
- While air dispersion modeling indicates that the contribution from Logan Airport operations across the study area is relatively small, air pollution levels are higher in urban areas. Predicted pollutant concentrations were higher near the perimeter of the airport; thus, any methods that can be implemented to continue to reduce airport-related air pollution should be explored.
- MDPH/BEH should work with communities within the high exposure area (in whole or in part) on initiatives that would serve to further reduce exacerbation of pre-existing respiratory diseases (e.g., asthma and COPD) among residents.

Specifically:

- MDPH/BEH will continue to support MassDEP's efforts to reduce motor vehicle emissions including implementation of the Low Emissions Vehicle program and diesel engine retrofit initiatives;
- Upon request MDPH/BEH's Indoor Air Quality (IAQ) Program staff will work with local municipalities to conduct IAQ assessments in schools and public buildings;
- Upon request MDPH will work with local officials to address concerns that may be associated with local development initiatives;
- MDPH/BEH will collaborate with the MDPH Bureau of Community Health and Prevention's Tobacco Cessation and Prevention Program on their efforts to work with local boards of health and tobacco-free community partnerships. These efforts enforce youth access and secondhand smoking laws and provide educational/outreach resources to support smoke-free workplace and housing programs.

13. Q: Who should I contact if I have specific concerns about the LAHS?

A: Please contact:

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250 Washington Street, 7th floor
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