

# Aeromedical COVID-19 Research Work and Support



Federal Aviation  
Administration

*“Maintaining Continued  
Operational Safety while  
Supporting Return to Flight  
During a Pandemic”*

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# Aeromedical Laboratory Mission

- **Primary**
  - Aerospace Accident and Incident Prevention
- **Secondary**
  - Mitigating Hazards in Aerospace Accidents and Incidents
- **Protecting the Human involved in Aerospace Operations**

# Aeromedical Laboratory Teams

- **Bioaeronautical Sciences Branch, AAM-610**
  - Forensic Sciences Section, AAM-611
    - Forensic Toxicology Team
    - Biochemistry Team
  - Biomedical Sciences Section, AAM-612
    - Functional Genomics Team
    - Knowledge Management Team
    - Autopsy Team

# Aeromedical Laboratory Teams

- **Protection and Survival Research Branch, AAM-630**
  - Life Sciences Section, AAM-631
    - Medical Research Team
    - Aviation Physiology Research Team
    - Numerical Sciences Research Team
  - Engineering Sciences Section, AAM-632
    - Biodynamics Research Team
    - Cabin Safety Research Team

# AAM-600 COVID-19 Work FAQs

- **Circulated Cabin Air Question**

- Total air exchange rates within an airplane cabin can vary between 10 to 40 times per hour. Recirculated air flow varies from 30% to 60% of the total airflow in the cabin specific to airplane design & operating condition. Many large transport category airplanes use HEPA filters, for recirculating air. HEPA filter efficiency for capturing SARS-CoV-2 corona virus particles is ~ 99.97% to 99.99%.

# AAM-600 COVID-19 Work FAQs

- **Ventilation flow within airplane cabins to mitigate the potential of disease transmission (e.g., SARS-CoV-2).**
- **Health safety/health effects and efficacy of ultraviolet germicidal irradiation (UVGI) for airplane disinfection , specifically the efficacy of new technology -- Far Ultraviolet C (FUV) irradiation.**
- **Air ionization technology to mitigate potential disease transmission onboard airplanes and as a method for airplane disinfection.**

# AAM-600 COVID-19 Work FAQs

- **On behalf of a flight school/pilot training, provided aeromedical/physiological subject matter expertise on face masks/coverings, carbon dioxide levels, and cognitive/flight performance.**
- **Use of anti-malarial medications as a prophylaxis treatment for COVID-19 to a supervisory pilot.**
- **Direction/guidance to locate and access publicly available FAA cabin air quality studies.**

# AAM-600 COVID-19 Work FAQs

- **Guidance and recommendations for the safe transport of large amounts of dry ice on**
  - Large commercial passenger aircraft
  - Small aircraft
- **To allow the safe transport and handling of vaccines**

# AAM-600 Laboratory COVID-19 Plans

- **Website, including:**
  - Links to Relevant Guidance and Studies or Copies of Them
  - Risk calculator – In Draft, being refined
    - Collaborating and comparing with MIT/LL about assumptions and results
    - Will socialize across selected industry partners prior to release
  - FAQs
    - Publication of relevant facts associated with past inquiries
  - Quick-Turn Investigations
    - Collaborating with Oklahoma State University on Infectious Disease Study

# AAM-600 Laboratory COVID-19 Plans

- **Website, including:**
  - Literature Reviews with Assessments
    - COVID-19 Testing and Aircraft Disinfection
    - Use of PPE/Masks/Physical Distancing
    - Infectivity/Transmission of COVID-19 in Air Travel, comparison to other previous infectious diseases
    - Airline Passenger Contact Tracing
    - Impact of COVID-19 on Psychological Factors In-flight/Air Rage
  - Assessments of Research Areas and Conclusions – Several Drafts
    - No evidence
    - Little evidence
    - Moderate evidence
    - Significant evidence

# Collaboration

- Boeing’s “Return to Flight” Initiative
- ICAO Council Aviation Recovery Task Force (CART)
- IATA’s Cabin Safety and CART Interface Group
- NASA’s Group: Rebuilding Confidence in Air Travel Post Covid-19
- Cabin Air Quality Group, formed from past ACER CoE Members (cont.)

# Collaboration(cont.)

- Military Laboratories through our AMRAC Group
  - NAMRU-D
  - USAF/SAM
  - USAARL
- Other Government Agencies
  - CDC
  - NIH
  - DHS, etc...
- University Partners
  - Oklahoma State University, etc...

# Internal FAA Collaboration

- Aircraft Certification Services
  - Coordination and collaboration on research proposals
  - Created Guidance for safe transport of vaccines w/ large amounts of dry ice
- Flight Standards
  - Aviation Safety Inspector questions on mitigating the risks of inspections
- ATO
  - Consultation on best safety practices and research proposal
- ANG
  - Testing out dry ice sublimation rates in packaging

# Supporting Others in the Fight Against COVID-19

- Loaned Genomics research equipment to OU Medicine to allow them to develop COVID-19 Tests
- Allowed our blood collection supplies to be used by Harvard's Brigham & Women's Hospital for COVID-19 Testing to Support the Fight Against COVID-19

# Thank you for your time

- **QUESTIONS?**

