# FAA Aviation Safety COVID-19 Research Activities

Presented to: Research, Engineering and Development Advisory Committee (REDAC)

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Federal Aviation Administration

# Purpose

- **Clarify organizational roles in managing communicable disease risk in the flying public (*scoping what to do*)**
- **Review research activities supporting COVID-19 pandemic response (*what we've done*)**
- **Describe proposed research activities to inform planning for and mitigating future communicable disease outbreaks (*where we're going*)**

# Background

- No Aviation Safety (AVS) communicable disease research requirement prior to the FY23 Aeromedical Research BLI Plan
- AVS Services/Offices organically initiated within-year-of-execution FY21 research projects to meet urgent needs
- Public health/emergency response function being established within to the Office of Aerospace Medicine
- AVS is transitioning from a response-focused to a preparatory-focused communicable disease research agenda starting in FY22

# Organizational Roles (*scoping what to do*)

Scope includes “[c]oordinating and supporting prevention, preparedness, response, recovery, and mitigation activities among transportation stakeholders” (Emergency Support Function #1 – Transportation Annex, 2016)

**Knowledge gaps = research drivers**

- Communicable disease transmission risk within aircraft cabins
- Risk control measures

FAA

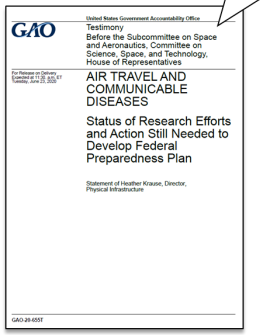
Other Transportation Modes

ESF-8 Health (HHS)

Emergency Support Function #1 (ESF-1) Transportation

Other ESF’s

Disease Transmission Research Has Received Limited FAA Focus in Recent Years


GAO

United States Government Accountability Office

Testimony

Before the Subcommittee on Space and Aeronautics, Committee on Science, Space, and Technology, House of Representatives

AIR TRAVEL AND COMMUNICABLE DISEASES

Status of Research Efforts and Action Still Needed to Develop Federal Preparedness Plan

Statement of Heather Krause, Director, Physical Infrastructure

GAO-20-655T

# Responsive Research (*what we've done*)

**COVID-19 transmission risk within transport aircraft cabins**
- Aeromedical evidence based statements (knowledge capture and synthesis on high interest topics for decision makers)
- Preliminary transmission risk calculator (V/V pending)

**Aircraft certification concerns from COVID-19 disinfection**
- Damage to aircraft surfaces
- Reduction of flame retardant properties

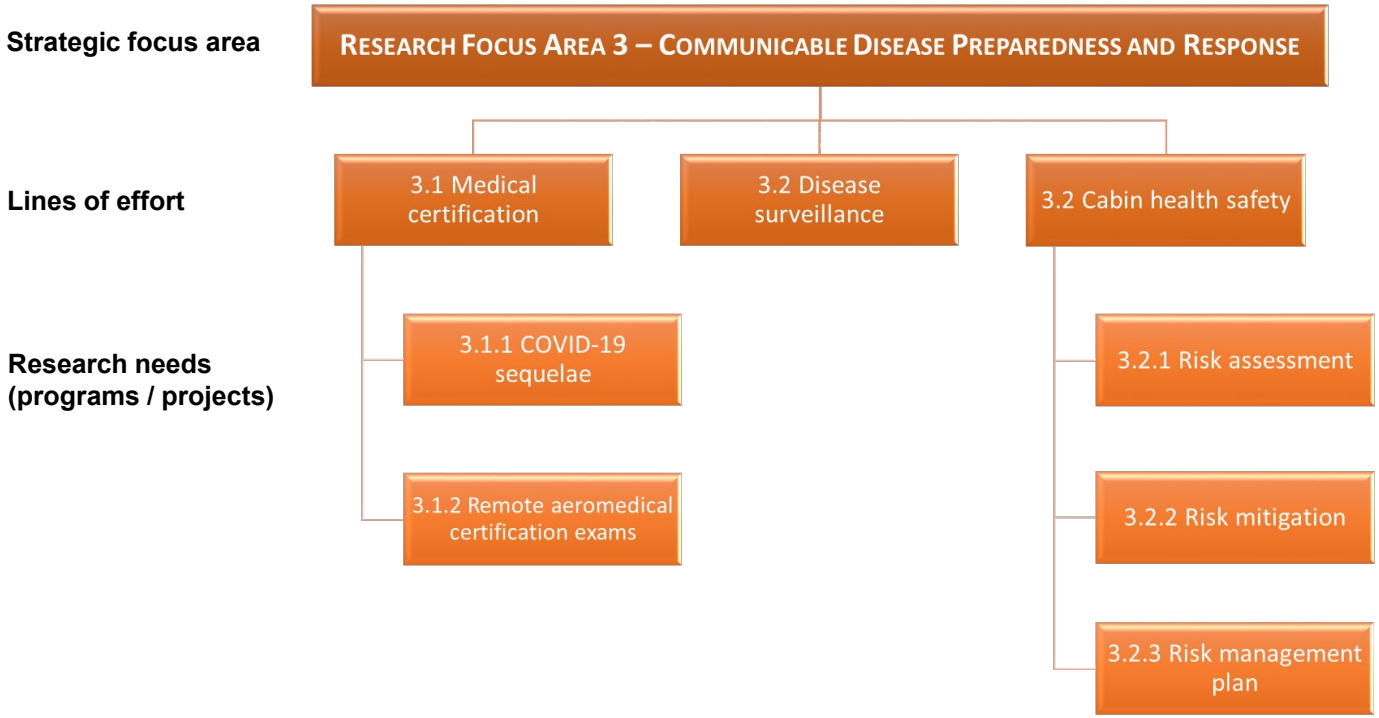

**Carbon dioxide risk from vaccine ultra-low temperature cold chain**
- Incapacitation of aircraft occupants
- Incapacitation of cargo handlers

**<u>Goal</u>: Rapidly Sourcing Knowledge Needed by the Aerospace Ecosystem**

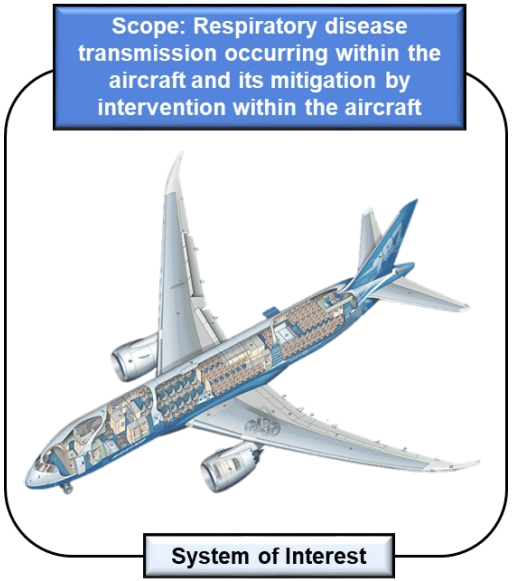
# Proposed Research (*where we're going*)

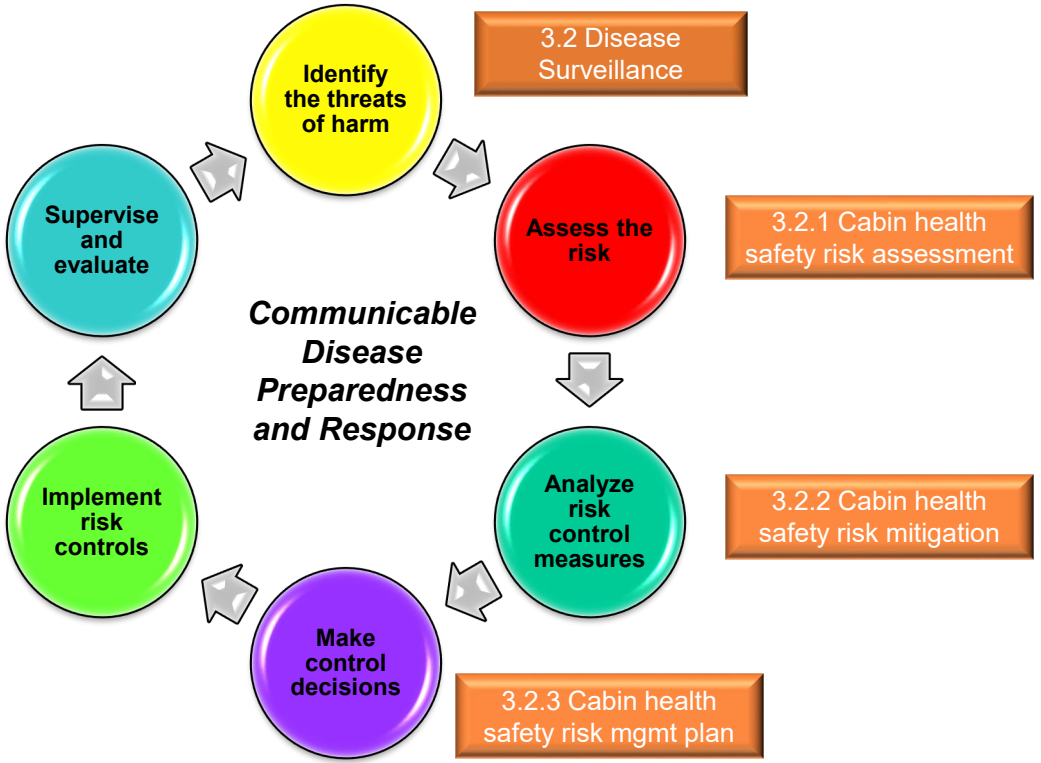
- **Office of Aerospace Medicine is the primary Aviation Safety (AVS) research sponsor for communicable disease hazards**
- **Aerospace Medicine R&D Strategic Plan "Communicable Disease Preparedness and Response" focus area**
  - **Scoped to current COVID-19 pandemic response and planning for and mitigating future communicable disease outbreaks**
  - **Three research lines of effort:**
    - **Supporting the airman medical certification process**
    - **Supporting disease surveillance**
    - **Mitigating the risk of transmission of respiratory diseases of potential public health significance within transport aircraft cabins**

# Aerospace Medicine R&D Strategic Plan (July 2021)



# Systems Approach & Operational Risk Management



# Cabin Health Safety Research Projects

| Research need | Gap | Research output |
|---|---|---|
| Cabin Health Safety Risk Assessment | Ability to estimate the risk for transmission of respiratory diseases of potential public health significance within transport aircraft cabins. | • Modeling, Simulation & Analysis (MS&A) framework<br>• Associated tools |
| Cabin Health Safety Risk Mitigation | Knowledge of the potential solution set of control measures to mitigate the risk for transmission of respiratory diseases of potential public health significance within transport aircraft cabins | • Risk mitigation solution sets<br>• Associated mitigation evidence base<br>• Mitigation M&S representations (as applicable) |
| Cabin Safety Risk Management Plan | Knowledge transfer and operationalization of the results of risk assessment and mitigation related research | • Cabin health safety response plan<br>• Analysis toolkit (MS&A tools and associated data) |

# Questions