



**HEALTHY JOURNEY  
by Embraer**

OCTOBER 2020



# Hospital Operating Room

5x

Outside air changes per hour

Hospital  
Operating Room

5x

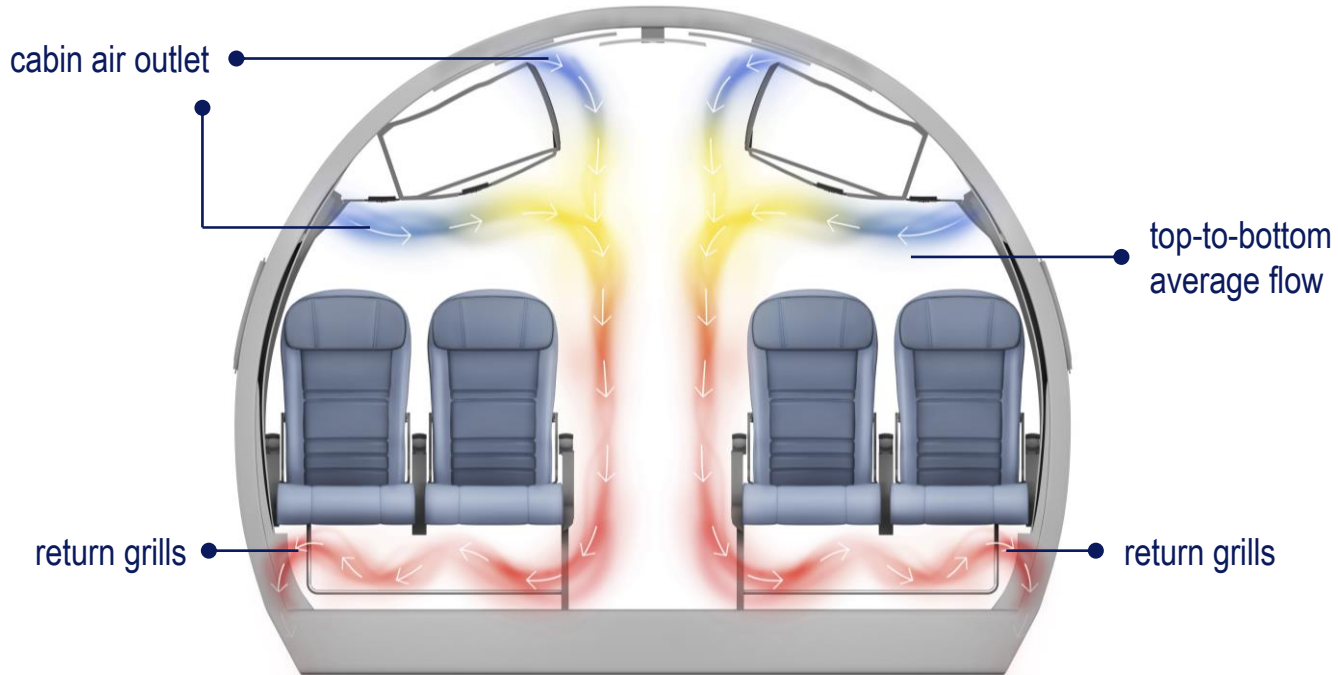
Outside air changes per hour

Aircraft Cabin

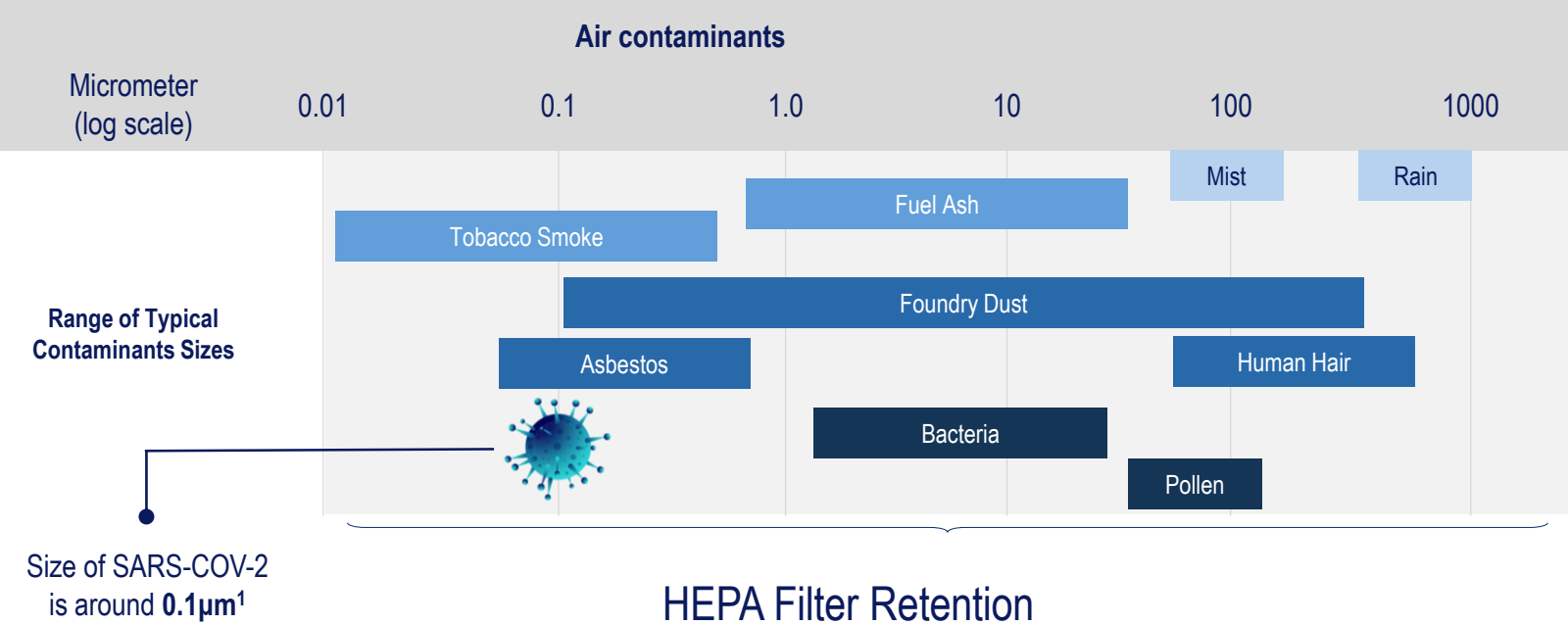
20x

Outside air changes per hour  
Every 2-3 minutes the full cabin  
volume of external air is injected  
in the aircraft

# Clean air designed to cycle from top to bottom minimizing cross-cabin flow



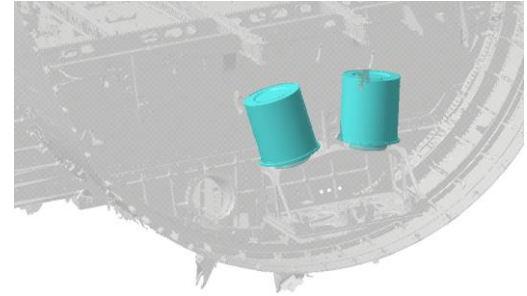
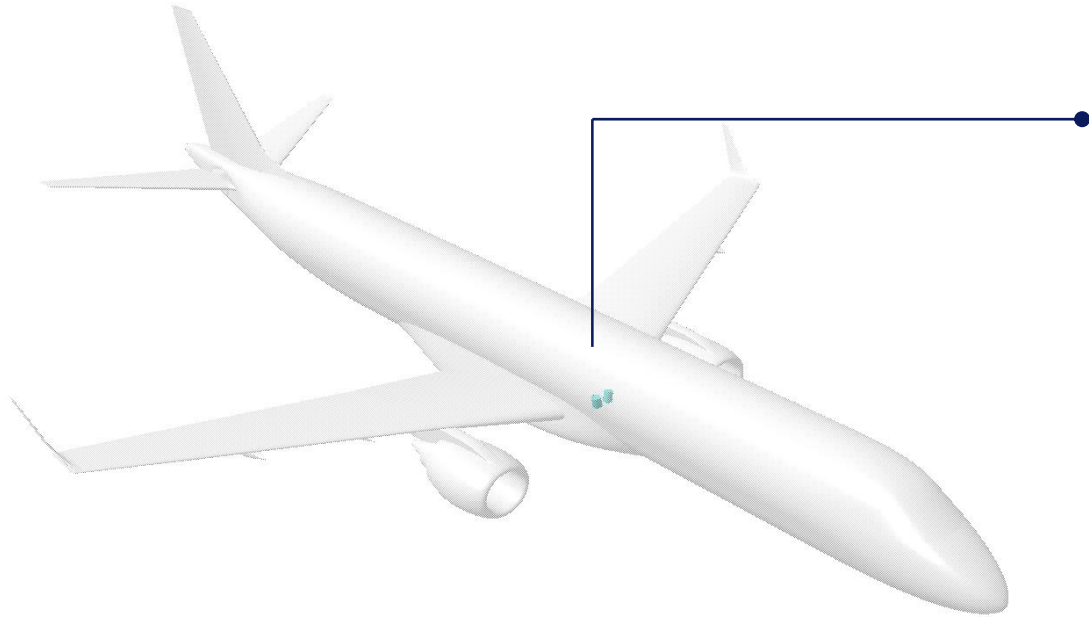
# E-Jet HEPA filters capture 99.9+% of airborne contaminants bigger than 0.1 micron



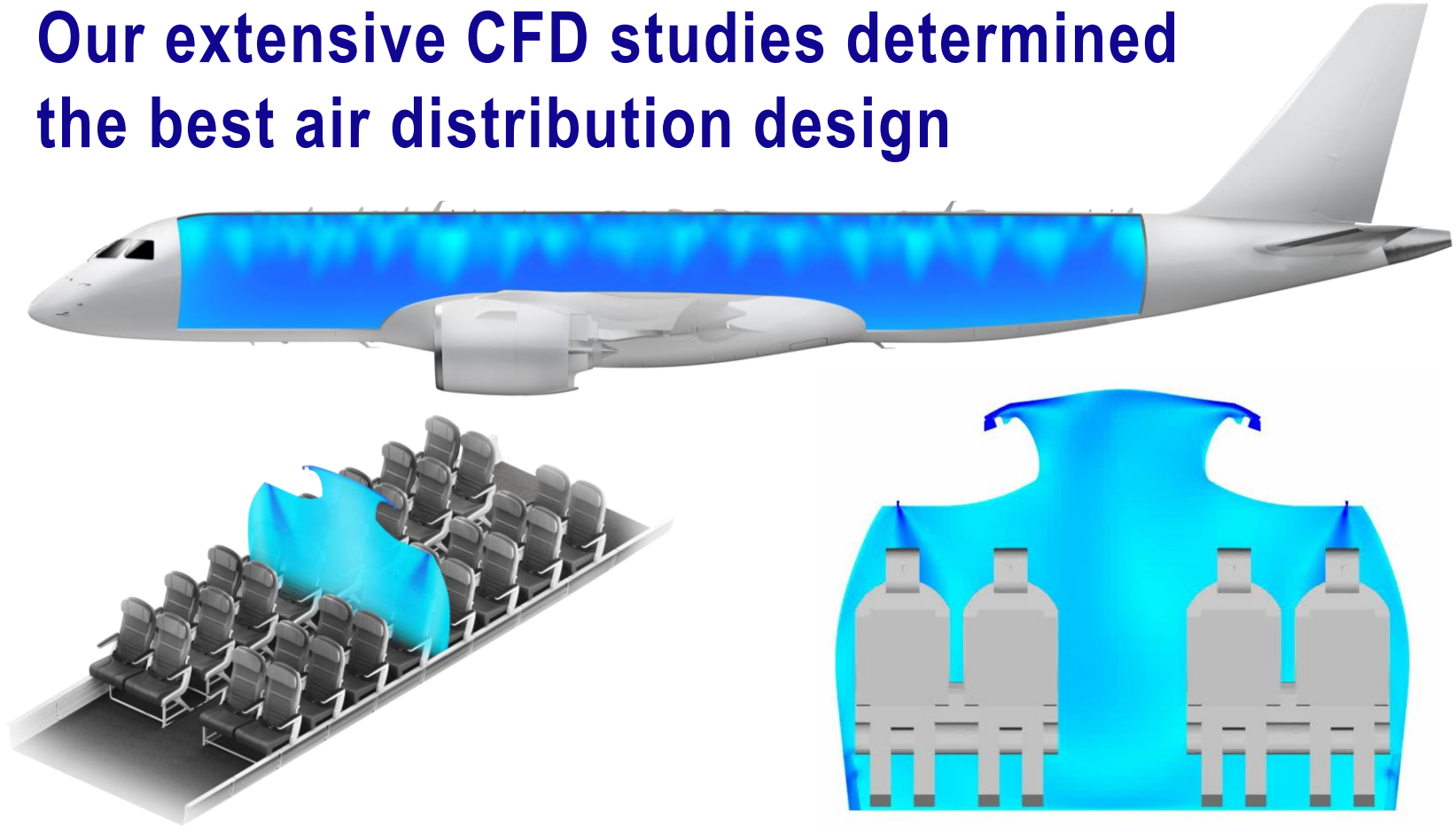
Source: SARS-CoV-2 (COVID-19) by the numbers, doi: 10.7554/eLife.57309



# Filter removal and inspection follows a strict maintenance schedule



# Our extensive CFD studies determined the best air distribution design



# In-house testing on full-scale E-Jet mockup validated CFD results





# Test data used for modeling/final cabin design

## Measuring cabin air flow



## Assessing air quality



State-of-the-art testing techniques and experiments developed in association with academic & scientific research institutes



# Our CFD studies tracked the spread of droplets

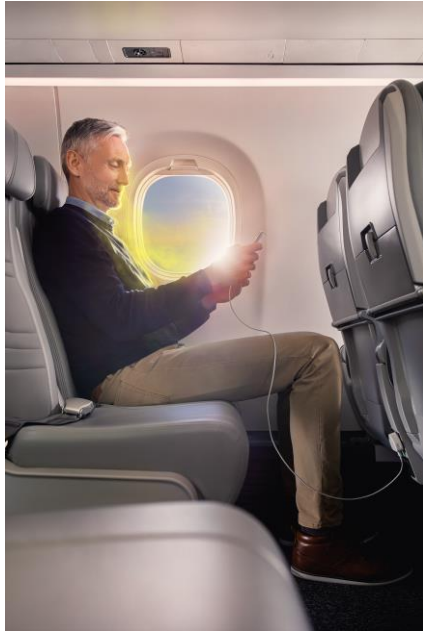


7-row CFD droplet dispersion model, 200  $\mu\text{g}$  in a cough distributed in 16 droplet diameters from 0.1  $\mu\text{m}$  - 200  $\mu\text{m}$

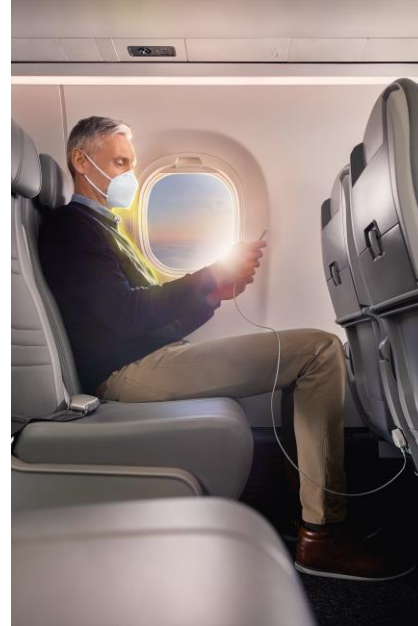


# Per PAX cough mass is extremely low and reduced further with a mask

Fraction of cough mass (%) in breathing zone



**0.13%**  
without mask



**0.02%**  
with mask





Clean air. Disinfection procedures. Face masks. Safe flight.

# THANK YOU

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