REALM PROJECT PARTNERS

• Project funder
• Consults on project goals and activities
• Convenes steering committee and working groups

• Gathers and synthesizes stakeholder input
• Publishes and distributes research findings
• Collects, creates, and shares illustrative examples and toolkit items

• Develops scientific research briefings and literature reviews
• Conducts laboratory research on materials

• Representatives from libraries, archives, and museums (LAMs) for
  • Executive Project Steering Committee
  • Operations and Scientific Working Groups
PROJECT ACTIVITIES

• Review and summarize relevant scientific research
• Engage with subject matter experts from archives, libraries, and museums
• Conduct laboratory testing and publish findings (Phase 1-2)
• Create toolkit resources
• Produce publications, webinars, presentations for the field
• Gather, synthesize, and share accumulated learning
REALM provides scientific evidence and research findings on SARS-CoV-2 that relates to LAM operations. Institutions can use the information, along with local data sources and expertise, to inform practices and policies. REALM does not issue one-size-fits-all recommendations or guidelines. Every institution is different and makes decisions in context of their local facilities, services, staff, and community.
STATUS OF COVID-19 RESEARCH
• How might the SARS-CoV-2 virus spread through general operations?
• How effective are various prevention and decontamination tactics?
• How long does the virus remain active on materials and surfaces?
Knowledge about SARS-CoV-2 and COVID-19 is still accumulating. Keep the following in mind when interpreting and applying REALM data.

1. **Unknown**: How much virus an infected person will leave on an object.

2. **Unknown**: How much virus someone can pick up from an object.

3. **Unknown**: How much virus is needed to cause infection.
Most likely:
- Direct contact between people
- Droplets passed between people
- Tiny particles floating in the air

Possibly:
- Contaminated objects (fomites)
- Other body fluids
ENVIRONMENTAL CONDITIONS

• Temperature
• Relative humidity
• Air quality
• Air flow
PREVENTION AND DECONTAMINATION TACTICS

- Physical distancing
- Hand washing and toilet hygiene
- Masks worn over nose and mouth
- Fresh, clean air

Under certain conditions:
- Surface cleaners and disinfectants*
- UVA/UVC treatment*

*These may not be appropriate for sensitive library, archive, and museum materials.
“3V” RESEARCH QUESTIONS

- What impacts might variants have on public health interventions?
- What implications does vaccination have for public health interventions and policies, especially related to indoor environments?
- What effects do ventilation and ventilation-based interventions have on spread of SARS-CoV-2?
• Anyone age 16 or older eligible for vaccination in US
• CDC advises that fully vaccinated people can resume certain activities and adjust PPE practices
• Long-term impacts of vaccines are still being studied
• Vaccine hesitancy and misinformation continue to play a role in the vaccination rate
• Libraries/museums are well positioned to contribute to health literacy and communication

Data: CDC, May 16, 2021
Some variants and mutations have been found to be linked with increased infectivity.

Vaccines have been shown to be effective against variants.

Still unknown:

- Whether you can be reinfected with a variant after being infected with the earlier form of SARS-CoV-2
- Whether certain demographics are more vulnerable to variant infection
- How the infectious dose (amount of virus needed for infection) differs among variants and compared to the early form
Factors influencing airborne transmission of the virus:

- Activities taking place in a space
- Number of infectious people in a space and their viral load
- Air change rate, natural vs. mechanical ventilation, presence of air filtration.

Air purification or ventilation alone is not enough; much better when combined with other mitigation measures.

- HVAC systems could worsen virus spread if not designed or modified to maximize circulation of virus-free air
- Inadequate or inappropriately positioned ventilation may lead to virus hotspots or increased surface deposition
- “Drafty” buildings or those with open windows and good cross-ventilation showed lower transmission levels than newer, tightly sealed buildings
Ventilation – Open Questions

- Consensus on how to best configure, upgrade, or design ventilation systems to mitigate virus spread
- How proximity to air purifiers impacts the amount of virus particles present in a space
- Whether more transmissible variants can be mitigated in the same way as less-virulent strains
LAB TESTING
RESEARCH QUESTION

How long does the virus remain active on materials commonly found in archives, libraries, and museums?

Active … viable … infectious … “alive”
EIGHT TEST ROUNDS, UP TO FIVE MATERIAL TYPES PER ROUND

- Droplets of live virus applied to material surface via 'fake spit'
- TCID50 cell-based assay measures quantity of infectious virus at selected time points to track the attenuation (drop) in total virus
- Materials stored in stacked or unstacked configurations at standard room temperature and humidity
- Final two tests at warm and cold temperatures
## How long the virus survives on commonly used library, archive, and museum materials

- Item tested in a **stacked** configuration.
- Item tested in an **unstacked** configuration.
- Item showed **trace amount** of virus after testing.
- Item was **above LOQ** after testing.

<table>
<thead>
<tr>
<th>ITEM / MATERIAL*</th>
<th>DAYS OF VIRUS SURVIVAL</th>
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<tbody>
<tr>
<td>DVD case</td>
<td>1</td>
</tr>
<tr>
<td>Softback book cover</td>
<td>1</td>
</tr>
<tr>
<td>Hardback book cover</td>
<td>1</td>
</tr>
<tr>
<td>Archival folders</td>
<td>2</td>
</tr>
<tr>
<td>Plain paper pages</td>
<td>3</td>
</tr>
<tr>
<td>Plastic protective cover</td>
<td>3</td>
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<tr>
<td>Braille paper</td>
<td>4</td>
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<tr>
<td>Glossy pages</td>
<td>4</td>
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<tr>
<td>Children’s board book</td>
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<tr>
<td>Magazine pages</td>
<td>4</td>
</tr>
<tr>
<td>DVD disc</td>
<td>5</td>
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<tr>
<td>Storage bag</td>
<td>5</td>
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<tr>
<td>Storage container</td>
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<td>Plexiglass</td>
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<td>USB cassette</td>
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<tr>
<td>Storage foam</td>
<td>6</td>
</tr>
<tr>
<td>Leather book cover</td>
<td>8</td>
</tr>
<tr>
<td>Synthetic leather</td>
<td>8</td>
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</tbody>
</table>
MAKING POLICY DECISIONS
When making decisions about policies …

- Stay informed of federal, state, and local guidelines
- Monitor CDC guideline for updates on mitigation and decontamination protocols
- If concerned about contaminated items, REALM results indicate lifespan of the virus on materials
- Ask your peer institutions for their policies
- Inform internal and external stakeholders of your policies
This resource is an overview of an article published in *BMJ* titled "Managing uncertainty in the covid-19 era," by Rutter, Wolpert, and Greenhalgh, which can help when discussing your pandemic response: bmj.com/content/370/bmj.m3349.
TOOLKIT RESOURCES

- Managing uncertainty
- Reopening considerations
- Decision-making checklist
- Literature review key takeaways
- Library and museum reopening plans
- Cleaning and disinfecting
- Lab testing in visual format
- Collections and facilities video

oclc.org/realm/resources
TOOLKIT RESOURCES

- Resource roundups
  - Virtual programming
  - Social distancing
  - Masks
  - Communication and signage
  - Volunteer management
  - Vaccines

... and more to come!

oclc.org/realm/resources
The Smithsonian has collaborated with cultural organizations in communities across the nation to create Vaccines & US... to help you make an informed decision about COVID-19 vaccines and help you discuss the vaccines with your family, friends, and community.
- This Thursday (May 20)
  - Research briefing on Vaccines, Variants, and Ventilation
  - Video with Boston Children’s Museum director
  - Toolkit updates: more resource roundups

- Next month
  - SAA panel discussion on safe reopening (June 3)
  - ALA panel discussion on museum-library partnerships (June 24)
This document synthesizes various studies and data; however, the scientific understanding regarding COVID-19 is continuously evolving. This material is being provided for informational purposes only, and readers are encouraged to review federal, state, tribal, territorial, and local guidance. The authors, sponsors, and researchers are not liable for any damages resulting from use, misuse, or reliance upon this information, or any errors or omissions herein.