REALM PROJECT
REopening Archives, Libraries, and Museums
oc.lc/realm-project
#REALMproject
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CEO, Pacific Library Partnership
Executive Director, Peninsula Library System
REALM Project, Operations Working Group
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REALM Project Director, OCLC
Director, WebJunction
**IMLS**
- Project funder
- Consult on project goals and activities
- Convenes steering committee and working groups

**Battelle**
- Conduct scientific literature reviews
- Conduct laboratory research

**OCLC**
- Lead and manage execution of project deliverables
- Collect, synthesize stakeholder input to inform decisions
- Publish and distribute research and information to the field

**Library, archives, and museum stakeholders**
- Executive Project Steering Committee
- 3 Working Groups: Scientific, Operations, and Communications
**PHASE 1**

**MAY – AUGUST 2020**

Preparing for reopened libraries:
Research on high-priority materials and workflows

**PHASE 2**

**JUNE – OCTOBER 2020**

Additional research to support operations of libraries, archives, and museums

**PHASE 3**

**OCTOBER 2020 – SEPTEMBER 2021**

Monitor, update, and communicate
Project activities

- Review and summarize SARS-CoV-2 research
- Input from LAMs and SMEs
- Design, execute, iterate lab testing
- Develop communications, toolkit
- Share project information and resources
- Ongoing LAM engagement
Urgency + complexity + uncertainty

Transmission

Surfaces

Airborne

Science

Test results

Complex, cumulating picture. Many variables

Decisions

Answers

One contribution to the decision-making process
STATUS OF COVID-19 RESEARCH
Literature research questions

- How might the virus spread through general operations?
- How long does the virus survive on material surfaces through environmental attenuation?
- How effective are various prevention and decontamination measures available in the near term?
Known unknowns

- how much virus an infected person “sheds”
- whether people are getting infected by touching objects
- how much (or little) virus is needed to cause infection
## Scientific literature reviews

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<tr>
<th>Process Step</th>
<th>Number of Articles Under Consideration</th>
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<tr>
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<td>Phase 1</td>
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<td>Final</td>
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How the virus spreads

Most likely
• Direct contact between people
• Droplets passed between people

Possibly
• Aerosol particles
• Contaminated objects (fomites)
• Other body fluids, excretions
Environmental conditions are a factor

- Temperature
- Relative humidity
- Air quality
- Air flow
Prevention and decontamination tactics

- Social distancing
- Hand washing and toilet hygiene
- Masks/PPE
- Fresh air and open spaces
- Surface cleaners and disinfectants*
- UVA/UVC treatment*
LAB TESTING
Research question

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

Active…viable…infectious…“alive”
Testing overview

Objectives
• Determine the effect of ambient environmental conditions on the SARS-CoV-2 virus when applied to common materials found in libraries, archives, and museums
• Provide data to consider for selecting potential quarantine durations before materials can return to public circulation

Experimental design
• 5 test rounds, 5 material types per round
• Droplets of live virus applied to material surface via ‘fake spit’
• Materials stored in stacked or unstacked configurations
• Measure quantity of viable virus at selected time points to capture the attenuation (drop) in total virus

Photo courtesy of Battelle
Testing: TCID50 cell-based assay

- Cut each material into rectangular coupons
- Apply drops of infectious virus with a known starting concentration of virus; “fake spit”
- Put test coupons into chamber, stacked or unstacked
- At each preselected timepoint, measure quantity of virus on coupons
  - Log scale (e.g., 5 Log = 100,000 virus particles)
- Limit of quantitation (LOQ): Only presence/absence of virus per coupon
- Limit of detection (LOD): Cannot find virus on any coupon
Test 1 Unstacked library materials

![Graph showing the survival of SARS-CoV-2 in different materials over time.](image-url)
Test 4 Stacked library materials

Innoculum

Viable SARS-CoV-2 Log$_{10}$

Hardcover Book Cover
Softcover Book Cover
Plastic Protective Cover
DVD Case
Foam
LOQ
New website – oclc.org/realm
Discoverability, Open Access

- Project work products are added to OCLC online archive as they are published
  - Regular crawls of REALM website
  - Literature reviews, data sets, reports, other documents
- MARC record linked to WorldCat: http://www.worldcat.org/oclc/1158612099
- Makes the work immediately discoverable to researchers through global database
For more information

- REALM webinar (WebJunction)
- Updated FAQ
- REALM question in-box
- Coming this month:
  - Test 5 findings released
  - Literature review findings released
  - Toolkit resources published
  - Test 6 announced
  - Raw data set published
Questions?

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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.