RADx Underserved Populations (RADxSM-UP) Return to School Phase II Kick-off

July 14, 2021
# Agenda

<table>
<thead>
<tr>
<th>Topic</th>
<th>Speaker</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welcome &amp; Introductions</td>
<td>Dr. Eliseo J. Pérez-Stable</td>
<td>3:00pm</td>
</tr>
<tr>
<td>Overview of RADx</td>
<td>Dr. Francis Collins</td>
<td>3:10pm</td>
</tr>
</tbody>
</table>
| Overview of RADx-UP and the Return to School Initiative | Dr. Eliseo J. Pérez-Stable  
Dr. Richard Hodes  
Dr. Alison Cernich | 3:20pm                    |
| Team Presentations                         | Dr. Sonia Lee                                                         | 3:40pm  
10 minutes per team |
| Overview of RADx-UP CDCC                   | Dr. Beda Jean-Francois  
Dr. Warren Kibbe                                                        | 4:30pm                    |
| Q&A                                        | Moderated by Dr. Sonia Lee                                           | 4:45pm                    |
Eliseo J. Pérez-Stable, M.D.

Director, National Institute on Minority Health and Health Disparities (NIMHD)
WELCOME & INTRODUCTIONS
OVERVIEW OF RADX PROGRAM
Overview of RADx Program

Francis S. Collins, M.D., Ph.D.
Director, National Institutes of Health (NIH)
Rapid Acceleration of Diagnostics (RADx) Initiative

**RADx Tech – $908M***
Highly competitive, rapid three-phase challenge to identify the best candidates for at-home or point-of-care tests for COVID-19

**RADx Underserved Populations (RADx-UP) – $533M**
Interlinked community-engaged research projects focused on implementation strategies to enable and enhance testing of COVID-19 in vulnerable populations

**RADx Radical (RADx-rad) – $187M**
Develop and advance novel, non-traditional approaches or new applications of existing approaches for testing

**RADx Advanced Testing Program (RADx-ATP) – $192M**
Rapid scale-up of advanced technologies to increase rapidity and enhance and validate throughput — create ultra-high throughput laboratories and “mega labs”

**Data Management Support – $70M**
Build an infrastructure for and support coordination of the various data management needs of many of the COVID-19 efforts

**At-Home Diagnostic Testing – $20M**
Evaluate the effectiveness of existing diagnostic technologies and platforms in at-home environments

*Includes $185M in BARDA funds for development of RADx tests (funds were not transferred to NIH)*
RADx Tech

Overarching Goal

Establish a robust pipeline of innovative diagnostic technologies to increase national testing capacity

Innovate Across the Testing Landscape

Expand the number, type, access, and throughput of testing technologies

Optimize Technology Performance

Develop technology for a range of essential “Use Cases”

- At-home
- Point of Care (POC)
- Testing Laboratory
- Testing Products
RADx-Advanced Technology Platforms (RADx-ATP)

Overarching Goal

Increase testing capacity and throughput by identifying existing and late-stage testing platforms to achieve rapid scale-up or expanded geographical placement

- Emphasize differential POC testing to distinguish SARS-CoV-2 vs. influenza
- Establish rapid collaborations with key industry partners

Scale-up Late-Stage Technologies

Support Scale-Up of High-Throughput Labs to Add Capacity
### RADx-Tech “Innovation Funnel” (as of 6/29/21)

<table>
<thead>
<tr>
<th>NATIONAL CALL FOR INNOVATIVE TECHNOLOGIES</th>
<th>PHASE 0: “Shark Tank”—Like Rapid Selection Process</th>
<th>PHASE 1: Validation and Risk Review</th>
<th>PHASE 2: Clinical Tests, Regulatory Approval, and Scaling Up</th>
<th>Tests produced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rolling Submissions and Selections Begin</td>
<td>716 Reviewed 142 Deep Dive</td>
<td>47 WP1</td>
<td>33 WP2</td>
<td>&gt;3.3 Million tests/day</td>
</tr>
</tbody>
</table>

Applications Started 2,848

Note: The Innovation Funnel was reopened for a second time between June 7th – June 28th, 2021 during which 253 applications were received and 97 completed. Applications will be reviewed over the next few weeks to select 3 to 5 projects.
Contribution of RADx to the National Testing Capacity

RADx awards are contributing over 3 million tests per day to the National Testing capacity as of May 2021.
RADx-Underserved Populations (RADx-UP)

Overarching Goals

- Enhance COVID-19 testing among **underserved and vulnerable populations** across the US
- Develop/create a **consortium of community-engaged research projects** designed to rapidly implement testing interventions
- **Strengthen the available data** on disparities in infection rates, disease progression and outcomes, and **identify strategies to reduce these disparities** in COVID-19 diagnostics

**September – November 2020**

<table>
<thead>
<tr>
<th>Phase I</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Build infrastructure</td>
<td>Integrate new advances</td>
</tr>
<tr>
<td>Rapidly implement testing, other capabilities</td>
<td>Expand studies/populations</td>
</tr>
</tbody>
</table>
RADx-Radical (RADx-rad)

Overarching Goal

Support new, non-traditional approaches and new applications of existing tools that address gaps in COVID-19 testing and develop platforms that can be deployed in future outbreaks of COVID-19 and other, yet unknown, diseases.

Example Research Technologies of Interest

- Novel biosensing and chemosensory testing for COVID-19 screening
- Single vesicle, exosome, and exRNA isolation for the detection of SARS-CoV-2
- Predicting viral-associated inflammatory disease severity in children with laboratory diagnostics and artificial intelligence
- Wastewater-based detection of SARS-CoV-2
- Multimodal COVID-19 surveillance methods for high-risk populations
RADx Coordination

RADx is supported by unique coordinating centers that are collaborating with each other to enhance and optimize each program.

- **Data Consortium Coordination Center & Program Organization** (D-C3PO) – UCSD, San Diego, CA (RADx-rad)
- **Consortia for Improving Medicine with Innovation & Technology** (CIMIT) – MGH, Boston, MA (RADx Tech/ATP)
- **Coordination & Data Collection Center** (CDCC) – Duke/UNC, Durham, NC (RADx-UP)

U.S. Distribution of RADx Coordination Centers
RADx Data Management

Overarching Goal

Develop platform to integrate data, on individuals and populations, from a variety of sources – including serology and genetic test results, output from smart sensors, self-reported clinical symptoms, and EHR data

- Support Common Data Elements
- Metadata & Data Repository
- Data Management
- Data Curation and Harmonization

Will provide access to deidentified RADx and related data, algorithms, and other capabilities generated by RADx programs and related technologies
INTRODUCTION OF RADX-UP
RADx-UP Program

Richard J. Hodes, M.D.
Director, National Institute on Aging (NIA)

Eliseo J. Pérez-Stable, M.D.
Director, National Institute on Minority Health and Health Disparities (NIMHD)
RADx-UP Strategies

• **Expand capacity to test broadly** for SARS-CoV-2 in highly affected populations, including asymptomatic persons.

• **Deploy validated point of care tests** as available, including self-test and saliva-based methods.

• **Inform implementation of mitigation strategies** based on isolation and contact tracing to limit community transmission.

• **Understand factors** that contribute to COVID-19 disparities and **implement interventions** to reduce these disparities.

• **Establish infrastructure** that could facilitate evaluation and distribution of vaccines and therapeutics.
RADx-UP Phase I Snapshot: 69 Funded Research Projects and Coordination and Data Collection Center

NOT-OD-20-121, NOT-OD-20-120, NOT-OD-20-119

Funded sites and research projects span a total of 31 states in addition to DC and Puerto Rico and include 55 institutions.

Projects include diverse health disparity population affected by COVID-19.

**Populations with Health Disparities**

- Hispanics/Latinos/as: 41
- Blacks/African Americans: 33
- Asian Americans: 25
- American Indians/Alaska Natives: 24
- Sexual and Gender Minorities: 19
- Socioeconomically disadvantaged populations: 15
- Underserved Rural Populations: 5
- Native Hawaiians and other Pacific Islanders: 3
RADx-UP Phase I Snapshot: 70 Funded Sites and Research Projects


Together, funded sites and research projects propose to serve a diverse population set, with many projects serving individuals with medical comorbidities known to increase risk of severe COVID-19, rural and remote communities, and migrant and immigrant populations.

Target Vulnerable Population Projects (1/2)

<table>
<thead>
<tr>
<th>Population Category</th>
<th>Number of Awards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individuals with medical comorbidities known to increase risk of severe COVID-19</td>
<td>25</td>
</tr>
<tr>
<td>Rural and remote communities</td>
<td>23</td>
</tr>
<tr>
<td>Migrant and immigrant populations</td>
<td>15</td>
</tr>
<tr>
<td>Individuals with substance use disorders or serious mental illness</td>
<td>12</td>
</tr>
<tr>
<td>Essential workers</td>
<td>11</td>
</tr>
<tr>
<td>Community dwelling older adults</td>
<td>11</td>
</tr>
<tr>
<td>Children and adolescents</td>
<td>11</td>
</tr>
<tr>
<td>Public housing residents</td>
<td>10</td>
</tr>
<tr>
<td>Residents of tribal lands or reservations</td>
<td>8</td>
</tr>
</tbody>
</table>

Note: Some projects/sites address multiple target populations.
Funded sites and research projects also propose to serve the following additional vulnerable populations.

- Residents of nursing homes and assisted living facilities
- Individuals with disabilities, cognitive impairment or dementia, or communication disorders
- Individuals living in congregate housing
- Pregnant and post-partum women
- Individuals involved with the criminal or juvenile justice systems
- Communities exposed to high rates of air pollution or other toxic exposures
- Homeless populations
- Residents of nursing homes and assisted living facilities

**Target Vulnerable Population Projects (2/2)**

<table>
<thead>
<tr>
<th>Population</th>
<th>Number of Awards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homeless populations</td>
<td>7</td>
</tr>
<tr>
<td>Communities exposed to high rates of air pollution or other toxic exposures</td>
<td>7</td>
</tr>
<tr>
<td>Individuals involved with the criminal or juvenile justice systems</td>
<td>6</td>
</tr>
<tr>
<td>Pregnant and post-partum women</td>
<td>5</td>
</tr>
<tr>
<td>Individuals living in congregate housing</td>
<td>5</td>
</tr>
<tr>
<td>Individuals with disabilities, cognitive impairment or dementia, or communication disorders</td>
<td>4</td>
</tr>
<tr>
<td>Residents of nursing homes and assisted living facilities</td>
<td>3</td>
</tr>
</tbody>
</table>

**Note:** Some projects/sites address multiple target populations.
RADx-UP Phase I Awards

Testing Participant Locations

Note: Cities listed are not exhaustive, as some projects only provided state-level information.
RADx-UP Phase I Awards

Social, Ethical and Behavioral Implications (SEBI) Participant Locations

Note: Cities listed are not exhaustive, as some projects only provided state-level information.
Testing Research Projects: Large Networks, Consortia & Research Centers

NOT-OD-20-121

Program Information: $5M per site over 2 years; 30 sites

- Understand the factors associated with COVID-19 morbidity and mortality disparities and to lay the foundation to reduce disparities for those underserved and vulnerable populations
- Closely partner with communities to develop and implement interventions to increase access and uptake of testing
- Provide large-scale testing and collaborate across the consortium of projects to serve as a resource for future studies and outreach

Overview

- Awarded 29 sites in FY20, 1 site in FY21
  - Approximately 500,000 participants/tests
- Testing methods include a range of POC, pooled, & lab-based; PCR, antigen, and Ab:
  - Abbott ID NOW, Roche cabas, Cepheid GeneXpert, Hologic Aptima/Panther Fusion, Advanta Dx, Quest Diagnostics LDT, ThermoFisher, Infinity BiologiX, LabCorp, and custom tests
- Testing at prisons, mental health programs, in public housing & community centers
  - Focus on rural and urban, Tribal, and aging communities
Overview

- **Awarded 4 sites in FY20, 19 in FY21**
- **Testing methods include a range of POC, pooled, & lab-based; PCR, antigen, and Ab:**
- **Testing at mobile-sites, community health centers, in public housing & at home**
  - Focus on individuals with medical comorbidities, substance use disorders or illness, and community dwelling older adults
Social, Ethical and Behavioral Implications

NOT-OD-20-119

Program Information: $1.2M per site over 2 years; 16 sites

- Assess ethical, historical, healthcare, social, economic, and contextual factors surrounding COVID-19 testing
- Investigate influence of cultural beliefs and attitudes, perceived expectations, and preferences
- Inform development of interventions and tools to increase access to and acceptability of testing

Overview

- Awarded 5 projects in FY20, 11 in FY21
- Research conducted through community health centers, online surveys, public housing developments, and Tribal communities
  - Focus on individuals with medical comorbidities, migrant and immigrant populations, Tribal populations, and rural and remote communities
RADx-UP Coordinating Center (CDCC)

RFA-OD-20-013

Program Information: $80M over 4 years

- Serve as a national resource to coordinate across the RADx Consortium
- Provide overarching support and guidance in: (1) Administrative Operations and Logistics, (2) COVID-19 Testing Technology, (3) Community and Health System Engagement and (4) Data Collection, Integration and Sharing
- Support the pilot project programs: (1) Rapid pilot studies, (2) Community collaboration grants

Overview

- Awarded to Duke/UNC
- Innovative ideas for data management, hub and spoke models of networked testing, and outreach to underserved communities
- Experience in developing new SARS-CoV-2 testing technologies
  - Provide strong technical assistance to testing protocols and adoption/distribution of new, emerging technologies
## Phase II: New Funding Opportunities

<table>
<thead>
<tr>
<th>Opportunity Name</th>
<th>NOT-OD-21-101</th>
<th>NOT-OD-21-103</th>
<th>RFA-OD-21-008</th>
<th>RFA-OD-21-009</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Administrative Supplements for RADx-UP</td>
<td>Competitive Revisions for Testing / Vaccination</td>
<td>Testing / Vaccination U01</td>
<td>SEBI U01</td>
</tr>
<tr>
<td>Total Direct Costs per year</td>
<td>$300,000 (total costs)</td>
<td>$750,000</td>
<td>$750K-$1.5M</td>
<td>$400,000</td>
</tr>
<tr>
<td>Application Receipt</td>
<td>May 10</td>
<td>May 28</td>
<td>July 07</td>
<td>July 07</td>
</tr>
<tr>
<td>Number of Awards</td>
<td>10 - 15</td>
<td>10 - 15</td>
<td>25-50</td>
<td>16</td>
</tr>
<tr>
<td>Eligibility</td>
<td>RADx-UP Phase I</td>
<td>NIH grantees</td>
<td>Open</td>
<td>Open</td>
</tr>
<tr>
<td>Scientific Focus</td>
<td>Address vaccine hesitancy within existing RADx-UP projects</td>
<td>Testing interventions in environment of vaccine availability</td>
<td>Testing interventions in environment of vaccine availability</td>
<td>Address SEBI implications of testing</td>
</tr>
</tbody>
</table>


OVERVIEW OF RETURN TO SCHOOL
Overview of RADx-UP Return to School

Alison Cernich Ph.D.
Deputy Director,
*Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD)
RADx-UP Return To School Diagnostic Testing Approaches Phase I (OTA-21-004)

**Goal**

Develop and test COVID-19 diagnostic testing approaches to safely return children and staff to the in-person school setting in underserved and vulnerable communities.

**Mechanism**

Other Transaction Authority to provide flexibility for changing circumstances and funding of non-traditional partners.

**Budget**

$50 million commitment from the OD congressional appropriation.
Return to School Phase I
OTA-21-004

Program Information: ~$33M awarded in Phase I; 8 sites

- Focus on children and adolescents below the age eligible for vaccination via Emergency Use Authorization (age 16) and all school personnel
- Advance methods to integrate testing in return to or maintenance of in-person instruction
- Identify effective, scalable, and sustainable testing implementation strategies, including in-school testing, in community pediatric primary care clinics, childcare centers, preschool, and school settings serving primarily underserved or disadvantaged children and their families.

Overview

- **Awarded 8 projects** in April FY21
- **Strategies for school-based settings** to combine frequent testing with proven safety measures to reduce the spread of COVID-19
Return to School Phase II
OTA-21-007

Program Information: ~$15M awarded in Phase II; 5 sites

- Focus on children and adolescents below the age eligible for vaccination via Emergency Use Authorization (age 12) and all school personnel
- Advance methods to integrate testing in return to or maintenance of in-person instruction
- Identify effective, scalable, and sustainable testing implementation strategies, including in-school testing, in community pediatric primary care clinics, childcare centers, preschool, and school settings serving primarily underserved or disadvantaged children and their families.

Overview

- **Awarded 5 projects** in June 2021 (3 additional awards in negotiations)
- **Strategies for school-based settings** to combine frequent testing with proven safety measures to reduce the spread of COVID-19
Geographic Distribution of Projects

Phase I Sites

Phase II Sites

Institution Cities
Target Populations with Health Disparities

- Low SES: 4 Phase I Awards, 5 Phase II Recommended
- Hispanics/Latinos/as: 4 Phase I Awards, 4 Phase II Recommended
- Asian Americans: 4 Phase I Awards, 3 Phase II Recommended
- Black/African Americans: 5 Phase I Awards, 1 Phase II Recommended
- Underserved Rural Populations: 1 Phase I Awards, 2 Phase II Recommended
- Native Hawaiian and other Pacific Islanders: 1 Phase I Awards
- American Indians/Alaska Natives: 1 Phase I Awards

Number of Projects
COVID-19 Vulnerable Populations

- Preschool Aged Children (3-5yrs): 1 Phase I Award, 1 Phase II Award
- Children (6-12yrs): 1 Phase I Award, 0 Phase II Awards
- Adolescents (13-17yrs): 1 Phase I Award, 0 Phase II Awards
- Children and Adolescents (6-17yrs): 3 Phase I Awards, 4 Phase II Awards
- Children with IDD: 2 Phase I Awards, 0 Phase II Awards
- Children with Medical Complexities: 1 Phase I Award, 0 Phase II Awards
- Homeless Youth: 0 Phase I Awards, 1 Phase II Award
- Migrant Youth: 0 Phase I Awards, 1 Phase II Award

Number of Projects
Educational Settings

<table>
<thead>
<tr>
<th>Setting</th>
<th>Phase I Awards</th>
<th>Phase II Awards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle School</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Public Schools</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>High School</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Elementary</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Special Education</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Early Childhood Education Sites</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Charter Schools</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Tribal schools</td>
<td>1</td>
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</tr>
</tbody>
</table>

Number of Projects
Sonia Lee Ph.D.

Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)
TEAM PRESENTATIONS
Lisa Gwynn, D.O, MBA
University of Miami School Of Medicine
Maximizing Child Health and Learning Potential
Promoting a School Culture of Safety in the Era of COVID-19

University of Miami Miller School of Medicine
Our Team

PI: Lisa Gwynn, DO, MBA, MSPH
Co-PI: Elizabeth Pulgaron, PhD
Co-PI: Viviana Horigian, MD, MHA
Project Manager: Maria Ferraris, MEd, MPM
Our Team

Social Worker
Psychologist
Post-Doctoral Fellows
Interns
Project Manager
Research Assistants
Dr. John T. Macdonald Foundation School Health Initiative

- Miami-Dade County Public Schools (MDCPS) – Largest district in Florida; 4th largest district in the nation
- Established in 2000, provides comprehensive healthcare services in schools in Miami-Dade County.
- Includes 3 High Schools, 2 Middle Schools, 4 Elementary – (all Title 1) 94% qualify for free/reduced lunch.
- Over 10,000 children are enrolled.
- Mixed model of health suites in Elementary, and 1 Middle School, Full-service clinics in all High Schools and 1 Middle School.
- Staffed by Pediatricians and APRN’s, along with Pediatric residents, RN’s, LPN’s.
- Services offered include well visits, sports physicals, immunizations, screenings, mental health, management of chronic health conditions, reproductive health services including STI’s and HIV.
- Telehealth equipment connects health suites with doctors at hub clinics.
Community Pediatrics

- **Pediatric Mobile Clinic** – Established in 1992. Travels into underserved neighborhoods and provides comprehensive healthcare services to uninsured children throughout Miami-Dade County.

- **SHOTZ-2-Go!** - Established in 2020 in partnership with the Florida Department of Health (FDOH) to combat the high percentage of unvaccinated children throughout Miami. Provides all vaccinations to children in schools, at health fairs, community events, etc.

- **COVID-19 Testing team** – Funded through philanthropic donations and FDOH in July 2020. Provides testing to children of all ages. Since the program’s inception, over 15,000 children have been tested.
RADx-UP Project

• **Study 1**
Elicit input of key stakeholders in creating COVID-19 testing protocols and vaccine confidence initiatives.

a) Culturally acceptable

b) Addresses issues of stigma/discrimination

c) Maximize trust/confidence of the source and format

Aim 1.1 – Conduct cross-sectional assessment of current COVID-19 knowledge and experiences of parents and school staff. Online surveys will measure knowledge and attitudes, health risk beliefs, vaccine confidence, stigma/discrimination, trauma, anxiety. Participants will be incentivized. Information regarding participation in future focus groups will be provided.

Aim 1.2 – Conduct focus groups (two per school level). Youth, parents and school staff will be recruited
RADx-UP Project

Study 1 (cont’d)

Aim 1.3 – Using the quantitative and qualitative data gathered in aims 1.1 and 1.2, we will design COVID-19 testing protocols and COVID-19 health and vaccine confidence initiatives to present to and solicit feedback from our advisory board.

i. Advisory board – pediatric infectious disease expert, representative from the local health department, MDCPS health services representative, parent representative, school leadership, school champions.

ii. School champions – will be chosen from each school. Personnel who will assist and advocate for the implementation of the interventions

iii. Will meet monthly to make revisions and adjustments to protocols as needs emerge

iv. The COVID-19 health education program will have developmentally appropriate versions, length and duration and formats will be determined by results of aim 1.2
Study 2

Explore the feasibility of strategic COVID-19 testing protocols with goal of increasing sense of safety and creating a protocol which will increase student in-person academic time, and participation in extracurricular activities, including sports.

i. Protocols expected are for students that are symptomatic, exposed and for higher-risk students (e.g., athletes).

ii. Non-randomized parallel controlled trial – 4 intervention schools; 5 control schools services as usual.

Aim 2.1 – COVID-19 testing protocols implementation. Data collected will include percent of students quarantined, results of students in protocol, number of missed in-person school days. Comparisons will be made between intervention and control schools.

Aim 2.2 – Pilot testing strategies for athletes.

Testing that will be used: Binax Now rapid tests; confirmatory Cue tests.
RADx-UP Project

**Study 3**

Evaluate the feasibility and impact of a COVID-19 health education and vaccine confidence initiative

Aim 3.1 – Collect process data on success with recruitment and ability to deliver the intervention. Analyze data on acceptability of the intervention from middle and high school students, parents, and school staff using consumer feedback surveys at the end of the intervention.

Aim 3.2 – Evaluate whether the health education and vaccine confidence intervention increased knowledge and effected behavior change for outcomes for students, parents and school staff. It is hypothesized that intervention schools will have increased knowledge and higher vaccination rates.

Aim 3.3 – To assess the feasibility and consumer usage of providing COVID-19 vaccines in school settings in clinics and through mobile units parked at schools. It is hypothesized that intervention schools will have higher vaccination rates among students and staff.
Thank you!

lgwynn@med.Miami.edu

Twitter: @lisagwynn

RADx Underserved Populations (RADx-UP) Return to School Diagnostic Testing Approaches Phase II Kick-Off

July 14, 2021
Population of the Los Angeles Unified School District

- 850 schools across 720 square miles
- Preschool through Grade 12
- Multiple configurations (e.g. K-6, 6-8, K-12)
- About 500,000 students
- 80% economically disadvantaged
- 74% Latino, 8% African-American, 4% Asian, 2% Filipino, 10% White
Collaboration to identify outcomes and program features

Modeling infection dynamics and mitigation strategies to support K-6 in-person instruction during the COVID-19 pandemic

https://agent-based-models.shinyapps.io/RegionalCOVIDSchoolSimulation/
• LA Unified secured sufficient capacity to provide periodic asymptomatic and exposure/symptom-based testing.

• Exposure/symptom-based testing available for students, staff, and household members.

• Testing is free.

• RT-PCR SARS-CoV-2 testing, including anterior nasal and saliva, with guaranteed 24 hour turn-around.

• Tracing of school contacts, and collaborative investigation of potential epidemiologically linked cases with Los Angeles County Department of Public Health
Los Angeles Unified COVID-19 Dashboard

Test and Vaccine Capacity - District-Wide

<table>
<thead>
<tr>
<th>Total Tests w/valid results</th>
<th>Tests w/results, last 7 days</th>
<th>Test Capacity, next 7 days</th>
<th>Total vaccines given</th>
<th>Vaccines given, last 7 days</th>
<th>Vaccine capacity, next 7 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,190,408</td>
<td>30,390</td>
<td>21,432</td>
<td>49,886</td>
<td>382</td>
<td>0</td>
</tr>
</tbody>
</table>

Result Summary - District-Wide

<table>
<thead>
<tr>
<th>Positive Test Rate, last 7 days</th>
<th>Number of cases, last 7 days</th>
<th>School-associated Cases, last 7 days</th>
<th>Daily passes, last 7 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.14%</td>
<td>66</td>
<td>0</td>
<td>82,757</td>
</tr>
</tbody>
</table>

Community Case Rates

Person Type

<table>
<thead>
<tr>
<th>Community Members - Adults</th>
<th>Community Members - Children</th>
<th>Staff reporting to worksite</th>
<th>Staff Working Remotely</th>
<th>Student</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of tests, last 7 days</td>
<td>Positive test rate, last 7 days</td>
<td>Number of tests, last 7 days</td>
<td>Positive test rate, last 7 days</td>
<td></td>
</tr>
<tr>
<td>4,960</td>
<td>0.40%</td>
<td>17</td>
<td>0.00%</td>
<td></td>
</tr>
<tr>
<td>257</td>
<td>0.39%</td>
<td>0</td>
<td>0.00%</td>
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</tr>
<tr>
<td>7,450</td>
<td>0.11%</td>
<td>21</td>
<td>0.00%</td>
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<tr>
<td>122</td>
<td>0.00%</td>
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<tr>
<td>17,542</td>
<td>0.07%</td>
<td>21</td>
<td>0.00%</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>0.00%</td>
<td>0</td>
<td>0.00%</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>2.50%</td>
<td>0</td>
<td>0.00%</td>
<td></td>
</tr>
<tr>
<td>901</td>
<td>0.22%</td>
<td>4</td>
<td>0.00%</td>
<td></td>
</tr>
<tr>
<td>1,926</td>
<td>0.00%</td>
<td>1.4</td>
<td>0.00%</td>
<td></td>
</tr>
<tr>
<td>30,331</td>
<td>0.14%</td>
<td>59</td>
<td>0.00%</td>
<td></td>
</tr>
</tbody>
</table>

LA County Testing
LAUSD Testing

Tests Overview
Tests Weekly/Daily
Testing Capacity Utilization
Daily Health Pass
Community Engagement
LAUSD Vaccination

Daily Pass Report
Testing Report
People Tested
Vaccination Report

UCLA
Periodic and exposure/symptom-based testing in 2020-21

Weekly test volume

% positive

Students
Family members
Personnel

Elementary re-opens
Middle & high re-opens
Aim 1. Study how COVID-19 surveillance testing influences secondary infection and school attendance and how it influences disparities in these outcomes associated with student characteristics, including poverty.

Aim 2. Study how surveillance testing influences overall, and disparities in, parent perception of safety, decision to return in-person, and daily attendance.

Aim 3. Explore use of targeted, responsive health education to address identified parent information gaps linked with disparities.

Outcomes: Cases, school-based secondary infection, decision to return, attendance, and missed school days due to isolation or quarantine
COVID-19 impact and variation in LA Unified cities/neighborhoods

- Cases per 100,000 range from 4,461 (4%) to 2,288 (22%)
- Deaths per 100,000 range from 41 (0.04%) to 554 (0.5%)
- Variation in vaccination coverage

![Graphs showing vaccination coverage for different age groups](image-url)
Return to in-person learning – Example of learning from variation

As of April 21:

- 38% for elementary, 25% for middle, and 17% high school
- Elementary return range from 23% to 95% across schools
% of elementary students electing in-person learning in 51 cities

As of 4/21/21. In each group, cities ordered by size

Cities with vaccination rates of 30% or below
Cities with vaccination rates of 31-40%
Cities with vaccination rates of 41-50%
Cities with vaccination rates above 50%

Mean % electing in-person learning
99% upper and lower control limit

UCL
LCL
Understanding parent safety concerns and decision-making

- Adding content to Autumn survey of parents, staff, students on academics, school climate, and social and emotional learning
- Parent interviews on safety concerns, perceived risks, perceived burdens of mitigation measures, and decision-making

LAUSD SCHOOL EXPERIENCE SURVEY RESULTS 2020-21
Responsive communications

<table>
<thead>
<tr>
<th>Instructions</th>
<th>Tips</th>
</tr>
</thead>
<tbody>
<tr>
<td>Submit photos and videos at today’s vaccination site. Grab photos or videos of people checking in, getting their shots, and so forth.</td>
<td>Keep 6 feet distance at least</td>
</tr>
<tr>
<td>134/1200</td>
<td>Hold the camera steady</td>
</tr>
</tbody>
</table>

Additional Context (Optional)

- Select content: Browse
- Upload content: Any Orientation: 15 secs
- Enter link: Send Now

Deadline: Time Period: 24 hours

[Images of people and videos related to vaccination sites]

UCLA
Rebecca Lee, Ph. D.

Arizona State University
Back to School Safely with SAGE: BE SAGE
1OT2HD108101-01

Rebecca E. Lee, PhD (Principal)
Center for Health Promotion and Disease Prevention
Edson College of Nursing and Health Innovation
Rebecca E. Lee, PhD
Professor, Center for Health Promotion and Disease Prevention, Edson College of Nursing and Health Innovation
Senior Sustainability Scientist, Julie Ann Wrigley Global Institute of Sustainability, Arizona State University
Fulbright-García Robles Core Scholar, Mexico, 2011-2012; 2019-2020
Author, *Reversing the Obesogenic Environment* (Human Kinetics, 2011)
http://rebeccaellee.weebly.com/
releephd@yahoo.com
@doctorlee
History

• 1/2010-12/2012 Science and Community: Ending obesity improving health (NIH 1R13CA162816)
• 7/2012-6/2015 Science and Community: Partnering to prevent early childhood obesity (NIH 1R21HD073685)
• 4/2016-12/2021 Partnering for PA in Early Childhood: Sustainability via Active Garden Education (SAGE) (NIH U01 MD010667)
Study Team

Rebecca Lee, PhD, PI, Community health psychologist, Physical activity research
Meredith (Meg) Bruening, PhD, Public health nutrition, Maternal and child health
Michael Todd, PhD, Biostatistics, Research methodology
SeungYong Han, PhD, REDCap administration, Data management
Hector Valdez, MA, Program Manager, Bilingual/bicultural community embedded management
Robert Santana, Health innovation
Hyunsung Oh, PhD, Social work
Vel Murugan, PhD, Molecular biology, Lab operations
Michelle Villegas-Gold, PhD, Public health, Global health
Joanna Kramer, MD, Pediatrics, Phx Children’s Hospital
Tomás Léon, Equality Health Foundation, CHWs
Research Questions

• **RQ 1.** How acceptable, feasible, efficacious, and scalable is back-to-early care and education (ECE) testing of young children (3-5 years)?

• **RQ 2.** What is the acceptability and feasibility of routine ECE screening of ECE personnel (teachers and aides) who have direct contact with children?

• **RQ 3.** What is the additive efficacy of routine ECE screening of personnel (teachers and aides) who have direct contact with children on attendance?

• **RQ 4.** Leveraging SAGE, can enhanced outdoor learning opportunities using garden-based education help to mitigate risk of COVID-19 transmission (open air ventilation) as measured by attendance and parent reports of transmission?

• **RQ 5.** Can SAGE contribute as a best practice to help close gaps created by the lack of classroom-based ECE on motor development and eating in the absence of hunger in 3- to 5-year olds?
What is the ASU Biodesign COVID-19 Saliva Test?

- Parent coaching
- Short straw
- Vivid imagery
What is SAGE?

Possible Timeline

• Fall 2021 – July/August/September
  – Child saliva testing at 40 ECE sites
  – Teacher saliva testing at 20 ECE sites (half of the 40)

• Fall 2021 – Oct/Nov (through the AY)
  – Install gardens 20 ECE sites (of those above)
  – Measure child motor development, eating in the absence of hunger

• Spring 2022
  – Measure changes in child motor development, eating in the absence of hunger
Russell McCulloh, M.D.

University of Nebraska Medical Center
Mobile Health-Targeted SARS-CoV-2 Testing and Community Interventions to Maximize Migrant Children's School Attendance During the COVID-19 Pandemic

Russell J. McCulloh, MD (Contact PI)
University of Nebraska Medical Center
Children’s Hospital & Medical Center
Our Team (most of them)
Project Overview

• Enroll 800 total participants in integrated screening and SARS-CoV-2 testing program
• Source: Families in the Nebraska Migrant Education Program
  • ~400 students
  • ~400 caregivers

• Interventions:
  • Daily symptom screening via mHealth tool for household risk of SARS-CoV-2 infection
    • Positive screens recommended to perform salivary SARS-CoV-2 testing
  • Weekly social determinants of health screening
    • Positive screens offered community navigator services
  • Interviews of participants regarding use of the program, reasons for testing or declining to test
  • Measurement of school attendance, positive tests, mHealth tool use

• Rationale: Successful implementation of our program will provide valuable insight into the feasibility and scalability of mHealth-targeted at-home salivary SARS-CoV-2 testing in migrant households.
Questions to answer

• What is the feasibility of mHealth-targeted at-home salivary SARS-CoV-2 testing among migrant children and their families?

• What is the impact of mHealth-targeted at-home salivary SARS-CoV-2 testing on school absenteeism among migrant children?

• What is the feasibility of mHealth screening and response for socioeconomic challenges among migrant households?

• What is the impact of mHealth-targeted public aid and community assistance among migrant families reporting need?

• What socioeconomic challenges negatively impact the ability and willingness of migrant families to safeguard their health and wellbeing during COVID-19?

• What changes (e.g., public aid, legal protections, community programs, etc.) do migrant families believe are necessary to enhance their ability and willingness to safeguard their health and well-being during COVID-19 and similar future events?
Counties of Focus
Testing approach
Social Determinants of Health

Figure 3.
Post-Enrollment Surveys Include RADx-Up CDE Sections:
1. Sociodemographics
2. Housing, Employment, & Insurance
3. Work, PPE, & Distancing
4. Medical History
5. Health Status
6. Vaccine Acceptance
7. Prior Testing
8. Alcohol & Tobacco

Other RADx-UP CDE Sections are labeled in red

Figure 4.
How our project addresses the RADx-UP program

- Collaboration with school organizations that serve exceptionally at-risk communities speaking various languages
- Builds on community partnerships in rural Nebraska
- Implementation of testing strategy that builds on learned experience in mHealth and salivary testing strategies
- Has potential to scale to other programs and communities nationally
Community/school engagement plans

• Initial community consultation already has resulted in modification of the protocol prior to submission

• Annual report and review via external advisory board
  • Will also communicate with IDeA-CTR CAB

• Community consultation meetings twice annually
  • Buffalo County Community Partners (CAB)
  • Nebraska Migrant Education Program
  • Individual consultation/interviews with migrant families (minimum 3 families)
May Michiko Okihiro, M.D.

University of Hawaii at Manoa
Empowering Schools as Community Assets to Mitigate the Adverse Impacts of COVID-19

University of Hawaiʻi

Investigators:
Dr. May Okihiro
Dr. Alika Maunakea
Dr. Ruben Juarez

www.PAAC.info
Pacific Alliance Against COVID-19

• Ruben Juarez, PhD (Economics)
  • UH Economic Research Organization (UHERO)

• Alika Maunakea PhD (Epigeneticist)
  • UH John A. Burn School of Medicine, Dept. of Anatomy and Physiology

• May Okihiro, MD (Pediatrician)
  • UH John A. Burns School of Medicine, Dept. of Pediatrics
<table>
<thead>
<tr>
<th></th>
<th>% Population</th>
<th>07/11/21 Cases (26,827)</th>
<th>07/11/2021 Deaths (502 total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pacific Islander</td>
<td>4%</td>
<td>19%</td>
<td>21%</td>
</tr>
<tr>
<td>Filipino</td>
<td>16%</td>
<td>20%</td>
<td>23%</td>
</tr>
<tr>
<td>Hawaiian</td>
<td>21%</td>
<td>21%</td>
<td>13%</td>
</tr>
<tr>
<td>White</td>
<td>25%</td>
<td>19%</td>
<td>8%</td>
</tr>
<tr>
<td>Japanese</td>
<td>15%</td>
<td>7%</td>
<td>20%</td>
</tr>
<tr>
<td>Chinese</td>
<td>4%</td>
<td>2%</td>
<td>6%</td>
</tr>
<tr>
<td>Other</td>
<td>8%</td>
<td>6%</td>
<td>6%</td>
</tr>
</tbody>
</table>
Percent of Vaccine Recipient Population Compared to State Population

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>NHPI Vaccine Recipients</th>
<th>NHPI Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Native Hawaiian</td>
<td>76%</td>
<td>84%</td>
</tr>
<tr>
<td>Pacific Islander</td>
<td>24%</td>
<td>16%</td>
</tr>
</tbody>
</table>

- Asian: 53%
- Black: 39%
- NHPI: 17%
- Other: 3%
- White: 26%

These figures do NOT include doses from Federal Pharmacy Program or Federal Agency Doses.

These percentages represent the known race/ethnicity as reported in VAMS. ** Applies only to the subgroup of NHPI persons vaccinated after March 23.
### Vaccination Rates by Age Group

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Vaccination Rate</th>
</tr>
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<tbody>
<tr>
<td>0-11</td>
<td>N/A</td>
</tr>
<tr>
<td>12-17</td>
<td>37%</td>
</tr>
<tr>
<td>18-29</td>
<td>39%</td>
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<tr>
<td>30-39</td>
<td>47%</td>
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<tr>
<td>40-49</td>
<td>58%</td>
</tr>
<tr>
<td>50-64</td>
<td>70%</td>
</tr>
<tr>
<td>65-74</td>
<td>86%</td>
</tr>
<tr>
<td>75+</td>
<td>86%</td>
</tr>
</tbody>
</table>

*These figures do NOT include Federal Agency doses.

### Vaccination Rates by Ethnicity

- **Asian**: 53%
- **Black**: 39%
- **NH**: 13%
- **PI**: 21%
- **White**: 26%
- **Other**: 3%

#### % of Population Vaccinated

- **35.0% or less**
- **35.1%-45.0%**
- **45.1%-60.0%**
- **60.1%-70%**
- **70.1%+**

**% Vaccination vs % Population**

- **Vaccine**: Green
- **Population**: Grey

---

**Percentage of Population Vaccinated**

- **35.0% or less**
- **35.1%-45.0%**
- **45.1%-60.0%**
- **60.1%-70%**
- **70.1%+**
Community SARS-CoV-2 Testing Rapid Antigen Testing

• Antigen tests
  • Detect viral proteins as they rise
  • Done in 15 minutes
  • Highly specific
  • Less sensitive
    • Less important for surveillance

• Partnership with Hawaii Department of Health
School Ohana (Family) Bubble Program

• Eligibility:
  • Adults
  • Adolescents: 12-17 years

• Start:
  • Consent and assent
  • Survey – demographics, risks (age, chronic conditions, housing), knowledge about COVID-19
  • Antibody serology testing – pin prick
  • Rapid antigen test – 15 to 30 min.
School Ohana Bubble

• POSITIVE Antigen Test ➔ confirmatory PCR
  • Must quarantine until result is available
  • Results - same day to 1-2 days.

• Frequency
  • *Once a week or more often as needed*

• Results and all data: Qualtrics-based

• Data:
  • Effectiveness - # tested, # of tests, # positive, attitudes and activities
  • Vaccinations
  • Costs
Kamaile Academy Results

- Over 80% of teachers and staff participate in the pilot at Kamaile Academy, with more than half of them more than once
- 61% of participants report feeling safer at schools
- 51% report being more likely to be vaccinated
Kamaile Academy Results

• 82% are more likely to get tested next time that they show symptoms
• 87% would refer their family to a similar testing program

“It’s a preventative measure. We can come and gauge, how are we doing in our own communities and with our own families. Are we keeping safe? It’s a good way to monitor and that’s why I keep doing it.”
Kamaile Principal Paul Kepka

• “The data helps us make decisions so students can keep safe and focus on learning...Staff feel comfortable so they can focus on learning.”
PAAC School Ohana Bubble Toolkit

• Disseminating lessons learned
• Community Health Centers support community schools

• Contents
  • Training
  • Equipment and supplies
  • Agreements
  • Procedures and Policies
  • Checklists
PAAC School Testing Program

• Each site will work with their school complex.

• Frequency of testing
  • Start with weekly
  • Tiered system
    • To be determined with DOH/CDC (e.g. regional vaccination rate & social vulnerability index)
    • Low prevalence → test less often
    • Rising prevalence → increase frequency
School Testing Teams and Strengthening the Healthcare ‘auwai (“stream”)’

- Community Health Workers
  - Enriched with underrepresented minorities

- Students - college & high school
  - COVID-19 PAAC Curriculum/Certification
  - Learn about community-based research
  - Build new skills and practice safe protocols
    - *e.g.* Safely perform COVID-19 testing
  - Learn about healthcare and other research activities
    - *e.g.* Data entry, dissemination of results, laboratory procedures, other healthcare jobs
Mahalo!

To learn more:
www.PAAC.info
OVERVIEW OF RADX-UP CDCC
Beda Jean-Francois, Ph.D.

National Institute on Minority Health and Health Disparities (NIMHD)
Welcome from the RADx-UP CDCC

Principal Investigators

Michael Cohen-Wolkowiez, MD, PhD
Duke Clinical Research Institute (DCRI)

Giselle Corbie, MD, MSc
UNC Center for Health Equity Research

Warren A. Kibbe, PhD, FACMI
Duke Department of Biostatistics and Bioinformatics

Al Richmond, MSW
Community-Campus Partnerships for Health (CCPH)

Susan Knox, MBA
Duke Clinical Research Institute

Chris Woods, MD
Durham VA Medical Center; Duke University

Krista Perreira, PhD
UNC Center for Health Equity Research

Renee Leverty, BSN, MA
Duke Clinical Research Institute

Keith Marsolo, PhD
Duke University

Lisa Wruck, PhD
Duke Clinical Research Institute

Bhargav Adagaria, MS
Duke Clinical Research Institute
July 14, 2021

RADx-UP Coordination and Data Collection Center (CDCC)

The RADx-UP CDCC is funded through NIH emergency cooperative agreement 1U24MD016258
RADx-UP CDCC Goals

**Accelerate** COVID-19 community implementation science via an agile, flexible, participatory, transparent and sustainable CDCC.

**Amplify** and disseminate community best practices for successful implementation of COVID-19 testing strategies and vaccines.

**Support** data collection, integration, and sharing while preserving necessary data protections.

**Utilize** RADx-UP infrastructure to support COVID-19 research.
RADx-UP CDCC Guiding Principles

**Communities** are at the center of our work.

**Data sovereignty** protections and sharing with communities and participants are essential in building trust and being trustworthy.

**Intentional support** of study teams is critical to streamline results and troubleshoot.

**Broad dissemination** of program activities, data, and best practices are key.

**Strategic partnerships** will augment community benefits from the program.

**Impact** will be broad and will inform national guidance, strategy, and response to COVID-19.
# RADx-UP CDCC Cores

## Administration & Coordination
- Communication
- Committee oversight
- Processes, policies, procedures
- Partnerships
- Evaluation

## Community Engagement
- Best practices
- Engagement Resource Library
- COVID-19 Equity Evidence Academy
- Community of Practice
- Community Collaboration Mini-Grants

## COVID-19 Testing
- Technical support
- Repository of emerging technologies
- Testing selection & implementation
- Rapid Research Pilot Program

## Data Science & Statistics
- Data harmonization
- Security, privacy, and protections
- Data exchange
- Data representation and visualization

---

**ENGAGEMENT IMPACT TEAMS**
RADx-UP CDCC Engagement Impact Teams

- Single point-of-contact between CDCC and project teams with project management & community engagement support
  - Coordinating testing, community engagement, and data collection and sharing resources
  - Identifying challenges, collaboratively generating solutions, sharing best practices
  - Collecting required forms (data use agreements, IRB-approved Informed Consent Forms, etc.)
  - Connecting projects with translation services
  - Monitoring progress
RADx-UP CDCC Communications

Provide regular updates to RADx-UP awarded projects to:

- Support engagement, testing, and data collection/integration
- Promote co-learning between and among projects and communities that we serve
QUESTIONS & ANSWERS
RADx-UP Phase I Award Institution Locations

NOT-OD-20-121, NOT-OD-20-120 & NOT-OD-20-119
RADx-UP Phase I Award Participant Locations

NOT-OD-20-121, NOT-OD-20-120 & NOT-OD-20-119

Note: Cities listed are not exhaustive, as some projects only provided state-level information.
# RADx-UP Phase I Award Sample Size Estimates

**NOT-OD-20-121, NOT-OD-20-120 & NOT-OD-20-119**

<table>
<thead>
<tr>
<th>Health Disparity Populations</th>
<th>Sample Size Estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blacks/African Americans</td>
<td>344,735</td>
</tr>
<tr>
<td>Hispanics/Latinos/as</td>
<td>288,763</td>
</tr>
<tr>
<td>Underserved Rural Populations</td>
<td>250,280</td>
</tr>
<tr>
<td>Socioeconomically disadvantaged populations</td>
<td>180,164</td>
</tr>
<tr>
<td>American Indians/Alaskan Natives</td>
<td>36,817</td>
</tr>
<tr>
<td>Asian Americans</td>
<td>29,801</td>
</tr>
<tr>
<td>Native Hawaiians and other Pacific Islanders</td>
<td>22,068</td>
</tr>
<tr>
<td>Sexual and Gender Minorities</td>
<td>2,633</td>
</tr>
</tbody>
</table>
**RADx-UP Phase I Award Sample Size Estimates**

**NOT-OD-20-121, NOT-OD-20-120 & NOT-OD-20-119**

<table>
<thead>
<tr>
<th>Vulnerable Populations</th>
<th>Sample Size Estimates</th>
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</thead>
<tbody>
<tr>
<td>Children and adolescents</td>
<td>595,456</td>
</tr>
<tr>
<td>Rural and remote communities</td>
<td>244,953</td>
</tr>
<tr>
<td>Individuals with comorbidities known to increase risk of severe COVID-19</td>
<td>162,568</td>
</tr>
<tr>
<td>Community dwelling older adults</td>
<td>119,517</td>
</tr>
<tr>
<td>Communities exposed to high rates of air pollution or other toxic exposures</td>
<td>100,919</td>
</tr>
<tr>
<td>Individuals with substance use disorders or serious mental illness</td>
<td>78,385</td>
</tr>
<tr>
<td>Homeless populations</td>
<td>75,925</td>
</tr>
<tr>
<td>Individuals living in congregate housing</td>
<td>73,850</td>
</tr>
<tr>
<td>Migrant and immigrant populations</td>
<td>41,337</td>
</tr>
<tr>
<td>Pregnant and post-partum women</td>
<td>33,601</td>
</tr>
<tr>
<td>Essential workers</td>
<td>30,311</td>
</tr>
<tr>
<td>Residents of tribal lands or reservations</td>
<td>29,073</td>
</tr>
<tr>
<td>Individuals involved with criminal or juvenile justice systems</td>
<td>20,977</td>
</tr>
<tr>
<td>Public housing residents</td>
<td>12,855</td>
</tr>
<tr>
<td>Residents of nursing homes and assisted living facilities</td>
<td>10,654</td>
</tr>
<tr>
<td>Individuals with disabilities, cognitive impairment or dementia, or communication disorders</td>
<td>547</td>
</tr>
<tr>
<td>Organization</td>
<td>Sample Type(s)</td>
</tr>
<tr>
<td>-----------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>Ellume</td>
<td>Nasal swab</td>
</tr>
<tr>
<td>Luminostics</td>
<td>Nasal swab</td>
</tr>
<tr>
<td>MatMaCorp</td>
<td>Nasal swab, Oral swab, Saliva</td>
</tr>
<tr>
<td>Maxim Biomedical</td>
<td>Nasal swab</td>
</tr>
<tr>
<td>Mesa Biotech</td>
<td>Nasal swab</td>
</tr>
<tr>
<td>MicroGEM International</td>
<td>Nasal swab, Saliva, Sputum</td>
</tr>
<tr>
<td>Quidel</td>
<td>Nasal swab, Other</td>
</tr>
<tr>
<td>Talis Biomedical</td>
<td>Nasal swab, Oral swab</td>
</tr>
<tr>
<td>Visby Medical</td>
<td>Nasal swab</td>
</tr>
<tr>
<td>Ubiquitome</td>
<td>Nasal swab</td>
</tr>
</tbody>
</table>
## RADx High-Throughput Laboratory Testing Technologies

<table>
<thead>
<tr>
<th>Organization</th>
<th>Sample Type(s)</th>
<th>Type of Test</th>
<th>Turnaround Time</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aegis Sciences</strong></td>
<td>Nasal Swab, Oral Swab</td>
<td>Nucleic acid, RT-PCR</td>
<td>16-24 hours</td>
</tr>
<tr>
<td><strong>Broad Institute</strong></td>
<td>Nasal Swab</td>
<td>Nucleic acid, RT-PCR</td>
<td>24 hours</td>
</tr>
<tr>
<td><strong>Ceres Nanosciences</strong></td>
<td>Nasal Swab, Oral swab, Saliva</td>
<td>Other</td>
<td>30 mins</td>
</tr>
<tr>
<td><strong>Flambeau Diagnostics</strong></td>
<td>Saliva</td>
<td>RT-LAMP</td>
<td>1 hour</td>
</tr>
<tr>
<td><strong>Fluidigm</strong></td>
<td>Nasal swab, Saliva</td>
<td>Nucleic acid, RT-PCR</td>
<td>2.5 hours</td>
</tr>
<tr>
<td><strong>Helix OpCo</strong></td>
<td>Nasal swab, Oral swab</td>
<td>Nucleic acid, next generation sequencing</td>
<td>&lt;24 hours</td>
</tr>
<tr>
<td><strong>Mammoth BioSciences</strong></td>
<td>Nasal swab</td>
<td>Nucleic acid, CRISPR, RT-LAMP</td>
<td>40 mins</td>
</tr>
<tr>
<td><strong>Path Group</strong></td>
<td>Nasal swab, Oral swab, Saliva, Other</td>
<td>Nucleic acid, RT-PCR</td>
<td>24 hours</td>
</tr>
<tr>
<td><strong>Sonic Healthcare</strong></td>
<td>Nasal swab, Oral swab, Sputum, Other</td>
<td>Nucleic acid, RT-PCR</td>
<td>24 hours</td>
</tr>
<tr>
<td><strong>Quanterix</strong></td>
<td>Blood, Nasal swab, Saliva, Sputum</td>
<td>Antigen</td>
<td>24-48 hours</td>
</tr>
</tbody>
</table>