Responding to a National Challenge: The Power of Networks and Collaboratives

Lucky Jain, MD, MBA
COVID FORCE Collaborative

COVID Feasibility and Optimization of Research at Children’s/Emory

**MISSION:** to provide strategic coordination to remove barriers and facilitate the best possible research this area.
Tapping into Atlanta Research Networks at Emory, Children’s, and GA Tech

- Pediatric Technology Center
- Center for Immunology
- Vaccine and Treatment Evaluation Unit
- Atlanta Center for Microsystems Engineered Point of Care Testing (ACME POCT) Network
COVID-19 DAILY UPDATE -- Thursday, April 2, 2020
Please see below for the Daily COVID-19 update.

COVID-19 Response: Research Highlight

Children's and Emory Researchers Use 3D Printing to Create Face Shields
Pediatric Hematologist/Oncologist Joanna Newton, MD, Global Center for Medical Innovation (GCMI) and a team of scientists and researchers at the Georgia Institute of Technology came together to help protect healthcare workers in Georgia and across the nation by providing designs – free of charge – for any compliant manufacturing facility to use in the production and distribution of face shields to healthcare workers.

Children's Orthotics and Prosthetics department began working with this team of experts to enhance the original shield design and added a forehead pad for additional comfort.

Brian Emling, a Certified Prosthetist Orthotist for the Children's team, has committed to producing 70 masks per day and anticipated upwards of 1,000 for Children’s. Dr. Emling and his team are using the lab’s 3D printer to make multiple molds, but have found greater success in using the casting method enabling the lab technicians to make over 100 per day. He made is first delivery at Scottish Rite earlier this week.

View a time lapse of this 3D-printing process.
Responding to the PPE Crisis: Rigid Face Shield

**Design Concept**
- Finalized March 21 (3 days)

**Quality/Regulatory**
- FDA EUA regulatory requirements met within 1 week

**Supply Chain: PET plastic held up in China**
- GCMI sourced local components initially
- ExxonMobil sourced national components and is developing alternative plastics (v2)

**Manufacturing: ExxonMobil stands up sites with existing contacts**
- Started with GCMI, Siemens, and Delta Flight Products within 2 weeks (2K to Mt Sinai in NYC on 4/3/2020)
- Current capacity: 160K face shields per week (between 2 sites)

**Sales/Donations**
- **Price:** $2.73/shield for kits of 200 (to drop lower at higher manufacturing volumes)
- Fema: 1.13M face shields to be delivered by end of June
- >100K shields donated to hospitals nationwide from $2M Aflac, Inc gift by 5/22/2020

**Multiple available serology tests**
- **COVID-19 virus proteins**
  - Antibodies bind to some fragment of the virus.

**Emory ELISA serology tests**
- **COVID-19 S-protein**
  - Antibodies bind specifically to receptor binding domain (RBD).

**Emory virus neutralization tests**
- **Live virus**
  - Antibodies bind to live COVID-19 virus and stop from infecting Vero cells.

**You may have had COVID-19 or a similar coronavirus.**
- It is likely you’ve had COVID-19 and made antibodies that bind to the spike (S) protein that may interfere with viral infection.

**You’ve made antibodies that do interfere with viral infection and may have some level of immunity to COVID-19.**

©2020 Emory University Visual Medical Education
COVID-19 Vaccine Trial (Anderson)
Emory Vaccine & Treatment Evaluation Unit

<table>
<thead>
<tr>
<th>Funding Sources:</th>
<th>Purpose:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIH</td>
<td>• Phase I study of mRNA-1273 vaccine for COVID-19</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Methodology:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Asked to provide backup for Seattle by DMID on March 12</td>
</tr>
<tr>
<td>• IRB approved and site activated March 21</td>
</tr>
<tr>
<td>• Screening March 23 and first dose March 27</td>
</tr>
<tr>
<td>• Safety, reactogenicity, and immunogenicity of the first candidate COVID-19 vaccine</td>
</tr>
<tr>
<td>• 18 – 55 yo healthy adults</td>
</tr>
<tr>
<td>• 25, <strong>100, and 250</strong> microgram; 2 doses</td>
</tr>
</tbody>
</table>
COVID-19 Vaccine Trial (Anderson)
Emory Vaccine & Treatment Evaluation Unit

**CORONAVIRUS PANDEMIC**
**THE SEARCH FOR A VACCINE**
Dr. Evan Anderson | Lead investigator, Emory University School of Medicine

**CORONAVIRUS UPDATES | APRIL 2, 2020**

**A Vaccine Is Our Best Hope Out of This Mess. This Doctor Tells Us What It’s Like to Lead the First US Trial.**

What if it mutates? What if the volunteers catch COVID while they’re enrolled? And more.

---

**Emory University | Mar 27**
Emory participating in @NIH clinical trial testing a vaccine for the prevention of #COVID19, the first such vaccine to be tested in the U. S. links.emory.edu/cvaccine
• An accelerated and comprehensive multi-pronged effort by NIH to make SARS-CoV-2, the virus that causes COVID-19, testing readily available to every American.

• Supports development and commercialization of innovative technologies to significantly increase the U.S. testing capacity for detection of SARS-CoV-2 infection (not serology) up to 100 times more what is achievable with standard approaches.

• Structured to deliver innovative testing strategies to the public as soon as late summer 2020 to provide the information needed to make decisions about returning to normal activities and to help reduce the risk of future outbreaks.

• RADx supports innovative approaches that introduce new test platforms as well as strategies for solving problems that limit current tests.

• The NIBIB is urgently soliciting proposals, on a rolling submission process, and can provide up to $500M across multiple projects to rapidly produce innovative SARS-CoV-2 diagnostic tests.
Children’s, Emory, GT join forces to Fast-Track COVID-19 Tests
(Lam/Martin/Brand)
COVID FORCE Team

Leadership:
Stacy Heilman, PhD & Ann Chahroudi, MD, PhD
- Meet 3 times a week to discuss new project submissions and guide investigators to new collaborators/existing IRB’s to capitalize on expertise and conserve resources.

Special Announcements:
A special COVID-19 themed Funding Opportunities List that highlights relevant funding opportunities for investigators to consider was released May 6th.

Dr. Manoj Bhasin received a $50,000 grant through the COVID-Catalyst-I3 grant program! He will be working on the "Evaluation of genomic evidences and network biology based repurposed therapies for COVID-19."

COVID-19 Dashboard

News & Funding Announcements

Wilbur Lam, MD, PhD, and Greg Martin, MD, received a $31 million NIH supplement to lead the national effort in testing validation through the Atlanta Center for Microsystems Engineered Point-of-Care Technologies (ACME POCT).

2020 MP3 COVID-19 Seed Grant Awards

Pediatrics faculty were on 2 of the 3 awarded:
1) Landscape of coronavirus recombination across scales: Mehul Suthar, PhD
2) SARS-CoV-2 pathogenesis, immune responses, and treatment: from macaques to humans: Raymond Schinazi, PhD

Publications, Awards & Proposals

8 COVID-19 Publications
25 Proposals submitted or in progress totaling $52M in funding as of 5/29/20.
5 Grants awarded to date

Children’s Operational Impact
March 16 – May 1

- Children’s Pediatric Research Unit (PRU) has been running at 22% of their normal patient volumes.
- Clinical research enrollments (essential research only) have averaged 26% of their normal volumes (excluding AFLAC data)
- Full month enrollment & visit comparisons from Feb (full month pre-COVID 19) to April (full month post-COVID 19) below

<table>
<thead>
<tr>
<th></th>
<th>Enrollments</th>
<th>Visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>February</td>
<td>125</td>
<td>240</td>
</tr>
<tr>
<td>April</td>
<td>9</td>
<td>74</td>
</tr>
</tbody>
</table>

Pediatric COVID-19 Research Webinar
June 12 from 9AM-12PM EST
Speakers: Drs. Peter Hotez, Evan Anderson, Stefan Sarafianos and more
RSVP on pedsresearch.org