

# USF TASK FORCE FOR COVID-19 RESEARCH FUNDING

April 7, 2020

## EXECUTIVE SUMMARY

### Introduction

USF's fundamental commitment to solving global problems, positively shaping the future, and improving lives clearly resonates with great urgency at this very moment. Fortunately, we are uniquely positioned to leverage our research strengths, scholarly expertise, and extensive experience in collaborating with internal and external partners to quickly respond to the current COVID-19 crisis as well as future pandemics.

Colleges and departments across the university are already working on a wide variety of pandemic responses with local partners. USF's strengths in translational research, innovation and entrepreneurship make the university ideally suited to quickly translate discoveries, innovate solutions, and partner with government agencies, companies and manufacturers during this crisis.

But in order to attract the major resources that we need to truly maximize the potential impact of USF research responses to the pandemic, we must coordinate our efforts across the entire university, working strategically and swiftly together in key areas. It is for this reason that President Currall asked Senior Vice President Paul Sanberg to convene a Task Force composed of USF research leadership across all campuses and colleges to ascertain how to best accomplish this.

Given the wide-ranging research needs of multiple federal agencies as reflected in the C.A.R.E.S. Act and its supplements, the Task Force is examining which funding proposals USF should immediately pursue, given our existing unique strengths, expertise and resources, and demonstrating why agencies should select USF to receive significant funding. Moreover, we expect to leverage this funding for longer-term institutional impact, namely, improving our infrastructure and facilities, as well as boosting and expanding programs of strategic importance to the university.

The Task Force, first convened on Monday, March 30, 2020, discussed its charge, reviewed major federal funding areas for university research on the pandemic, divided into working groups and quickly arrived at a strong, strategic and flexible approach – the formation of a **Pandemic Response Research Network™ (PRRN)** structure with research hubs in key areas of USF research strength.

### Pandemic Response Research Network™ and Research Hubs

The preponderance of highly pathogenic virus outbreaks creates monumental challenges at all levels of human health care. As the COVID-19 pandemic has revealed, critical deficiencies exist at the national, state and local levels in areas ranging from the production of virus testing kits; local and regional outbreak modeling and tracking; coordination and communication of critical health care information; and providing equitable resources to diverse and vulnerable communities. USF is ideally positioned to address these deficiencies with extensive capabilities in surveillance, epidemiology, information systems, basic and translational research, clinical research and laboratory testing, biomedical engineering, immunology and therapeutic design.

Moreover, USF can provide the state of Florida with a unique and essential resource that is well-positioned to meet immediate and future pandemics. In addition, USF's relationship with US Central Command and US Special Operations Command as well as strong connection with the Global Viral Network provide additional resources that can be leveraged to meet current and future pandemics.

The proposed PRRN will be a transdisciplinary effort to coordinate existing assets and to expand critical infrastructure in order to respond not only to the existing COVID-19 outbreak, but future natural or bio-terrorism pandemics. Through leveraging USF existing assets, the PRRN aims to coordinate research and scholarship efforts in key hubs of pandemic response. Laboratories and faculty researchers across USF with expertise in the designated research hubs can be quickly coordinated through the PRRN in response to critical global health threats. Moreover, these hubs will be directly connected through the Global Virus Network with the top experts in the USA and worldwide, directly integrating the PRRN in a truly international context.

The research hubs within the PRRN will also provide critical training for the next generation of researchers and health specialists in areas related to viral outbreaks, especially regarding issues of data analytics and national security across all disciplines. Additionally, the development of the PRRN will also involve the enhancement of existing research facilities as well as the build-out of new facilities that will allow USF to better address the current COVID-19 pandemic as well future pandemic threats.

Proposed research hubs include but are not limited to:

➤ **Behavioral, Socio-emotional, and Educational Wellbeing**

Focused on:

- Impact of COVID-19 on Psychosocial and Physical Wellbeing
- Impact of Online Education and Telehealth
- Dissemination of Information/Communication
- Community Services and Public Policy

➤ **Clinical, Translational and Therapeutic Discovery**

Focused on:

- Developing data centric approaches to identify regional hotspots for emerging pandemics and generate novel diagnostic and therapeutic strategies needed for infection control and/or treatment
- Leveraging USF's close relationship with Tampa General Hospital to develop a regional pandemic response team
- Utilizing USF's experience with educational and social science research to determine the best ways to communicate with diverse individuals within communities across the region in times of crises with attention to culture and literacy
- Building partnerships with local manufacturing and biotechnology companies capable of developing effective strategies to address current and future pandemics

➤ **Environmental Consequences of the COVID-19 Viral Epidemic**

Focused on:

- The impact of reduced air traffic and other changed land/sea travel patterns (CO<sub>2</sub> emissions, healthy oceans)
- By integrating machine learning with genomics, what can we learn about the public health factors of the zoonotic global animal response
- Useful information that can be gained through a crowd-sourced approach to health and well-being that can be useful to service agencies including local government
- The global impact(s) of decreasing pollution globally (financial, public health, attitudinal, policy)
- What we need to do in advance of an active hurricane season (crisis on top of crisis)

➤ **Information, Computing, and Communication Technology**

Focused on:

- **Data infrastructure to support the network**, which will involve creating data lakes on the cloud in partnership with USF IT that is secure and stores all the relevant clinical, public health, mobility, and any other relevant datasets that are necessary to model present and future pandemic outbreaks
- **Cloud-based analysis infrastructure**, which will involve developing models and methods to generate insights, early warning signals, identifying hotspots, and visualizations using big data technologies
- **Communications and Policy infrastructure**, which will involve creating forward-looking simulations and analytical modeling tools with a goal of informing various stakeholders, including policymakers
- **Data Security and Privacy** involving vulnerabilities exposed by the virus and the changing nature of work as well as the deployment and use of surveillance mechanisms (including mobile and platform applications and personally identifiable data)

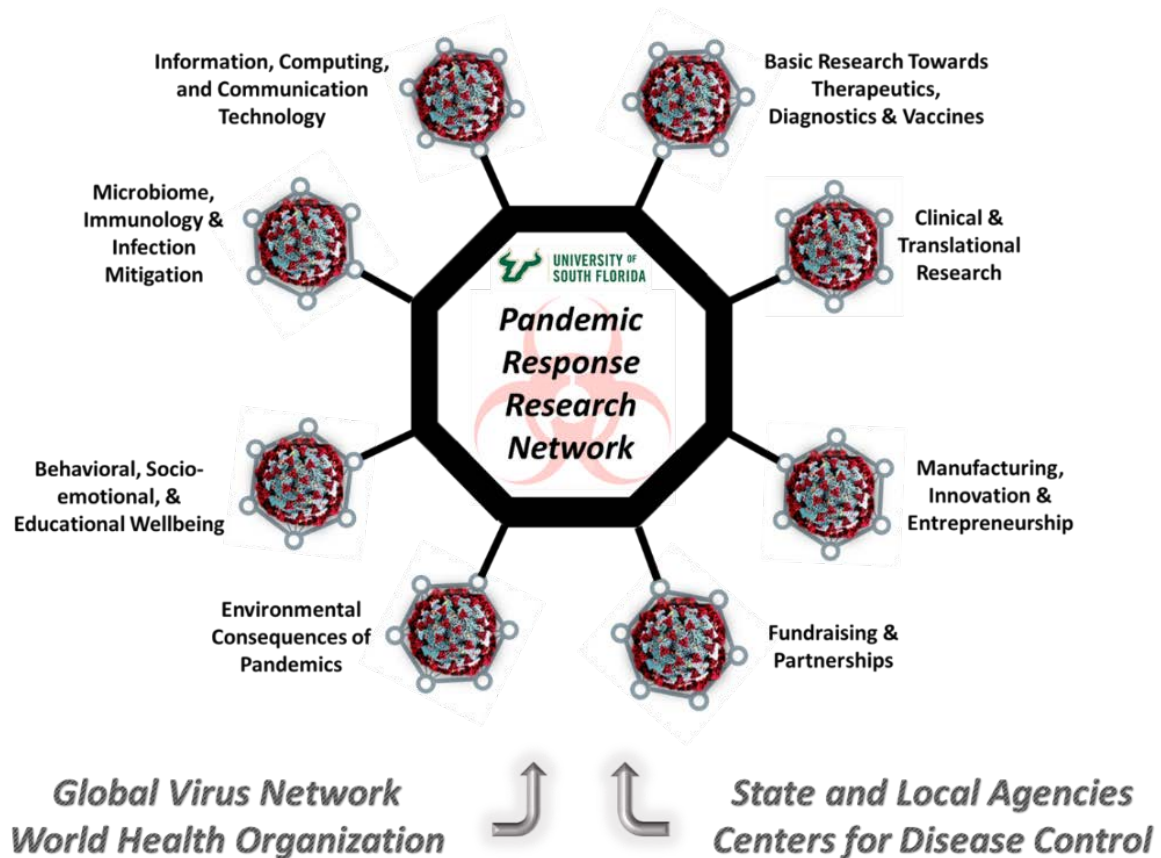
➤ **Research Hub on Microbiome, Immunology and Infection Mitigation**

Focused on:

- The design of two novel strategies for mitigating COVID-19 and RSV infections through intervention on the gut microbiota: 1) A nutrient-based approach of gut microbiota for mitigating COVID-19; and 2) a nanoparticle system to modulate gut microbiota and mitigate RSV infection

The Task Force is also in the process of creating hubs for:

- **Basic Research Toward Therapeutics, Diagnostics, Vaccines & Cleaning Solutions**
- **Epidemiology and Surveillance**
- **Fundraising and Partnerships**
- **Manufacturing, Innovation and Entrepreneurship**



### Immediate Steps

In addition to refining and developing the work of each hub, the Task Force is also continuing to generate ideas on how to respond even more quickly to immediate COVID-19 funding opportunities with short deadlines. Novel approaches include a **USF Pandemic Rapid Response Research Grant Fund** to encourage faculty to rapidly develop and submit funding proposals, and a virtual researcher “speed dating” program to match faculty for NSF Rapid projects and NIH requests.

In order to best coordinate our efforts in this regard, the Task Force will continue to:

- Refine, detail and fully develop our proposed Pandemic Response Research Network™, research and constituent hubs
- Collect and share information on coronavirus projects currently underway across USF colleges and campuses
- Match researchers/projects for interdisciplinary collaborations
- Align these projects to funding opportunities with best chance for quick wins and impacts

- Facilitate these funding submissions, removing potential administrative and other obstacles that can slow down the process
- Promote invention disclosures, licensing and startup opportunities for USF technologies and intellectual property related to coronavirus
- Examine how to best work with companies (including small businesses and manufacturers), government agencies (local, state and federal), foundations, and global partners
- Update university leadership on our progress regularly

For the most up-to-date information on currently available external funding opportunities related to COVID-19, visit: <https://www.usf.edu/research-innovation/sar/covid19-research.aspx>

Proposals for the [USF COVID-19 Rapid Response Grant Program](#) may be submitted by full-time tenured/tenure-track and research faculty members at USF. **Principal Investigators must submit their proposal (electronic form) by Monday, April 13, 2020, at 5:00 pm (Eastern Daylight Time) through the dedicated website portal (will be available for proposal upload beginning Thursday, April 9, 2020):** <https://www.research.usf.edu/source-forms/module-w>.

**FOR GENERAL INFORMATION REGARDING USF'S RESPONSE TO THE CORONAVIRUS:**

[USF Coronavirus Update - www.usf.edu/coronavirus](http://www.usf.edu/coronavirus): The University of South Florida continues to closely monitor the evolving coronavirus (COVID-19) outbreak. The health and safety of our students, faculty and staff is our highest priority as university leaders work closely with local, state and federal agencies to share the most updated information.

(Last updated: 4/7/2020; 10:12AM)