NCCU ADVANCED CENTER FOR COVID19 RELATED DISPARITIES (ACCORD)

The COVID19 pandemic has exposed and amplified entrenched socioeconomic inequalities and health disparities among underserved communities. African Americans (AAs) are more likely to acquire the infection, have more severe symptoms, and are twice as likely to die. Increased testing and upcoming vaccinations are two important strategies to manage COVID19. Mounting evidence indicates that underserved communities are less likely to actively participate in mass testing and upcoming immunization due to inadequate information, logistics and issues surrounding fear, stigma and trust. As we move towards rigorous testing and tracing, and prepare for a likely mass vaccination, it is critical that we understand and seek solutions to historical distrust of medical, public health, and vaccination programs in the AA population.

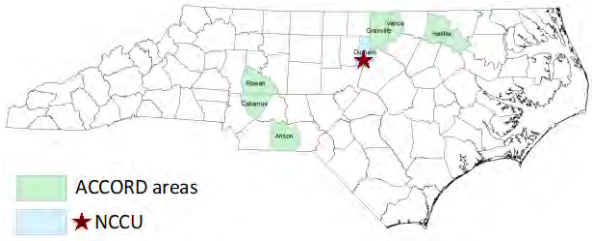


Fig. 1. Counties focused by NCCU ACCORD

In this proposal, *NCCU proposes to establish an Advanced Center for COVID19 Related Disparities (ACCORD) to address this public health emergency and conduct multidisciplinary research to study the public health and economic impact of COVID19 on underserved communities of NC.* The center will leverage the existing NCCU programs and partners to advance the following goals/specific aims (SA):

SA1. Facilitate COVID19 (nasal swab: nucleic acid (RNA) based) testing and study the impact of COVID19 in the underserved communities in medically underserved areas (MUA) of NC. We will strategically focus on 7 counties: Anson, Cabarrus, Durham, Granville, Halifax, Rowan and Vance.

Approach: NCCU ACCORD will partner with public health departments (performing LABCORP RNA testing) and community based organizations to increase targeted testing. We will recruit community-testing facilitators (CTFs) to facilitate and promote testing and surveys, which will be distributed at COVID19 testing sites. The purpose of the survey is to identify perceived barriers to COVID19 testing and immunization. Digital tablets (5 per county) will be used to collect and tabulate survey data on-site to rapidly collect and assess barriers.
Deliverable: Increased testing and identification of barriers to testing and immunization in the underserved.

SA2. Create a culture of trust and resilience by developing and disseminating culturally sensitive messaging on COVID19 to medically underserved populations.

Approach: Leverage two existing NCCU programs: Social Media Research Dissemination Initiative (SMRDI) and the NCCU-Duke Ethnodrama Project to develop a multitude of culturally sensitive audio, video, and print media messages in partnership with faith based and community based organizations.
Major partners: Faith based and community-based organizations, community members.
Deliverable: Impactful and positive messaging in underserved communities about COVID19, prevention measures and informed decision making on upcoming immunization and continued testing.

SA3. Support multidisciplinary mini pilots and projects on COVID19 disparities related to monitoring, assessing, and addressing the public health and economic impacts of COVID19.

Approach: Competitive selection of mini pilots and projects through open competition for NCCU researchers.
Major partners: NCCU faculty/researchers, area Universities/organizations, community-based organizations.
Deliverable: Generation of new knowledge, engagement of NCCU researchers to address COVID19 impact and creating a pipeline of proposals for extramural funding.

SA4. Test 3000 members of NCCU community (faculty, staff and students) for COVID19 seroprevalence in collaboration with UNC-Chapel Hill. Test: Abbott COVID IgG detection in serum samples. Samples will be collected at NCCU and shipped to UNC-CH. It will be a research study and (volunteering) participants will be informed of the results following UNC-CH developed script on what the test means. NCCU IRB will be based on UNC-CH IRB. This will be a closely guided activity by UNC-CH.

SA1. Facilitate COVID19 testing and study the impact of COVID19 in the underserved communities

African Americans are less likely to participate in government sponsored health screenings due in part to fear, stigma, and distrust. SA1 will provide $20,000 to each of the seven counties for testing and PPE costs. It is anticipated that each county will provide community-based testing to at least 500 persons of color study participants (3500 over 7 counties). We have carefully selected a mix of 7 predominantly rural and urban medically underserved counties with varying distress tiers and representation of minority communities (Table 1). NCUU has designated experienced faculty members to oversee the testing and one of these has almost 40 years experience as a public health director in North Carolina. This first aim will also utilize elements from community-focused approach to engage communities in supporting testing and identifying barriers to testing.

We will utilize a ***2-pronged approach:*** **(1)** we will utilize trusted community advocates as community testing facilitators (CTFs; 2 per county) in underserved communities in 7 counties. The CTFs will focus and engage underserved areas, disseminate testing materials and encourage underserved communities to participate in COVID19 testing services. They will also coordinate with public health departments and testing sites to address logistical issues by facilitating communication creating a community-based effort towards COVID19 testing. CTFs will also be under the supervision and direction of same faculty at NCCU.

County	Population	Minority (%)	AA %	Uninsured adults (%)	Distress Tier
Anson	25,306	52	49	16	1
Cabarrus	201,448	28	18	12	3
Durham	306,457	49	37	15	3
Granville	58,874	39	30	15	2
Halifax	51,737	60	53	17	1
Rowan	139,605	23	16	16	2
Vance	44,482	56	50	16	1

Source: United States Census Bureau (2018); NC Institute of Medicine; NC Commerce

Table1. Characteristics of NCCU ACCORD counties

(2) Part 2 of SA1 will utilize COVID19 testing sites and community sampling to assess the COVID19 pulse of underrepresented and rural communities by conducting two overlapping surveys (a) assessing socio-economic and psychological impact of COVID19; and (b) Identify barriers to COVID19 testing and acceptability for future COVID19 vaccination. Target: 500 participants at each site (Total 3500 in 7 counties) will be surveyed using tablets (at testing sites) and emails (community sampling). Each study consent form will provide a check box asking for permission to contact participants for the purpose of enrolling them in a longitudinal study or other studies. This will provide us an opportunity to build a longitudinal cohort to study long-term impact of COVID19 in minority and underserved populations.

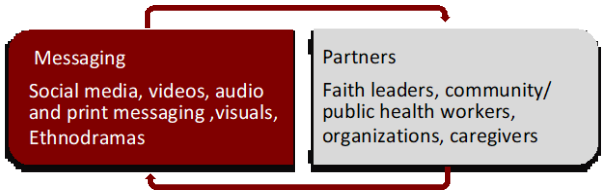
Measure	Testing site	Community sample
SES and economic impact	•	•
Barriers to testing		•
Reasons for testing	•	
COVID19 stress	•	•
COVID19 vaccination acceptability	•	•

Tests: Health Departments will conduct LABCORP RNA based nasal swab test. Test results are communicated directly to the participant by email and phone. We will not collect positive or negative data. For SA4, we will use COVID19 IgG detection (Abbott) in serum in collaboration with UNC-CH.
Testing site: Underserved, minority at least 18 years of age while waiting for their test. Obtain consent, distribute questionnaire on tablet.
Community sampling: community/venue based survey: Recruit participants from venues frequented by the target population at specific times. We will determine if supplementing through participant referral is warranted on the basis of success with venues. These methodologies provide a pathway to people that we would not otherwise reach through testing. Distribute questionnaire on tablet or email.

Questionnaire/Measures: The study will draw on instruments that NCCU PIs have used to measure key elements; we will also review scales in the http://www.phenxtoolkit.org, with compiled scales for understanding such barriers and to study the impact of COVID19.

SA2: Disseminate messaging on COVID19 in minorities and medically underserved populations

This aim will focus on developing culturally sensitive messaging to address barriers to healthcare due to inadequate information, logistics and issues surrounding fear, stigma and trust. We will employ a collaborative approach by partnering with faith-based and community organizations and leveraging two existing NCCU programs: Social Media Research Dissemination Initiative (SMRDI) and the NCCU-Duke Community Engagement Core Ethnodrama Project. SMRDI utilizes the principal of dissemination science and social media platforms as a means to translate/convey research results to the public. The use of social media enables quick and widespread sharing of research findings. **Ethnodramas** are adaptations of ethnographic research data that have been scripted and staged as live, public theatrical performances. Numerous studies have demonstrated the effectiveness of utilizing ethnodramas as an innovative dissemination tool to communicate health messages. In culturally-responsive ways, both ethnodramas and messaging on various social media platforms by SMRDI can increase understanding and impact of COVID19; influence individuals' perceptions, attitudes, and ultimately behaviors. Cognizant of the importance of establishing trust within underserved populations, in a bidirectional exchange, ACCORD will partner with faith leaders, community and public health workers, caregivers, and other trusted voices for the development and implementation of these messaging programs.



Evaluation measures: Participants in the ethnodrama study will be recruited from our partnerships with CBOs, faith-based organizations, and public health departments. A pre- and post- performance assessment (immediately following and 45 days after) will be administered to assess knowledge, attitudes, and practices of participants towards COVID19. Measures include: 1. Effectiveness of the ethnodrama in evolving/informing perceptions of the disease, testing and vaccinations; 2. Motivation to share one's experience with others; 3. Motivation to seek additional information about COVID19 and its impacts; 4. Influence of the ethnodrama to

reinforce or change one's practices towards personal safety and the safety of others; and, 5. Assessment of associations between attitudinal change and sustained changes in behavioral practices.

SA3. Support multidisciplinary mini pilots and projects on COVID19 and related disparities

ACCORD will support multiple COVID19 projects by NCCU investigators. Projects are selected competitively in two categories. Five COVID19 mini grants (<15K) and 7 larger projects (attached) in focus areas outlined by the collaboratory. These multidisciplinary projects range from vaccine development to understanding and addressing the public health and economic impacts of COVID19. Different groups have formed as a result of these activities (example: COVID19 food insecurity research interest group, COVID19 Social Science group, COVID focused respiratory group) to facilitate multi and trans disciplinary collaborations and team science.

The submitted projects have been evaluated internally at NCCU by selected reviewers including federally funded faculty with R01 level of funding. NCCU approved specific project summaries (1 page per project as requested by the collaboratory) along with budgets is being submitted for consideration (per Dr. Warren)

SA4. Seroprevalence of COVID19 in NCCU community (Volunteering Faculty, Staff and Students)

This testing initiative will inform about the prevalence of COVID19 in NCCU community. Informed communication will be the key which will be performed under guidance from UNC-CH. Abbott IgG detection will be performed at UNC-CH on serum collected and processed at NCCU BSL-2 facility. IRB will be modeled after UNC-CH. Participant will be contacted and informed as per script prepared by UNC-CH. This will be close collaborative activity with UNC-CH. All unidentified data will be shared with the collaboratory.

ACCORD will not only address the growing impact of COVID19 on our communities of color, but will also provide infrastructure to seek future funding opportunities to address such disparities. COVID19 is an unfortunate major public health crisis that has also presented an undeniable opportunity to transform how inequities to care are addressed.

Data sharing: All data including surveys and research findings will be shared with collaborators and collaboratory. All data will be made available for additional analysis, reports, and manuscripts. Data requests stating the purpose of the analysis and specific variables needed will be submitted to ACCORD. The NCCU statistician will work with the requester to ensure they receive the data needed for their intended purpose. Each dataset released will have a different set of randomized identification numbers to add another level of confidentiality. It will also prevent analysts from different institutions combining datasets incorrectly.

Administration and teams: NCCU ACCORD will be managed at the Julius L. Chambers Biomedical/Biotechnology Research Institute (JLC-BBRI). An executive steering committee will be responsible for ACCORD administration. Overall oversight will be provided by Dr. Deepak Kumar, Director, JLC-BBRI. Individual teams/co-leads/members are as follows.

Key Personnel:

SA1: Drs. William Pilkington, Irene Doherty, Charity Watkins-Sneed, Nina Smith, Tanisha Burford, Christopher Paul, Darrel Beneby and Dohyun Lee.
SA2: Drs. Undi Hoffler, Jonathan Livingston, Michael Page, SMRDI team
SA3: Multiple NCCU investigators in COVID19 pilots and projects
SA4: Dept of Nursing, BRITE, BBRI faculty and staff

High Level Budget: Budget end date – Dec 30, 2020

As submitted on June 3rd 2020 with readjusted 1500 from Irene and 50K added for seroprevalence study

Category	Cost
SA1.	
Community Health Educators/Community Testing facilitators	70,000
Testing and PPE to public health departments for participants in survey @ 20k per county for 7 counties	140,000
Survey assistants for the study under faculty supervision	35,000
Digital tablets (5 per county – a total of 35 at 250 per tablet) will be used to collect and tabulate participant information on-site in order to rapidly collect and assess barrier data.	10,000
Supplies, print materials, etc.	11,254
Faculty course release 8 courses (faculty effort)	40,000
SA2.	
Messaging development, Ethnodrama	100,000
SA3.	
Projects 7 projects	324,059
COVID19 mini grants -5 Pilots	52,687
SA4: seroprevalence tests - collaboration with UNC-Chapel Hill (tentative)	130,000
Administrative oversight, personnel efforts, including program manager/admin assistants	87,000
TOTAL	**1,000,000**

NCCU will provide additional 10% match of $100,000 for unallowable and administrative cost. No indirect cost is requested. The cost requested does not contain any participant costs.

SA4 – Seroprevalence study is currently being considered in collaboration with UNC-CH. In case the study does not go through, NCCU is requesting only 1 million dollars. We understand that 50K from SA4 will not be available. Remaining 80K from SA4 is will be used to fund fall efforts for faculty involved on ACCORD projects. A total of 25 faculty will be involved in ACCORD projects.

PILOTS		
Pis	**Title**	**Funding request**
Glenn and Beneby	COVID-19 Impacts on Community-Based Interventions for Justice-Involved Minority Young Adults: Practitioner and Consumer Perspectives	$8,525
Burford and Watkins-Sneed	The Pandemic of Stress: Examining the Relations among Occupational Status, Perceived Stress, Self- Rated Health, and Sleep during COVID-19	$10,622
Doherty	Contact tracing for COVID-19: acceptability and barriers in African American communities	$12,040
Smith	COVID-19: IMPACT ON BLACK FAMILIES	$8,500
Tomlinson	Stress, Coping, Perceptions & Professional Outlook of HBCU Nursing Students Related to COVID-19	$13,000
	TOTAL PILOTS	**$52,687**
PROJECTS		
Paul, Diggs, Murooney, Lee, Pilkington	The Role of Food Security in the Social Determinants of Health: Contingent Impacts of COVID-19 in North Carolina	$65,606
Wymer, Constantini and Sivaraman	Development of a Conjugate Vaccine Against SARS-CoV-2	$75,000
Zheng	Drug Repurposing for COVID19 Using Data Mining and Machine Learning Technologies	$53,000
Baker and Doherty	Acceptability and Barriers to COVID-19 Testing, Tracing, and Immunization Among African American Students and Residents in Low-Income Communities	$28,790
Dannai	Experiences of African American Caregivers of Children with Autism: Rurality and Resources during the COVID-19 Pandemic	$31,263
Kayvan Lavassani	Global Supply Chain of Medical Equipment: Vulnerability Assessment, Emergency Response Tool, and Financial Impact Analysis	$30,000
Moore	Field-ready genetic coronavirus test for use in low-resource underserved populations	$40,400
	TOTAL PROJECTS	**$324,059**