SHP Student Interns for Research and Scholarly Activities
Application of Project Proposal Form

Instructions:
Please fill out the form and return via email to Nipa Sahasrabuddhe (ns1115@shp.rutgers.edu) by April 1, 2022. Please fill each box to the right of each required field. If you are sending attachments, please ensure your contact information is added to all your forms.

Faculty Contact Information:

<table>
<thead>
<tr>
<th>Date submitted:</th>
<th>March 10, 2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty Name:</td>
<td>Dinesh P Mital, Ph.D.</td>
</tr>
<tr>
<td>Department/Program:</td>
<td>Health Informatics</td>
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<td>973-972-3607</td>
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<td>E-mail:</td>
<td><a href="mailto:mitaldp@shp.rutgers.edu">mitaldp@shp.rutgers.edu</a></td>
</tr>
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Project Detail:

<table>
<thead>
<tr>
<th>Project Title: (56 characters max)</th>
<th>To Develop an Early Diagnosis and Management system Covid-19 using Clinical Decision Support System</th>
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<tr>
<td>Hypothesis:</td>
<td>To do early diagnosis of Covid-19 and avoid mortality and morbidities associated with the disease</td>
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<td>Identify high risk cases based on their age, race, genetic composition, and other factors to minimize morbidities and hospital stay</td>
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<td>To analyze previous covid data in NJ and nearby states to identify trends in infection spread</td>
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<td>Develop a clinical decision support system to do the early diagnosis and management of the patient.</td>
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<td>Description:</td>
<td>COVID-19 is caused by SARS-CoV-2, and presents flu-like symptoms which can become serious in high-risk individuals and cause death. The World Health Organization named the disease coronavirus disease 2019 (COVID-19) and subsequently declared it a pandemic due to the widespread infectivity and high contagion/mortality rate. To date this disease has caused over 2.7 million deaths worldwide. Covid-19 typically cause severe</td>
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Hand hygiene and wearing mask are fundamental to prevent getting the disease. Morbidity and mortality rates have been high and it is highly infectious disease. Typically one person can easily spread to 6-8 persons in active stage of the disease.

Real-time PCR is used as a diagnostic tool using nasal swab, tracheal aspirate or bronchoalveolar lavage samples. However, there is high False positive rate for this test. To date, there is no evidence of any effective treatment before it is too late.

Appropriate data analysis will be performed to identify the trends and factors to study the spread of Covid-19, in various locations, identifying hot spots, finding ways to reducing morbidities and mortalities, identifying high risk factors among various races, age groups, and various complications. Data will be used from NJ and nearby states like NY, PA and Conn.

In this study, we also propose to develop a clinical decision support system (CDSS), based on CROVID software, for the early diagnosis and possible treatment. The CDSS will recommend best possible treatment based on age, race and genetic factors.

The main stress will be to get early diagnosis, so that serious life threatening situation can be avoided and hospitalization could be reduced. This will also reduce morbidity and associated mortality.

Results of the findings will be presented in either national conference or published in an international journal.

### Specific Student Responsibilities:

- 1. reading research material from internet based websites, NIH website and other Covid related NJ, NY, and Conn websites
- 2. Extract and obtain relevant data for the purpose of analysis
- 3. Learn Corvid software/refresh knowledge
- 4. Develop CDSS model using CORVID software

### Educational:

**WHAT OTHER EDUCATIONAL OPPORTUNITIES ARE AVAILABLE TO STUDENTS?**

(e.g., journal club, seminars, clinic, rounds)

- Required Corvid Software will be made available to student for developing the decision support system.
- Research material and other necessary reference/papers will also be made available to student.

### Start / end date of project:

- June 6, 2022 – August 15, 2022
WHERE DO YOU PLAN TO PRESENT OR PUBLISH THE FINDINGS WITH THE STUDENT? (e.g., national or state meetings, newsletter or journal, SHP poster day)

| SHP Poster presentation and/or
| Submit the findings in an international Journal like,
| International J of Medical Engineering and Informatics |

CHECK ALL APPROPRIATE BOXES BELOW AND PROVIDE REQUESTED INFORMATION.

This project is: [ ] clinical [ ] laboratory [ ] behavioral [ ] survey [X] educational

[ ] Other: please specify__________________________________________________________

☐ This project involves the use of human subjects (including chart review, retrospective studies and questionnaires).

Pending ☐ Approved ☐ IRB Protocol Number Not applicable

IRB approval must be obtained by June 2022

_______________________________________________________________

Signature of Department Chair

Shankar Srinivasan PhD

______________________________ March 11, 2022

Date

OR-For internal use

Form: (1)

Reviewed date: ________________

Date processed on website: ________________