Purpose

The purpose of these guidelines is to prepare the NCSSM Community and its leaders to act prudently in the event of a pandemic. At the time of this update, the World Health Organization (WHO) and the Centers for Disease Control (CDC) have warned about the potential risk of a novel coronavirus that has caused outbreaks of a respiratory illness first identified in the Hubei province of China around the city of Wuhan in December 2019. The illness, since termed COVID-19, is caused by a coronavirus, which apparently originated in animals and then spread to humans and has the potential to cause a pandemic. In the past, novel strains of influenza have become pandemic or threatened to do so. Whether any particular pathogen of concern evolves into the next pandemic or not, emergency preparedness planning is essential because it affords organizations and institutions an opportunity to respond more effectively to a number of emergency situations, including a future pandemic. Planning enables the most effective response to any public health emergency, as should a pandemic arise, there will be little time to act once the event starts. This document is intended to assist NCSSM personnel in engaging in thoughtful discourse with partners on campus in the formulation of a flexible, adaptive response that is tailored to the needs and resources of NCSSM.

The first part of this document will offer an overview of the pandemic threat and the importance of pandemic preparedness planning. The second part of this document will outline the specific areas that are included in planning, including planning to meet the health care needs of students. Planning for the broader campus-wide operational response is detailed in a companion document. This plan is not to be considered in isolation but assumes concurrent development of response plans by public health officials. Discussions with outside agencies are ongoing, and local and national decision making processes will affect implementation of this plan.

This Pandemic Response Plan will be located on an NCSSM website, and it will be maintained and updated over time. Vice chancellors of each division within NCSSM are required to provide updates to information relevant to their area of responsibility annually under normal circumstances, and continually during any pandemic. All changes to the plan must be approved in advance by the chancellor or designee(s).

Background

A pandemic is an epidemic (an outbreak of an infectious disease) that spreads worldwide, or at least across a large region. There have been at least ten recorded pandemics over the past 300 years, several of which occurred in the 20th and 21st centuries (1918, 1957, 1968, and 2009). The most deadly of the three was the pandemic of 1918 caused by a virus referred to as H1N1, which killed more than 20 million people worldwide. Public Health authorities generally believe that pandemics will occur again, and it is unpredictable exactly when, or which strain of a novel virus or pathogen will
cause illness in human populations.

1918-19 'Spanish Flu' (H1N1), is estimated to have sickened 20-40% of the world's population, and over 20 million people died, 500,000 in the U.S., between September 1918 and April 1919. It spread rapidly; many died within a few days of infection, others from secondary complications. The attack rate and mortality was highest among adults 20-50 years old, although the reasons for this are uncertain.

1957-58 'Asian Flu' (H2N2), the virus was quickly identified due to advances in technology, and a vaccine was produced. Infection rates were highest among schoolchildren, young adults and pregnant women. The elderly had the highest rates of death. A "second wave" developed in 1958. There were about 70,000 deaths in the United States.

1968-69 'Hong Kong Flu' (H3N2), caused 33,800 total deaths in the U.S. This virus was first detected in Hong Kong in early 1968 and spread to the United States later that year. Those over age 65 were most likely to die. This virus returned in 1970 and 1972 and still circulates today.

2009-10 (H1N1)pdm09 Flu, began in the United States in California and caused the highest infection rates among children and young and middle-age adults. The virus caused 12,469 deaths in the U.S. out of an estimated 60.8 million cases with some 274,304 hospitalizations.

If a pathogen gains sustainable, efficient transmissibility, the public health strategy would focus on slowing the spread because it would be virtually impossible to stop it. Slowing the spread of disease would allow for better allocation and more even use of limited resources by flattening the surge of cases. Pandemic influenza or another illness could have rapid, global spread among humans, perhaps with no predictable pattern or seasonal preference as with seasonal influenza. It could come in waves with a total duration of a year or more and potentially cause millions of deaths.

A significant concern as well is that there is a short window for critical decision making. Avian influenza, for instance, will spread quickly in a community with an attack rate of 0.01% to 1% in one week's time. In 1918, H1N1 crossed the United States in 34 weeks.

Characteristics of a Pandemic

Seasonal influenza generally peaks between December and March in North America. It causes approximately 36,000 deaths and 200,000 hospitalizations a year in the United States. A pandemic influenza can occur at any time of the year and resurges in waves that can last from 18 months to two years. The Pandemic of 1918 had four such waves; the most lethal was the second wave that swept through the U.S. between August and
December in 1918. Therefore, planning should include recovery and response to more than one wave.

The Centers for Disease Control (CDC) in Atlanta and the World Health Organization (WHO) based in Switzerland support large surveillance programs to monitor and detect influenza and other disease activity around the globe, including the emergence of new strains or possible pandemic strains of influenza and other pathogens. According to the CDC, more than 100 national influenza centers in over 100 countries conduct year-round surveillance.

Coronaviruses also represent epidemic and pandemic threats, as illustrated by MERS, SARS, and the 2019 outbreak of COVID-19 caused by the nCoV-19 virus that originated in Wuhan, China.

The WHO Pandemic Influenza Protocol for Rapid Response and Containment (January 26, 2006) addresses the two traditional strategies being used currently to address the threat of an international pandemic: (1) attempts to contain outbreaks of the virus in poultry; and (2) intensifying the world’s preparedness to cope with a pandemic. This document also discussed the protocol for a third strategy, rapidly detecting and potentially containing an emerging pandemic virus near the start of the pandemic.

Most experts agree that it is not a question of whether there will be a pandemic, but when it will occur. The severity of the next pandemic cannot be predicted, but modeling suggests that the impact on the United States of a severe pandemic in the absence of any control measures (vaccines or antiviral drug therapies) could include 30% of the population becoming ill, 10 million hospitalized and almost 2 million deaths. The estimated economic impact could be $71.3 billion to $166.5 billion, excluding disruptions to commerce and society.

High absenteeism will affect the delivery of services and goods, nationally and internationally, as transportation staff and manufacturing staff call in due to illness. High absenteeism will also present challenges to campus leadership and delivery of services as human resources are strained in all aspects of the operation. Campus leaders will not be spared the possibility of succumbing to illness. Planning needs to consider issues of depth charting for leadership positions, cross training personnel, and teleconnectivity that allows employees to work from home.

Vaccines and Antivirals

Because a vaccine needs to closely match a virus that causes illness in humans, it is unlikely that a vaccine would be available early in a pandemic and, due to current production techniques, quantities would be limited once the vaccine were developed. An effective vaccine may be available to more adequately address second or third waves but,
even then, there may not be enough supply to vaccinate everyone. Research is underway to develop improved vaccine technologies that would allow for more rapid production of vaccines.

If vaccines and/or antivirals become available, it is unlikely there will be sufficient quantities to cover the entire population. Therefore, essential personnel, including health care workers and police, will receive priority consideration for vaccination. These considerations could present difficult ethical decisions that campus leadership will be required to make in a time of crisis with limited resources. Discussions with local and state health authorities regarding the distribution of stockpiled antivirals and manufactured vaccine will occur in advance to ensure that campus protocols are consistent with government guidelines.

Other treatment options could include antiviral drugs. In order for these to be effective, early detection with treatment is stressed. Recommendations on optimum dosing and duration of treatment are still ongoing. Unfortunately, these treatment options can be expensive, and production capacity is limited. Lastly, antibiotics have been shown to be ineffective in treatment of viral illnesses.

Pandemic Intervention Strategies

Social distancing, isolation, quarantine, protective sequestration and public health education that include practices employed to reduce individual risk of contracting the disease (i.e., hand washing, cough etiquette) comprise the list of Pandemic Intervention Strategies (PIS) that could be employed in a pandemic situation. While the effectiveness of any of these strategies for preventing the spread of illness is unknown, employment of a combination of PIS may slow the spread of disease. Slowing the spread is important, as it maximizes the ability of health care resources to respond effectively. It is believed that during a pandemic the number of individuals seeking medical care will “surge” and overwhelm the health care infrastructure. Any strategy that can mitigate this surge will help medical providers cope with the outbreak.

**Social distancing** refers to actions taken to discourage close social contact between individuals, including cancellation of classes, sporting events, worship services, and other social events. This intervention would be most effective when instituted early in the pandemic and before infection takes hold in a community. Given that the 1918 pandemic swept across the country in 34 weeks at a time when fewer people traveled and modes of transportation were more limited and slower, the window for taking action may be limited to a few days in today's highly mobile society with international air travel.

**Isolation** refers to separating individuals with illness from the general population and restricting their movement within the general population until they are no longer
contagious. Plans for isolating ill students and providing care for them by either utilizing campus resources or assistance from community resources will be necessary, in that some students may not be able to go home. Hospital resources will be strained, and decisions for admission will be made based on assessment of those most in need. Provisions should be made to care for students who are not ill enough to require hospital care but are too ill to take care of themselves. The number of students residing in dorms factored against the resources of the institution will affect the plans for isolation and other care.

**Quarantine** is the separation and restriction of movement of those who are not ill but believed to have been exposed. The duration of quarantine will be dependent upon the length of the incubation period and period of contagion prior to onset of symptoms. Both the incubation period and period of viral shedding are difficult to know prior to actual emergence of the pandemic virus. Currently, it appears that the incubation period for H5N1 is up to 28 days. Persons are contagious for 13 days prior to onset of symptoms and can shed H5N1 for up to 16 days. The incubation period of the coronavirus that causes COVID-19 is thought to be from 2 to 14 days, according to the CDC.

NCSSM pandemic planners have discussed the issue of campus isolation and quarantine with representatives of Durham County Department of Public Health. Because of the logistics of trying to isolate or quarantine an on-campus resident population living in dorms and sharing dining facilities, the NCSSM plan does not envision campus quarantine or isolation of large populations. The NCSSM plan envisions campus closing, and only individuals who could not go home would remain on campus.

**Protective sequestration** involves efforts taken to protect a healthy population from infection by isolating the community from the outside world. Restricting entry of outsiders into the community and restricting reentry of those community members who leave during the period of time when protective sequestration is in place are measures utilized in this intervention. It requires the community to stockpile resources and become self-sufficient for some period of time, in the case of a pandemic, a minimum of 8-12 weeks. Protective sequestration has high costs associated with it and is deemed impractical for NCSSM. Therefore, this plan does not include provision for sequestration of individuals who cannot go home when campus closes.

**Public health education** that communicates accurate, clear information regarding reducing personal risk, the role of personal hygiene, transmission, symptoms, treatment, when to seek care, and community efforts to assist those in need, is critical to empowering the NCSSM community to control the spread of infection on campus. The messages should be consistent with those being issued by other public health authorities and crafted to meet the needs/concerns of various campus audiences including students, staff, faculty, parents and members of the surrounding community.
NCSSM Planning Criteria

NCSSM Epidemic/Pandemic Response Postures
NCSSM infectious disease response postures are based on WHO, CDC, North Carolina Department of Health and Human Services, and Durham and Burke County health departments’ guidance and include these progressive phases:

- **Normal Operation**: Typical operations proceed with usual precautions
- **Increased Vigilance**: Normal operation with special vigilance and/or minor adjustments
- **Restricted Operations**: Operation continues, but with restrictions such as social distancing, cancelation of certain events and activities, a ban on travel, or restrictions on those who have been traveling
- **Campus Closure**: Students are sent home; only essential staff work on campus, some staff work remotely

Triggers for taking actions based on certain key events are important to identify in advance. The economic and social ramifications of canceling classes, social and athletic events, and excluding certain community members from campus are significant. The chancellor's decisions about the school’s response posture will be directed or informed by guidance from international, national, state, and local health authorities and the UNC System.

As stated earlier, there may be a very short window for critical decision making especially in regard to Campus Closure. Using the 1918 Pandemic as a basis for determining timing, it appears that implementing Campus Closure early, before infection enters the community, is a better strategy for educational institutions. Once closed, to avoid a resurgence of infection, NCSSM might need to remain closed for a period of weeks or months dependent upon local, national, and international events and the guidance of state and local health authorities. Closing early can greatly reduce the spread of influenza or other communicable disease.

Reducing the number of students remaining on campus early in the pandemic may be the best strategy given the limited resources NCSSM will have available to support those who remain. For example, if the decision is delayed to the point that many students fall ill, NCSSM would be expected to provide the resources to care for those students through the pandemic, which might be an unreasonable expectation given available resources. Even if the administration does not make the decision to cancel major aspects of the academic operation, the perception of risk and/or the presence of disease may well result in high absenteeism from work and classes such that the decision is forced.
Response Posture Characteristics

- **Increased Vigilance**
  - School will remain open under full operations with minor adjustments, but preparation will begin to move to Operational Restrictions phase if necessary.
  - Masks and other supplies will be distributed if recommended by local, state, or national health authorities.
  - Communication procedures will be put in place, and leadership will regularly communicate preparations and necessary precautions to employees, students, parents and others.

- **Operational Restrictions**
  - Internal social distancing may begin. Students, employees and individual departments will limit interactions.
  - Large-group campus events and activities will be canceled.
  - Travel will cease.
  - Restrictions may be placed on travelers returning to campus.
  - Campus comings and goings will be limited.

- **Campus Closure**
  - In-person classes will cease.
  - Students, faculty and staff will be sent home.
  - Community Coordinators will remain on campus.
  - Select classes will continue through course websites (Canvas, etc.)
  - Essential services/personnel will continue as necessary.
  - Laboratory operations will cease.
  - School will close and remain closed until notice from Durham County Health Department of safety to reopen.
  - If students remain on campus, the following services will be provided.
    - **Food:** It is assumed that dining service will be limited but available.
    - **Dorms:** It is assumed consolidation of students will occur to enable closure of as many dorms as practicable.
    - **Facility services:** Services will be provided on a priority basis to dorms, dining facilities, and other facilities as resources allow.
    - **Security:** Campus Safety & Security will be responsible for securing facilities and protecting essential assets.
    - **Medical:** Student Health will provide medical services.
    - **Financial Services:** Payroll, Purchasing, and Accounts Payable will remain operational.
    - **Communications:** Telephone services, both land line and cell, remain available.
    - **Internet:** Remains available and school website is accessible with news updates.
  - Due to limited resources, distance education will not be provided.
## NCSSM Response Posture Decision Matrix

<table>
<thead>
<tr>
<th>NCSSM response posture</th>
<th>Events/ hallmarks</th>
<th>Authorities</th>
<th>Actions</th>
<th>Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased Vigilance</td>
<td>Sustained human to human transmission of disease on a continent other than North America</td>
<td>WHO/CDC, state and local health agencies, Chancellor or designee, Crisis team</td>
<td>Follow WHO, CDC, US State Department, and state and local health agencies’ travel advisories; educate and communicate with school community; take any other appropriate actions</td>
<td>Some possible international travel limitations, community anxiety, attention of team diverted from usual priorities to emergency response</td>
</tr>
<tr>
<td>Operational Restrictions</td>
<td>WHO pandemic declaration, sustained human to human transmission of disease within the continental United States</td>
<td>WHO/CDC, state and local health agencies, Chancellor or designee, Crisis team</td>
<td>Restrict work/school travel within continental United States, restrictions on travelers returning to campus; internal social distancing may begin</td>
<td>Travel restrictions, significant disruption of campus activities</td>
</tr>
<tr>
<td>Campus Closure</td>
<td>Sustained human to human transmission of disease within 500 miles of NCSSM, or campus disease cases</td>
<td>WHO/CDC, state and local health agencies, Chancellor or designee, Crisis team</td>
<td>Cease all nonessential campus services, arrange departure of students, arrange for business continuity</td>
<td>Students return home, only predesignated employees work on campus</td>
</tr>
<tr>
<td>(Return to) Normal Operation</td>
<td>Recovery period / reopening and/or non-pandemic operations</td>
<td>WHO/CDC, state and local health agencies, Chancellor or designee, Crisis team</td>
<td>Consult with Durham County Health Department</td>
<td>Mission of school safely resumes</td>
</tr>
</tbody>
</table>
**NCSSM Crisis Team**
Members of the NCSSM Crisis Team serve as decision makers and communicators of the Pandemic Response Plan. The chancellor or chancellor’s designee may include other members of the NCSSM team as the situation necessitates.

- Chancellor, Chair of Crisis Team
- Vice Chancellor for Academic Programs
- Vice Chancellor for Finance and Operations
- Vice Chancellor for Student Life
- Director of Campus Safety & Security
- Director of Communications
- Director of Human Resources
- Chief Information Officer (ITS)
- Student Health Services Representative
- Food Service Representative
- Chief Legal Counsel

**Student Health Services Response**

**Student Health Mission:** The mission of North Carolina School of Science and Mathematics Student Health Services during times of pandemic will be to serve as a resource for disease prevention, recognition, treatment, and infection control efforts in the campus community and to provide essential medical care to those eligible for service and to those not usually eligible as required by the extraordinary circumstances of a pandemic. Those requiring care that is beyond the scope of Student Health will be directed to an appropriate community facility.

Student Health will create a climate of education and prevention within NCSSM’s community prior to a pandemic. Student Health will provide sound medical and public health information to the incident commander, key decision makers, and the campus community.

**Student Health Goals and Objectives:** Student Health will assure that those with essential medical needs receive what is appropriate for that day, whether it involves telephone medical advice, care at the Student Health facility, or triaging for care at a community facility.

Student Health will serve as an educational resource in the areas of disease prevention, recognition, treatment, and infection control in whatever way is deemed appropriate. The goal of Student Health is to facilitate a climate of education and prevention of pandemic contagion prior to reaching pandemic status. Student Health will be an active participant in the campuswide planning process and plan implementation. They will also identify and establish contacts in the local health care community including hospitals, Durham County Department of Public Health, and emergency response personnel.
**Student Health Assumptions:** Student Health Services will provide medical care in the Student Health Center at 1219 Broad Street on NCSSM’s campus. There is no plan for the medical personnel to make house calls or to provide care within the dorms. Student Health does not provide transportation for patients.

The Physical Education Complex has been designated as an alternative care facility and will be available for essential medical care if Student Health is not operational due to insufficient personnel or other logistical support to operate Student Health safely. Student Health medical personnel may be available to provide care at the PEC with proper credentialing and identification.

Telephone triage and telephone medical advice will be important so that only those who need to enter the Student Health facility will do so. Main Student Health Services number is (919) 416-2892. The website is: [www.ncssm.edu/familyguidebook/health](http://www.ncssm.edu/familyguidebook/health)

Durham County Emergency Operations Center will be a resource if Student Health experiences shortages of antiviral medication, masks, beds, or other supplies. Operations plan for receipt and distribution of medicines from the national emergency stockpile will be handled in coordination with Durham County Health Department and Durham County EOC.

**Student Health Essential Personnel:** Student Health Services is designated by NCSSM as a critical service department with certain staff designated as essential. Essential personnel include medical provider staff. The Director and unit heads will determine the number of essential employees necessary for the circumstances, and the unit heads will identify specific employees for a particular shift, day, or situation. Minimum staff to open the facility includes a physician, nurse, and one office support staff member.

Those in leadership roles should designate someone who will assume the leadership role in event of their illness. Any activity that is essential to provide patient care should have more than one person trained in performing that activity in the event that the usual person performing the activity becomes ill. Personnel may request an exemption from assigned essential duty based on individual circumstances. Unit leaders should identify which employees can use telecommuting to work from home or work flex shifts to improve staffing.

**Student Health Emergency Contacts**
- Administrative Issues: Vice Chancellor for Student Life
- Clinical or Medical Issues: Medical Director

**Student Health Essential Services:** A vaccine will not likely be available early in a pandemic. If vaccine becomes available, Student Health Services will follow the recommendations of the CDC or a state or local health authority for distribution.
Medical care for those with pandemic illness will be the priority. Antiviral medication will be prescribed when appropriate and if available. Durham County Health and Human Services will be the resource if Student Health experiences shortages of antiviral medication, masks, beds, or other supplies. Those patients with severe respiratory distress or those who need more than short-term observation by medical personnel will be referred to a pandemic illness care site or other community facility. Care for those with other essential acute or chronic illness or injury will be provided as staffing allows.

To preserve resources and minimize exposure to those with pandemic illness, nonurgent visits should be postponed (examples: annual PAP, cholesterol screening, etc.) Student Health will provide care to those remaining on campus and will likely serve those who left campus who return to campus for medical care.

Requests for telephone medical advice while Student Health is open will likely increase and will include those remaining on campus and those who have dispersed. Assumption is that there would be a service for non-emergency medical care via a health care provider.

Care for faculty and staff is not routinely provided at Student Health but might be required during times of pandemic.

Student Health will serve as a resource for educational information about disease prevention, recognition, treatment, and infection control in whatever manner is deemed appropriate. This may include web material; campus presentations and serving as a resource for school departments with questions; mass email; TV or radio interviews; newspaper articles; and health promotion educational materials, such as pamphlets and displays.

**Student Health Communication:** A disaster call list of all Student Health employees is in place and is updated a minimum of every six months. (919) 416-2892 is the main Student Health phone number. NCSSM’s website will be updated with information about flu and pandemic planning and response.

Student Health leaders will monitor pandemic disease activity nationally and internationally at CDC and WHO sites. Materials developed by American College Health Association, Durham County Human Services, State of North Carolina, and UNC General Administration will be available for additional resources. Student Health staff members will be briefed as appropriate and will become familiar with symptom recognition and personal protection.

At the first diagnosis of a case of pandemic illness at NCSSM, the medical provider will notify the Vice Chancellor for Student Life or designee. The Medical Director will notify appropriate school personnel and recommend needed actions to the crisis team. Communication with Durham County Human Services or State of NC medical personnel will occur, when appropriate.
**Student Health Education and Prevention Efforts:** An infection control plan is in place and includes following recommendations of CDC and the Healthcare Infection Control Practices Advisory Committee (HICPAC). CDC Guidelines for Environmental Infection Control in Healthcare Facilities will be followed to prevent and control infectious disease that is associated with healthcare environments. The Facility Service Housekeeping department currently incorporates these guidelines in their cleaning procedures at Student Health Services.

Student Health will create a climate of prevention within the NCSSM community prior to a pandemic by education about washing hands, not coughing on others, use and discarding of tissues, and social distancing from sick people. New-student orientation is an important time to educate about accessing Student Health and services offered, as well as prevention efforts.

Presenteeism, the practice of making an appearance for work or class when too ill to do so, should be discouraged in advance of a pandemic. During a pandemic, a surgical mask will be immediately given to persons entering Student Health who are obviously ill.

**Student Health Planning Checklist**

- **Orient students about accessing medical care:** Create an educational climate and serve as a campus resource for disease prevention, recognition, treatment, and infection control.
- **Educate campus community** about important health habits of washing hands, controlling cough, use and discarding of tissues, avoiding sick people, and avoiding being present when ill. Encourage and facilitate annual flu shots.
- **Monitor disease activity** internationally, nationally, at state, county, and school level
- **Stock reasonable amounts of personal protective equipment, other supplies,** and antiviral medication
- **Develop plan for increasing phone capacity** during times of increased use of telephone triaging