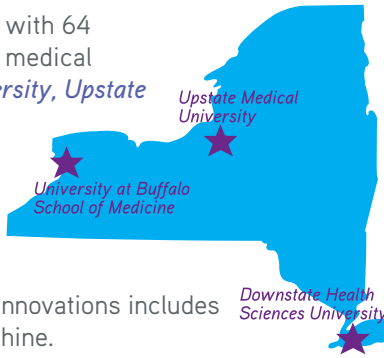
SUNY'S COVID-19 RESEARCH CAPABILITIES, CAPACITY & RESOURCES

SUNY The State University of New York

As the COVID-19 pandemic continues to rage across the globe, The State University of New York (SUNY) scientists, engineers, clinicians, healthcare professionals are at the forefront of national efforts to contain the spread of the virus and provide care for those affected. Our research and development efforts are supported by a robust healthcare delivery infrastructure, an underlying legacy of health innovations, access to a large and diverse population and our first hand experiences in helping the State of NY battle and successfully contain the virus in the early months of the pandemic.

SUNY HEALTH & LIFE SCIENCES RESEARCH & INNOVATION CAPACITY

SUNY is the largest comprehensive university system in the US with 64 institutions across the State of NY. This includes four academic medical centers and affiliated hospitals: *Downstate Health Sciences University, Upstate Medical University, Stony Brook University Hospital, University at Buffalo School of Medicine.*



HALF MILLION PATIENTS

$2.8B ANNUAL REVENUE

Over the past 5 years, SUNY institutions received over $1.5B in sponsored research funding, generated over 1000 new technology disclosures and launched 18 incubators. SUNY's legacy of breakthrough discoveries and life-changing healthcare innovations includes the heart-lung machine, implantable pacemaker, and the MRI machine.

On an annual basis, our three largest hospitals serve close to a half million unique patients. Half of these patients are women; half are over 55 years of age, a third are African American, and eight percent are Hispanic.

DEMOGRAPHICALLY DIVERSE PATIENT POPULATION

SUNY hospitals possess over 9 million unique patient records. Additional sizeable datasets are accessible via clinical practice plans and partner networks.

COVID-19 PATIENTS SERVED AT SUNY HOSPITALS

During the peak of the pandemic in NY, between March 21st and April 30th, SUNY hospitals treated over 2,000 COVID-19 positive patients and about 1,500 inpatients. 11,500 patients were tested for the virus in our hospitals which also, sadly, saw close to 500 COVID-19 related deaths.

As the crisis in the State of NY grew, the Downstate Health Sciences University Hospital was designated as a COVID-19 only facility.

Our COVID-19 research and development efforts continue to be fully informed and guided by our experiences in dealing with the pandemic at our hospitals and the State of NY.

SUNY COVID-19 RESEARCH

There are currently over 500 active research projects across SUNY campuses focused around 5 them wood panels es critical to understanding, containing and treating the virus and mitigating the effects of the pandemic.

500+ ACTIVE RESEARCH PROJECTS: 5 THEMES

PUBLIC HEALTH
& Epidemiological Modeling

SURVEILLANCE
(Testing, Contact Tracing, Regional & Environmental Monitoring)

TREATMENT
(Diagnosis, Predictive Analytics, Therapeutics, Vaccine, Telehealth)

CHARACTERIZATION & SEQUENCING
of SARS-CoV-2

SOCIO-PSYCHO-ECONOMIC IMPACTS
(Social Determinants, Mental Health, Food & Medical Supply Chain, Resilient Communities & Education)Predictive Analytics, Therapeutics, Vaccine, Telehealth)

Our COVID-19 research efforts draw upon SUNY wide, cross-campus, multi-disciplinary expertise at the convergence of medical/health/life sciences, pharma, engineering and social sciences; leveraging latest technological advances in Artificial Intelligence (AI), data-driven computational modeling, imaging, social media analysis, nano sensors, genomic sequencing and RNA analysis, atmospheric sciences, proteomics, and drug discovery. Ongoing research projects include:

- genome and sequencing to understand transmission and evolution of SARS-CoV-2
- health disparities in COVID-19
- novel high-sensitivity, high-specificity detection and diagnostic methodologies
- novel high-sensitivity detection and diagnostic methodologies
- wastewater based surveillance
- exploring weather impact on COVID-19 transmission
- novel protein therapeutics to inhibit infection
- drug, vaccine discovery and design

SUNY CLINICAL TRIAL RESEARCH NETWORK & COVID-19 CLINICAL TRIALS

Six SUNY campuses *(Upstate Medical University, Downstate Health Sciences University, University at Buffalo, College of Optometry, Binghamton University, and Stony Brook University)* are routinely engaged in large scale clinical trials.

This large footprint enables SUNY to offer sponsors the productivity and efficiency of coordinated multi-site clinical trials with access to a highly diverse, demographically rich recruitment pool from across the State of New York.

With over 1000 active clinical trials across SUNY campuses in a broad set of therapeutic, diagnostic and preventive research areas including Alzheimer's, cancer, stroke and novel medical devices. SUNY's sponsored clinical trial expenditures is about $14M annually. Notable recent awards include a five-year, $21M Clinical and Translational Science Award from the National Institutes of Health to the University at Buffalo.

Currently, there are 19 active or completed COVID-19 vaccine clinical trials and 71 planned trials across the SUNY campuses. Ongoing clinical trials of COVID-19 therapeutics include

- Potential preventives and treatments for healthcare workers and outpatients
- Potential treatments for inpatients and patients in critical condition

COVID-19 CLINICAL TRIALS
19 ACTIVE + 71 PLANNED

SUNY COVID-19 RAPID RESPONSE & BACK TO WORK TECHNOLOGIES

Innovative saliva based testing method developed by SUNY's Upstate Medical University in partnership with START-UP NY company Quadrant Biosciences is being used to provide cost-effective, rapid, pooled surveillance and individual testing across SUNY's 64 campuses at a capacity of testing over 120,000 people per week.

In a pilot program, wastewater based surveillance, developed by SUNY Environmental Science and Forestry, SUNY Upstate Medical University and Syracuse University, has proven highly effective in providing early warnings of COVID-19 prevalence in populations, even where individuals within that population may be asymptomatic.

Other technologies developed at SUNY include (i) PocketCareS: A privacy preserving smart phone based tool to measure and enable social distancing on campuses; (ii) Monitoring dashboard for risk assessment that provides county and campus level trends and patterns; and (iii) highly sensitive and selective antibody tests for COVID-19.