NEW JERSEY ACADEMY OF SCIENCE
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Newsletter
Spring/Summer 2020

NEWSLETTER

NEW JERSEY ACADEMY OF SCIENCE

Volume 45, 1   **Spring/Summer 2020**

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On the cover: Hydrangea macrophylla (Thunb.) used plantnet application via iphone10 to identify flower while in social distancing mode. **Photo: Dr. M. Agapito, Ph.D.**

STEM, Equality, and George Floyd:
A Message from the NJAS President

Dear NJAS members and Friends,

Like so many of you, I was appalled at the tragic death of Mr. George Floyd. His death in an example of a broken system that is focused on racial disparities in our country. Two organizations (Particles for Justice and ShutDownSTEM) have joined together to help raise awareness on the inequalities in STEM disciplines. Their goal is: *"For Black academics and STEM professionals, to reflect, or to act. This is the time for white and non-Black People of Color (NBPOC) to not only educate themselves, but to define a detailed plan of action to carry forward."*

In STEM, one of the inequality issues that we are facing is the retention of underrepresented minority faculty in academia. At a national level, we need representation of particular groups (Hispanic Americans, African Americans and Women of Color), especially in the sciences (Leboy and Madden, 2012). This phenomenon is exceptionally pressing given the intersection between a growing need to improve training in the sciences and meeting the needs of the shifting national demographics. One of the issues addressed has been the inequality of representation at the faculty level, this represents a compounding problem for promoting and sustaining future diversity at academic institutions (Whittaker and Montgomery, 2014). Moreover, diminishing representation in the highest faculty ranks results in fewer role models and less potential for growth into positions of leadership for underrepresented minorities and/or female faculty. The perception (or perhaps reality) is that a lack of senior underrepresented minority faculty and administrators impairs the transfer of political and social capital needed for successful navigation of academic environments by underrepresented minorities at more junior levels (Turner et al., 2008; Zambrana et al., 2015). For this reason, innovation in promoting diversification of the faculty at all levels through improved recruitment and retention could provide a system of support for promoting successful diversification at the student level.

I encourage NJAS members and friends to take a minute to reflect on the social issues that are affecting our country. Thank you for your time and support.
 Sincerely,

Maria Agapito, Ph.D. - President

Biodiversity Study as Socially Distanced Science

Professor Joseph Spagna, William Paterson University

As summer arrives, a major part of our reality in 2020 is developing creative approaches to doing all the things we did before, without all the direct interactions with large pools of people. For biologists, benchwork and other lab-based work are difficult- we're used to working in teams, looking over shoulders, talking in close quarters, coaching students, et cetera. These don't play well with our present need for social distancing. But that doesn't mean we can't study nature in a meaningful and enjoyable way. So to get out, get some exercise, and do some science, my suggestion is to return to some "old school" nature stuff- grab a pair of binoculars and a field guide to birds. Maybe a jar, a couple of vials and an insect net are all you need. Flowers have begun opening and trees have start budding in the past couple weeks, and the insects finished overwintering as eggs and some are even starting to fly in numbers. My friends to the South have started to see spiderlings in their miniature webs, and Jersey will have hers soon.

One of the coolest things about these activities- observing, collecting, counting, photographing and making field notes- is the data they produce don't have to stay on your bookshelf or in your own study. A little technology, available in the form of our own ubiquitous cell phones, can turn our observations into useable, shareable data. Apps like "iNaturalist," "Map of Life," and "iMapInvasives" can let you collect, share, and compare biodiversity findings to those of others. For the temporarily socially-distanced lab group, iNaturalist can allow members to collectively add data points to joint projects remotely, including photographs, GPS coordinates, and other observational data. iNaturalist in particular has a large user base and most common species will be rapidly given provisional ID's by other users, should you choose to share them. Of course, it is always best to check ID's against a field guide, key, or other piece of taxonomic literature, since you don't want to leave your ID's at the sole mercy of crowdsourcing or AI algorithms.

So get your gear and whichever member of your socially-distanced household is looking most bored, take them on a local hike, and start collecting biodiversity data. Get your students or labmates to join at a safe distance, too. What used to just be a "nature walk" can now be step one in serious biodiversity studies.

Suggested field guides, New Jersey:

- Birds of New Jersey Field Guide- Stan Tekeila
- A Field Guide to Trees and Shrubs : Northeastern and North-Central United States and Southeastern and South-Central Canada- George Petrides
- Spiders and Their Kin: A Fully Illustrated, Authoritative and Easy-to-Use Guide- Lorna R. Levi and Herbert W. Levi
- A Field Guide to Insects – Donald J. Borror
- New Jersey Nature Set (3 fold-out pamphlets- Birds, Wildlife, Trees & Wildflowers includes maps) – James Kavanagh

Response to NJAS Newsletter Editor Questions on COVID-19

(*Please note that the following are points of view from our members and do not necessarily represent the NJAS at large)

From **Dr. Sandra D. Adams**
Professor, Dept. of Biology, Montclair State University

Why New Jersey?
"COVID-19 arrived with passengers from Europe and China coming through Newark Liberty International Airport. Passengers returned to this region showing no symptoms and spread the virus without knowing they were infected. The density of the population in New Jersey provided a great number of susceptible hosts.

Antibody testing is necessary to determine the number of people previously infected. We don't know the number of previously asymptomatic, infected persons.   I believe that number to be far greater than the number provided by test results of symptomatic, infected persons. The high incidence of serious cases may be the result of health disparities in the New Jersey population. Those with pre-existing health conditions are less likely to be able to mount a balanced immune response and therefore, would experience serious complications."

How do we prevent New Jersey from being an epicenter again?
"There must be access to testing for a greater number of persons and effective antiviral treatments. The virus likely arrived with infected persons traveling to and through this state, so there must be screening and possibly isolation and /or treatment of persons arriving from any country experiencing a viral outbreak. However, as data emerges, we can ask questions, particularly of our population. Two identified at risk populations are the elderly and African Americans. These populations may need more attention."

From: **Yug Yadava**
Senior at the Marine Academy of Technology and Environmental Science (MATES)

Why New Jersey?
"New Jersey is the densest state in America. With close proximity to New York City and Philadelphia, New Jersey is seen to many as an ideal place to live and make a good income. However, the close proximity to major hubs plus density has made it a great place for COVID-19 to spread than anywhere else. Quarantining in North Jersey is much harder to do than it is in South Jersey as population density has led to more person to person contact and cramped living conditions gives people less incentive to follow social distancing orders. This can clearly be seen in the number of cases reported between North and South Jersey. While this geography can give the explanation as to why the virus has spread, there is also another major factor that is being overlooked: racial diversity.

Information about COVID-19 is mainly spread through English. With New Jersey's ethnic community in mind, many do not speak English as their first language and rely on people who can speak Spanish, Hindi, Lithuanian, etc. Information from top officials and organizations like the CDC or NIH cannot always be relayed to these communities who in turn suffer from these factors. Inaccurate spread of false information and panic can affect thousands in our minority communities both physically and economically. Race bias

also plays a huge role in terms of hospitalization and trust as African Americans and Latinos are more likely to be turned away or not be believed at a medical institution than white Americans. Finally, those at the poverty line may not have access to well established and reputable medical centers than those of the upper class, causing an imbalance in patient care and treatment for COVID-19.

Testing my answer to determine why New Jersey became the epicenter for COVID-19 requires people from multiple disciplines to come together, collect data, and publish numerous reports and research papers to give a firm understanding to New Jersey's COVID-19 situation. To track density and the rate of COVID-19 infections, Geographic Information System (GIS) cartographers can display a wide range of maps indicating where infection rates were the highest compared to density rate per county. With medical professionals and researchers, understanding the specific make up of COVID-19 and general research on how COVID-19 can affect different systems in the human body can give us vital information to defeat and treat the disease and other similar ones. With cultural experts and linguistics, more awareness in minority groups throughout the state can bring about a better economic return once the economy reopens and stops the misinformation spreading in these communities. Finally, with more empathy, seriousness, and diversity within our state's medical centers, a more proportionate amount of people can be treated and thus reducing the gap in both infections by ethnicity and by social class."

How do we prevent New Jersey from being an epicenter again?

"New Jersey is a state where the number of STEM majors is greater than any corner on the globe. Although COVID-19 has severely and uniquely affected the state in more ways than one, we can prevent a 'COVID-20' from affecting New Jersey in the harsh way we are facing with the current virus. The first step will be to heavily invest in our public health and epidemiology sector to make sure research on numerous viruses and other regions of the human body to make sure we are able to predict the effect of certain viruses and what human body systems will be more affected than others. The second step would be ramping up supplies to our medical centers to make sure that if a pandemic were to strike New Jersey once again, we will have more specialized units, more ventilators, masks, surgical caps etc. to handle more people in need. The third step will be to bring many people from different backgrounds to create a diverse force in order to fast track viruses and identify key and vulnerable areas that potentially may be more affected than others. With that, medical school, nursing school, and STEM graduate enrollment must go up as we see from New Jersey's COVID-19 pandemic that our medical professionals are spread too thin. Finally, with New Jersey diversity in mind, it is important for medical centers and the state government to have representatives who are able to relay information from top authorities like the NIH to these ethnic communities in their own language and understanding in a fast and efficient pace. With the combination of these steps, a 'COVID-20' will not have time to make a drastic difference in New Jersey's landscape as COVID-19 did."

From: Eeshan Khurana
Junior, Biotechnology High School

Why New Jersey?

"Although COVID-19 has had a profound impact on countries across the globe, it seems to have had the most significant effect on the United States and in particular, New York and New Jersey. This is likely because these are among the most densely populated states in America, and they are in close proximity to Europe. In fact, New Jersey was declared to be the most densely populated state by worldatlas.com in 2017. Given that the virus can spread through the air from one person to another, the closer people are to each other the higher the chances that they will contract the virus. This is likely why New Jersey has been hit harder than most other places. Additionally, New Jersey is close in proximity to New York City, which has been the epicenter of this pandemic. It is common for workers to travel from New Jersey to New York using mass transit, which is an ideal environment for a highly contagious virus such as COVID-19 to spread, so a

substantial amount of New Jerseyans were susceptible to the virus. Furthermore, as Europe is just across the Atlantic, and there are three major airports in the vicinity, travel is quite common and a perfect way for the virus to travel from Europe to New Jersey. Lastly, like most cities New Jersey did not have a plan in place to combat an epidemic.

It seems rather difficult to test whether a dense population in New Jersey is actually a reason for why it was affected as much as it was. However, a logical way to see if the virus initially came to New Jersey from workers commuting to and from New York and travelers overseas is to survey some of the first people who were recorded to have contracted the virus. This is commonly called contact tracing. Seeing if these people fall into one or both of the two categories could shed some light as to why New Jersey became an epicenter. It seems logical that the virus initially came to New Jersey in these ways, and then spread quickly due to its high population density. In addition, we can examine areas where the virus spread more slowly and understand the differences in the way differing populations move and congregate and its impact on viral spread."

How do we prevent New Jersey from being an epicenter again?

"The most effective way for New Jersey not to be hit uniquely from another virus is by identifying potential threats early so that they can be dealt with. Our state is unique in that its geography makes it more vulnerable to a pandemic than other states. As mentioned before, its proximity to New York, another high densely populated state, and to Europe just across the Atlantic, means that if an outbreak were to occur in these places New Jersey would be hit hard as well. The quick pace at which events can escalate means that we must be alert to threatening scenarios around the world at all times so that we are prepared. Thus, identifying potential threats early will allow our state to be prepared for anything that may come its way. It is also vital to develop technology and policies for mass testing of infected individuals, as well as capabilities for contact tracing to track and contain the spread. Additionally, it would be wise to continue to practice basic hygiene for the foreseeable future, in order to lessen the spread of future viruses. Developing and maintaining partnerships with world health organizations can provide early warnings and data about virus behavior from other parts of the world that also may be impacted."

From: **Natalie Radu**
Junior at High Technology High School, NJAS Social Media Associate Director

Why New Jersey?

"The most obvious answer as to why New Jersey is the second most COVID 19 hit state is our proximity to the first most COVID 19 hit state -- New York. Commuter culture is strong, and I know of countless adults that bus and drive to and from New York daily for work. Northern and Central Jersey is mostly urban and suburban, a stark contrast to the rural people clustering of less impacted states like Idaho. People living closer together combined with constant travel has a generally clear correlation to disease spread. Testing this would require data analysis -- cross referencing data of how common commuting is vs population density vs disease spread (concentration, path)."

How do we prevent New Jersey from being an epicenter again?

"Frankly, I don't think commuter culture or population densities will change. The major difference might be the leniency in working from home. Now that there's an established method and proof that working from home is both productive and sustainable, the demand for in-person work may lessen, decreasing commuting frequency and germ exposure."

From: Eric Wignall, BSN, R.N., CCRN

Clinical Nurse III, Heart & Vascular Intensive Care Unit, Penn Presbyterian Medical Center, Philadelphia, PA; Co-Chair, Nursing Shared Governance Leadership Council, Penn Presbyterian Medical Center, Philadelphia, PA; Master of Science in Nursing Administration Candidate (January 2021), Felician University, Lodi, NJ

Why New Jersey?

"As the COVID 19 pandemic began to emerge, it was evident that New York City would transform into the "ground zero" of this disease on the East Coast. With its close proximity to New York City, it was only a matter of time before New Jersey would see a tidal wave effect of their residents contracting this disease. With so many bedroom communities in North Jersey that allow hundreds of thousands of residents to make the commute to offices and buildings throughout New York City with little to no effort, mass exposure was inevitable. There was a significant lack in preventative measures early on in this pandemic, not just in New Jersey but throughout this country. Had swifter action been taken to ensure safety measures such as stay at home orders, wearing face masks along with proper social distancing were considered earlier, there would have been a significant reduction in COVID 19 positive cases throughout the state as well as nationwide. It is also worth considering that Newark Liberty International Airport handles a large volume of flights that originate from the Asian-Pacific regions. While COVID 19 was on the United States radar as early as late January, the disease itself had been prevalent since early December. With so many travelers from the Asian-Pacific region entering through Newark Liberty prior to the monitoring phase that was implemented, this added to high risk exposure that lead to New Jersey becoming such a hot spot of COVID 19 cases.

Due to the nature of this disease process and the way in which it spreads, it would be difficult to pinpoint exactly how or what could have been done to decrease the spread with such veracity. However, it could be important for the New Jersey Department of Health to track those that entered the United States through Newark Liberty that arrived from Asian-Pacific countries from late November through the travel ban in late February. In conjunction with the Department of Homeland Security it would be of value to conduct a voluntary survey of those individuals to see if in fact anyone had actually contracted COVID 19 as a result of their travel and the possibility of infecting others they came in contact with. It would also be of important value for New Jersey Transit and even Amtrak, as they both have a heavy ridership within the state, to conduct a similar voluntary survey of its riders to extract similar data to help aid them in understanding how this disease was capable of inundating New Jersey. It is clear that New Jersey relies heavily on public transport not only throughout the state, but across state borders and throughout the world. Therefore, every possible entry point in and out of New Jersey needs to be given close scrutiny to develop sustainable and practical workflows that can allow the state to properly monitor those entering and leaving and ensure the wellbeing of its 8 million residents."

How do we prevent New Jersey from being an epicenter again?

"Preventing an outbreak in the future, at the magnitude this COVID outbreak demonstrated will be extremely difficult to curtail in the future. However, the New Jersey Department of Health would be wise to consider examining the techniques and management procedures that many of the Asian-Pacific communities adopted following past outbreaks such as SARS and MERS. Remote camera temperature screenings at high traffic areas such as train stations and platforms would allow officials to screen a large number of individuals utilizing public transit and identify those that may pose a risk to others. Much of New Jersey Transit stations and platforms are remotely monitored via CCTV, so there would be little impact to the organization to marry this technology with their current systems. The same technology cans and should be deployed at Newark Liberty in order to screen the millions of passengers that enter, either from domestic or international flights. We utilize temperature screening at our hospital entrances for employees and patients alike, the same should be implemented on a wider scale for our public transit system and

airports. It would also be of great value to ensure that the state has an adequate supply of personal protective equipment (PPE) to meet not only the needs of our healthcare workers, but to ensure the general public has access to things such as face masks and require wearing such when interacting with the public during an outbreak such as COVID 19."

From: YAMAN THAPA
Junior, Caldwell University, Double major in Chemistry and Biology.

Why New Jersey?

"It seems that COVID 19 has hit New Jersey harder than almost any other place. Speculate as to why. Further, explore other possible explanations. It is evident that New Jersey shares borders with New York. New York is a common transit for various international flights. There is a possibility that infected people from other countries or states could have entered the city. Being so overly populated, the spread of coronavirus was inevitable. Everyday, people commute or drive between the two states i.e. New York and New Jersey. The virus is asymptomatic. There were limited ways one could detect the presence of the virus without the symptoms showing. So even the people who had the virus were unaware. They went about their daily lives transmitting the virus.
Some supermarkets had still not imposed a rule for covering the faces or using masks even after COVID-19 had significantly affected people.

Tracing the first cases in New jersey and figuring out the possible ways they could have been contaminated or transmitted the infection would be most efficient and accurate.

- Investigating the travel history of passengers (who used JFK airport) from countries that were known to be affected before the U.S.
- Predicting the possible route they took for their final destination could help us hypothesize possible ways they could have transmitted the virus along their way.
- Investigating when services such as salon, restaurants closed.
- Investigating when essential businesses imposed rules for using mask."

How do we prevent New Jersey from being an epicenter again?

"As we know the virus is asymptomatic and does not have a vaccine yet, CDC suggests the best solution is to limit face-to-face interactions. The following actions can be taken:

- Impose strict social distancing laws.
- Rapidly conduct testing.
- Use apps to keep track of infected and possible infections.
- Strictly urge infected individuals to limit physical interactions."

From: **Lily Chen**
Ridge High School

Why New Jersey?

"There were about 2 M Europeans with virus who arrived in JFK and Newark between Jan and Mar. Also, NJ is close to New York city which was the epicenter of the outbreak. Lots of NJ residents work in the city and brought home virus everyday.

First, we should look at the sequence of the outbreak. China started and virus travelled to Europe. Then Europeans brought virus to NJ. Second, we need to investigate the number of travelers from EU during that period. Third, we should examine the DNA sequence of virus among China, EU and Nj to confirm

the hypothesis. Fourth, based on the confirmed case data, those counties adjunct to NY city (Hudson, Bergen and Essex, Passaic, Union and Middlesex) had the most cases."

How do we prevent New Jersey from being an epicenter again?

"There are several things we can do. 1) have vaccine available for everyone, 2) have drug available when people get infected, 3) when a new case is identified, need to quarantine the subject, trace anyone who has contact with subject and do segregation. 4) if necessary, complete shutdown as China did."

From: Dr. Feng Qi
Associate Professor, Kean University

Why New Jersey?

"There are four main reasons. The first is NJ has the highest population density among all US states. The second has to do with its geographic location, being right next to NYC and is home to one the busiest international airports (EWR). The third is late response. And the fourth is limited testing capacity at the early stages. The first factor (high population density) is the cause for community spread after cases are introduced. The second factor is the reason for easy introduction of cases (from NYC or international/domestic air travelers). The third factor results in community spread not contained at early stages. The last factor makes it difficulty to identify individuals who carry the virus but demonstrate only minor or no symptoms. Such individuals are important agents that spread the virus around. Without testing them, we failed to identify close contacts and failed to control community spread.

Researchers have developed models to not only model trends and make predictions but also test different controlling strategies and relevant factors. The most basic transmission models already recognize population density as an important factor that directly impact the intensity of the spread. Many advanced transmission models are the so-called spatiotemporal models that consider not only the time series, but spatial distributions of cases as well as spatial factors such as human mobility. These models have demonstrated the importance of the human mobility/interaction factor. Locations with much connections to other high population nodes are at higher risks of becoming heavily infected. One study by the University of Wisconsin also used a simulation model to conclude that extensive testing is a more effective controlling strategy by cutting off transportation routes between cities/nodes."

How do we prevent New Jersey from being an epicenter again?

Implied by my answers to the question above, early action is critical. Implementing social distancing policies early reduces the human mobility factor esp. that we have high population density. Screening susceptible agents at transportation hubs (airports, commuter hubs to NYC, etc.) helps identify early imported cases. Extensive testing identifies potential spreaders and close contacts to control the spread. And lastly, tracking close contacts with technology has been done in a number of counties such as South Korea and Singapore. It is an effective approach to identify possible transmission paths and help control the spread. Google and Apple are developing Bluetooth based app for automatic contract tracing. It may be necessary for widespread use of this technology if the data accuracy and privacy issues can be adequately addressed.

An 11 year-old's take on the Virus

We End on a Grateful Note

COVID 19 a Virus It is an RNA virus
It challenges the immune System
March 16 - School Closed, I was so Sad
COVID 19, is also known as SARS-CoV-2
COVID 19 Stuck in quarantine is so boring COVID 19
COVID 19, I can't go outside and have fun, COVID 19
Sports are all canceled and we are all stuck at home doing nothing
Doing nothing, doing nothing, doing nothing, doing nothing, nothing
COVID 19 made the world no fun and look now we're stuck at home
COVID 19 is talked about all over the news and is the biggest topic now
It is a very bad virus that attacks people's immune and respiratory systems
4 million - It has made many people around the world extremely sick and ill
People have died both old and young because of this bad virus that hit 2020 hard
THANK YOU, THANK YOU, THANK YOU, THANK YOU, THANK, THANKS!
Frontliners like Doctors, Nurses, risking their lives at work to combat this bad virus
Scientists and laboratory personnel risking their lives at work to combat this bad virus
Policemen, 1st Aid Squad personnel risking their lives at work to combat this bad virus
USPS contractors and personnel risking their lives at work to maintain the communication
Independent contractor Truckers risking their lives at work to maintain the communication
Teachers, who are working hard to try to give their students the education they deserved
Pharmacist and grocery personnel risking their lives at work to combat this bad virus
Factory and Farmer workers risking their lives at work to give the products we need
Thank you, Gov. Murphy and Gov. Cuomo - you got what it takes to be a President
Your press conferences were full of science facts NOT having improper guesses
The character of a President should be noble, educated, and a good person
Be ready for my VOTE on Presidential Election 2028, my 1st Vote
Scientific data is more accurate than fortune telling COVID 19
COVID 19 Antivirals, Antibodies treatments, and Vaccines
Science is the way to find a cure to this virus
Science data is proven to be right
COVID 19 vanished forever
COVID 19 COVID 19 COVID 19

By: Adam Ulloque
Saint Philip Preparatory School, Clifton NJ

Letters to the NJAS Newsletter Editor

We encourage a diversity of voices and views in our letters. Letters may include a review of a book, opinions about a movie in relation to science, ask a scientific question to the NJAS community, submit a piece of art in relation to science (may serve as the front page picture), opinions to current science news or issues, or can refer to an article that has appeared within the last two issues of the NJAS newsletter.

Letters should preferably be 150 to 175 words and must include the writer's address and phone number (only the name will be published). A piece of Art may be submitted electronically in a JPEG format. Letters or art pieces should be exclusive to the NJAS "Newsletter."

To send a Letter or Art to the Editor: email letter/art to NJASNewsletter@gmail.com, must include email subject as "Letter/Art to the NJAS Newsletter Editor."

NJAS NEWS

- NJAS "Meet and Greet" Event. Executive Members went live on May 7, 2020 to meet NJAS members and friends

- NJAS members joined the "Women in Science at Yale (WISAY)" Virtual Event - May 21st 6:30-8:00 PM

- Despite COVID-19, The 65th NJAS Annual Research Competition was resume in a virtual manner on May 9, 2020. Participants submitted their research videos to NJAS. Winners to be announced in July 2020. Thank you to all the participants for your support, time and consideration

Upcoming Seminar Events

July 2020

A close-up with COVID-19 Heroes
July 17, 2020 at 6pm (Virtual Event)
Please reserve the date
NJAS will recognize COVID-19 heroes. Healthcare providers will discuss their experience during COVID-19. Participants will have an opportunity to ask questions. Flyer will be sent soon.
Speakers:

Rory Ulloque, MS, MD
Medical Director Non-Teaching Hospitalist Program
Medical Director Post-Acute Care Program Associate
Professor - Family Medicine and Community Health
Rutgers University – RWJMS

Lisa Primiani, MD
Attending Physician - ABOFM
MedExpress Urgent Care – Northern NJ

Aradia Tabasko, MS, PA-C
Central Jersey Emergency Medicine Associates, NJ

Mariana Restrepo, BSN, R N, PCCN
Hackensack Meridian Health, NJ

Tamara Beckford. MS, MD
Emergency Medicine Physician
Houston Methodist West Hospital, TX

August 2020

NJAS grants the
Advancement of Science Award to
Dr. Dipak Sarkar, D.Phil., Ph.D.
Distinguished Professor and Director of the Endocrine Program at Rutgers University
August 22, 2020 at 1- 4pm (Virtual Event)
Please reserve the date
A series of lectures in the fields of endocrinology, alcohol studies and cancer will be showcase. Flyer will be sent soon

Become a NJ Academy of Science member Today! Let's reinforce our NJ Scientific Community