# Fireside chat: Drs. Fauci & Nkengasong discuss global equity during pandemics, preparing for the future

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"For respiratory illnesses, what happens in sub-Saharan Africa or Asia gets to Brooklyn and vice versa. It goes both ways," said **ANTHONY FAUCI, MD**, Director of the National Institute of Allergy and Infectious Diseases, at a Zoom fireside chat held after a Harvard grand rounds event on Jan. 20th.

"We are more connected in the world than we thought we were and more vulnerable, even within countries and regions," said **JOHN NKENGASONG, MSc, PhD**, Director of the Africa Centres for Disease Control and Prevention and nominated head of the U.S. President's Emergency Plan for AIDS Relief (PEPFAR). The global health organization was founded in 2003 during the Bush administration.

The two conversed in the informal tradition of President Franklin Delano Roosevelt's Great Depression fireside chats, on epidemics and pandemics – past, present and future. Dr. Nkengasong recalled Dr. Fauci visiting him in the lab he worked in as a student in Africa in the early 2000s, which was the beginning of a mentorship and friendship that shaped his life. He promised to send Dr. Fauci a photo from the lab taken two decades ago.

The program, hosted by the Harvard Global Health Institute (HGHI) and the Harvard University Center for AIDS Research, centered on lessons learned from HIV and COVID for designing a new paradigm to address future pandemics and global equity.

"To prepare to meet the challenges of future pandemics requires collaboration, cooperation, and reengagement. Equity is not simply an ethical idea or moral value. It is the essential key to global health," said **ALLAN M. BRANDT, PhD**, Professor of the History of Medicine in the Department of Social Medicine, Faculty of Medicine, who offered brief concluding remarks.


Drs. **Ingrid Katz**, **Anthony Fauci**, and **John Nkengasong** engage in a virtual fireside chat hosted at Harvard recently, which followed a program on responding to epidemics and pandemics. The event was attended by RIMJ as well as 700 worldwide listeners, who filled the chat box with questions and responses.

**INGRID T. KATZ, MD,** Associate Faculty Director of HGHI, moderated the conversation. She began by asking them about the most important lessons they've learned from their work with HIV applicable to the COVID pandemic.

**DR. FAUCI:** I have always felt that HIV/AIDS is a global pandemic and we launched PEPFAR in 2003 during the Bush administration to address it. We have a moral responsibility to provide equity and the availability and implementation of interventions that are life-saving in our own country or the UK and the European Union to others who don't have the resources we have, one of the driving forces of PEPFAR. It is an issue of equity when you are dealing with a global pandemic, both morally and as a clear objective of public health. We have to make sure we address the outbreak of COVID-19 in a very similar way that we successfully did with PEPFAR and the Global Fund. We are all members of the human society.

**DR. NKENGASONG:** PEPFAR has been a transformational effort for Africa and for the world. It shows what strong political leadership and commitment can do. Before PEPFAR was launched we saw the devastation of HIV – life expectancy in some countries in Africa like Botswana was plummeting.

Reflecting on COVID, Lesson No. 1 I see is the connectivity, that we are more connected in the world today than we were and are more vulnerable at the same time. The best way to prepare for the unknown is to support the known…and to strengthen national systems and services. There are several lessons we have learned from the past…three things from Africa we should be looking at in 2022: the ability to scale up vaccines so that we

can move from 10 percent to 70 percent, scale up testing and make it a community exercise, and make sure of timely access to any new drugs that are available…to prevent our systems from being overwhelmed.

**DR. KATZ** reiterated that connectivity is key and asked for their thoughts on how to proactively design a landscape that rapidly reaches people globally and brings diagnostics, vaccines and therapeutics to bring pandemics under control.

**DR. FAUCI:** It's a critical issue not easily solvable. If you take the vaccines or direct-acting antivirals as examples, the scientific approach was unprecedented, ie, the success in developing vaccines for COVID-19.

The contracts that were made by the developed world to buy and distribute vaccines are understandable, but right from the get-go, you have to understand this is a broad global responsibility and I don't have the answer on how poor or developing countries get something simultaneously, but I think there needs to be leadership at a global level, whether it be the G7 or the G20.

It requires leadership to make sure countries as well as industry feels the responsibility – but it is naïve to think industry is not making money on this, therefore, there has to be some form of global responsibility.

The same holds true for antivirals. We have some very good antiviral drugs now but still in limited supply. A global approach, as opposed to bringing availability of a drug selectively to different countries, is something we have to do. We can't have the inherent inequity that seems to dominate all kinds of outbreaks that we have, whatever it is. It was the same way with HIV – how can we get drugs that cost $18,000 to $25,000 a year in the US to lower- and middle-income countries; it took a lot of work looking at generics and intellectual property rights to make that happen. We have to do the same thing right now with COVID-19.

**DR. NKENGASONG:** We need to build a global health security architecture. Regionalization in manufacturing is key – of diagnostics, drugs, and vaccines. There are nine partnerships between African countries at present. Just yesterday I was online with the South African president; they launched a manufacturing site for vaccines and pharmaceuticals in Cape Town. [The plant is a partnership between a U.S.-based biotechnology firm, the government and South African universities.] These kinds of initiatives must be encouraged.

I don't think any country wakes up in the morning and says we are going to manufacture vaccines and deny Africa. But you don't deal with a fast-moving respiratory disease in isolation, even if you have the best technology and the best resources…A trust capital is required to tackle bigger issues

For the 40 years we have been dealing with HIV in Africa, there is no country here that produces a simple rapid test. Why is it important? It could be reused to repurpose the technology to produce other rapid tests for other diseases than to start from scratch.

**DR. FAUCI:** If we want to get vaccines now, over the next year, to people in lower- and middle-income countries, the quickest way is to give it to them from where it is manufactured, but that's not the long-term solution. We need in-country capacity as Dr. Nkengasong said. The problem is you have to look at what the next challenge is going to be. When a pandemic is over, corporate memory fails and we don't do it, because the threat is gone. We need to do something else, to build capacity when there is not an ongoing threat. It sounds simplistic, but we haven't addressed it over the last several decades. Even if the current COVID outbreak disappears, we can't stop building capacity.

**DR. KATZ** also asked for their opinions on where the responsibility lies and what role the US should play, and how can we ensure there are sufficient funds to develop capacity and establish regulatory frameworks.

**DR. FAUCI:** The US is a rich country and it's our responsibility to provide leadership. I was pleased when, as chief medical adviser to the President, I re-engaged with the leaders of WHO, literally on the same day as the Inauguration. So that's the first thing we need to do, to get back into the game globally. I think we are already doing that, to get doses and capacity to lower-income countries. Are we doing enough? No. We're never doing enough until we essentially solve the problem. But we cannot do it alone.

**DR. NKENGASONG:** Let me end with recognizing the leadership of the US in global health security. We saw that with polio and HIV/AIDS. In my view, the US has the greatest public health assets globally. The US has put programs in place in Africa over the years that we can leverage. I agree with Dr. Fauci it takes true partnerships – partnerships are transformational, and leadership at the table, which rallies others. ❖

## Gov. McKee announces Department of Health Transition Support Team

*James McDonald, MD, MPH, to serve as interim director*

PROVIDENCE – Gov. Dan McKee announced on Jan. 27th a team of leaders to support the transition at the Rhode Island Department of Health (RIDOH) while the search continues for a permanent director.

The leadership team includes:

**JAMES MCDONALD, MD, MPH**, who will assume the day-to-day responsibilities of RIDOH Director while the search for a permanent candidate continues. He has served at RIDOH as a Medical Director and as the Chief Administrative Officer of the Board of Medical Licensure and Discipline since 2012. He has helped steer the State response to the drug overdose crisis, and he has been a key member of Rhode Island's COVID-19 leadership team.

Prior to his time at RIDOH, Dr. McDonald served as the Director of Health Services for the Naval Health Clinic New England in Newport. He earned his MD from Loyola Stritch School of Medicine in Chicago, and did his pediatric residency in the U.S. Navy, and a preventive medicine residency through the State University of New York. He earned his MPH from the University of North Carolina in Chapel Hill. Dr. McDonald is board-certified in pediatrics and preventive medicine. His diverse career includes officership in the U.S. Navy.

"I am looking forward to leading the Rhode Island Department of Health in this interim capacity as we continue the critical work of managing the COVID-19 pandemic and delivering the dozens of other vital public health services on which Rhode Islanders rely," said Dr. McDonald. "As a team, we will continue to work toward our aim of giving every Rhode Islander and every community an equal opportunity to be healthy and thrive," he said.

**ANA NOVAIS** will be providing daily operational support to Dr. McDonald and the Department in areas such as policy, programming and legislative processes. She has over 35 years of public health experience and currently serves as Assistant Secretary of the Executive Office of Health and Human Services. Prior to that, she worked at RIDOH for several years as Deputy Director; Education and Outreach Coordinator focusing on children's health issues; and as the Minority Health Coordinator, charged with assuring the Department addressed the health needs of racial and ethnic minority communities. During that time, she led efforts to achieve health equity by focusing on health disparities and access to care, chronic disease management and prevention, environmental health, and maternal and child health; and she was charged with implementing the department's strategic priorities. Novais holds a Clinical Psychology degree from UCLN, Belgium, and is a graduate from the Northeastern Public Health Leadership Institute, University of Albany.

**ERNIE ALMONTE** currently serves as Chief of Staff to Lt. Governor Sabina Matos. Prior to that, he was a business, government, and process improvement specialist with more than 40 years of experience. He has provided technical assistance on accounting and financial reporting issues to businesses, along with federal, state, and local governments. He also served for 16 years as the Rhode Island Auditor General where he was responsible for the State of Rhode Island financial, performance and fraud audits. In that role, Almonte was responsible for the $8 billion CAFR, audit of the RI Lottery financial statements and IT controls, provided due diligence on casino mergers and compliance with state agreements, insight on pensions, and audits of quasi-public agencies and municipalities. He has served in numerous positions as Chairperson of audit committees including the Department of Defense Audit Advisory Committee at the Pentagon, and as a member of the Government Auditing Standards Committee for the Comptroller General of the United States.

In this temporary assignment, Almonte will provide managerial support on department finances, budgeting, and other fiscal operations.

**CHRIS ABHULIME, DVM, MS, PMHNP-BC**, is Deputy Chief of Staff to Gov. McKee. He will serve as the liaison between the advisors and the Governor's office. He is an accomplished clinical/biopharmaceutical scientist with over 15 years of technical, operational, and managerial experience in clinical immunology, diagnostic testing, regulated bioanalysis, quality assurance, assay validation, clinical trials, and lab automation. He is a board certified/licensed Psychiatric-Mental Nurse Practitioner and previously served as a Research Lab Manager at the University of Massachusetts Medical School. He earned a Master of Science from Regis College, a Master's degree in clinical laboratory science/medical technology from the University of Rhode Island, and a Doctor of Veterinary degree.

In this temporary assignment, Abhulime will provide operational support to the Department.

"Our Administration has moved quickly to put an experienced leadership team in place at the Rhode Island Department of Health to ensure that our COVID-19 response remains strong," said Gov. Dan McKee. "I thank Dr. McDonald, Assistant Secretary Novais, Ernie Almonte, and Chris Abhulime for stepping up and I look forward to continuing to work with all of them during this transition. I also want to thank the career staff at the Department of Health who continue to do the work of ensuring access to quality health services for all Rhode Islanders."

The Governor will continue to work with his team of health advisors to identify a permanent RIDOH Director. ❖

## Gov. McKee names advisory panel in search for RIDOH director

PROVIDENCE – Gov. Dan McKee recently announced a number of Rhode Island health care professionals who will advise him on the search for both an interim and permanent director of the Rhode Island Department of Health (RIDOH).

"I thank the esteemed health care professionals who have stepped up to support our Administration in selecting a new director to lead the Rhode Island Department of Health," said Governor McKee. "As we conduct the search, I want Rhode Islanders to know that our work to address COVID-19, expand testing capacity, and get more shots in arms will continue. We have a strong team in place to ensure a smooth transition. We've also recently reassigned former Emergency Management Director Marc Pappas to lead our whole of government COVID response and Major General Christopher Callahan has reactivated our Rhode Island National Guard to support us every step of the way."

Advisors include: Megan Ranney, MD, MPH; John A. Stoukides, MD, ScD; Bradley J. Collins, MD, SFHM, FACP; Kristina Duarte, MD, ScM; Abdul Saied Calvino, MD, MPH, FACS; Heather A. Smith, MPH, MD, FACOG; and Chris Abhulime, DVM, MS, PMHNP-BC.

**MEGAN RANNEY, MD, MPH**, is a practicing emergency physician, federally-funded researcher, and national advocate for innovative approaches to health. She is the Academic Dean for the School of Public Health, as well as founding Director of the Brown-Lifespan Center for Digital Health, and currently serves as the Warren Alpert Endowed Professor of Emergency Medicine and Professor of Behavioral and Social Science at Brown University. She serves multiple national leadership roles, including co-founder and Senior Strategic Advisor for AFFIRM at the Aspen Institute (http://www.affirmresearch.org), a non-profit committed to ending the gun violence epidemic through a non-partisan public health approach; she was co-founder and President of the Board of GetUsPPE.org, a start-up non-profit that delivered donated personal protective equipment to those who needed it most across the country. She has received numerous awards for technology innovation, public health, and research, and is a leading national voice on the health system and public health response to COVID-19. Dr. Ranney earned her medical degree from Columbia University, and her master's in public health from Brown University. She completed her residency in Emergency Medicine and a fellowship in Injury Prevention Research at Brown University.

**JOHN A. STOUKIDES, MD, ScD,** is board-certified in Internal Medicine, Hospice and Palliative Medicine, Quality Assurance and Utilization Review. He is Vice Chairman of the Department of Medicine and Chief of the Division of Geriatrics and Palliative Medicine at Roger Williams Medical Center and also serves as Medical Director of Utilization Management for CharterCARE Health Partners. He has been overseeing the COVID vaccination program at CharterCARE hospitals. He received his pharmacy degree from URI and medical degree from Tufts University School of Medicine along with an honorary doctor of science in Geriatrics from URI in 2005. He serves as a Clinical Professor of Pharmacy at URI, Assistant Professor of Medicine at Boston University School of Medicine and Warren Alpert Medical School of Brown University and is Associate Professor of Nursing at URI.

**BRADLEY J. COLLINS, MD, SFHM, FACP**, is an internist and hospitalist at the Miriam Hospital. An Associate Professor of Medicine at the Warren Alpert Medical School of Brown University, he currently serves as President of the Rhode Island Chapter of the Society of Hospital Medicine and is a current member and past President of the Rhode Island Medical Society. He received his medical degree from Pennsylvania State University and completed his residency at the Warren Alpert Medical School of Brown University.

**KRISTINA DUARTE, MD, ScM,** is a family physician at Providence Community Health Centers. She earned her medical degree from Dartmouth School of Medicine. After completing her family medicine residency at the Brown University School of Medicine affiliated site at Memorial Hospital of Rhode Island, Dr. Duarte completed a Master of Science in Epidemiology at Brown University during a two-year clinical Maternal Child Health Fellowship. For 11 years, Dr. Duarte was the Assistant Program Director for the Brown University Family Medicine Residency. She has received numerous teaching awards. She currently is a Clinical Assistant Professor of Family Medicine and continues teaching while her focus is on clinical work.

**ABDUL SAIED CALVINO MD, MPH, FACS,** earned his medical degree from the University of Panama Medical School and his Master's in Public Health from the University of Illinois at Chicago (UIC). He completed his general surgery residency at UIC and his surgical oncology fellowship at Roger Williams Medical Center. He is board-certified in General Surgery and Surgical Oncology. Besides his clinical practice, he has established an active community outreach and cancer navigation program to improve access to surgical care in underserved populations. For the impact of his work on the community, he has received numerous awards and recognitions at the local and national level, including the Centers for Disease Control and Prevention (CDC) Carol Friedman National Award for excellence in addressing cancer care disparities.

**HEATHER A. SMITH, MPH, MD, FACOG**, is a board-certified obstetrician and gynecologist, educator, and leader in women's health advocacy. She is an Assistant Professor at Brown University, serving as an Academic Generalist as well as the Director of Quality for the Emergency Department at Women & Infants Hospital. Her work is centered on addressing disparities in maternal outcomes and patient experiences, with a focus on improved communication and community engagement. Active in health policy and advocacy, Dr. Smith is the current president of the American Medical Association (AMA) Foundation, the Vice Chair to the Council on Legislation as well as a delegate

representing the American College for Obstetricians and Gynecologists to the AMA, and the Vice President at the Rhode Island Medical Society. After receiving her undergraduate degree in biology from the University of Virginia, Dr. Smith earned a master's in Public Health and a master's in Medical Sciences from Boston University prior to attending medical school at the University of Massachusetts Medical School and completing residency training in Obstetrics and Gynecology at the Brigham and Women's Hospital and Massachusetts General Hospital. Dr. Smith completed a post-doctorate fellowship in health services research through the Robert Wood Johnson Foundation Clinical Scholars Program at Yale University.

**CHRIS ABHULIME, DVM, MS, PMHNP-BC,** is Deputy Chief of Staff to Governor Dan McKee. He will serve as the liaison between the advisors and the Governor's Office. He is an accomplished clinical/biopharmaceutical scientist with over 15 years of technical, operational, and managerial experience in clinical immunology, diagnostic testing, regulated bioanalysis, quality assurance, assay validation, clinical trials, and lab automation. He is a board certified/licensed Psychiatric-Mental Nurse Practitioner and previously served as a Research Lab Manager at the University of Massachusetts Medical School. He earned a Master of Science from Regis College, a master's degree in clinical laboratory science/medical technology from the University of Rhode Island, and a Doctor of Veterinary degree. ❖

## Research team uses new artificial intelligence algorithm to benchmark cesarean delivery performance

WARWICK – Health Services Research publishes article about researchers from Women & Infants Hospital using a novel machine-learning algorithm that can accurately benchmark cesarean delivery performance.

According to **ALEXIS C. GIMOVSKY, MD**, lead author of the article, "the cesarean delivery rate in the United States for low-risk births exceeds the World Health Organization's goal rate and is associated with increased maternal morbidity and mortality. Groups have tried in the past to compare performance metrics of physician groups to hospital standards in order to understand who is performing too many cesarean deliveries and why. However, prior research has been limited by patient related factors, the use of a single summary measure of hospital performance and outdated analytical methods. Additionally, comparison of cesarean delivery rates between hospitals or practice groups may not be appropriate given the wide variety in patients across groups."

A team of researchers from The Warren Alpert Medical School of Brown University, including Dr. Gimovsky, and researchers from the Northwestern University Feinberg School of Medicine, used a new artificial intelligence algorithm called an optimal classification tree to benchmark practice groups CD rates in a large hospital system. They found that this technology can assess physician practice specific case-adjusted performance for cesarean delivery with high sensitivity of 98.4%. This means that this machine learning tool can accurately compare the performance of different physician groups against a hospital specific standard to see if a group is doing too many or too few cesarean deliveries than expected depending on the health of their patients.

Dr. Gimovsky added, "This is the next milestone in outcomes analysis. This is important because it can serve as a valuable tool for hospital self-assessment and quality improvement in decreasing the number of cesarean deliveries, which is crucial to the goal of reducing maternal morbidity and mortality."

The team behind the algorithm's application is based out of Alexandria Health, a software firm that provides analysis on behalf of hospitals. ❖

## RI earns mixed grades in 20th 'State of Tobacco Control' report

*State gets "F" on tobacco control funding, "D" on regulation of flavored tobacco products*

PROVIDENCE – The American Lung Association's 20th annual "State of Tobacco Control" report, released Jan. 26th, reveals significant progress in the work to end tobacco use, but products like e-cigarettes and other flavored tobacco products, including menthol cigarettes, create concern for losing another generation to nicotine addiction. The report finds that although Rhode Island earned mixed grades, it maintained an "F" grade on tobacco control funding and a nearly failing "D" on its regulation of flavored tobacco products.

The "State of Tobacco Control" report evaluates state and federal policymakers on actions taken to eliminate tobacco use, the nation's leading cause of preventable death. The report recommends proven-effective tobacco control laws and policies to save lives. The 2022 "State of Tobacco Control" reveals that the country has made substantial progress in advancing tobacco control policies over the past 20 years, including comprehensive smokefree laws in more states, increased tobacco taxes across the nation and more Americans with access to treatments to help them quit smoking through state Medicaid programs.

Here in Rhode Island in the last 20 years, lawmakers have made significant strides to reduce tobacco use, including a robust smokefree air act that protects people from secondhand smoke. However, there is more work to be done. The adult smoking rate is still 13.5%, and the high school tobacco use rate is 33.3%. Today, smoking costs the State over $639 million and over 1,700 Rhode Island lives annually.

"While we have seen considerable progress in Rhode Island, tobacco use remains our leading cause of preventable death and disease, taking an estimated 1,780 Rhode Island lives each year," said **DANIEL FITZGERALD**, director of advocacy for the American Lung Association in Rhode Island. "And our progress on tobacco control policy has been lacking on both tobacco control funding and protecting our youth from all flavored tobacco products. Ultimately our legislators must do more to protect Rhode Island residents – especially youth – from a lifetime of nicotine addiction."

### Rhode Island's Grades

"State of Tobacco Control" 2022 grades states and the District of Columbia in five areas that have been proven to prevent and reduce tobacco use and save lives. Rhode Island received the following grades:

1. Funding for State Tobacco Prevention Programs – Grade F
2. Strength of Smokefree Workplace Laws – Grade A
3. Level of State Tobacco Taxes – Grade B
4. Coverage and Access to Services to Quit Tobacco – Grade B
5. Ending the Sale of All Flavored Tobacco Products – Grade D

This year's report noted the need for Rhode Island policymakers to refocus on ending the sale of all flavored tobacco products, including menthol cigarettes in the State of Rhode Island. According to the 2021 National Youth Tobacco Survey, more than two million high school and middle school students use e-cigarettes, and over 80% of those kids use flavored e-cigarettes. In addition, menthol cigarettes continue to be the major cause of tobacco-related death and disease in Black communities, with nearly 81% of Black Americans who smoke using them. Ending the sale of flavored tobacco products, including menthol, will not only help end youth vaping, but will also help address the disproportionate impact of menthol cigarettes and flavored cigars have on many communities, including Black Americans, LGBTQ+ Americans and youth.

"Kids follow the flavors, so ending the sale of all flavored tobacco products in Rhode Island is key to ending youth tobacco use. We call on legislators in Providence to prohibit the sale of all flavored tobacco products, including menthol." said Fitzgerald.

In addition to tobacco program funding, the report also highlights the importance of increasing funding for tobacco prevention and quit smoking programs. An investment in prevention is especially important given the ongoing youth vaping epidemic.

"Despite receiving over $205 million from tobacco taxes, Rhode Island only funds tobacco control efforts 13% of the Centers for Disease Control and Prevention (CDC) recommended level. The Lung Association believes the State's tobacco related revenue should be used to support the health of our communities, and to prevent tobacco use and help people quit, and not switch to e-cigarettes. These programs are also critical for helping to end tobacco-related health disparities," said Fitzgerald.

### Federal Grades Overview

"State of Tobacco Control" 2022 also grades the federal government in five areas:

- 1. Federal Government Regulation of Tobacco Products (2022 grade – D)
- 2. Federal Coverage of Quit Smoking Treatments (2022 grade – D)
- 3. Level of Federal Tobacco Taxes (2022 grade – F)
- 4. Federal Mass Media Campaigns to Prevent and Reduce Tobacco Use (2022 grade – A)
- Federal Minimum Age of Sale for Tobacco Products to 21 (2022 grade – I*)

** The Incomplete grade is for the FDA being more than 18 months overdue in publishing the final Tobacco 21 regulations as required by statute.*

Fitzgerald concluded, "In 2022, Rhode Island needs to redouble its efforts to pass the proven policies called for in 'State of Tobacco Control' to help end tobacco use. We cannot afford to wait 20 more years and allow another generation to suffer from tobacco-caused addiction, disease and death." ❖

## Study of fully vaccinated patients with cancer who had breakthrough COVID-19 shows 13% mortality rate

*Data collected before booster vaccine recommendation*

PROVIDENCE – The first study to evaluate the clinical characteristics and outcomes of fully vaccinated patients with cancer who had breakthrough COVID-19 infections indicates they remained at high risk for hospitalization and death.

The study, published Dec. 24 in Annals of Oncology showed that fully vaccinated patients who experienced breakthrough infections had a hospitalization rate of 65%, an ICU or mechanical ventilation rate of 19%, and a 13% death rate.

The study was conducted by the COVID-19 and Cancer Consortium (CCC19), a group of 129 research centers that has been tracking the impact of COVID-19 on patients with cancer since the beginning of the pandemic. The Lifespan Cancer Institute and partner Brown University are among the participating centers and are designated as "platinum tier institutions" – the top tier – for "outstanding overall and ongoing contributions to the registry."

"Similar results (high mortality rates among fully vaccinated individuals) have been reported in other immunocompromised patient populations, such as organ transplant recipients, prior to the utilization of additional vaccine doses. These findings come at a time of concerns that immune escape mutants such as the omicron strain may emerge from chronically infected patients with weakened immune systems. Thus, the immunosuppressed and their close contacts should be target groups for therapeutic and preventive interventions, including community-level outreach and educational efforts," said senior author **DIMITRIOS FARMAKIOTIS, MD**, Director of Transplant and Oncology Infectious Diseases at Rhode Island Hospital, the Lifespan Cancer Institute and the Lifespan Cardiovascular Institute, and an associate professor of medicine at the Warren Alpert Medical School of Brown University. He serves on the consortium's steering committee.

Patients were considered fully vaccinated after having received two doses of either the BioNTech, Pfizer vaccine or the Moderna, NIAD vaccine, or one dose of the J&J vaccine, with the last vaccine dose long enough before breakthrough COVID-19, to consider them as fully vaccinated. The data were collected between Nov. 1, 2020, and May 31, 2021, before booster vaccines were recommended for patients with cancer by the U.S. Centers for Disease Control and Prevention.

"Patients with cancer who develop breakthrough COVID-19 even following full vaccination can still experience severe outcomes, including death," said **TONI CHOUEIRI, MD**, director of the Lank Center for Genitourinary Care at Dana-Farber Cancer Institute and a senior author on the report. "That is why a multilayered approach that includes masking and social-distancing, along with vaccination plus booster against COVID-19 remains an essential approach for the foreseeable future."

The consortium identified 1,787 patients with cancer and COVID-19 for the study, the vast majority of which were unvaccinated. The number of fully vaccinated was 54, and 46% of those fully vaccinated had reduced levels of lymphocytes – the T cells and B cells responsible for immunological responses to viruses. Lymphopenia commonly occurs in patients with cancer receiving anti-CD20 monoclonal antibodies or CAR-T-cell treatments for hematologic malignancies, including lymphoma and leukemia. The study appears to support previous observations that patients with hematologic malignancies are at greater risk for severe outcomes from COVID-19. However, the number of patients in the study is too small to make definitive conclusions about specific types of anticancer therapies that might be associated with breakthrough infections, the researchers noted. Patients on a treatment regimen of corticosteroids also appeared to be more susceptible to hospitalization.

"Because measures of immunity are not routinely collected in clinical care, we don't know whether these were patients who mounted effective immune responses after vaccination; a lot of emerging data have suggested that patients with cancer, especially blood cancers, don't mount adequate protective antibody responses. It's important to note that many of the same factors that we identified prior to the availability of vaccination – age, comorbidities, performance status, and progressing cancer – still seem to drive many of the bad outcomes," said **JEREMY WARNER, MD**, director of the CCC19 Research Coordinating Center, associate professor at Vanderbilt-Ingram Cancer Center and a senior author of the study.

The study's lead authors are Andrew Schmidt, MD; Chris Labaki, MD; Ziad Bakouny, MD, all from Dana-Farber Cancer Institute; and Chih-Yuan Hsu, PhD, of Vanderbilt-University Medical Center. The senior authors are Choueiri of Harvard, Farmakiotis of Brown University, and Warner and Yu Shyr, PhD, of Vanderbilt University Medical Center. Other contributors include Nino Balanchivadze, MD; Stephanie Berg, DO; Sibel Blau, MD; Ahmad Daher, MD, PhD; Talal El Zarif, MD; Christopher Riese, PhD, RN; Elizabeth Griffiths, MD; Jessica Hawley, MD; Brandon Hayes-Lattin, MD; Vidhya Karivedu, MBBS; Tahir Latif, MBBS, MBA; Blanche Mavromatis, MD; Rana McKay; MD; Ryan Nguyen, DO; Orestis Panagiotou, MD, PhD; Andrew Portuguese, MD; Matthew Puc, MD; Miriam Santos Dutra, PhD; Brett Schroeder, MD; Astha Thakkar, MD; Elizabeth Wulff-Burchfield, MD, and Sanjay Mishra, PhD. ❖