# VCU Office of the Vice President for Research and Innovation (OVPRI) Innovating for Impact

Annual report, 2019-2020

## Message from the Vice President for Research and Innovation

Advancing excellence in VCU research

As with many others, for the entire VCU research community, 2020 was a year like no other. In mid-March, COVID-19 forced the university to shut down almost all research. However, as we slowly returned to research, we adapted and worked to establish safe and creative ways to continue to advance our mission of improving the human condition through exceptionally creative, collaborative and community-engaged research.

In April, the Office of the Vice President for Research and Innovation, in partnership with others, began an unprecedented faculty research rapid funding program to support COVID-related projects designed to diminish the impact of the pandemic. Faculty from both campuses competed in all areas, for example: health, education, public policy, business and engineering, as well as the arts and humanities. In the end, the effort funded 31 projects; many of which are described in this report.

VCU also moved quickly to bring the most critical COVID-19 related clinical studies and trials to our COVID-19 impacted patients, including the first FDA-approved remdesivir drug trial. Overall, this experience showed us how efficient, effective and resilient our teams can be in the face of complex challenges.

Our non-COVID research continued to excel as we returned to research and VCU ended the fiscal year with an institutional record $335 million in sponsored funding for research – an 8% increase from the prior year. VCU education researchers won more than $8 million in federal grants to focus on providing the best training and employment for people with disabilities. Colleagues are developing next-generation rechargeable batteries with a $2.5 million grant from the U.S. Department of Energy. Grants nearing $2.3 million from the National Institute of Justice support VCU efforts to develop and evaluate new tools in forensic science. Construction on a research building for the College of Engineering came to a close.

Our talented commercialization teams in Innovation Gateway and VCU Ventures collaborated with faculty to meet the challenge of COVID-19, moving researchers' inventions from lab to community. In the past decade, we have over 1,500 patents filed (including 172 last year), received over $26 million in licensing revenue for our inventions, created over 55 startups (including nine last year) with $64 million in start-up follow on funding, and 42 products in the market which are sold or distributed around the world.

Much of VCU's research is facilitated not just within our colleges and schools, but also within our core laboratories, research institutes and centers, such as Massey Cancer Center, the C. Kenneth and Dianne Wright Center for Clinical and Translational Research, Medicines for All and others. They are drivers of translational research of VCU and contribute to our overall success ranging from drug discovery to public health to community-engaged research.

As we build our research enterprise, we strive to become a top community-engaged urban public research university with a focus on improving the human condition. The university's Strategic Research

Priorities Plan, described on the next page, will lead us there and beyond as VCU continues to be a locally relevant, nationally and globally prominent public research university.

Regards,
P. Srirama Rao, Ph.D.
Vice President for Research and Innovation

Watch VP Rao's 2020 "State of the Research" presentation on the OVPRI YouTube channel. Click https://www.youtube.com/watch?v=a-yPjmvh5As to view.

**OVPRI mission**
To foster transformative research, discovery and innovation at VCU through excellence in service and advocacy.

# VCU Strategic Research Priorities Plan, executive summary

Improving the Human Condition

VCU focuses on achieving social impact through a culture of research collaboration, as set forth in the university's strategic plan, Quest 2025: Together We Transform.

To guide the VCU research enterprise in its commitment to research, discovery and innovation, President Michael Rao, Ph.D., and Vice President for Research and Innovation, P. Srirama Rao, Ph.D., convened the Strategic Research Priorities Planning Committee. Co-chairs Kathleen Rudasill, Ph.D., associate dean for research and faculty development in the School of Education, and Michael Donnenberg, M.D., senior associate dean for research and training in the School of Medicine, and a group of key faculty and research leaders across both VCU campuses, were tasked with creating a bold, ambitious and strategic university-wide plan. This framework will streamline investments leading to increased funding and growth, ultimately advancing excellence in research at VCU.

The committee considered current and aspirational areas of research excellence and resources, infrastructure and investment needed to accomplish significant programmatic improvements in the research enterprise. It evaluated VCU's research funding and expenditures and how to assist schools and colleges in realizing strategic goals and full research potential. The committee sought input from the VCU community and garnered valuable feedback from about 300 researchers reflecting VCU's diverse and essential perspectives. Subsequently, a team of more than 80 faculty members developed the framework for an implementation strategy as a roadmap to the successful outcomes set forth in the plan. With additional feedback at all stages from university leadership, the plan reflects the goals of all members of the VCU research enterprise.

In support of our overall aim of "Improving the Human Condition," we will focus on four initiatives:

1. Enriching the human experience
2. Achieving a just and equitable society
3. Optimizing health
4. Supporting sustainable energy and environments

These initiatives will rest and rely upon the foundation of the plan: **Societal Impact through a Culture of Collaboration**.

This is One VCU Research, dedicated to improving the human condition through a culture of creativity, team science, collaboration and recognition. We will respond to needs of societal changes that can be sudden and fundamentally alter our lives. As we emerge from the COVID-19 pandemic and face a new and rapidly evolving landscape, this plan will provide the framework to not only further advance our mission, but to position ourselves to answer the call, whatever it may be. We must nurture our ability to pivot and meet the challenges of the day by developing novel ideas and seizing unique opportunities. An integrated approach across both VCU campuses will move us forward toward our goal: by 2025, VCU will be among the top urban public research universities that is nationally known and internationally recognized for its impact. Implementing the Strategic Research Priorities Plan will allow VCU to accelerate its commitment to addressing society's most vexing problems and its most urgent needs.

**One VCU Research**
OUR MISSION is to enrich the human experience and advance human health and well-being through exceptionally creative, collaborative and community-engaged research.

OUR VISION is that we are a nationally prominent research institution dedicated to improving the human condition by developing fundamental knowledge and transformative solutions to address the grand challenges facing individuals, communities, our environment and the natural world.

# VCU by the numbers

**Research excellence**
$335 million in combined awards for sponsored programs for research
$158 million total federal funding
65$^{th}$ in R&D expenditures among public institutions
1 of 28 public institutions that is both an NCI-designated center and has an NIH Clinical and Translational Science Award
1 of 67 public institutions designated "Community Engaged" and "Very High Research Activity"
4,914 graduate research scholars
330 undergraduate research scholars

**Clinical research**
879 active clinical research studies across 11 units
572 clinical trials
4,527 active clinical research participants
1,765 enrolled the past fiscal year
326 VCU-designed clinical studies
24 SARS-CoV-2 clinical research studies
243 participants in 15 clinical trials
2,327 participants in 9 laboratory studies
36 faculty-held FDA applications for new drugs/devices

**Sponsored program awards FY 2015-2020**
2015: $270 million
2016: $271 million
2017: $275 million

2018: $271 million
2019: $308 million
2020: $335 million

**FY2020 Sponsored program awards – up 8%,** totaling $335 million
**Awards by source**
NIH: $91.83 million
Other: $77.25 million
DOD: $17.41 million
Other DHHS: $17.05 million
VAMC: $12.86 million
University flow through: $11.25 million
NSF: $7.62 million
U.S. DoED: $4.68 million
Other federal: $6.53 million
Industry: $37.39 million
State: $51.32 million

**Awards by school and college**
Medicine: $174.12 million
Business: $.15 million
Social Work: $1.03 million
Nursing: $1.75 million
Wilder: $2.35 million
Health Professions: $3.75 million
Dentistry: $4.47 million
Pharmacy: $8.63 million
Humanities and Sciences: $20.78 million
Other: $21.65 million
Engineering: $22.67 million
Education: $31.62 million
Arts (includes VCUQ): $42.37 million

# Commercialization and economic development

**Innovation** — cultivating discovery, creativity, originality, inventiveness and talent — **is a core value of VCU**.

As a premier urban, public research university, VCU serves the local, regional and global communities by translating innovation created at VCU to the marketplace for the public's benefit. Commercialization is frequently the most efficient path to market and one that contributes to regional economic development.

OVPRI has two units that support commercialization of innovation: Innovation Gateway and VCU Ventures. Innovation Gateway has exclusive responsibility for evaluation of protectability and commercial potential, marketing and licensing of technologies to existing companies and startups.

VCU Ventures offers resources to guide faculty and staff through the startup process, navigate the university and regional landscape, and develop innovative programs to validate new ventures.

VCU FY20 commercialization efforts
133 invention disclosures
166 patents filed
19 patents issued
22 licenses/options
6 licenses to start-ups
7 copyrights
145 industry engagements
10 proof of concept grants
$2.5 million licensing revenue
51 technologies reviewed for start-up opportunities
34 teams/technologies supported for venture creation
14 total start-ups supported
9 start-ups formed in FY20
29 start-ups active in FY20
3 Small Business Innovation Research grants submitted

## Selected faculty honors and awards

Abbate, M.D., Ph.D., American Heart Association and American College of Cardiology, fellow
Suzanne Ameringer, Ph.D., American Academy of Nursing, fellow
Christine Bae, Ph.D., National Science Foundation, Faculty Early Career Development Program
Krzysztof Cios, Ph.D., Institute of Electrical and Electronics Engineers, fellow
Henry J. Donahue, Ph.D., American Society for Bone and Mineral Research, fellow
Donna Gibson, Ph.D., American Counseling Association, Extended Research Award
Ram B. Gupta, Ph.D., American Institute of Chemical Engineers, fellow
Mary Hermann, Ph.D., American Counseling Association, fellow
Milos Manic, Ph.D., Institute of Electrical and Electronics Engineers, fellow
Derek Prosser, Ph.D., National Science Foundation, Faculty Early Career Development Program
Stacey E. Reynolds, Ph.D., American Occupational Therapy Foundation, A. Jean Ayres Award
Theresa Swift-Scanlan, Ph.D., American Academy of Nursing, fellow
Gary C. Tepper, Ph.D., International Association of Advanced Materials, fellow

**National Academy of Inventors**
B. Frank Gupton, Ph.D., fellow
Peter Pidcoe, Ph.D., fellow
Everett Carpenter, Ph.D., senior member
P. Srirama Rao, Ph.D., senior member

### Journal lauds Mohamed Gad-el-Hak, Ph.D.

International colleagues lauded the many achievements of Mohamed Gad-el-Hak, professor emeritus in the VCU Department of Mechanical and Nuclear Engineering, on the occasion of his 75th birthday in the Journal of Fluids Engineering. “Homage to a Legendary Dynamicist on His Seventy-Fifth Birthday,”

authored by six scholars from research universities across the U.S. and abroad, celebrates Gad-el-Hak's many achievements in mechanical engineering and classical physics. Gad-el-Hak joined VCU's College of Engineering in 2002 as chair of mechanical engineering and the Inez Caudill Eminent Professor of Biomedical Engineering. During his tenure, he initiated VCU's graduate and undergraduate programs in nuclear engineering. Read the full journal tribute to Gad-el-Hak.

### VCU welcomes new leaders and facilities to its research community

Shoou-Yih Daniel Lee, Ph.D., joined the College of Health Professions as its associate dean for research and strategic initiatives. His research applies theories of social capital, social support and social networks to the understanding of health care organizations and patient behavior.

Amy L. Salisbury, Ph.D., is the School of Nursing's associate dean of research, scholarship and innovation. She studies fetal and infant neurobehavioral development in relation to maternal depression and antidepressant treatment during pregnancy.

Robert Winn, M.D., is director of Massey Cancer Center and senior associate dean for cancer innovation, VCU School of Medicine. As a pulmonologist, his research focuses on the translational aspects of the role that proliferation pathways and cellular senescence play in lung cancer.

## One VCU Research: Improving the human condition

VCU faculty across both campuses foster transformative research, discovery and innovation.

### Students talking science

**Christine Bae, Ph.D.**, assistant professor in the School of Education, studies ways to strengthen science learning in urban middle schools by focusing on the classroom scientific discourse among students underrepresented in the STEM fields. Her work garnered a National Science Foundation Faculty Early Career Development Program grant. "Building on Diverse Students' Funds of Knowledge to Promote Scientific Discourse and Strengthen Connections to Science Learning in Urban Classrooms" involves studying approximately 15 local middle schools and employs a mixed-methods approach with teachers and students to enhance the learning and teaching of STEM topics by developing innovative resources, models and tools.

### Tracking COVID-19's economy

As the pandemic began sweeping the country, economist **Adam Blandin, Ph.D.**, assistant professor in the School of Business, worried about political leaders relying on outdated information as they sought to help the devastated economy and workforce. Typically, U.S. labor market statistics, which are published with a three-week delay, are sufficient, but not when the economy is cratering. Blandin, and a colleague at Arizona State University, developed an online survey to provide a more timely, accurate picture of the labor market. Their Real-Time Population Survey provides accurate snapshots of the roiling U.S. labor market and its effect on workers several weeks sooner than traditional surveys.

### Targeting p53 mutations

Mutations in the p53 gene are found in more than half of all cancers, yet it remains difficult to target the gene with therapeutic drugs some four decades after its discovery. Massey Cancer Center researchers **Sumitra Deb, Ph.D.**., professor in the Department of Biochemistry and Molecular Biology, and **Brad Windle, Ph.D.**, associate professor in the School of Dentistry, want to change that with an innovative

strategy. Supported by a $2.3 million grant from the National Cancer Institute, they target cancer with a virus specially designed to kill cells containing the mutated gene while leaving cells with normal, tumor-suppressing versions of the p53 gene unscathed.

**Alcohol disorders examined**

In 2020, VCU received multiple grants to advance our understanding of alcohol related disorders. They included a new $3 million grant from the National Institute on Alcohol Abuse and Alcoholism to support work by **EDGE Lab** directors **Danielle Dick, Ph.D.**, an investigator with the VCU Alcohol Research Center and Commonwealth Professor of Psychology and Human and Molecular Genetics, and **Jessica Salvatore, Ph.D.**, assistant professor of psychology, to explore the development of alcohol misuse and related problems from adolescence into early midlife with the goal of informing prevention and intervention. The NIAAA awarded a $7.8 million grant renewal to the Alcohol Research Center for its multidisciplinary pre-clinical and clinical studies of the root causes of alcohol misuse and alcoholism. The center is led by Michael Miles, M.D., Ph.D., professor of pharmacology, toxicology and neurology at the School of Medicine.

**Next-generation batteries**

Chemical and life science engineering professor **Ram B. Gupta, Ph.D.**, is the principal investigator on a $2.5 million grant from the U.S. Department of Energy to develop next-generation rechargeable batteries. By redesigning the materials inside lithium-ion batteries, which power everything from smartphones to electric vehicles, the researchers believe they can significantly extend battery life, drive down costs and reduce safety risks for consumers. Gupta, also an associate dean for faculty research development in the College of Engineering, and his team are testing an approach for synthesizing material for the battery's cathode. This has potential environmental impacts beyond the benefits of increased battery life and efficient use of material, in areas such as solar and wind power.

**Pharm in the U.S.A.**

VCU's Medicines for All Institute led by **B. Frank Gupton, Ph.D.**, collaborates with industry leaders to expand access to medications by applying advanced manufacturing technologies that curb waste, cut costs and reduce pollution. M4ALL focuses on bringing manufacturing of the most vulnerable pharmaceuticals and their ingredients back to the United States. To lead this effort, Gupton, VCU's Floyd D. Gottwald Jr. Chair in Pharmaceutical Engineering and professor and chair of the Department of Chemical and Life Science Engineering, co-founded Phlow Corp., a public-benefit corporation focused on developing and manufacturing essential pharmaceuticals. In May 2020, Phlow, with VCU as a major academic partner, received a federal four-year contract for $354 million to accelerate this initiative.

**COVID-19 costs Black businesses**

Research by L. Douglas Wilder School of Government and Public Affairs associate professor **Elsie Harper-Anderson**, Ph.D., reveals the scope to which Black Virginians and businesses benefited less from federal relief aid offered by the pandemic-related CARES Act. She found that Black workers benefited less from the assistance provided. While Blacks represent only 19% of Virginia's labor force, they filed between 22% and 48% of the weekly initial unemployment claims between March and August. Additionally, 62% of Virginia's Black-owned firms were in industries among the hardest hit by closures nationally, compared to only 44% of white-owned firms and 48% percent of firms overall. Harper-Anderson is similarly analyzing the federal response to the current economic crisis.

**Evicted by COVID-19**
After Richmond was identified as the second highest-evicting large city in the country, associate professor **Kathryn Howell, Ph.D.**, and assistant professor **Benjamin F. Teresa, Ph.D.**, of the Wilder School, created the **RVA Eviction Lab** to expose and erode inequities in evictions across Virginia. The lab seeks to inform policy-making to support stable housing for low- and moderate-income households, facilitate knowledge about community needs and opportunities, and support efforts by affected community members to research and advocate for themselves. Their recent report, "Eviction in the Commonwealth during the COVID-19 Pandemic," outlines the statewide picture from 2017 to the present to contextualize the landscape for the coming months.

**VCU's entrepreneurial expertise**
To support the rapid development of discoveries and inventions to fight COVID-19, VCU makes faculty expertise more accessible to industry, entrepreneurs, hospitals and other researchers. These COVID-19 related technologies include new inventions that are targeted to COVID-19, as well as existing inventions that could be used or modified to fight COVID-19. **Innovation Gateway**, which facilitates the commercialization of university inventions and promotes industry collaborations and economic development, offers free ready-to-execute licenses to hospitals and industry partners to use and/or manufacture certain inventions and related products in the COVID-19 pandemic. Innovation Gateway endorses and licenses technologies applied to COVID-19 under the terms of the COVID-19 Technology Access Framework.

**VCU in cyber-space**
The National Security Agency and the Department of Homeland Security designated VCU as a National Center of Academic Excellence in Cybersecurity Defense as well as in Cyber Research. The CAE program promotes higher education and research in cyber defense to reduce vulnerability in the national information infrastructure. The VCU Cybersecurity Center, directed by professor **Milos Manic, Ph.D.**, takes an interdisciplinary approach, including its computer science, electrical and computer engineering, information systems and homeland security and emergency preparedness departments. VCU also leads the central Virginia node of the Commonwealth Cyber Initiative, which supports Virginia's national and international leadership in cybersecurity, data technologies, autonomy and related emerging technologies.

**Twins and teen brains**
Through the highly regarded VCU **Mid-Atlantic Twin Registry**, the largest of its kind in the U.S., VCU participates in the federally funded "Adolescent Brain Cognitive Development Study," the largest long-term study of brain development and child health conducted in the U.S. VCU is one of four study sites that has recruited twins to yield clarification on hereditary and environmental influences on brain development. Co-principal investigators of VCU's efforts are **Michael Neale, Ph.D.**, professor of psychiatry and human and molecular genetics, and **James Bjork, Ph.D.**, associate professor of psychiatry. The registry of 50,000 individuals of all ages and demographics serves as a vast resource for researchers from around the world studying human genetics.

**Remdesivir trial at VCU**
In March 2020, a day after the worsening pandemic prompted Virginia's governor to send nonessential workers home, liver specialist **Arun Sanyal, M.D.**, announced he would lead a clinical trial of the drug remdesivir for patients with moderate to severe symptoms of COVID-19. Sanyal's decades of clinical research experience gave him the industry contacts and VCU provided the infrastructure needed to

bring promising COVID-19 treatments to patients. Remdesivir became the first Food and Drug Administration-approved treatment for COVID-19 patients. Sanyal, professor of internal medicine in the VCU School of Medicine, has since led or co-led three other clinical trials on therapeutics for COVID-19, reflecting VCU's commitment and ability to perform multidisciplinary, innovative research.

**AR in the OR**

An augmented reality technology is nearing the marketplace, backed by VCU's network of services that helps guide a faculty member's idea into development, gain partners and investors for the innovation and eventually find licensure. A $50,000 grant to the faculty startup ClearView Surgical Inc. is helping to refine its AR product for surgical planning and gain customers. ClearView arose from the efforts of **Dayanjan "Shanaka" Wijesinghe, Ph.D.**, assistant professor in the Department of Pharmacotherapy and Outcomes Science. The funding is the penultimate step for inventors who work with the **Health Innovation Consortium** and **VCU Ventures**, which offers faculty or student startups support to establish a company, locate business entrepreneurs and potential investors, and target a product market.

**Insight into U.S. mortality**

Since Thanksgiving 2019, **Steven Woolf, M.D.**, director emeritus of VCU's **Center on Society and Health**, has published remarkable findings on American mortality rates. In a paper in the Journal of the American Medical Association, he documented that working-age mortality rates have increased in 48 states since 2010. As COVID-19 gripped the world, Woolf, a professor in the Department of Family Medicine and Population Health, found that deaths attributed to COVID-19 were significantly undercounted and that for every two deaths attributed to COVID-19 in the U.S., a third American died as a result of the pandemic. Two months later, again in JAMA, he reported the worrisome news that COVID-19 was the country's leading cause of death.

**Recycle that shell**

The **VCU Rice Rivers Center**'s public-private **Virginia Oyster Shell Recycling Program** won support from the National Oceanic and Atmospheric Administration for its recycling efforts and stakeholder engagement. Restoring the oyster population offers multiple environmental benefits. A single adult oyster filters more than 50 gallons of water per day. As oyster reefs expand, they provide habitat for blue crabs, striped bass and red drum and help mitigate storm-induced shoreline erosion. Watch program director **Todd Janeski** explain how the initiative annually collects 125,000 pounds of oyster and clam shells from volunteers and restaurants, returning them to the bay to serve as nurseries for baby oysters. The center's new research building is nearing completion and will further expand our support strategic research initiative on sustainable energy and environments.

**Decontaminating N95 masks**

As the COVID-19 pandemic increased demand for N95 masks, VCU Health System and VCU Ventures began a pilot program to safely decontaminate used masks. VCU Ventures and hospital staff created a procedure that uses high-intensity ultraviolet light to decontaminate masks hanging from a metal frame as well as the process that tracks the masks for their safe re-use. VCU Ventures made the design and process available to other hospitals and a report on the effort was published in the journal Infection Control & Hospital Epidemiology.

# VCU, COVID-19 and race and health inequities

**A question and answer interview with VCU psychologist Faye Belgrave, Ph.D.**

Faye Belgrave, Ph.D., is interim dean of equity and community partnerships, university professor, professor of psychology and founding director of the Center for Cultural Experiences in Prevention in the College of Humanities and Sciences. Her work is community focused, promoting the welfare of African American adolescents and young adults. More recently, her projects involve substance abuse and sexual education health care, such as HIV prevention and education to Black students and young adults in the community. Her two decades with VCU gives her a unique perspective on the environmental, social and cultural challenges at the university and Richmond as well as on the current global pandemic that is also disproportionately affecting Black Americans: COVID-19.

Q: Over the past two decades, what changes have you witnessed in the types of research conducted by VCU faculty, specifically related to minorities and health inequities?

A: One notable change has been in the interdisciplinary nature of research. Certain faculty have always been interested in health inequities and ways to attenuate these inequities but more and more faculty are coming together from different units to understand and address health inequities. For example, I am a psychologist but was a member of April Kimmel's [an economist in the School of Medicine's Department of Health Behavior and Policy] team to explore geographical and other factors that relate to access to HIV treatment among racial/ethnic groups.

I have also observed more mutually respectful and collaborative community partnerships. In fact, for the [VCU] iCubed cores, these are required. In the past, African American and Latinx communities have experienced health disparities, created by oppressive systems of racism and discrimination, and then studied (mostly by white researchers) who benefited without any real change in the community. I think this is changing as there is more attention and effort devoted to genuine community partnerships so that participants in our studies contribute to and benefit from our research. So, I would say, exploitation of Black and brown people in health disparity research is at least acknowledged as a bad thing and in some cases, real change is being made.

There are still insufficient numbers of underrepresented minority researchers conducting health disparity research at VCU and elsewhere.

Q: As public health officials try to reach out to communities of color regarding the current pandemic, are there any lessons from the HIV pandemic that might be applicable?

A: As with HIV, we realize that the folks who are most affected by the COVID-19 pandemic are least likely to be the recipients of information and prevention resources. It was only when messages were delivered within African American communities by African Americans including African Americans living with HIV that the seriousness was realized. So, I think public health officials need to think about the delivery of the message. They also must be realistic about the context in which many African American and other racial/ethnic minorities live. Messages and materials delivered in places where vulnerable populations work and live are important. Also, more recently we see large gaps in COVID-19 vaccinations for people of color and other vulnerable populations. These disparities relate to lack of access and not just reluctance on getting vaccinations. Unfortunately, as we see with other health disparities, the people most affected are less likely to be vaccinated.

Q: What can community leaders and public health officials do to encourage people to “trust the science”?

A: Since people of color are more affected by COVID 19, it makes sense to target messages to them. Taking lessons from other prevention and educational messaging programs for people of color (especially African Americans) this would involve faith-based institutions, community organizations and settings indigenous to people of color including social media sites; barbershops and beauty salons have been used as sites for health messages for several types of prevention programming. Finally, messages should be delivered by similar and relatable others including lay community leaders, leaders from faith-based institutions, etc. Having state public health officials making the appeals on television or encouraging folks to visit the [Centers for Disease Control and Prevention website] is not going to be enough.

— with Emily Komornik, OVPRI communications specialist


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