

**NOVEMBER  
2020**

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## COVID-19: A DELICATE COEVOLUTIONARY DANCE

Humans and viruses represent two highly dedicated coevolving foes that have been pitted against each other for millennia. An article published in the November 10, 2020 issue of *Proceedings of the National Academy of Sciences of the USA* aims to show how an evolutionary perspective can advance understanding of the progression and consequences of the COVID-19 pandemic. This objective is addressed by having a diverse group of scientists with expertise from evolutionary medicine to cultural evolution provide insights about the disease and its aftermath.

As an illustration, at a *granular level*, consideration is given to how viruses might affect social behavior, and how quarantine, ironically, could make humans susceptible to other maladies due to a lack of microbial exposure. A *psychological level* describes ways in which the pandemic can affect mating behavior, cooperation (or the lack thereof), and gender norms, and how disgust can be used better to activate “behavioral immunity” to combat disease spread. A *cultural level* discusses shifting cultural norms and how they might be harnessed more effectively to combat disease and the negative social consequences of COVID-19.

Fundamentally, the existential conflict waged between viruses and humans is a consequence of the fact that nutrients and the machinery of cellular reproduction in *Homo sapiens* offer irresistible targets for exploitation by smaller and faster evolving organisms. While viruses benefit from rapid replication rate and mutation potential that enable them to adapt quickly to exploit their hosts, natural selection has provided humans with a complex physiological system that can target viruses at a cellular level. It is significant that humans have proven to be exceptionally quite adept through displays of communication ability, intelligence, and innate curiosity in producing extraordinary scientific tools to erect insurmountable walls for limiting the spread of certain viral diseases.

As the authors indicate, an evolutionary perspective can be helpful in understanding the nature of the virus that currently plagues the earth, our own nature in responding to its threats, and the interactions between them. Such an approach to the pandemic furnishes a valuable lens through which it becomes possible to ascertain which strategies a virus might use, our countervailing strategies, and which additional strategies it will become imperative to acquire.

Ten insights are listed and described in the manuscript. They are: (1) the virus might alter host sociability, (2) “generation quarantine” may lack critical microbial exposures, (3) activating disgust can help combat disease, (4) the mating landscape is changing and there will be economic consequences from a decrease in birth rates, (5) gender norms are backsliding and gender inequality is increasing, (6) an increase in empathy and compassion is not guaranteed, (7) we have not evolved to seek the truth, (8) combating the pandemic requires its own evolutionary process, (9) cultural evolutionary forces impact COVID-19 severity, and (10) human progress continues. Essentially, the paper is a call to action and also an opportunity to make new beneficial discoveries to improve health status.



## CHANGING OF THE GUARD

Elections have consequences and one them is that the locus of political power can undergo significant transformations. A shift from President **Donald Trump's** occupancy of the White House to having former Vice President **Joseph Biden** become the next resident in January 2021 will have a major impact on what transpires in the new 117th Congress. Another important influence on what will occur there will depend on the outcome of two U.S. Senate races that are scheduled for January 5 in Georgia. Democrats will need both seats in order to attain the magic number 50. Once it is reached, Vice President-Elect **Kamala Harris** will become the tie-breaking vote. If Republicans are successful in retaining just one of those two seats, they will remain in control of the Senate, which will have a dramatic effect on the extent to which **President-Elect Biden** and his Democratic colleagues in the House of Representatives are able to have their desired legislative objectives enacted into law.

The next page of this newsletter provides some details of policy initiatives that Democrats have expressed a strong interest in achieving in the next session of Congress, such as additional pandemic aid, creating a government-run public insurance option, and lowering the Medicare-eligibility age to 60. A major function of Congress is to produce legislative bills in both chambers. Competition to reach the enactment stage is brisk as reflected in what occurred during 2019-2020 in the 116th Congress as of November 18, 2020.

	<u>House</u>	<u>Senate</u>
Overall Number Of Bills Introduced	8,780	4,922
Number Enacted Into Law	110	74
Number Of Health Bills Introduced	1,114	632
Number Enacted Into Law	7	2
Number Of Education Bills Introduced	443	220
Number Enacted Into Law	2	0

Prior to reaching agreement on the size of another package of financial aid in response to COVID-19, Congress found it necessary to agree on legislation to provide funding to prevent a federal government shutdown at the beginning of the new fiscal year on October 1, 2020. Legislators were successful in doing so by producing a \$1.4 trillion stopgap spending measure to fund the federal government at current levels through December 11, 2020. Still pending is the necessity of completing work on the 12 annual appropriations bills for fiscal year 2021. A convenient way of doing so would be to agree to pass an omnibus appropriations package to fund the government through the end of September 2021.

An unknown when this article was written on November 17 is whether any members of Congress will become members of **President-Elect Biden's** cabinet or take positions in government agencies. Apart from the upcoming Senate races in Georgia, it remains too soon to know the exact composition of both legislative chambers at the start of the next session of Congress in January.

### 2021-2022 ASSOCIATION CALENDAR OF EVENTS

**May 13-14, 2021**—Leadership Development Program in Columbus, OH

**October 20-22, 2021**—ASAHP Annual Conference in Long Beach, CA

**October 19-21, 2022**—ASAHP Annual Conference in Long Beach, CA

## HEALTH REFORM DEVELOPMENTS

According to one definition in the *Oxford English Dictionary (Third Edition)*, “reform is the action or process of making changes in an institution, organization, or aspect of social or political life, so as to remove errors, abuses, or other hindrances to proper performance” Viewed from that perspective, the term signifies an effort to make improvements. Although the U.S. in recent decades has made significant strides in the realm of health care through efforts to reduce the ranks of the uninsured, more work continues to be necessary. *The Patient Protection and Affordable Care Act*, also known as the ACA, that became law in 2010 represented an attempt to increase the number of individuals with health insurance, reduce costs, and improve quality. Some positive results were achieved, but not enough.

Apart from deliberate efforts by policymakers to bring about such improvements, unanticipated events also can play a decisive role. The COVID-19 pandemic that continues to wreak havoc across the entire U.S. in 2020 offers a vivid illustration of such an occurrence. Responses to the coronavirus have varied extensively depending on where individuals live, such as in mandates involving social lockdowns and wearing masks. Two different governmental approaches are characterized by having both upsides and downsides. A top-down orientation would place the federal government in charge of all major decisions affecting individual and community health status. An implicit assumption is that officials in Washington, DC have the expertise to devise plans that will work equally effectively in mid-town Manhattan and Los Angeles as they would in Wetumpka, Alabama and Valley City, North Dakota. An opposing point of view is that all major decision-making should be located at a more local level in order to take into account key demographic factors that distinguish inhabitants of different parts of this nation. Thus, COVID-19 furnishes an excellent opportunity to begin to give thorough consideration to whether a more unified approach to any future pandemics should be implemented instead of relying on what presently amounts to a series of disjointed state-by-state responses.

### The U.S. Supreme Court And The Individual Mandate

Senate confirmation hearings on the nomination of Judge **Amy Coney Barrett** to occupy a seat on the U.S. Supreme Court revealed a concern by many Democrats that placing her on the federal bench would jeopardize the Affordable Care Act. In November 2020, in the case of *California v. Texas*, the high court undertook an effort to rule on the constitutionality of the ACA. The case was brought by a group of Republican-led states and is supported by the **Trump** administration. Their argument is that since Congress eliminated the individual tax mandate in 2017, the entire law now must be invalidated. Some members of the court, including Chief Justice **John Roberts**, signaled they would support allowing the individual mandate to be severed from the remainder of the 2010 health care law, meaning that the rest of the ACA would continue to exist.

### What To Expect From A Biden Administration

According to a report from the Blue Cross Blue Shield Administration, millions of children have missed routine vaccinations this year, causing a precipitous drop in immunizations that threatens to leave communities throughout the U.S. at risk of losing protection against highly contagious diseases, including measles, whooping cough, and polio. Not only will health officials chosen by **President Biden** be involved in the distribution of coronavirus vaccines that become available, they will be faced with the task of ensuring that vaccinations against these other diseases achieve more acceptable levels.

Democrats will continue to control the U.S. House of Representatives in 2021-2022. If they can do likewise in the Senate, certain policy goals will be easier to achieve. Otherwise, it will be necessary to seek compromises with Republicans on the following issues that will require the passage of legislation: (1) Expand and support Affordable Care Act (ACA) coverage provisions, including the expansion of existing tax credits to more individuals. (2) Create a public insurance option for individuals to enroll voluntarily, with automatic enrollment for certain uninsured individuals and no premiums for Medicaid-eligible individuals in the 14 states that chose not to expand Medicaid, and (3) Lower the eligibility age for Medicare from 65 to 60 years. Apart from legislation, a tool that the new administration can use to influence coverage and other health reforms is waiver authority. The Centers for Medicare & Medicaid Services (CMS) have the ability to do so for both state Medicaid programs and for insurance reforms.

## DEVELOPMENTS IN HIGHER EDUCATION

Whenever a new President of the United States takes office, a key responsibility is to select cabinet nominees and directors of various agencies. Many positions must be confirmed by the Senate, which means that it will be important to learn which political party will control that chamber in January. Regardless of whether Democrats or Republicans occupied the White House or controlled the House and Senate, no group has been successful in reauthorizing the Higher Education Act in recent years. That legislation last was reauthorized in 2008 for a five-year period. It will be interesting to see if the 117th Congress will enjoy more success in passing a bill that can be sent to the President to be enacted into law.

Viewed historically, the Department of Health, Education, and Welfare (HEW) was created on April 11, 1953. It lasted until the Department of Education Organization Act was signed into law by President **Jimmy Carter**, which provided for a separate Department of Education in 1979. HEW subsequently became the present day Department of Health and Human Services (HHS) on May 4, 1980. Along with a new Education Secretary, other political appointees will include Under Secretaries, Assistant Secretaries, and Deputy Secretaries, with a resultant impact on Department policy areas, including higher education and accreditation. These new officials can be expected to conduct a close review of policies implemented during the Trump administration with an inclination to modify priorities and possibly restore some regulations that were revised during the past four years. Accreditation is one of many higher education aspects that could be affected by such modifications. Another topic featured during Democratic primaries was to provide assistance to students burdened with educational debt as discussed below.

### The Volume And Repayment Of Federal Student Loans

Between 1995 and 2017, the balance of outstanding federal student loan debt increased from \$187 billion to \$1.4 trillion (in 2017 dollars). During the Democratic primaries, several candidates expressed interest in providing financial assistance to lower the amount of debt for students. A report from the Congressional Budget Office (CBO) in November 2020 examines factors contributing to that growth, including changes to student loan policies, and how they affected borrowing and repayment. Much of the overall increase in borrowing occurred because the share of borrowers who attended for-profit schools increased substantially. Students who attended for-profit schools were more likely to leave school without completing their programs and to fare worse in the job market than students who attended other types of schools. They also were more likely to default on their loans. Also, the incidence of default and participation in income-driven repayment plans, which limit how much borrowers must repay regardless of how much they borrow, increased over the period. Both of those factors resulted in larger outstanding student loan balances. The 117th Congress furnishes an opportunity to determine whether federal assistance should be provided as a means of lowering student loan debt.

### Race And Ethnicity In Higher Education

The American Council on Education launched its *Race and Ethnicity in Higher Education Project* in 2019 with aims to: provide a data-informed foundation from which the higher education community can examine racial disparities in educational opportunities and outcomes; draw insights; raise new questions; and make the case for why it is vital to discuss racial equity gaps present in U.S. higher education. The Council released on November 16, 2020 its *Race and Ethnicity in Higher Education: 2020 Supplement*. The report examines over 150 indicators, looking at academic experiences and outcomes, and how these educational journeys differ, by race and ethnicity. Invited scholarly essays also provide further context around race and ethnicity in higher education that data alone cannot tell. A focus is on how average figures mask concentrations of debt, most notably held by more economically vulnerable populations, such as students who have not completed their degrees. Moreover, failure to disaggregate the borrower population ignores substantial portions of society whose student loan experience is quite different. Black borrowers and their families are accumulating more debt on average and their struggles with repayment result in some of the highest default rates. Data presented in the report may prove helpful to policymakers in efforts to address these kinds of disparities.

## QUICK STAT (SHORT, TIMELY, AND TOPICAL)

### **Chronic Pain And High-Impact Chronic Pain Among U.S. Adults, 2019**

According to a *Data Brief* released in November 2020 by the National Center for Health Statistics (NCHS), in 2019, 20.4% of adults had chronic pain and 7.4% of adults had chronic pain that frequently limited life or work activities (referred to as high-impact chronic pain) in the past three months. Chronic pain and high-impact chronic pain both increased with age and were highest among adults aged 65 and over. Non-Hispanic white adults (23.6%) were more likely to have chronic pain compared with non-Hispanic black (19.3%), Hispanic (13.0%), and non-Hispanic Asian (6.8%) adults. The percentage of adults with chronic pain and high-impact chronic pain increased as place of residence became more rural. Chronic pain and chronic pain that frequently limits life or work activities are among the most common reasons adults seek medical care and are associated with decreased quality of life, opioid dependence, and poor mental health.

### **Black, Hispanic Patients Hospitalized For COVID-19 At Disproportionately High Rates**

Results of a study by researchers at the Stanford University School of Medicine and Duke University published on November 17, 2020 in the journal *Circulation* show that Black and Hispanic patients made up nearly 60% of COVID-19 hospitalizations. This disproportionate number is attributed to societal structures reinforcing health disparities among racial and ethnic groups. The study looked at data from 7,868 patients hospitalized for COVID-19 between January 17 and July 22 at 88 U.S. hospitals participating in the American Heart Association COVID-19 Cardiovascular Disease Registry. Hispanic and Black patients had a disproportionate risk of landing in the hospital: 33% were Hispanic, 25.5% were Black, 6.3% were Asian and 35.2% were white. Data from the U.S. Census Bureau for ZIP codes where participating hospitals are located show Hispanic individuals make up just 9% of the local population, Black persons constitute 10.6%, Asian inhabitants represent 4.7%, and non-Hispanic white residents account for 59.3%.

## HEALTH TECHNOLOGY CORNER

### **Exploration Of The The Link Between Obstructive Sleep Apnea And Autoimmune Disease**

Obstructive Sleep Apnea (OSA) damages the health of 35% of adult Americans. Disordered sleep results in increased risk of several autoimmune disorders, but the molecular links to autoimmunity are poorly understood. New research by University of Georgia scientists reported in the December 2020 issue of the journal *Clinical Immunology* identified four cytokines associated with autoimmune disease, whose median serum levels were significantly different for OSA patients receiving airways therapy, from the levels in untreated OSA patients. Immune system disorders are a result of either low activity or over activity of the immune system and include well known conditions, such as lupus and rheumatoid arthritis. OSA occurs when throat muscles relax temporarily, narrowing or collapsing the airway and momentarily cutting off breathing during sleep. The main treatment for OSA is continuous positive airway pressure, or CPAP, which pumps air through a mask to keep the airway open. About 40% of patients can't tolerate CPAP. The results of this study may lead to better approaches to treatment and possibly new drug therapies.

### **Pre-Recorded Audio Messages Help Improve Outcomes For Patients With Heart Failure**

Patients who are hospitalized with heart failure can reduce their odds of requiring re-hospitalization, a heart transplant, or death by reviewing recorded audio messages repeatedly about self-care at home, according to late breaking research presented on November 17, 2020 at the American Heart Association's *Scientific Sessions* virtual meeting. "My Recorded On-Demand Audio Discharge Instructions (MyROAD®)" is a re-playable audio card containing information for patients with heart failure who have been discharged from the hospital. The MyROAD audio card begins with a general statement and then has four sections about diet, physical activity, medication, and self-monitoring behaviors specific to heart failure to help answer frequently asked questions about the condition and what to expect at home. The study was conducted by investigators at the Office of Nursing Research and Innovation at the Cleveland Clinic Health System. It involved a randomized controlled trial of about 1,000 patients (average age 72.8 years, 58.7% male) who were hospitalized with heart failure at four sites in Northeast Ohio.

## AVAILABLE RESOURCES ACCESSIBLE ELECTRONICALLY

### State Of Lung Cancer In The U.S.

The third annual "*State of Lung Cancer*" report from the American Lung Association finds that while survival rates have improved overall, this type of cancer remains the leading cause of cancer mortality in the U.S. The report also highlights racial disparities at all stages, from diagnosis to treatment. Early diagnosis rates and surgical treatment rates are lower among Black patients and other non-white groups than white patients. At the same time, Hispanic individuals are 39% more likely to receive no treatment than white patients. Across the board, screening remains a challenge. Nearly eight million individuals were at high risk for lung cancer and ought to have been screened last year, but fewer than 6% of them ended up being screened for the disease. This year's report examines the lifesaving potential of lung cancer screening, which can detect the disease at an earlier stage when it's more curable, and the importance of advancements in lung cancer research that holds the promise for better treatment options. Additional information can be obtained at [https://www.lung.org/research/state-of-lung-cancer?utm\\_source=STAT+Newsletters&utm\\_campaign=a340ed23ac-MR\\_COPY\\_01&utm\\_medium=email&utm\\_term=0\\_8cab1d7961-a340ed23ac-149940042](https://www.lung.org/research/state-of-lung-cancer?utm_source=STAT+Newsletters&utm_campaign=a340ed23ac-MR_COPY_01&utm_medium=email&utm_term=0_8cab1d7961-a340ed23ac-149940042).

### A Global Grand Challenge Of Achieving Healthy Human Longevity

The National Academy of Medicine (NAM) and global collaborators in October 2019 with the participation of 49 countries and territories launched the *Healthy Longevity Global Competition* to catalyze breakthrough research and generate transformative and scalable innovations by mobilizing action across disciplines and sectors, from basic research to technology, care delivery, financing, community development, and social policy. During the first phase of the competition over three years, more than 450 Catalyst Awards will be distributed globally, representing over US\$30 million in seed funding to attract bold, audacious research ideas. In the second phase, "Accelerator Awards" will provide additional substantial funding or support for projects that have demonstrated proof of concept with potential for commercialization. In the third and final phase, one or more Grand Prizes totaling over US\$4 million will reward breakthrough achievements with the promise of global impact. An international commission will assess the evidence and develop a comprehensive policy strategy for healthy aging. The commission's report, to be released in mid-2021, will be informed by three workstreams: (1) social, behavioral, and environmental enablers, (2) health care and public health systems, and (3) science and technology. Information about this endeavor can be obtained at <https://healthylongevitychallenge.org>.

### U.S. Maternal Death Rates Are The Highest Among Wealthy Countries

The United States has the highest maternal mortality rate among 11 high-income countries, according to a new international comparison from the Commonwealth Fund. The high rates of deaths from complications of pregnancy and childbirth reflect several factors that include an overall shortage of maternity care providers and the limited availability of postpartum care. The new study points to a number of policies that could lower maternal mortality in the U.S.

- Implementing universal, comprehensive maternity care coverage and lowering barriers to accessing care.
- Ensuring continuous maternity care from preconception to the postpartum period, also known as the "fourth trimester," when the majority of maternal deaths occur.
- Expanding the maternity care workforce, with a larger role for midwives, ensuring paid leave for all after giving birth.

The report can be obtained at <https://www.commonwealthfund.org/publications/issue-briefs/2020/nov/maternal-mortality-maternity-care-us-compared-10-countries>.

## POPULATION HEALTH SCIENCE AND THE COVID-19 PANDEMIC

The first half of 2020 saw the emergence of severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2), a novel coronavirus that in a matter of weeks became a global pandemic with unparalleled consequences. It took only about three months from the time of the first diagnosis on December 31, 2019, in Wuhan, China, for the virus to be diagnosed in countries essentially all over the world. According to an article published in the November 2020 issue of the *American Journal of Epidemiology*, lessons are beginning to emerge that make it possible to sharpen thinking about COVID-19 by viewing it through the lens of population health science. Epidemiology lends itself to a focus on categorical outcomes, aiming to understand causes of cases. An infectious disease pandemic also lends itself naturally to categorical thinking. By contrast, a dimensional approach aims to expand that lens beyond simple case categorization, to thinking of the fuller range of health manifestation.

COVID-19 dynamics indicate that population health is best served by thinking dimensionally across a range of health indicators, expanding the focus beyond clearly defined categorical outcomes, even in the case of an infectious disease pandemic. This recognition frames how to think about the causes of the pandemic and how that might shape approaches to it. Deaths from the virus might be due to a disease that is incurable or one that overwhelms the health system. Hence, there also should be interest in hospitalization rates and in the availability of acute care if it is needed to look after those sick with coronavirus. Economic indicators and their health consequences also should be of concern to population health, including increases in cardiovascular disease, depression, and suicide, all of which have been associated with adverse economic conditions. Even in the case of a single infection, thinking of a dichotomous outcome (being infected or not) underlies a variety of causes and outcomes that are important both for understanding the pandemic consequences and guiding what to do to mitigate these consequences.

## MOVING FROM A GERM THEORY OF DISEASE TO THE MICROBIAL THEORY OF HEALTH

Owing to significant advances in microbiome science over the past two decades, a brink has been reached in a paradigm shift regarding the role of microbes in disease and health, from the Germ Theory of Disease to the Microbial Theory of Health. This shift will necessitate a change in the approaches taken to design targeted infection control. In particular, knowledge of the microbiome will need to be leveraged when attempting to reduce the risk posed by infectious agents through use of targeted hygiene, and by fostering/balancing exposure to naturally diverse microbial communities. A paper appearing in the November 2020 issue of the *American Journal of Infection Control* considers theories over the last 30 years that have had an impact on hygiene policy and consumer practice, from the Germ Theory of Disease and the Hygiene Hypothesis, to the Microbial Theory of Health, including the concept of Bidirectional Hygiene. A high-level review of the literature on pathogen transmission and the cycle of infection in the home and everyday settings is presented.

The authors believe it is time to restore public understanding of hygiene, and specifically targeted hygiene, as a tool for preventing transmission of pathogens (breaking the chain of infection) and, consequently, transmission of infectious diseases. Shifting the paradigm from a Germ Theory of Disease toward a Microbial Theory of Health, wellness, and disease prevention should not be allowed to undermine the critical role that targeted personal and surface hygiene practices play in interrupting the dissemination of infectious agents. Additionally, the authors indicate that it is critical to restore the public understanding of the basic principles of good hygiene practices and the importance of the concept of targeted hygiene as a means of minimizing the dissemination of infectious agents. The Microbial Theory of Health, including age-appropriate and health-appropriate hygiene practices for home and everyday life, should usher in a new era in which pathogen reduction can be accomplished without indiscriminate elimination of potentially beneficial microbes from the human and environmental microbiomes.