United States Senate
WASHINGTON, DC 20510

February 15, 2018

The Honorable Alex Azar
Secretary
U.S. Department of Health and Human Services
200 Independence Avenue, S.W.
Washington, DC 20201

Dear Secretary Azar:

We write to inquire about efforts throughout the U.S. Department of Health and Human Services (HHS) to prepare for and respond to the influenza (flu) virus. We understand you recently received a briefing by senior department officials on this topic,[1] and we request information on efforts within HHS to strengthen and improve our approach to the flu. Specifically, we request additional detail on the department's work to predict more accurately the right viral strain for upcoming flu seasons, produce vaccines more rapidly and effectively, prepare hospitals and providers for the risks of a severe flu season, and protect all Americans against the virus through developing a universal flu vaccine.

According to the Centers for Disease Control and Prevention (CDC), up to 56,000 Americans are at risk of dying from the flu during a severe season.[2] Hospitals across the country are already seeing a higher incidence of patients presenting with flu-like illnesses this season,[3] and more than 60 children have already died from the flu.[4] In addition to the human toll, the seasonal flu takes an economic toll on the country, costing an estimated $10.4 billion in direct medical expenses and more than $87 billion in total economic burden.[5]

Despite the burden on our communities, hospitals, and schools, our current flu vaccine is 60 percent effective, at best.[6] Some estimates put the effectiveness of this year's vaccine as low as 10 percent.[7] There are a number of factors that contribute to a suboptimal vaccine. For example, researchers currently predict months in advance what the most dominant strain may be and base vaccine production off that prediction. Unfortunately, the potential for error in this method—and the frequency in which the flu vaccine can mutate—dramatically impacts the effectiveness of the flu vaccine in a given season. Additionally, while generally effective, the most common flu vaccine production process, which uses eggs to grow the flu virus, is antiquated, inherently

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[1] https://www.hhs.gov/about/news/2018/02/07/hhs-secretary-azar-holds-flu-briefing-key-hhs-leaders.html
[2] https://www.cdc.gov/flu/about/disease/burden.htm
[3] https://www.cdc.gov/flu/weekly/summary.htm
[4] https://www.cdc.gov/flu/weekly/index.htm
[5] https://www.cdcfoundation.org/businesspulse/flu-prevention-infographic
[6] https://www.cdc.gov/flu/about/qa/vaccineeffect.htm
[7] https://www.vox.com/science-and-health/2018/2/1/16960758/flu-vaccine-effectiveness

deficient, and hinges on the portion of the flu virus that readily mutates. Combined, these issues result in the development of a less than optimal, stop-gap flu vaccine every year.

A subpar vaccine not only impacts our ability to respond to the seasonal flu, but it leaves us at continued risk for a pandemic flu. Pandemic flu occurs when a new strain of the flu is in circulation, providing little opportunity for individuals to build immunity or manufacturers to develop an adequate vaccine to respond to the virus.[8] The flu has reached pandemic level four times in the last 100 years,[8] and without a more effective or universal vaccine, we are still susceptible to substantial health and economic harm should a novel flu strain emerge.

We appreciate the important flu-related work performed by experts within various HHS agencies, and recognize a comprehensive, collaborative approach is necessary to improve our response to and preparedness for the virus. To better understand the challenges and opportunities regarding the federal government's efforts toward the flu, we request your response to the following questions:

1. What initiatives are underway to more accurately predict the strain of the flu vaccine used in seasonal vaccine preparation?

2. While the World Health Organization recommends which viral strains should be used in the upcoming flu season's vaccine, the U.S. Food and Drug Administration (FDA) ultimately decides which strains will be included in vaccines made available in the United States.[9] How does the FDA decide which strains of the vaccine virus will be engineered and sold in the United States?

3. The CDC works with institutions across the country to assess the effectiveness of the seasonal flu vaccine in laboratory-confirmed flu cases in both outpatient and inpatient settings.[10] Please describe the work performed by the U.S. Flu Vaccine Effectiveness Network for outpatient settings and the U.S. Hospitalized Adult Influenza Vaccine Effectiveness Network for inpatient settings to assess annual vaccine effectiveness.
    a. How is this information used to help us engineer and produce a more effective vaccine? Specifically, do these networks have the capacity to understand annual vaccine effectiveness between the different types of FDA-approved production processes (egg-based, cell-based, and recombinant)?
    b. When will the U.S. Flu Effectiveness Network and the U.S. Hospitalized Adult Influenza Vaccine Effectiveness Network have information on the overall effectiveness of this year's vaccine on the different strains infecting Americans?

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[8] https://www.cdc.gov/flu/pandemic-resources/basics/index.html
[9] https://www.cdc.gov/flu/about/season/vaccine-selection.htm
[10] https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2017-06/flu-03-ferdinands.pdf

4. Please describe any research or initiatives underway to update the currently used vaccine production methodology and processes, including next-generation sequencing, to improve the effectiveness of our current vaccines.

5. In 2005, the White House Homeland Security Council developed the National Strategy for Pandemic Influenza and HHS created an Influenza Pandemic Plan.[11]
    a. The HHS Influenza Pandemic Plan has been updated intermittently, most recently in June 2017, since it was created more than a decade ago. How does HHS decide when to issue a new update?
    b. The 2017 Influenza Pandemic Plan Update contains seven domains, or targeted focus areas, to help guide our response to pandemic flu. Are there aspects within the seven domains of the 2017 Update that could be leveraged to mitigate the impact of a severe seasonal flu? If so, please explain what they are and if any additional resources or considerations are necessary to facilitate progress.
    c. Has the White House Homeland Security Council or another federal entity provided an update on the progress toward implementing the National Strategy as outlined in the Implementation Plan published in May 2006?
        i. When was the last time this plan was revised? If not recently, does the White House Homeland Security Council, in conjunction with other federal agencies, plan to update the National Strategy?

6. What role does the Biomedical Advanced Research and Development Authority (BARDA) play in preparing for and responding to pandemic flu?

7. Improving our response to the flu also includes ensuring our providers and health care entities have the tools and resources necessary to prepare for the flu. How does HHS help prepare hospitals for severe flu seasons?
    a. How has HHS provided assistance or relief to hospitals who have seen an increase in visits due to the flu, particularly those whose response to the flu has been hampered by shortages of IV bags and other supplies exacerbated by the Hurricane Maria?

8. The National Institute of Allergy and Infectious Diseases (NIAID) is working to develop a strategic plan and research agenda for the universal flu vaccine.[12]
    a. What is the timeline to develop and implement the strategic plan and research agenda?
    b. How will NIAID incorporate other HHS agencies and international partners in the strategic plan?

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[11] https://www.cdc.gov/flu/pandemic-resources/planning-preparedness/national-strategy-planning.html
[12] https://www.niaid.nih.gov/news-events/experts-outline-pathway-universal-influenza-vaccine

9. Could HHS use additional resources to facilitate, improve, or accelerate this work? If so, please cite the specific agencies requiring additional resources and how these resources would be used.

We respectfully request that you provide answers to these questions no later than close of business on March 8th, 2018. In addition to a written response, we request a briefing for ourselves and other interested colleagues by the appropriate agency personnel to learn more about your efforts to respond to this year's influenza activity and better prepare for future years. Thank you for your attention to this important public health issue.

Sincerely,

Edward J. Markey
United States Senator

Tammy Baldwin
United States Senator

Richard Blumenthal
United States Senator

Tina Smith
United States Senator

Amy Klobuchar
United States Senator

Bill Nelson
United States Senator

Chris Van Hollen
United States Senator

Angus S. King Jr.
United States Senator

cc: Anne Schuchat, M.D., Acting Director of the Centers for Disease Control and Prevention
Anthony Fauci, M.D., Director of the National Institute of Allergy and Infectious Diseases
Robert Kadlec, M.D., Assistant Secretary for Preparedness and Response
Scott Gottlieb, M.D., Commissioner of the Food and Drug Administration
Tom Bossert, Homeland Security Advisor