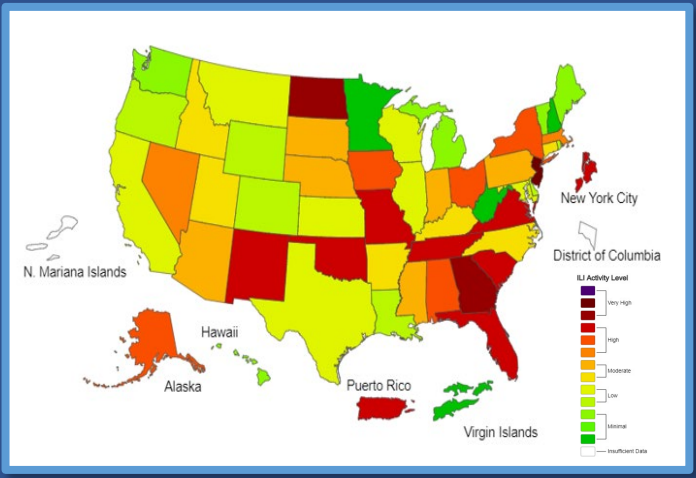

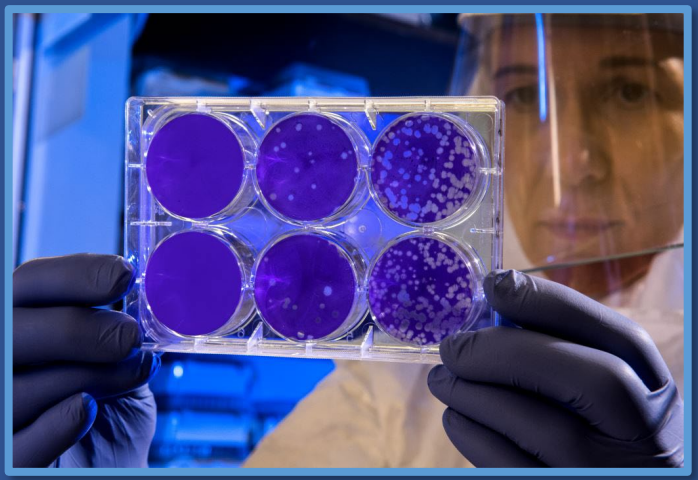

INFLUENZA DIVISION STRATEGIC PRIORITIES 2022-2024

Improving global influenza control, prevention, preparedness, and response

DEPARTMENT OF HEALTH & HUMAN SERVICES · USA

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

OVERVIEW

The following summarizes the mission, vision, and priorities determined by the Influenza Division during its strategic planning process.

Mission

CDC's Influenza Division (ID) advances global ***control*** and ***prevention*** of seasonal and novel influenza and improves influenza pandemic ***preparedness*** and ***response***

Vision

Builds **surveillance** and **response** capacity

Monitors and assesses influenza **viruses** and **illness**

Improves **vaccines** and other **interventions**

Applies research to enhance **prevention** and **control** policies and programs

Priorities

- Improve vaccine impact
- Improve influenza detection and control
- Improve epidemic and pandemic risk assessment and readiness

CDC's Influenza Division (ID) provides scientific and programmatic leadership for the detection, prevention, and control of influenza domestically and internationally. Each year in the United States, a seasonal influenza epidemic results in millions of illnesses, hundreds of thousands of hospitalizations, and tens of thousands of deaths. Pandemic influenza remains an even more devastating threat and can emerge at any time. The COVID-19 pandemic has brought the threat posed by respiratory disease to the forefront of the world's attention and has been a stark example of the disproportionate impact of these health threats to racial and ethnic minority populations. The following document provides an overview of the Influenza Division's strategic priorities to continue to improve vaccine impact, influenza detection and control, and epidemic and pandemic risk assessment and readiness for 2022-2024. These priorities build on our previous advancements and successes, incorporate lessons learned from responding to COVID-19, and will allow ID to continuously evaluate and adjust its focus to meet the needs of the evolving influenza threat environment.

STRATEGIC PRIORITY 1:
IMPROVE VACCINE IMPACT

*The following includes **objectives** and **activities** associated with increasing influenza vaccine effectiveness and vaccine uptake.*

1 EXPAND INFLUENZA VIRUS CHARACTERIZATION AND INCREASE CAPACITY OF CDC LABORATORIES TO SUPPORT INFLUENZA VACCINE MANUFACTURERS

- Expand CDC influenza laboratory capacity to develop and evaluate additional candidate vaccine viruses for both existing vaccine platforms and vaccine technologies under development
- Produce reagents, characterization assays, and viruses needed to develop and evaluate more broadly-protective and longer-lasting vaccines and for new vaccine technology, such as mRNA
- Evaluate strategies for improving the yield of vaccine viruses or systems
- Improve genomic prediction by moving from virus tracking to fitness forecasting
- Establish technologies for comprehensive virome and microbiome assessment and investigate their influence on immune responses and disease severity
- Establish high throughput phage-display technology to identify B and T cell epitopes of responses induced by vaccination and infection
- Conduct studies to understand potential benefits of new vaccine technologies such as recombinant protein, nucleic acid (mRNA), and vectored vaccines
- Develop a neuraminidase antigenic characterization pipeline
- Support the CDC mandate for developing and providing primary liquid standards for potency testing of influenza vaccines

2 IMPROVE COMMUNICATION TO INCREASE VACCINATION

- Expand consumer testing to identify effective messaging to populations with low vaccination rates
- Reduce vaccination disparities in African American and Hispanic populations through focused communication and promotion efforts
- Expand translation of scientific works to plain language to communicate benefits of vaccination for prevention of both influenza illness and secondary outcomes of infection from underlying conditions

3 ENHANCE EVALUATION OF VACCINE EFFECTIVENESS

- Improve the representativeness, including in terms of geography, race/ethnicity, age, pregnancy status, and underlying medical conditions, of vaccine effectiveness networks and build upon current infrastructure to understand vaccine effects across a range of outcomes
- Optimize methods and approaches for monitoring vaccine effectiveness, including within subpopulations and to shorten the timing of results from sequenced specimens
- Develop techniques and increase capacity to evaluate both cellular and antibody immune responses to vaccination and infection more completely and routinely
- Conduct targeted evaluations to understand benefits from second generation influenza vaccines, including mRNA influenza vaccines once available, for special populations and the population in general
- Build on new capabilities for vaccine effectiveness monitoring from joint influenza and COVID-19 activities. Amend existing infrastructure to account for changes in health care, such as the increased use of telemedicine, due to the COVID-19 pandemic
- Develop new immunological assays for assessing correlates of protection against influenza and vaccine breakthroughs in both general (e.g. healthy adults) and special populations (e.g. pediatrics and those with comorbidities)

STRATEGIC PRIORITY 2:
IMPROVE INFLUENZA DETECTION & CONTROL

*The following includes **objectives** and **activities** associated with strengthening surveillance, treatment, and mitigation efforts to improve influenza detection and control.*

1 IMPROVE DATA COLLECTION, INTEGRATION, AND ANALYSIS

- Explore alternative sources of data to increase timeliness and granularity of surveillance
- Modernize and improve data integration and analysis through adoption of scalable database architecture on-site and in the cloud
- Explore and assess layered evaluation of multiple surveillance systems to improve synchronization of data for improved regional influenza surveillance, research epidemiology, and quality of virologic data
- Expand epidemiologic and laboratory capacities in sentinel countries to improve situational awareness of influenza viruses and other respiratory viruses
- Expand global network of influenza regional field sites to provide support for capacity building, outbreak investigation, surveillance improvement, and key influenza research questions

2 IMPROVE GENOMIC SEQUENCING

- Implement final phase of ID's sequencing first "SeqFirst" strategy
- Expand mobile next-generation sequencing (NGS)
- Implement sustainable influenza virus sequencing at the state and local level to provide more genetic data on viruses circulating
- Improve global sequencing by establishing international sites for NGS and continue to evaluate if a large number of specimens from one location would help identify influenza variants earlier

3 RESHAPE GLOBAL SURVEILLANCE TO IMPROVE REPRESENTIVENESS AND TIMELINESS OF INFLUENZA DATA

- Develop a 5-year plan for optimizing international surveillance by focusing enhanced surveillance in strategic locations
- Ensure that regional support for international influenza surveillance aligns with CDC's emerging regional approach to global health
- Identify collaborations with other operating divisions that may enhance influenza global surveillance, including strategic planning for global SARS-CoV-2 surveillance
- Support global surveillance activities for influenza and pan-respiratory virus surveillance by enhancing the Global Influenza Surveillance and Response System (GISRS) in collaboration with other operating divisions and the World Health Organization

4 UPDATE INFLUENZA DIAGNOSTICS

- Develop a multi-plex PCR diagnostic assay that allows subtyping influenza at public health laboratories and globally
- Explore use of new technologies for improving influenza diagnosis
- Develop and deploy mobile PCR diagnostic capabilities for rapid determination of emerging influenza viruses in resource-limited settings
- Maintain use of multiplex influenza SARS-CoV-2 RT-PCR diagnostic assays at public health laboratories
- Coordinate efficient use of influenza and SARS-CoV-2 diagnostics
- Build off established surveillance-based sequencing efforts to increase speed and develop informatics needed to use sequencing as a diagnostic
- Support expansion and refinements of antiviral resistance diagnostics

5 IMPROVE CONTROL OF INFLUENZA

- Enhance use of antiviral medication, including new indications for baloxavir use as a treatment, for prophylaxis, and as a potential containment strategy
- Communicate new findings which demonstrate improved outcomes for vaccinated persons with underlying conditions
- Evaluate the impact of COVID-19 mitigation strategies on the transmission of influenza

STRATEGIC PRIORITY 3:
IMPROVE EPIDEMIC AND PANDEMIC RISK ASSESSMENT AND READINESS

*The following includes **objectives** and **activities** associated with developing innovative programs, models, and tools to improve epidemic and pandemic influenza risk assessment and readiness.*

1 IMPROVE GLOBAL VACCINE INTRODUCTION

- Develop the evidence base for meeting requirements for the Gavi Vaccine Alliance Vaccine Investment Strategy (VIS) for introduction of seasonal influenza vaccine for pandemic preparedness and response
- Expand efforts to improve introduction and maintenance of vaccines in low- and middle-income countries and use expanding infrastructure for global COVID-19 vaccines to improve global influenza vaccination

2 IDENTIFY AND IMPLEMENT NEW WAYS TO FORECAST DISEASE AND MODEL MITIGATION AND PREVENTION

- Evaluate and improve innovative models and methods to more quickly and accurately forecast and visualize influenza across multiple outcomes
- Develop innovative models and methods for influenza using a network of modeling centers
- Use cutting edge methods to understand factors associated with influenza season severity, including underlying population susceptibility, immune imprinting, virologic evolution, and other host, virus, and population factors
- Support FluSight and related disease-forecasting efforts, including interacting with the new Center for Forecasting and Outbreak Analytics at CDC
- Assess immunity and susceptibility to emerging influenza viruses at a population level to improve modeling and forecasting of influenza virus epidemic and pandemic threats

3 IMPROVE UNDERSTANDING OF TRANSMISSION DYNAMICS AND DISEASE RISK OF INFLUENZA VIRUSES OF PANDEMIC POTENTIAL

- Enhance laboratory studies for risk assessment, including improved animal transmission and pathogenicity studies for rapid assessment
- Assess and improve ID's current approach to monitoring for emerging influenza viruses with pandemic potential to improve influenza risk assessment
- Better understand the implications of influenza and SARS-CoV-2 co-infection using laboratory modeling studies
- Improve NGS and bioinformatics capacity for rapid detection of molecular correlates of enhanced disease and transmission using laboratory modeling studies
- Enhance surveillance and research activities by increasing testing and sequencing at the human/animal interface

4 SUPPORT DOMESTIC AND INTERNATIONAL PANDEMIC PLANNING AND INFRASTRUCTURE DEVELOPMENT

- Develop models and tools for informing decision making during pandemic responses based on lessons learned from COVID-19
- Improve speed of development of candidate vaccine viruses for influenza pandemic readiness
- Develop strategy, protocols, funding mechanism plans, and other tools to ensure rapid implementation of response activities and research in an influenza pandemic
- Enhance global preparedness and response capacity for infectious respiratory diseases through efforts to improve global surveillance and epidemic intelligence

CONTACT INFORMATION

- www.cdc.gov/flu
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- 1-800-CDC-INFO (800-232-4636)
- Email CDC INFO: https://wwwn.cdc.gov/dcs/ContactUs/Form