The Vaccination Progress Report

7-day average daily doses administered by week as of 4/8/2021*

*7-day average from March 3 – March 9 was 2.2M
Daily Change in COVID-19 Cases, US
January 22, 2020 – April 7, 2021

TOTAL Cases Reported Since 1/22/20
30,737,477

NEW Cases Reported to CDC on 4/7/21
74,860

Change in 7-Day Case Average
+2.0%

Current 7-Day Case Average (4/1/21 - 4/7/21)
64,152

Prior 7-Day Case Average (3/25/21 - 3/31/21)
62,869

Reported 7-day moving average* of COVID-19 cases has decreased 74% since January 8, 2021

Peaks in New Cases and Highest 7-Day Moving Average

<table>
<thead>
<tr>
<th>Peak</th>
<th>Highest Daily Number of New Cases</th>
<th>Highest 7-Day Moving Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>314,861 (1/8/21)</td>
<td>249,697 (1/8/21)</td>
</tr>
<tr>
<td>2nd Peak</td>
<td>75,624 (7/17/20)</td>
<td>67,348 (7/23/20)</td>
</tr>
<tr>
<td>1st Peak</td>
<td>42,544 (4/6/20)</td>
<td>31,940 (4/12/20)</td>
</tr>
</tbody>
</table>

*7-day averages exclude historical cases reported retroactively by states
New Admissions of Patients with Confirmed COVID-19
August 1, 2020 – April 6, 2021

Patients Currently Hospitalized with COVID on 4/6/21
36,295

New Admissions on 4/6/21
6,583

Peak in New Admissions (1/5/21)
17,988

Change in 7-Day Average of New Admissions
+7.3%

Current 7-Day Average of New Admissions (3/31/21 - 4/6/21)
5,336

Prior 7-Day Average of New Admissions (3/24/21 - 3/30/21)
4,974

Reported 7-day moving average of hospitalizations has decreased 68% since January 9, 2021
TOTAL Deaths Reported Since 1/22/2020
556,106

NEW Deaths Reported to CDC on 4/7/21
871

Change in 7-Day Death Average
-20.6%

Current 7-Day Death Average (4/1/21 - 4/7/21)
711

Prior 7-Day Death Average (3/25/21 - 3/31/21)
895

Forecasted Total Deaths by 5/1/21
568,000 to 588,000
Increasing Emergency Room Visits for COVID-19

Percent of Emergency Room Visits in the US for Patients Diagnosed with COVID-19
WEAR A MASK

STAY 6 FEET APART

AVOID CROWDS

AVOID TRAVEL
“The speed and efficiency with which these highly efficacious vaccines were developed and their potential for saving millions of lives are due to an extraordinary multidisciplinary effort involving basic, preclinical, and clinical science that had been under way—out of the spotlight—for decades before the unfolding of the COVID-19 pandemic.”
COVID-19 Vaccine Development

- Platforms
- Immunogen Design
COVID-19 Vaccine Development

- Platforms
- Immunogen Design
Vaccine Platform Technologies

- Genetic immunization (DNA and RNA vaccines)
  - SARS, MERS, West Nile, Zika, RSV

- Viral vector (e.g., VSV, adenovirus)
  - Ebola, Marburg, Zika

- Recombinant protein
  - Influenza, RSV

- Nanoparticles (viral protein on particle)
  - Influenza, Malaria, RSV

- Virus-like particle (VLP) (no RNA or DNA; non-infectious)
  - Chikungunya, Zika, WEVEE

- Adjuvants (e.g., AS01, MF59)

Selected Examples
Suppression of RNA Recognition by Toll-like Receptors: The Impact of Nucleoside Modification and the Evolutionary Origin of RNA

K Karikó, D Weissman et al.

Showed how to modify mRNA without triggering key inflammatory pathways, overcoming a key hurdle and paving the way for current vaccines
Comparative Seroprevalence and Immunogenicity of Six Rare Serotype Recombinant Adenovirus Vaccine Vectors from Subgroups B and D

P Abbink, DH Barouch et al.

Journal of Virology

May 2007, Volume 81 Issue 9

rAd26 vectors proved the most immunogenic among the rare serotype rAd vectors studied, with promise for vaccine development
COVID-19 Vaccine Development

- Platforms

- Immunogen Design
Crystal Structure of a Soluble Cleaved HIV-1 Envelope Trimer
J-P Julien, A Cupo, D Sok, RL Stanfield, D Lyumkis, MC Deller, P-J Klasse, DR Burton, RW Sanders, JP Moore, AB Ward, IA Wilson

Cryo-EM Structure of a Fully Glycosylated Soluble Cleaved HIV-1 Envelope Trimer
D Lyumkis, J-P Julien, N de Val, A Cupo, CS Potter, P-J Klasse, DR Burton, RW Sanders, JP Moore, B Carragher, IA Wilson, AB Ward
NIAID Vaccine Research Center

Basic Research  Clinical Trials

VRC Principal Investigators and Program Heads
Stable, Soluble Structure of HIV Envelope Trimer

Structure and Immune Recognition of Trimeric Pre-Fusion HIV-1 Env
M Pancera, M Connors, PD Kwong, et al.

Stabilized, soluble trimer crystal structure resolved in detail
Image courtesy of M Pancera, J Stuckey, PD Kwong.
Structure-Based Design of RSV F Vaccine

Structure of RSV Fusion Glycoprotein Trimer Bound to a Prefusion-Specific Neutralizing Antibody
JS McLellan, PD Kwong, BS Graham, et al.

Structure-Based Design of a Fusion Glycoprotein Vaccine for Respiratory Syncytial Virus
JS McLellan, BS Graham, PD Kwong et al.

Pre-Fusion F Protein → Stabilization → Vaccine immunogen

Courtesy of Barney Graham
Structure-Guided Stabilization of MERS-CoV Spike Protein

RESEARCH ARTICLE

Immunogenicity and Structures of a Rationally Designed Prefusion MERS-CoV Spike Antigen

J Pallesen, JS McLellan et al.
SARS-CoV-2 Spike protein Pre-fusion form (Unstable) → Mutations → SARS-CoV-2 Spike protein Pre-fusion form (Stable)
## Selected COVID-19 Vaccines

<table>
<thead>
<tr>
<th>Platform</th>
<th>Developer</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nucleic Acid (mRNA)</td>
<td>moderna</td>
<td>EUA</td>
</tr>
<tr>
<td></td>
<td>BIONTECH Pfizer</td>
<td>EUA</td>
</tr>
<tr>
<td>Adenovirus Vector</td>
<td>Johnson &amp; Johnson</td>
<td>EUA</td>
</tr>
<tr>
<td></td>
<td>AstraZeneca</td>
<td>EUA TBD</td>
</tr>
<tr>
<td>Recombinant Protein and Adjuvant</td>
<td>gsk Sanofi NOVAVAX</td>
<td>Phase 2 clinical trial launched Feb. 2021</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EUA TBD</td>
</tr>
</tbody>
</table>
We continue to learn about the pandemic’s toll

• Nearly **40,000 children** in America lost a parent to COVID-19, according to a new model\(^1\)

• Approximately **1 in 8 people** with COVID-19 were diagnosed with a new psychiatric or neurological condition in the following 6 months – anxiety & depression were among the most common\(^2\)

• Younger adults, racial & ethnic minorities, essential workers, & unpaid adult caregivers have experienced **disproportionately** worse mental health outcomes\(^3\)

• The Administration has provided nearly **$3 billion** to states & territories to address mental illness & addiction crisis; in addition, the American Rescue Plan Act included around **$3.56 billion** for prevention & treatment of mental health & substance use disorders

Confidence in COVID-19 vaccines is rising

Vaccine confidence is rising, with 61% of people vaccinated or wanting to receive a vaccine “as soon as possible” as of late March (vs. 34% in December 2020)

Source: KFF Vaccine Monitor, March 2021.
Trusted messengers are essential for health education & empowerment

- More than 3 in 4 adults in the U.S. have said they would likely turn to a **doctor, nurse or other health care provider** when deciding whether to get a vaccination¹

- More than half said they would likely turn to **family or friends** about whether to get a vaccination¹

- **Covid-19 Community Corps** is growing – 275 members last week to nearly **5,000** members today: www.WeCanDoThis.HHS.gov

- Key actions for all of us:
  1. Get vaccinated.
  2. Help family & friends make a plan to get vaccinated.
