December 2020

Equitable vaccine distribution: context, considerations, implementation
Context for these materials

The ideas presented in this deck reflect the latest public health thinking and scientific evidence as of December 2020. You are advised that the COVID-19 vaccine landscape remains highly fluid, and it is your responsibility to ensure that decisions are made based on the most up-to-date information available.

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Overview

1. Vaccines: one necessary component in the complete public health response to COVID-19

2. Vaccine hesitancy and opportunities to develop trustworthy systems

3. Development and delivery of the COVID-19 vaccines
Vaccines: one necessary component in the complete public health response to COVID-19
The role of vaccination alongside other proven public health measures

- Safe, effective COVID-19 vaccines are an important tool for immunizing individuals and ending the pandemic.
- Communities and public health leaders must maintain support for community mitigation efforts, testing, contact tracing, and care coordination capacity. Neglect of these components will fuel the COVID-19 pandemic, leave us unprepared for the next pandemic, and deepen the economic crisis.
- We do not yet know how many people must be vaccinated to reach herd immunity, how long it will take to achieve adequate coverage by vaccination, or how long vaccine protection will last.
A COVID vaccine is critical to achieving herd immunity...

- **Direct protection**: Depending on the efficacy of the vaccine and extent of immunity, a vaccine protects an individual who is vaccinated. The current trials will give us a measure of the direct effect.

- **Indirect protection (herd immunity)**: if enough people in a community are vaccinated, this protects everyone (even the unvaccinated individuals):
  - For SARS-CoV-2, it is estimated that ~50-75% of people will need to be vaccinated to achieve herd immunity, or more depending on the efficacy of the vaccine immunity.
  - More data is needed to understand the current vaccines effectiveness at preventing infection and transmission.

...but not a magic bullet

“The potential benefits of even the most optimistically effective vaccine are diminished if it is introduced into a more severe epidemic. For all three vaccine types, a 75%-effective vaccine implemented in a population where $R_t = 2.1$ averted a smaller proportion of infections and deaths than a 25%-effective vaccine implemented under less severe pandemic conditions ($R_t = 1.5$).”

A focus on the four critical phases of vaccine distribution can promote equity at each step

**Planning & Allocation**
- Prioritization framework
- Demand quantification
- Community allocation

**Community Engagement**
- Transparent messaging on safety, adoption, behavior change and uncertainty that recognize historical and structural sources of hesitancy
  - Community-led engagement
  - Multi-channel communications campaigns

**Delivery**
- Safe transport and storage
- Trained staff to administer
- Community access points
- Record keeping

**Follow-Up**
- Multi-dose adherence
- Tracking and treating adverse effects
- Progress to herd immunity

It is important to encourage continual adherence to public health guidelines (hand washing, mask wearing, physical distancing) through each of these phases.
Vaccine hesitancy and opportunities to develop trustworthy systems
Vaccine hesitancy: an opportunity to recognize and reconcile deficits in the public health system

- We are faced with the tremendous task of ongoing allocation and distribution, building and iterating efficient delivery systems, and taking action to build necessary trustworthiness within academic, medical, scientific, and government institutions. These efforts to equitably distribute COVID-19 vaccines can rebuild trust in public health systems.

- Acknowledging the US history of structural racism, settler colonialism, and policy-driven economic inequities will be key as we seek to integrate equity into every phase of this process.

- It is critical that we identify and boldly articulate the principles by which we envision equitable vaccine distribution, and that we ensure those principles are embedded in how we operationalize all components in the distribution and vaccination chain.

- Building these systems now will equip us to distribute the COVID-19 vaccines, and will help us prepare for the inevitability of future pandemics.
Sources of vaccine hesitancy

- Vaccine hesitancy describes a spectrum of trust that individuals and communities may have for the COVID-19 vaccine, informed by concerns rooted in historical, structural and economic reality.
- Mischaracterizing valid hesitancy as “anti-vaccine” threatens to obscure actual barriers to adoption while perpetuating a system of blame that distracts from governmental and institutional failures in allocation, distribution, and trust-building.

**Historical**

**Participation** – Exclusion from equal participation in clinical trials

**Coercion** – Government complicity in unethical research

**Neglect** – Perpetual lack of investment in health systems and access for most marginalized populations

**Practical**

**Economic** – Uncertainty related to how to pay for care or time away from work in the event of sickness resulting from vaccination

**Health** – Unknown susceptibility to adverse events, allergic reactions

**Undocumented status** – Contact information requirements for scheduling and tracking doses

**Informational**

Multiple sources of (mis)information, relating to:
- Vaccine development process
- Vaccine safety
- Vaccine efficacy
- Vaccination prioritization strategies
Information and perceptions about the vaccines will continue to change. This is a unique opportunity to re-build trust in the public health system. Ideas for developing vaccine messaging activities and campaigns, do the following:

**Capitalize on existing knowledge**
- Consult research literature and expert opinion from the communities where messaging will be targeted to accurately understand underlying perceptions, motivations and intended behaviors
- Resource starters:
  - Black Coalition Against COVID-19
  - Urban Indian Health Institute
  - United We Dream

**Maintain flexible feedback systems**
- Establish multiple feedback channels based on cultural preferences, language needs, and practical realities of marginalized groups
- Examples:
  - Schedule regular, open community listening sessions
  - Multi-lingual hotlines for anonymous feedback
  - Leverage existing systems (contact tracing, CHW outreach)

**Present information honestly and accurately**
- Clearly and consistently communicate known and unknown information about **vaccine development, efficacy, and side-effects**
  - Update information regularly
  - Support communities with emerging data to conduct their own risk/benefit assessment
Address hesitancy and support informed decision-making (2 of 2)

Equity Strategies

**Transparent prioritization**
- Utilize equity-focused frameworks for allocation, and provide transparency into their development and implementation.
- Modify tools for local use based on community member feedback.

**Data-driven decision-making**
- Disaggregate data to understand heterogeneity within groups like health care workers, and congregate living facilities.
- When developing local strategies for distribution, determine risk-profiles by sub-group.

**Right-fit communication methods and channels**
- Utilize diverse tools to engage audiences at different levels, including community listening sessions, FAQs, and talking points for creating buy-in with sub-groups.
- Include vaccine information at foodbank collection sites and other established touchpoints.
- Engage trusted community partners as messengers.

These strategies can be applied through each of the four distribution phases.
Development and delivery of the COVID-19 vaccines
The Pfizer-BioNTech and Moderna vaccines have now been approved under Emergency Use Authorizations.

Phase 1 & 2
- Small trials that assess initial safety and immune response

Phase 3
- Large scale trials (tens of thousands) to assess population level efficacy

Phase 4
- Continued follow-up post approval

- Most trials enrolling adults, Pfizer enrolling age 12+
- Primary endpoint: efficacy against symptomatic disease
- Other possible endpoints: efficacy against asymptomatic disease, severe disease
Vaccine development is rapidly progressing (2 of 2)

There are multiple inactivated virus vaccines currently in limited use in China, Russia, UAE, but unlikely to see use in the US in near future.

Trials found Pfizer and Moderna vaccines to be highly effective against disease (>90%).

Open questions:
- How effective are the vaccines at preventing infection, not just symptomatic disease?
- What is the duration of immunity?
- Can they be manufactured at scale?

Equity concerns are elevated given the task of prioritizing distribution of multiple vaccines with tradeoffs between logistical ease and efficacy, cost and accessibility in both rural and urban areas.

<table>
<thead>
<tr>
<th>Company</th>
<th>Type</th>
<th>Doses</th>
<th>Storage Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pfizer</td>
<td>mRNA</td>
<td>2</td>
<td>Ultracold (&lt;-70°C)</td>
</tr>
<tr>
<td>Moderna</td>
<td>mRNA</td>
<td>2</td>
<td>Frozen (&lt;-20°C)</td>
</tr>
<tr>
<td>Johnson &amp; Johnson</td>
<td>Viral Vector</td>
<td>1</td>
<td>Refrigerated (2°C–8°C)</td>
</tr>
<tr>
<td>AstraZeneca</td>
<td>Viral Vector</td>
<td>2</td>
<td>Refrigerated (2°C–8°C)</td>
</tr>
<tr>
<td>Sanofi/Novavax</td>
<td>Protein</td>
<td>2</td>
<td>Refrigerated (2°C–8°C)</td>
</tr>
</tbody>
</table>
National Academies: Lessons from the past, recommendations for the present

BOX S-1
Key Lessons Learned from Prior Mass Vaccination Efforts

- Leverage relationships with professional medical societies and other key downstream stakeholders from the outset.
- When cost, insurance, and other policies create barriers, consider the issue of rationing at the state, local, and practice levels.
- Develop effective systems for tracking distribution.
- Ensure that ancillary supply distribution is timely and appropriate.
- “Under-promise and over-deliver” in planning and communication efforts.
- Ensure up-to-date information on vaccine production, inventory, and projections via stronger and more formal partnerships between federal entities and vaccine producers.
- Plan for a range of vaccine supply scenarios.
- Continue to use the Vaccines for Children program infrastructure as a basis for emergency vaccination distribution programs; consider something similar for adults.
- Deploy limited vaccine supplies equitably and transparently using pre-established, evidence-based criteria to prioritize allocation.
- Promote global regulatory harmonization and standardization in vaccine development to improve speed, flexibility, and efficiency.
- Use consistent, respectful, accurate communication to earn, secure, and maintain trust.

BOX S-2
Summary of Recommendations

The following points collectively summarize the necessary actions recommended by the committee to achieve equitable allocation of COVID-19 vaccine:

- Adopt the committee’s framework for equitable allocation of COVID-19 vaccine.
- Leverage and expand the use of existing systems, structures, and partnerships across all levels of government and provide the necessary resources to ensure equitable allocation, distribution, and administration of COVID-19 vaccine.
- Provide and administer COVID-19 vaccine with no out-of-pocket costs for those being vaccinated.
- Create and appropriately fund a COVID-19 vaccine risk communication and community engagement program.
- Develop and launch a COVID-19 vaccine promotion campaign.
- Build an evidence base for effective strategies for COVID-19 vaccine promotion and acceptance.
- Support equitable allocation of COVID-19 vaccine globally.

Source: https://www.nap.edu/read/25917/chapter/1
Advisory council on immunization practices: phased approach to vaccination

<table>
<thead>
<tr>
<th>Phase</th>
<th>Groups Recommended for vaccination</th>
<th># of persons in each group (millions)</th>
<th>Total (millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a</td>
<td>Health care personnel</td>
<td>21</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Long-term care facility residents</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>1b</td>
<td>Frontline essential workers</td>
<td>30</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Persons aged 75 years and older</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>1c</td>
<td>Persons aged 65-74</td>
<td>28</td>
<td>129</td>
</tr>
<tr>
<td></td>
<td>Persons aged 16-64 years with high-risk conditions</td>
<td>81</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Essential workers not recommending in Phase 1b</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>All people aged 16 years and older not in Phase 1, who are recommended for vaccination</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Example of Phase 1 and 2 roll-out, with overlap possible depending on vaccine supply and demand

Source: https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2020-12/slides-12-20/02-COVID-Dooling.pdf
Vaccine Acceptability

- From September to December 2020, **willingness to get a COVID-19 vaccine if it were available increased** from 63% to 71% in all adults surveyed.

- However, percentages of people who report they **probably or definitely won't get a vaccine** offer important, if nuanced perspectives on hesitancy.
  - **35% of Black adults are vaccine hesitant**, with 47% of these respondents citing distrust of vaccines in general.
  - **33% of essential workers** are vaccine hesitant.
  - Vaccine hesitancy is **highest among Republican respondents**.

**Figure 1**

**Share Saying They Would Get A COVID-19 Vaccine If It Were Free And Deemed Safe By Scientists Has Increased Since September**

If a COVID-19 vaccine was determined to be safe by scientists and available for free to everyone who wanted it, would you...?

- **December 2020**
  - Definitely get it: 41%
  - Probably get it: 30%
  - Probably not get it: 12%
  - Definitely not get it: 15%

- **September 2020**
  - Definitely get it: 34%
  - Probably get it: 29%
  - Probably not get it: 14%
  - Definitely not get it: 20%

Four critical phases of vaccine distribution: promoting equity at each step

- Planning & Allocation
- Community Engagement
- Delivery
- Follow-Up
1. Planning & Allocation

**Challenge:** The uncertainties surrounding the COVID-19 vaccine combined with the social inequities revealed by the pandemic and the fragmented response make planning a particularly challenging exercise.

<table>
<thead>
<tr>
<th>Cross-Stakeholder Coordination</th>
<th>Multiple Vaccine Types</th>
<th>Prioritization</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Given lack of federal strategy, share knowledge as much as possible across state lines</td>
<td>• Deploy proactive community-led social mobilization campaigns to inform and sign up individuals</td>
<td>• Prioritize access and preferential optionality, bolstered by education &amp; support, for high-risk communities most impacted by COVID.</td>
</tr>
<tr>
<td>• Engage city, county, and community leadership when making allocation determinations</td>
<td>• Educate community leaders, employers, hospitals, health systems on the vaccine options</td>
<td>• Feed community insights and medical mistrust into prioritization frameworks.</td>
</tr>
</tbody>
</table>
2. Community Engagement

**Challenge:** Nearly one third of Americans do not intend to get a COVID-19 vaccine. This is particularly pronounced in communities of color historically and structurally marginalized by the medical system, who have borne a history of experimentation and racism. Speed of vaccine manufacturing and the politicization of the COVID pandemic has deepened vaccine skepticism.

<table>
<thead>
<tr>
<th>Community Insights</th>
<th>Local Engagement</th>
<th>Communications &amp; Messaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Conduct and leverage immersive research on vaccine perspectives and hesitancies, and incorporate lessons learned from past risk and health communication</td>
<td>- Engage meaningfully with trusted community leaders, frontline health workers, CBOs, faith-based orgs, and schools to reinforce messaging, support outreach, and foster accountability</td>
<td>- Communications campaigns that are multi-channel and hyperlocal counter sources of vaccine hesitancy (COVID-19 and other routine immunization programs) in communities where medical system may be untrustworthy</td>
</tr>
<tr>
<td>- Incorporate social marketing and behavioral science insights into communications strategies</td>
<td>- Flip history and narrative of coerciveness to inclusion/participation</td>
<td></td>
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</tbody>
</table>
3. Delivery

**Challenge:** Distributing multiple vaccine types with different storage and administration requirements, especially to vulnerable communities with high disease burden and inadequate or non-existent infrastructure (staff & space) will present operational complexities.

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**Staff Training**

- Hire culturally competent, trustworthy staff
- Provide comprehensive training in vaccine education, administration, and follow up support

**Accessibility**

- Engage with employers and unions to provide work-site clinics and cover costs for employees
- Review learnings from testing expansion to establish community access points including FQHCs, mobile vans, churches

**Supply Chain Requirements**

- Analyze infrastructure (staff & space) in vulnerable communities and address barriers to equity (i.e. volume packaging, ultra cold requirements)
- Define particular operational constraints created by each vaccine
4. Follow Up

Challenge: Maintaining preventative public health measures as the focus shifts increasingly to vaccines is critical. Coordinated tracking systems and ensuring follow-up care for any adverse effects will be key to positive outcomes and acceptance.

<table>
<thead>
<tr>
<th>Equity Strategies</th>
<th>Centralized IT Infrastructure</th>
<th>Follow Up Care</th>
<th>Sustained Community Response</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Implement centralized</td>
<td>Make follow up care fully accessible, particularly for under/uninsured and undocumented, with emphasis on care for those suffering from complications</td>
<td>Encourage continued vigilance around public health guidelines; i.e. hand washing, distancing, mask wearing</td>
</tr>
<tr>
<td></td>
<td>information technology to</td>
<td>Provide social support to mitigate impact to livelihoods caused by adverse side effects</td>
<td>Continue to strengthen existing contact tracing and testing programs</td>
</tr>
<tr>
<td></td>
<td>track progress, coordinate</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>between jurisdictions,</td>
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<tr>
<td></td>
<td>identify communities with</td>
<td></td>
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<tr>
<td></td>
<td>low adoption, and design</td>
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<tr>
<td></td>
<td>policy based on emerging</td>
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<td></td>
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<tr>
<td></td>
<td>learnings</td>
<td></td>
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</tbody>
</table>
Integrating equity at every step will require sufficient funding and thoughtful implementation

- Vaccine accessible to all including undocumented regardless of ability to pay or insurance coverage
- Ensure preferential option for marginalized communities, ideally through public commitments
- Centralize response so that response across jurisdictions is centered around equity

- Develop transparent communication strategies to ensure informed decision-making, especially among historically marginalized communities
- Engage trusted community partners as messengers to deliver accurate and up-to-date information

- Avoid limiting access or allocating certain vaccines to specific communities due to logistics (i.e. freezer availability, vaccine eligible population < package size, transportation costs, # trained staff)
- Ensure visibility on supply & adoption in order to deploy targeted programming

- Set up mechanisms to guarantee under- and uninsured communities have access to care to monitor adverse effects and completion of multi-dose vaccines.
- Ensure high-quality care delivery in the event of vaccine side effects and/or long term COVID effects
US Public Health Accompaniment Unit

For more information please contact LearningCollab@pih.org

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