Updates:
National Firefighter Registry
COVID-19 Vaccination

John Howard, M.D.
National Institute for Occupational Safety and Health
Centers for Disease Control and Prevention
U.S. Department of Health and Human Services

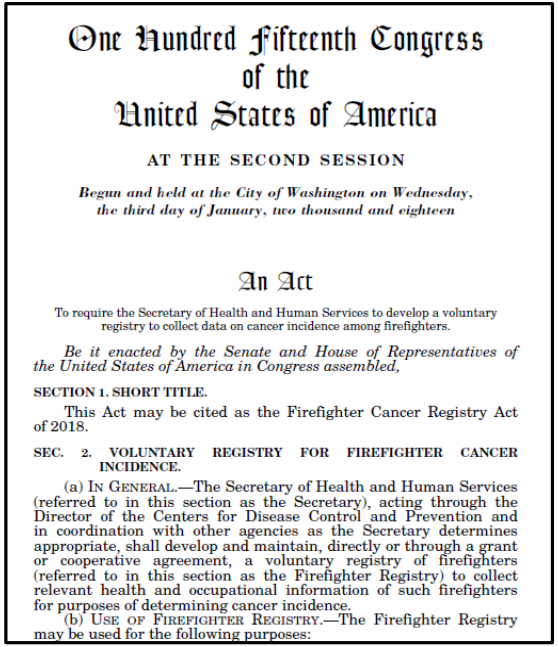
Congressional Fire Services Institute
National Advisory Committee
Annual Fall Meeting

2 October 2020

National Firefighter Registry Update

Why was the National Firefighter Registry (NFR) created?

- The Firefighter Cancer Registry Act of 2018
- Previous studies, including a study by NIOSH, indicate that firefighters are at higher risk of cancer.
- Studies are limited by small numbers of women and minorities, and a lack of data on volunteers.
- No national data sources that combine exposure and cancer information for studying the link in firefighters.
- Goal to track firefighters' cancer risk over time to better understand the link between workplace exposures and cancer.



One Hundred Fifteenth Congress
of the
United States of America

AT THE SECOND SESSION

Begun and held at the City of Washington on Wednesday, the third day of January, two thousand and eighteen

An Act

To require the Secretary of Health and Human Services to develop a voluntary registry to collect data on cancer incidence among firefighters.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the Firefighter Cancer Registry Act of 2018.

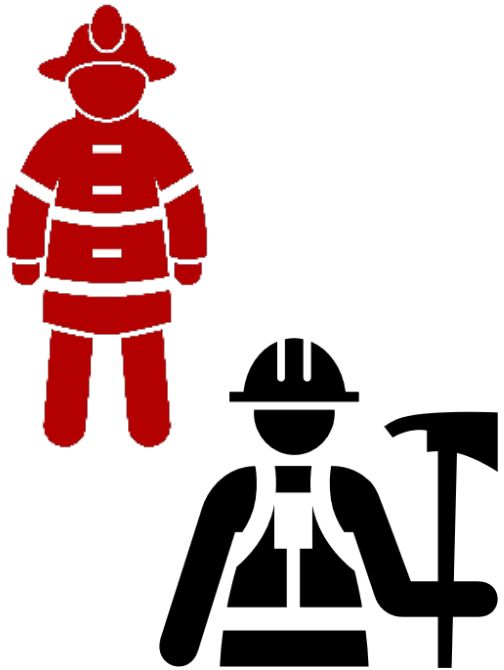
SEC. 2. VOLUNTARY REGISTRY FOR FIREFIGHTER CANCER INCIDENCE.

(a) IN GENERAL.—The Secretary of Health and Human Services (referred to in this section as the Secretary), acting through the Director of the Centers for Disease Control and Prevention and in coordination with other agencies as the Secretary determines appropriate, shall develop and maintain, directly or through a grant or cooperative agreement, a voluntary registry of firefighters (referred to in this section as the Firefighter Registry) to collect relevant health and occupational information of such firefighters for purposes of determining cancer incidence.

(b) USE OF FIREFIGHTER REGISTRY.—The Firefighter Registry may be used for the following purposes:

Who will be included?

- The NFR will represent ALL firefighters, ***not*** just those with a cancer diagnosis.
- Minority, female, and volunteer firefighters
- Also interested in sub-specialties like:
  - Instructors
  - Wildland firefighters
  - Arson investigators
- Participation is completely voluntary
- Goal is to enroll 200,000+

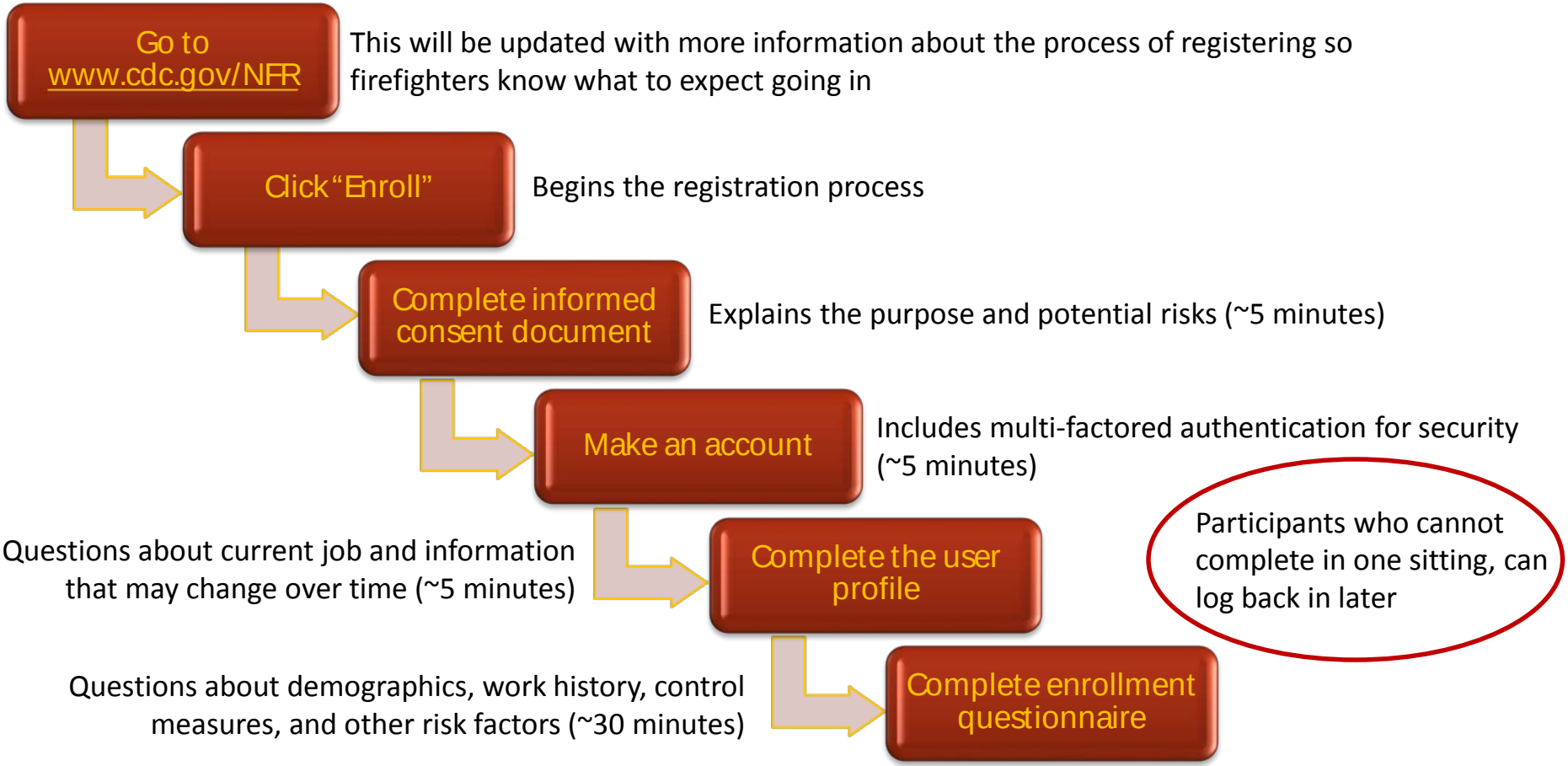


How will firefighters be recruited?

1. **Open Enrollment** through a secure Web-Portal
   - All firefighters will be able to participate (current/former/retired)
   - Will work closely with professional organizations and other stakeholders to promote the NFR

2. Work Directly with Fire Departments to enroll their staff (**Targeted Enrollment**)
   - Obtain more representative sample of fire departments
   - Will select large and small, urban and rural, career and volunteer departments
   - Focus enrollment of women, minorities, and volunteer firefighters (as required under the Act)
   - Work closely with fire department and local union leadership
   - **Need access to fire-department records (e.g., incident records)**

What will registration look like?

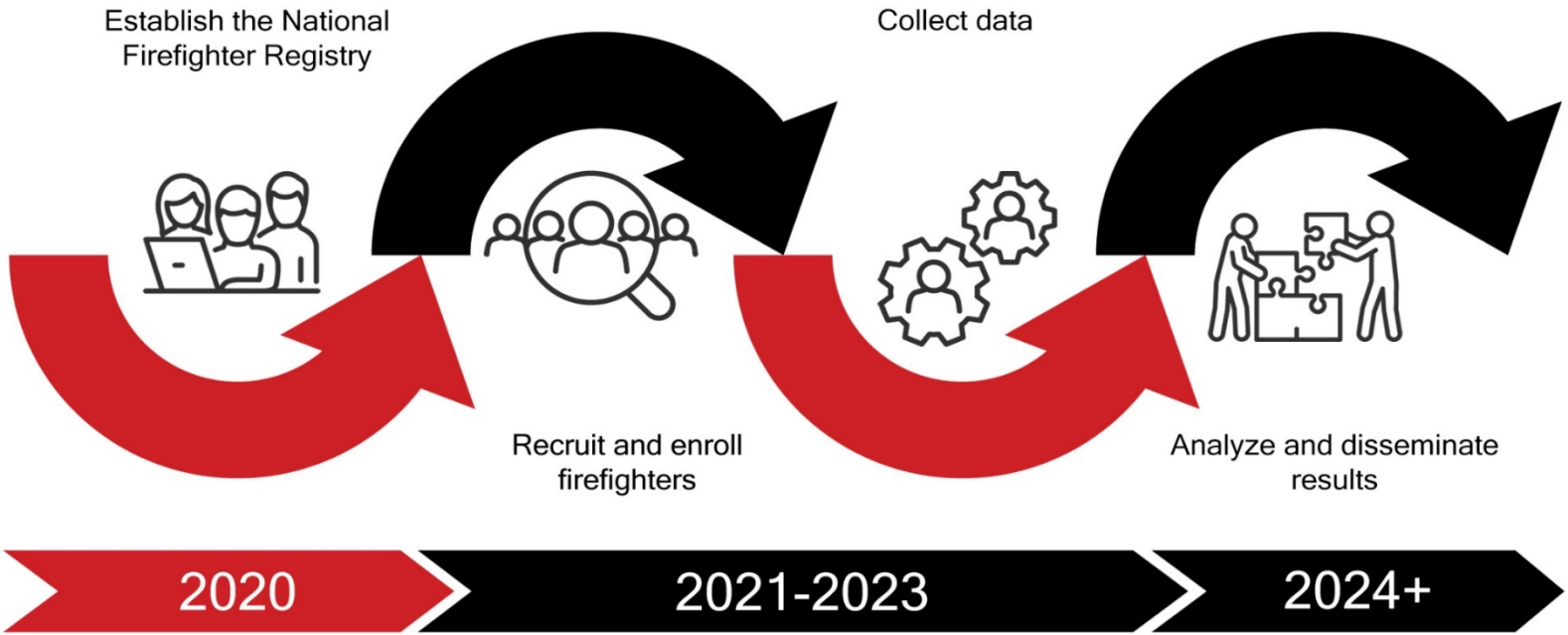


What happens after a firefighter registers?

- NIOSH will maintain regular communications with the firefighters (email or text message)
- There will be opportunities for completing follow-up questionnaires
- Firefighters will be able to update their user profile at any time
- Even if we never hear from firefighters again, we will match their information (with permission) to…
  - State cancer registries
  - National Death Index

  } Matching to occur every few years
- This allows us to monitor cancer outcomes over time

NFR National Firefighter Registry Timeline



Learn more about the NFR at www.cdc.gov/NFR

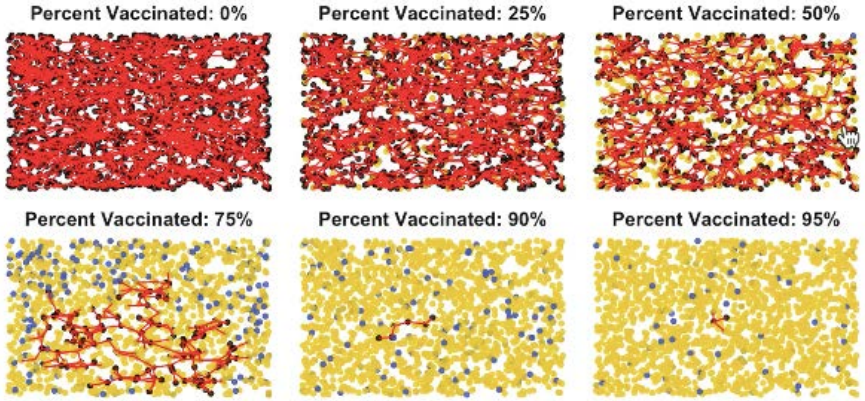
Vaccine Update

Community (Herd) Immunity

- What is community or “herd” immunity?
  - When enough people in a community have had COVID-19 and develop “natural immunity,” the rest of the population becomes a lot less *susceptible* to becoming infected because the virus cannot easily jump from an infected to a susceptible person.

- What level of infection is needed to achieve herd immunity?
  - Given SARS-CoV-2 transmissibility (R_t = 3), then 67% of the population would need to be infected and recover before community immunity is likely.
    - Using the formula: P_{crit} = 1-(1/R t), if the value of R_t = 3, then P_{crit} = 0.67
    - Kwok KO et al. *J Infect*. 2020:80:e32-e33.

- Drivers of Community Immunity
  - Vaccine arrival
  - Vaccine efficacy
  - Vaccine adoption

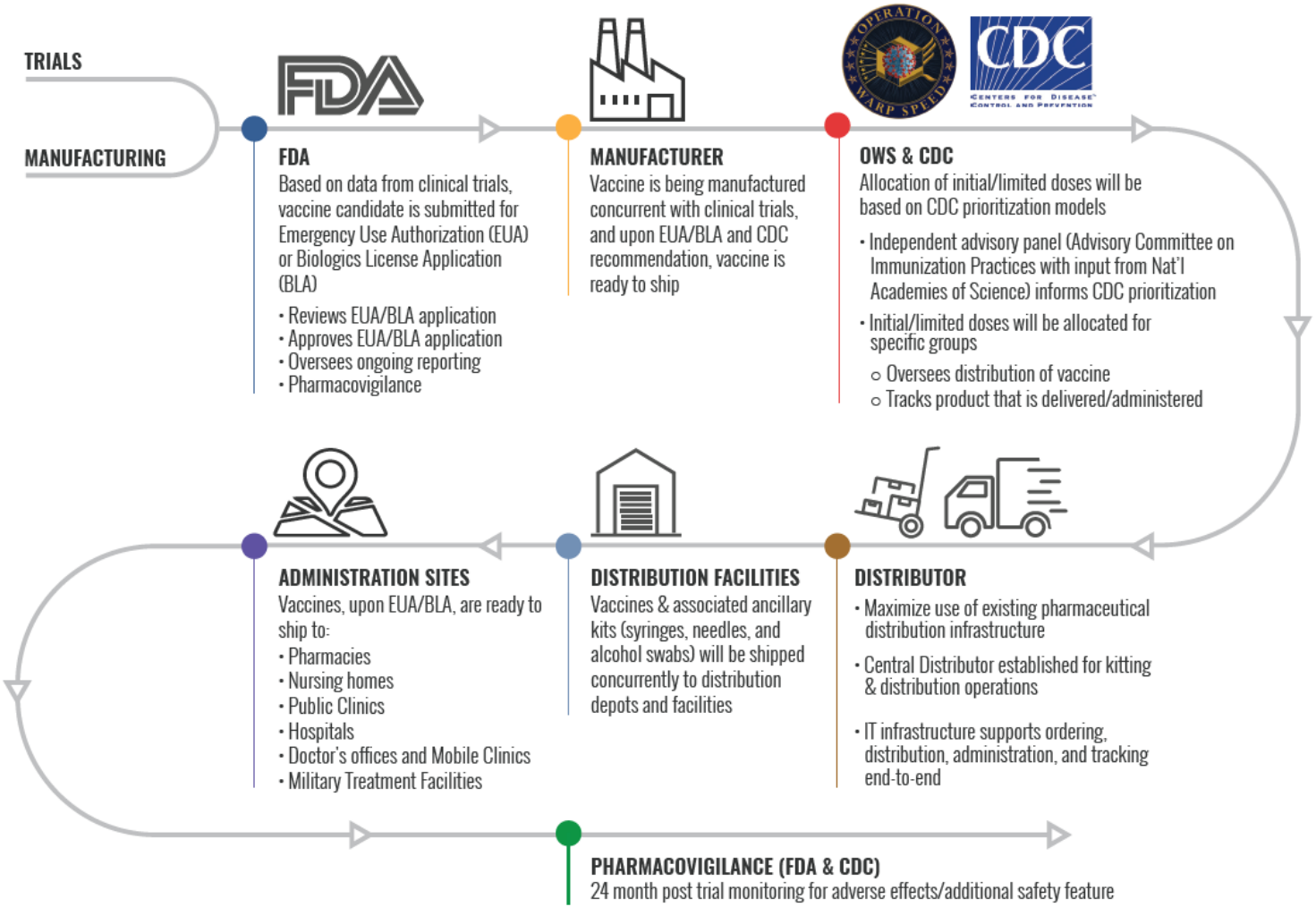


Major Vaccine Concerns

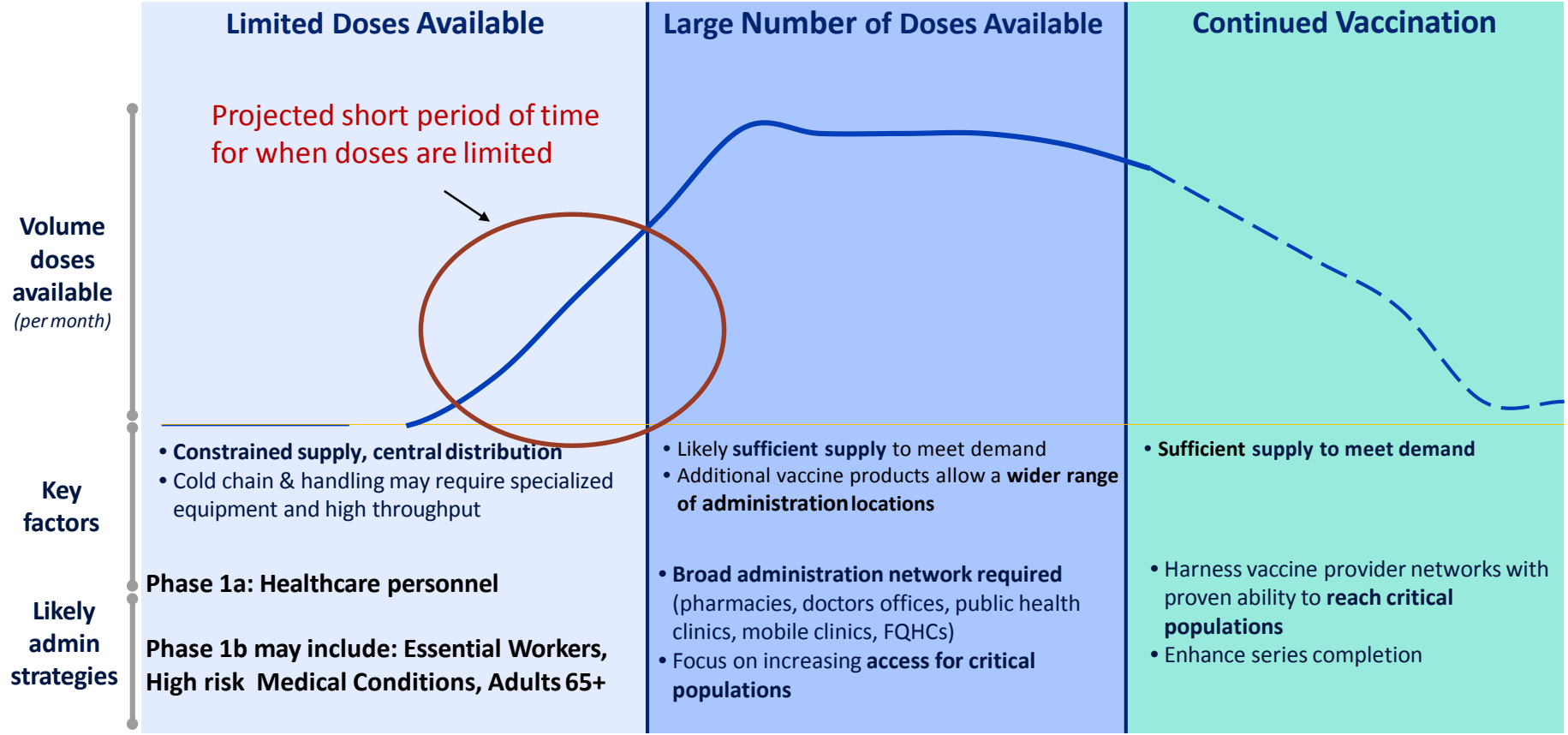
- **Safety**
  - Shorter term versus longer term effects
  - Phase 3 vaccine studies regularly last for many years

- **Efficacy**
  - Immediate surrogates like antibody titers quick to see
  - Actual efficacy goal is disease prevention in real world settings

- **Durability**
  - Immunity profile like coronarviruses that cause the common cold
    - Months to one-year immunity from reinfection
  - If no lifelong immunity, there will be a need for boosting

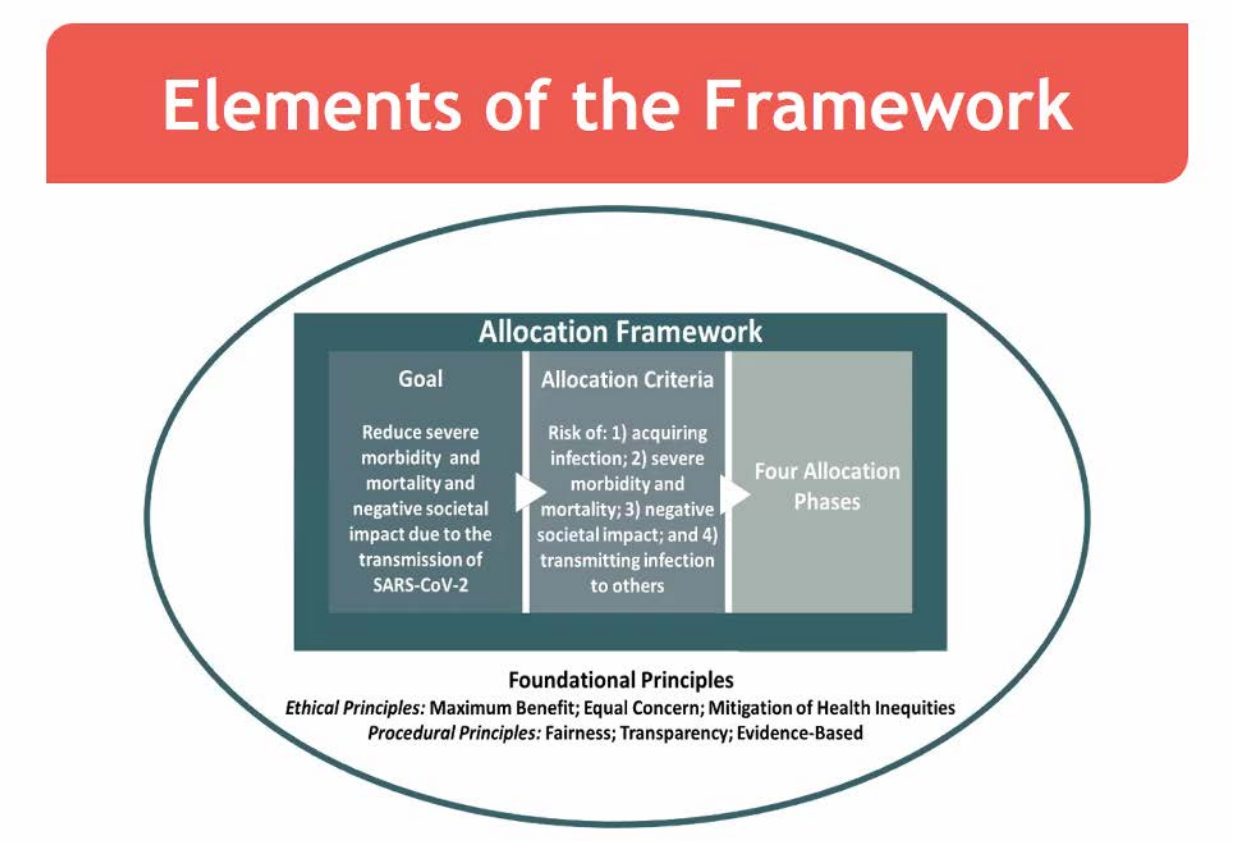

TRIALS
MANUFACTURING
FDA
FDA
Based on data from clinical trials, vaccine candidate is submitted for Emergency Use Authorization (EUA) or Biologics License Application (BLA)
• Reviews EUA/BLA application
• Approves EUA/BLA application
• Oversees ongoing reporting
• Pharmacovigilance
MANUFACTURER
Vaccine is being manufactured concurrent with clinical trials, and upon EUA/BLA and CDC recommendation, vaccine is ready to ship
OPERATION WARP SPEED
CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION
OWS & CDC
Allocation of initial/limited doses will be based on CDC prioritization models
• Independent advisory panel (Advisory Committee on Immunization Practices with input from Nat'l Academies of Science) informs CDC prioritization
• Initial/limited doses will be allocated for specific groups
○ Oversees distribution of vaccine
○ Tracks product that is delivered/administered
DISTRIBUTOR
• Maximize use of existing pharmaceutical distribution infrastructure
• Central Distributor established for kitting & distribution operations
• IT infrastructure supports ordering, distribution, administration, and tracking end-to-end
DISTRIBUTION FACILITIES
Vaccines & associated ancillary kits (syringes, needles, and alcohol swabs) will be shipped concurrently to distribution depots and facilities
ADMINISTRATION SITES
Vaccines, upon EUA/BLA, are ready to ship to:
• Pharmacies
• Nursing homes
• Public Clinics
• Hospitals
• Doctor's offices and Mobile Clinics
• Military Treatment Facilities
PHARMACOVIGILANCE (FDA & CDC)
24 month post trial monitoring for adverse effects/additional safety feature

Administration of COVID-19 Vaccine Requires Phased Approach



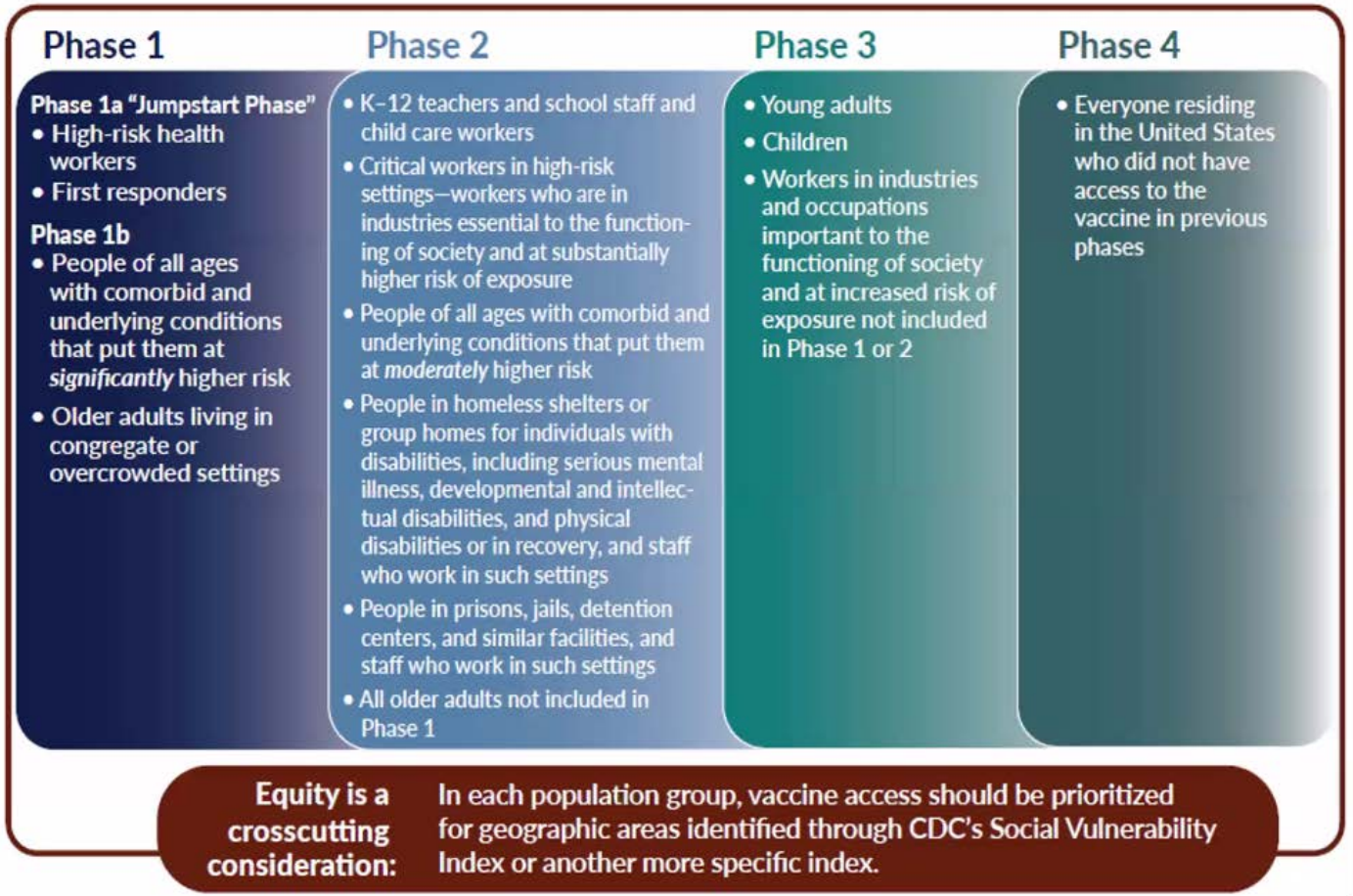
National Academies

Framework for COVID-19 Vaccine Allocation



National Academies

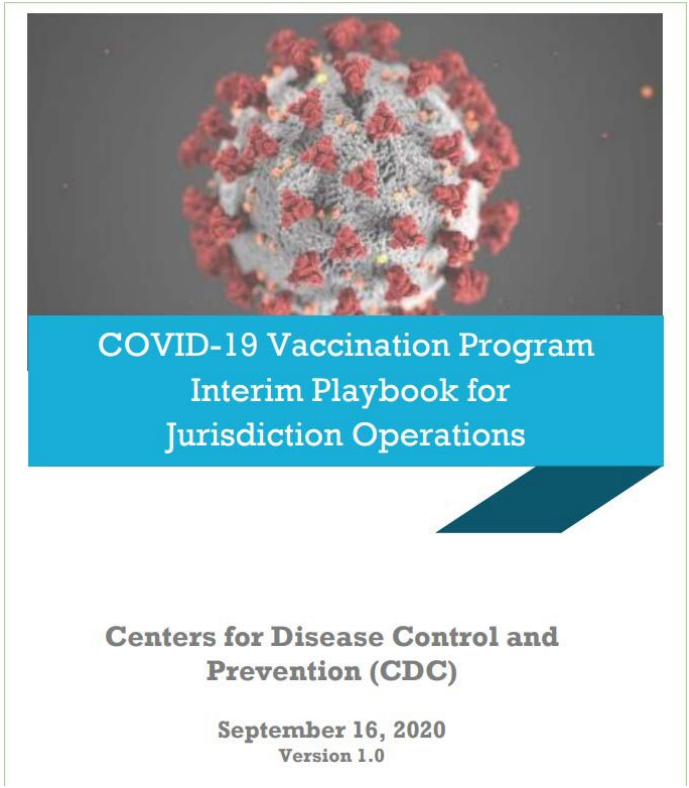
Vaccine Allocation Framework (2 October 2020)



COVID-19 Vaccine Priority Group Comparison

Group	Johns Hopkins	National Academies	WHO
Healthcare personnel	**Tier 1**: Frontline healthcare personnel including LTCF providers; EMS **Tier 2**: HCP & staff with direct, non-COVID patient contact; pharmacy workers	**Phase 1a**: Frontline healthcare personnel including LTCF providers; EMS **Phase 2**: Other healthcare personnel	Unranked
Other essential workers	**Tier 1**: Public transport, food supply workers; teachers & school workers. Workers necessary for pandemic support: (e.g. vaccine manufacturers; public health workers/support) **Tier 2**: Frontline infrastructure; warehouse/delivery/postal; deployed military; **police & fire**; TSA and border security; high-density or high-contact jobs	**Phase 1a**: **Police, fire** **Phase 2**: Critical infrastructure at risk of exposure; teachers and school staff including childcare workers	
Underlying medical conditions	**Tier 1**: Those with elevated risk of serious disease; members of social groups experiencing disproportionately high fatality rates	**Phase 1b**: Significantly higher risk (≥2 CDC designated conditions) **Phase 2**: Moderately higher risk (1 CDC condition)	
Adults ≥65 years of age	**Tier 1**: Adults ≥65 years including those living with or providing care to them	**Phase 1b**: Older adults in congregate settings **Phase 2**: All older adults not in Phase 1	

COVID-19 Vaccination Program: Interim “Playbook”



- Locating Critical Populations
- Vaccination Provider Recruitment, Enrollment and Training
- Vaccination Program Communication
- Vaccine Ordering and Distribution
- Vaccine Storage and Handling (preliminary)
- Vaccine Safety Monitoring (preliminary)
- CDC Dashboards

https://www.cdc.gov/vaccines/imz-managers/downloads/COVID-19-_Vaccination-Program-Interim_Playbook.pdf

CDC Playbook Section 4: Critical Populations

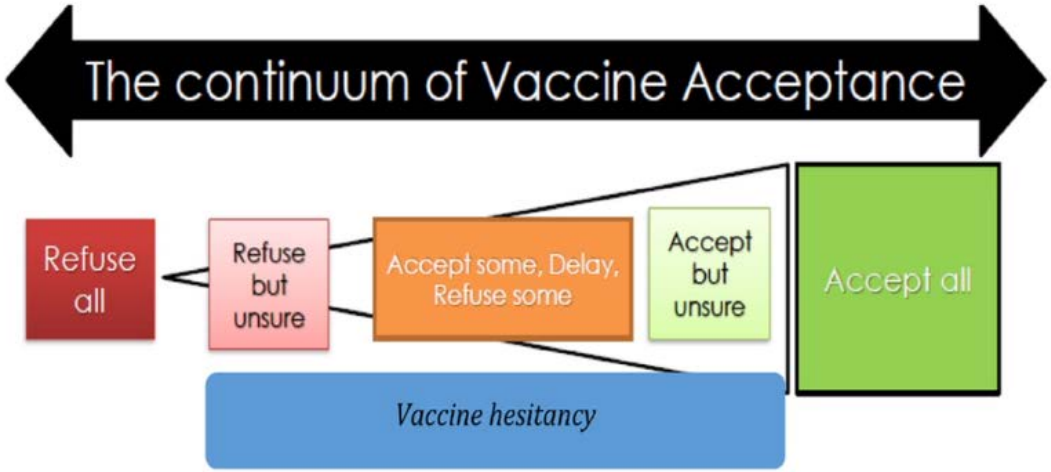
- CDC's Advisory Committee on Immunization Practices (ACIP), the National Institutes of Health, and the National Academies of Sciences, Engineering, and Medicine (NASEM) are working to determine populations of focus for COVID-19 vaccination and ensure equity in access to COVID-19 vaccination availability across the United States.

- The first step in planning is to identify and estimate the critical populations within a jurisdiction. These populations may include, but are not limited to, the following (in no particular order):
  - Critical infrastructure workers
  - People at increase risk of serious COVID-19
  - People at increased risk of acquiring or transmitting COVID-19
  - People with limited access to vaccination services

Vaccine ≠ Vaccination

- Achieving community immunity depends on:
  - Vaccine efficacy
  - Vaccine acceptance

- Barriers to acceptance
  - Vaccine hesitancy
  - Vaccine refusal



"Vaccine communication science"

NIOSH is leveraging and expanding the National Fire Operations Reporting System (NFORS) to inform characteristics of calls for potential COVID-19 patients

Computer Aided Dispatch (CAD) Systems Module

Automated, call-specific data

COVID-19 Potential Incidents

- Call Frequency
- Call Duration
- # Apparatus Deployed
- # Responders Deployed

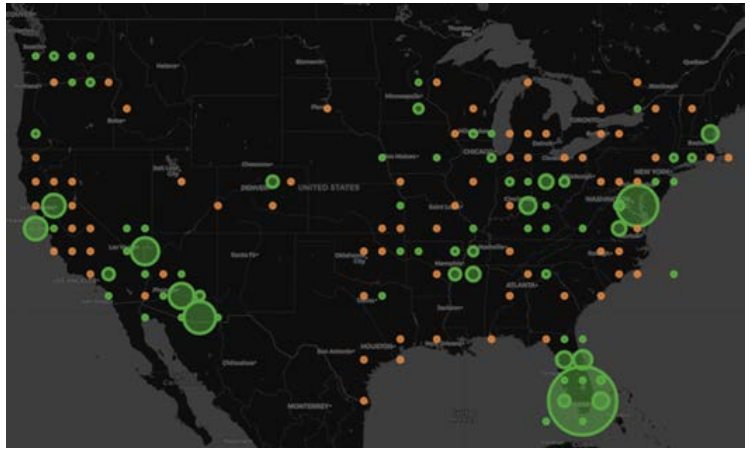
Linked by unique call identification number

Exposure Tracker Module

Voluntary, manual data entry from individual responders deployed to call

COVID-19 Potential Incidents

- Frequency of Potential Exposures for Individual Responders
- Duration of Potential Exposures for Individual Responders
- Frequency and Type of PPE Used
- Frequency of Reusing Disposable PPE



Current distribution of participating fire departments

CDC Workplace Safety and Health | NIOSH

NFORS – National Fire Operations Reporting System

Thank You!