Pandemic Vaccination Campaign Planning Tool - User’s Manual

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INTRODUCTION

What does this tool do?
This tool helps public health programs compare various pandemic vaccination provider group participation rates and vaccine administration capacity scenarios in terms of the estimated number of weeks it may take to vaccinate a defined population.

In this tool, pandemic vaccine doses are allocated based on the percent of the overall target population the user expects to be vaccinated by each provider group. If the percent of the target population vaccinated by each provider group changes over time, allocation to each group is also adjusted. After all inputs are provided, the tool can inform the user if they have over- or under-allocated pandemic vaccine doses to certain vaccine provider groups based on their weekly vaccine administration capacity.

The user can also determine if their jurisdiction's pandemic vaccine supply is available for allocation to provider groups all at once or if the pandemic vaccine supply changes monthly over time.

What does this tool not do?
The tool will not tell the user how to allocate pandemic vaccine doses to each provider group. However, the tool will help users determine the best approach to allocating vaccine to participating vaccination providers. The tool is not designed to assess staffing at each vaccination setting or public demand for vaccination.

Who is this tool designed for?
This tool is designed for use by federal, state, and local public health programs involved in pandemic vaccination provider outreach.

Results from this tool should be used for discussion among pandemic planning partners in immunization programs, public health preparedness programs, and other private sector groups to plan and improve efficiency of the jurisdictions' vaccination provider outreach, recruitment, and readiness efforts.
System requirements
The Pandemic Vaccination Campaign Planning Tool uses the Windows* operating system (Excel Microsoft Office 2000 or higher).

*Microsoft Windows and Office are copyrighted products produced by Microsoft Corporation (WA). The use of product trade names is for information purposes only. The U.S. government and its agencies do not endorse any specific computer or operating system.

HOW THE TOOL WORKS

Estimation
The tool calculates the number of weeks required to vaccinate a number of individuals, based on user-defined input parameters. It aggregates the total number of doses administered by different provider groups for adults and children. Each provider group’s weekly vaccine administration capacity is based on the number of doses allocated by the user and the user-defined throughput [1]. The tool does not track whether a certain provider group is offering one or two doses. Instead, the final total throughput among all provider groups is divided by the number of doses needed for “full vaccination” (after the required interval between vaccine doses).

Assumptions
The estimation strategy makes the following assumptions:

- Public demand for vaccination is high as the tool assumes severe pandemic conditions (i.e., everyone identified for vaccination wants to be vaccinated and will be vaccinated when vaccine is available).
- Spacing between vaccine doses is uniform (e.g., the same number of weeks are required between doses 1 and 2 and doses 2 and 3).
- The total number of people fully vaccinated is assumed to be equal to the number of doses administered divided by the number of doses needed for full vaccination.
- Weekly vaccine administration capacity or rate for each provider group is the same every week once defined by the user.

ENTERING THE INPUT PARAMETERS

The following inputs are necessary:

- **Characteristics of the vaccination campaign**
  - Total number of persons identified for vaccination in jurisdiction (NOTE: for a pandemic vaccination campaign across the jurisdiction, the identified population will likely be the total number of persons in the jurisdiction)
  - Number of doses needed to complete vaccine series (1–3)
  - Interval required between doses (1–4 weeks)
  - Vaccination coverage goal for the identified population (80% is the suggested two-dose pandemic vaccination coverage goal for a severe pandemic)
  - Percent of children in the identified population

- **Vaccination provider characteristics**
  - Description or label for each potential pandemic vaccination provider group within the jurisdiction (e.g., chain pharmacy, independent pharmacy, hospital, school-located vaccination clinic, small outpatient clinic, large outpatient clinic, mass vaccination clinic or points of dispensing, etc.)
  - For each provider group, provide the:
    - Number of providers or settings in jurisdiction
    - Type of age group served (e.g., child, adult, or all ages)
    - Weekly vaccine administration capacity or rate

- **Vaccine allocation strategy**
  - Select whether vaccines are available for allocation all at once or monthly and whether the monthly amount changes
  - Proportion of children and adults served by each provider group; this proportion is equal to the total proportion of vaccine allocated to each provider type or setting

**NOTE:** Parameters need to be correctly entered and internally consistent for the tool to estimate the speed of the vaccination campaign.
MODEL OUTPUTS

With user inputs, the tool estimates the characteristics of the vaccination campaign in terms of:

**Speed of vaccination campaign**
- Number of weeks required to reach the goal population coverage for each scenario

**Efficiency of vaccination campaign**
- Share of each provider capacity that was used
STEP-BY-STEP USER-DEFINED INPUTS

Decision guide

Step 1. Identify Jurisdiction Characteristics

Required Inputs:

✓ Size of population to be vaccinated
✓ Proportion of the population made up of children
✓ Number of doses needed to complete vaccine series
✓ Interval required between doses
✓ Vaccination coverage goal

Note: These characteristics should remain constant between scenarios.

Step 2. Define Provider Groups and Population Served

Required Inputs:

✓ Types of vaccination provider groups operating in the jurisdiction
  o Example: PODs/DVCs, pharmacies, hospitals, private physicians
✓ Total number of individual providers or sites in each jurisdiction for each provider group
✓ Age group of population served (adults, children, both) served by each provider group

Step 3. Define Vaccination Capacity

Required Inputs:

✓ Proportion of providers in each provider group participating in vaccination campaign
✓ Estimated provider throughput of doses administered per week for each provider group
Step 4. Define Vaccine Availability

Decision point:
Will all doses of vaccine required to reach the vaccination coverage goal (defined in step 1) be available at the start of the vaccination campaign?

If Yes: <Move to Step 6>

If No: Define the proportion of vaccine doses available for allocation each month as a proportion of the total number of doses required to reach the vaccination coverage goal by filling in the table below; then move to Step 5.

<table>
<thead>
<tr>
<th>TABLE - Pandemic Vaccine Becomes Available Over Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Month</td>
</tr>
<tr>
<td>--------</td>
</tr>
<tr>
<td>Month 1</td>
</tr>
<tr>
<td>Month 2</td>
</tr>
<tr>
<td>Month 3</td>
</tr>
<tr>
<td>Month 4</td>
</tr>
<tr>
<td>Month 5</td>
</tr>
<tr>
<td>Month 6</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>
Step 5. Define Vaccine Allocation

Decision point:

Will the proportion of vaccine allocated to each provider type remain the same during each month throughout the campaign?

If Yes: <Move to Step 6>

If No: Define the proportion of the monthly vaccine allocation administered by each provider type for each month of the campaign by filling in the table below; then move to Step 6.

<table>
<thead>
<tr>
<th>TABLE - Determine Monthly Allocations to Provider Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provider Group</td>
</tr>
<tr>
<td>Adults</td>
</tr>
<tr>
<td>Provider Group 1</td>
</tr>
<tr>
<td>Provider Group 2</td>
</tr>
<tr>
<td>Provider Group 3</td>
</tr>
<tr>
<td>Provider Group 4</td>
</tr>
<tr>
<td>Provider Group 5</td>
</tr>
<tr>
<td>Provider Group 6</td>
</tr>
<tr>
<td>Monthly Allocation</td>
</tr>
</tbody>
</table>
Step 6. Estimate Vaccine Administration

*Required Inputs:*

- Proportion of vaccine doses allocated to provider types (table below). (Total percentage should equal 100%.)

### Population Served and Pandemic Vaccination Allocation by Provider Group

<table>
<thead>
<tr>
<th>Provider Group</th>
<th>Allocated adult vaccines (%)</th>
<th>Allocated pediatric vaccines (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provider Group 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provider Group 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provider Group 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provider Group 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provider Group 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provider Group 6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Schematic of decision steps**

The figure below shows the different steps.

- **Step 1:** Define characteristics of the population to be vaccinated.
- **Step 2:** Define provider groups and the populations they serve in the jurisdiction.
- **Step 3:** Estimate pandemic vaccine administration capacity for each provider group.
- **Step 4:** Define availability of pandemic vaccine during the campaign.
- **Step 5:** Determine how vaccine will be allocated throughout the campaign.

Doses available over time

All doses available from the beginning

Vaccine allocation to each provider group is the same throughout the campaign.

The amount of vaccine allocated to each provider group could change from month to month.

Check inputs and examine results.
Step-by-step guide with screenshots

Step 1 - Characterize Population to be Vaccinated

Input general information about the vaccination campaign.

<table>
<thead>
<tr>
<th>Population</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Population targeted for pandemic vaccination (may be 100% of jurisdiction for most pandemic vaccination campaigns)</td>
<td>Target population size: 1,000,000</td>
</tr>
<tr>
<td>Vaccination requirements and vaccination coverage goal</td>
<td></td>
</tr>
<tr>
<td>Number of doses needed to complete vaccine series (1-3):</td>
<td>2</td>
</tr>
<tr>
<td>Interval required between doses (1-4 weeks):</td>
<td>3</td>
</tr>
<tr>
<td>Pandemic vaccination coverage goal (80% recommended):</td>
<td>80%</td>
</tr>
<tr>
<td>Children in the target population</td>
<td></td>
</tr>
<tr>
<td>Percent of children in target population:</td>
<td>25%</td>
</tr>
</tbody>
</table>

Instructions
Fill in white cells only.
Enter the size of the population targeted for pandemic vaccination.
Enter information about the vaccine requirements and target vaccination coverage goal.
Enter the percentage of the targeted population that are children.

Legend
White Cells: user defines these inputs.

Step 2 - Define Provider Groups

Input information about the number of providers for each provider group and the population(s) served (adult, children, or both).

<table>
<thead>
<tr>
<th>Define Providers: Name, Population Served and Number of Providers</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Define each vaccination provider group</td>
<td>Insert total number of providers or sites in jurisdiction for each provider group (include providers and sites not participating in pandemic vaccination campaign)</td>
</tr>
<tr>
<td>Points of Dispensing (PODS)</td>
<td>20</td>
</tr>
<tr>
<td>Outpatient Adult Clinics</td>
<td>100</td>
</tr>
<tr>
<td>Outpatient Pediatric Clinics</td>
<td>50</td>
</tr>
<tr>
<td>School Vaccination Clinics</td>
<td>20</td>
</tr>
<tr>
<td>Routine Health Dept Clinics</td>
<td>10</td>
</tr>
<tr>
<td>Chain Pharmacies</td>
<td>30</td>
</tr>
<tr>
<td>Independent Pharmacies</td>
<td>15</td>
</tr>
<tr>
<td>Insert Provider Group 8</td>
<td></td>
</tr>
<tr>
<td>Insert Provider Group 9</td>
<td></td>
</tr>
<tr>
<td>Insert Provider Group 10</td>
<td></td>
</tr>
<tr>
<td>Insert Provider Group 11</td>
<td></td>
</tr>
<tr>
<td>Insert Provider Group 12</td>
<td></td>
</tr>
</tbody>
</table>

Instructions
Fill in white cells only.
Define each provider group and number of providers or sites in each group in the jurisdiction.
Specify the population served by the provider group (if both, the group will be considered an "all ages" provider).
The user is limited to 12 provider groups. If there are less than 12 provider groups, then all cells on the row should be left blank.

Legend
White Cells: user defines these inputs.
**Step 3 – Define Provider Group Participation Scenarios**

Define up to three different scenarios of provider group participation. For each scenario, users may define a different level of engagement, throughput, and required weeks to reach assumed provider group throughput.

<table>
<thead>
<tr>
<th>Vaccine Provider Groups</th>
<th>Age group of population served</th>
<th>Total number of providers or sites in group</th>
<th>Percent of providers or sites participating in vaccination campaign</th>
<th>Estimated weekly average vaccine administration capacity or rate for a single provider in this group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Points of Dispensing (POD)</td>
<td>All Ages</td>
<td>20</td>
<td>100%</td>
<td>3,840</td>
</tr>
<tr>
<td>Outpatient Adult Clinics</td>
<td>Adult</td>
<td>100</td>
<td>100%</td>
<td>480</td>
</tr>
<tr>
<td>Outpatient Pediatric Clinics</td>
<td>Children</td>
<td>50</td>
<td>100%</td>
<td>480</td>
</tr>
<tr>
<td>School Vaccination Clinics</td>
<td>Children</td>
<td>20</td>
<td>100%</td>
<td>1,440</td>
</tr>
<tr>
<td>Minute Health Urgent Clinics</td>
<td>All Ages</td>
<td>10</td>
<td>100%</td>
<td>720</td>
</tr>
<tr>
<td>Chain/Pharmacies</td>
<td>Adult</td>
<td>30</td>
<td>100%</td>
<td>1,008</td>
</tr>
<tr>
<td>Independent Pharmacies</td>
<td>Adult</td>
<td>15</td>
<td>100%</td>
<td>200</td>
</tr>
</tbody>
</table>

**Legend**

White Cells: user defines these inputs.

Gray Cells: fixed inputs (do not change).

**Step 4 – Define Availability of Vaccine during Campaign**

Select a desired allocation method:

- **All pandemic vaccine doses available in the beginning**: All vaccine doses are available at the beginning of the vaccination campaign, and the percent allocated to each provider group remains the same throughout the campaign.

- **Pandemic vaccine doses become available to allocate over time**: Vaccine doses become available as the campaign progresses or vaccines will be allocated differently among the different provider groups as the campaign evolves.

**Choose How Pandemic Vaccine Becomes Available**

Based on previous inputs, total number of pandemic vaccines available to allocate to provider groups throughout entire campaign:

Total number of pandemic vaccine doses available: 2,000,000

Indicate on this worksheet whether all pandemic vaccine doses are available to allocate to providers at the beginning of the vaccination campaign or if vaccine doses will be available over time.

- **All pandemic vaccine doses available in the beginning**: Choose “All pandemic vaccine doses available in the beginning” if all vaccine doses are available at the beginning of the vaccination campaign and the percent allocated to each provider group remains the same throughout the entire pandemic vaccination campaign (recommended for new users).

- **Pandemic vaccine doses become available to allocate over time**: Choose “Pandemic vaccine doses become available to allocate over time” if vaccine doses become available as the campaign progresses or if the percent allocated to each provider group changes over time (recommended for experienced users). NOTE: This is the likely scenario if pandemic vaccine is not stockpiled and needs to be developed.
Step 5 - Define Vaccine Allocation

Define the percent of doses to be allocated to each provider group. If all vaccine doses are available in the beginning and vaccine dose allocation will not change monthly, input values as noted below. If the vaccine doses become available as the campaign progresses, then it is necessary to define vaccine availability.

NOTE: Users may only input numbers in the white cells; cells will be grey if the provider does not serve a particular population.

Step 6 - Define Vaccine Availability

When the monthly allocation method is chosen, define how many vaccine doses are available at the beginning of each month.
Next, define the percent of vaccine doses allocated per provider group by month.

**Input Warning**

This page verifies that all the inputs were entered correctly in the tool. If inputs were entered incorrectly, the tool will suggest ways to correct the errors.

**Input Check**

The tool warns the user if:

- The totals allocated correspond to 100% of the population.
- Current planning results in unused doses.

Checking if all inputs were entered correctly:

- The worksheet “Input Warning” tells the user if all required inputs were entered correctly and, if necessary, provides a suggestion on how to fix possible input errors. (NOTE: Issues that need to be corrected will appear in red.)
Checking if all inputs are consistent:

- The total population to be vaccinated by each provider group must be less than the provider group's capacity so that there are no unused doses. The tool will warn the user how to correct inputs, if necessary.

**Results**

This page displays the number of weeks required to reach the campaign vaccination goal, the percent of each provider group’s capacity used in the campaign, and whether there are unused doses at the end of the vaccination campaign.