

# Seasonal Influenza Vaccine: Supply Update

UNICEF Supply Division

September 2020

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This update provides information on seasonal influenza vaccines. It highlights key issues related to the vaccines' production cycle, procurement, and supply to provide information to enable countries to have timely access to the vaccines in the required quantities. The global demand for seasonal influenza vaccine is increasing due to the COVID-19 pandemic. UNICEF emphasises the need for countries to forecast and finance their requirements in good time before the influenza season in the respective southern and northern hemispheres.

### 1. Summary Takeaways

- The global demand for seasonal influenza vaccines has increased during 2020 as the authorities around the world try to ease the burden on the health systems ahead of an expected COVID-19 resurgence, leading to constrained availability for countries procuring through UNICEF.
- Due to the changing formulation of the vaccines because of the ever-changing prevalence of circulating influenza virus strains, manufacturers' flexibility is considered low, which provides UNICEF only a narrow window to secure for countries access to the vaccine and requires countries to provide accurate and timely requirement forecasts.
- Countries procuring through UNICEF are required to ensure cost estimates are requested by early October 2020 for southern hemisphere influenza vaccine for April-June 2021 delivery and by mid-November 2020 for northern hemisphere seasonal influenza vaccine for September-November 2021 delivery.

### 2. General Brief and Background

Seasonal influenza is an acute respiratory infection caused by influenza viruses that circulate in all regions globally. It is typically transmitted from the nasopharynx via respiratory droplets, and spreads easily through the air. There are four types of influenza viruses, types A, B, C and D. Whereas influenza types A and B are the cause of most seasonal epidemics, types C are detected less frequently, usually only causing mild infections, and types D primarily only affect cattle, and are not known to infect or cause illness in humans.<sup>1</sup>

The symptoms of seasonal influenza can range from mild to severe and can lead to mortality. The estimated annual attack rate of seasonal influenza ranges between 5-10 per cent in adults and 20-30 per cent in children,<sup>2</sup> with the burden of disease ranging between three to five million cases of severe illness a year, causing between 290,000 and 650,000 respiratory deaths annually,<sup>3</sup> representing a mortality rate usually well below 0.1 per cent.<sup>4</sup>

However, seasonal influenza can have a substantial health and economic impact, both directly and indirectly, resulting in high levels of work absenteeism, loss of productivity, and places a high burden on medical facilities, impacting medical costs, and hospital capacity.<sup>5</sup> Accurate data on the burden of disease from seasonal influenza is not available in many low- and middle-income countries (LICs and MICs), although research suggests that these countries are likely to suffer the highest burden of influenza in children,<sup>6</sup> amongst other groups at risk. Experts advocate the importance of burden estimates, as this helps countries to understand the threat of the disease, strengthen national and global preparedness, and formulate appropriate national policies, strategies for prevention and control measures, as well as to prepare for any possible pandemic influenza.

<sup>1</sup> World Health Organization, [Seasonal Influenza](#), WHO, Geneva, November 2018.

<sup>2</sup> WHO, [Vaccines Against Influenza](#), WHO, Geneva, November 2012.

<sup>3</sup> WHO, [Seasonal Influenza](#).

<sup>4</sup> WHO, [Q&A: Influenza and COVID-19 - Similarities and Differences](#), WHO, Geneva, March 2020.

<sup>5</sup> WHO, [Seasonal Influenza](#).

<sup>6</sup> Lee, Vernon J., Zheng Jie Marc Ho, Ee Hui Goh, et al, '[Advances in Measuring Influenza Burden of Disease](#)', *Influenza Disease Burden*, Vol. 12, Issue 1, 19 February 2018, p. 3-9.

UNICEF provides a list of available supplies for the prevention, treatment, and emergency response to outbreaks of novel influenza A (avian, swine, pandemic), which includes a list of supplies for infection prevention and control (IPC), and personal protective equipment (PPE) for airborne and droplet precautions to extend biological protection barriers. It also makes provisions for medical and supportive care for suspected or confirmed individuals, accessible [here](#).<sup>7</sup>

## 2.2 Seasonal Influenza Vaccines

There are several seasonal influenza vaccines available on the market, and which need to be reformulated annually to match the anticipated circulating strains likely to occur during the influenza season in the northern hemisphere (NH) and southern hemisphere (SH). It means that even though the respective region's populations develop immunity after having received the previous season's influenza vaccine, the new season's viruses may contain different strains, hence the required annual vaccination.<sup>8</sup>

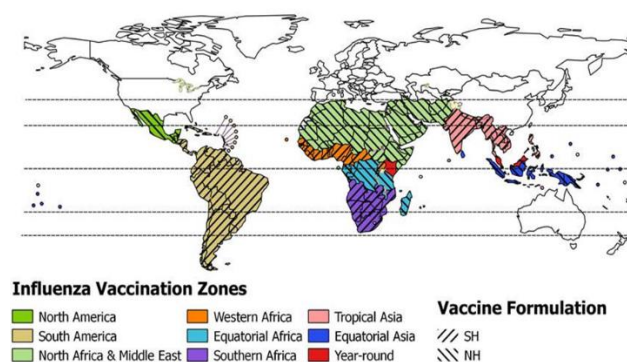
### Seasonality

*Seasonal influenza viruses circulate and cause disease in humans every year. The timing of circulation of the viruses depend on the geographical locations, climates, and the relationship with the environment.*

- Northern Hemisphere: mainly from October to March;
- Southern Hemisphere: mainly from April to September;
- In tropical and subtropical climate: all year round.

The World Health Organization's (WHO) recommendation regarding which vaccine formulation to use in different parts of the world is shown in Figure 1,<sup>9</sup> and timing of vaccination is shown in Figure 2.<sup>10</sup>

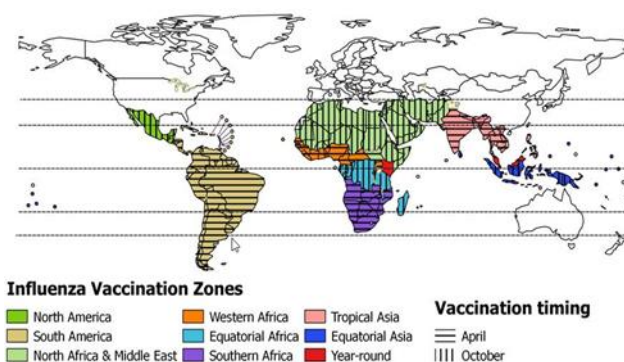
Figure 1 Which Influenza Vaccine Formulations to Use



Source: WHO

**Note:** The information displayed in Fig 1 is available in a table format [accessible here](#).<sup>11</sup> The information displayed in Fig 2 is available in a table format [accessible here](#).<sup>12</sup>

Figure 2. Influenza Vaccination Timing



There are a number of caveats to Figure 1 and Figure 2 on vaccine formulation and vaccination timing.<sup>13</sup>

- The influenza vaccination zone is based on data from FluNet,<sup>14</sup> and national surveillance systems, and which is subject to the limitations inherent to the data source.
- The national representativeness of the surveillance data may vary from country to country.
- For countries with a large latitudinal spread, the data may lack the granularity to detect sub-national variability in seasonality pattern.

<sup>7</sup> UNICEF, [Novel Influenza A: Health Emergency Supply Note](#), UNICEF, Copenhagen, February 2018.

<sup>8</sup> World Health Organization, [Influenza Vaccination Zones](#), WHO, Geneva, September 2017.

<sup>9</sup> World Health Organization, [Which Vaccine Formulation to Use - Northern or Southern Hemisphere](#), WHO, Geneva, September 2017.

<sup>10</sup> World Health Organization, [Vaccination Timing](#), WHO, Geneva, September 2017.

<sup>11</sup> World Health Organization, [Countries with Recommended Formulation](#), WHO, Geneva, November 2016.

<sup>12</sup> World Health Organization, [Countries with Recommended Formulation](#), WHO, Geneva, November 2016.

<sup>13</sup> World Health Organization, [Influenza Vaccination Zones - Caveats](#), WHO, Geneva, September 2017.

<sup>14</sup> World Health Organization, [FluNet](#), WHO, Geneva, 2020.

- The assignment of a country into a particular zone may be redefined over time as more surveillance data becomes available or the assumptions for grouping countries without data is revised.

### 3. The Supply Market

There are currently eight suppliers with WHO prequalified vaccines in the market as of September 2020. Suppliers produce vaccines with a variety of valencies and presentations described in Table 1 below.

Table 1. WHO Prequalified Seasonal Influenza Vaccine Suppliers, Products, and Descriptions

Supplier	Country of origin	Trivalent	Quadrivalent	1-dose vial	10-dose vial	Pharmaceutical form
Abbott Biologicals	Netherlands	✓		✓		Liquid: ready to use
Green Cross Corporation	South Korea	✓	✓	✓	✓	Liquid: ready to use
Hualan Biological Bacterin	China	✓		✓		Liquid: ready to use
IL-YANG Pharmaceutical	South Korea	✓		✓		Liquid: ready to use
Sanofi Pasteur	France	✓			✓	Liquid: ready to use
	USA	✓	✓	✓	✓	Liquid: ready to use
Seqirus Vaccines	USA	✓	✓	✓	✓	Liquid: ready to use
Serum Institute of India	India	✓		✓ Vial + ampoule		Lyophilised to be reconstituted with excipient diluent before use
SK Bioscience	South Korea	✓	✓	✓	✓	Liquid: ready to use

Source: WHO

The combined global production capacity for seasonal influenza vaccines is relatively large, but a share of this capacity is either used to produce other antigens or is inactive. The growth in demand as a result of the COVID-19 pandemic started several months after manufacturers had already planned their levels of vaccine production for 2020 / 2021's northern hemisphere seasonal influenza. As fewer manufacturers produce vaccines for the southern hemisphere influenza, UNICEF projects the current constrained supply situation will continue, and it is engaging all suppliers of WHO prequalified vaccines, including those with underutilized production facilities, to enable supply to countries procuring through UNICEF.

### 4. Short Window for Production Planning and Supply

Seasonal influenza vaccines need to be reformulated annually to match the anticipated circulating strains in both the northern and southern hemisphere influenza seasons. Twice a year, WHO issues guidance to influenza vaccine manufacturers including the recommended strain composition for vaccines for the following influenza seasons in the northern and southern hemispheres. The timelines are challenging for manufacturers to produce and to ensure the regulatory releases to enable delivery in time before the start of the influenza seasons. For example, the influenza season in the southern hemisphere lasts approximately from April through to September, with WHO recommending vaccination in April,<sup>15</sup> while the manufacturers will only have the vaccines available for supply from April through to June. Similarly, the influenza season in the northern hemisphere lasts approximately from October through to March, while WHO recommends vaccination in October,<sup>16</sup> whereas manufacturers will only have the vaccines available for supply from September through November.

### 5. Demand and Forecasting through UNICEF

Historically, UNICEF has only procured limited quantities of influenza vaccine on behalf of countries. The annual procured quantities fluctuate and are characterised by having a poor correlation with the forecasted quantities from countries. At the same time, UNICEF often receives requests for supply of seasonal influenza vaccine that have not been previously forecasted, and after suppliers have determined the quantities to make available for the global market. UNICEF can optimize the possibility of gaining access to the required quantity of vaccines if the accuracy and timing of countries' forecast is improved. The timing of country forecasts, the request of cost estimates through UNICEF's Procurement Services,<sup>17</sup> and finally providing funds for the procurement are all critical to enable access to supply to meet countries' forecasted demands.

<sup>15</sup> World Health Organization, [When to Vaccinate](#), WHO, Geneva, November 2016

<sup>16</sup> Ibid.

<sup>17</sup> UNICEF, [Procurement Services](#), UNICEF, Copenhagen, September 2020.

UNICEF projects that the demand for seasonal influenza vaccines will continue to increase as countries seek to avert potential, simultaneous crises in their health systems caused by seasonal influenza and COVID-19, while the availability of vaccines is expected to remain constrained due to the tight production timelines. UNICEF therefore urges countries that seek to procure seasonal influenza vaccines through UNICEF to provide accurate and timely forecasts.

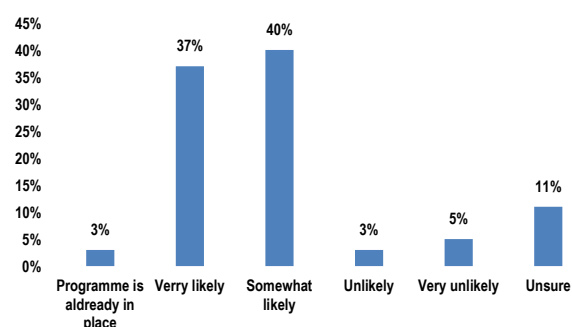
## 6. Financing the Costs of Seasonal Influenza Vaccines

Immunization programmes, vaccines, and auxiliary supplies are primarily funded through a country's own health budget. Limited funding has so far been made available from donors, where seasonal influenza immunization programmes are often not implemented in least developed countries (LDCs) and LICs and MICs.

It is estimated that eight per cent of Gavi, The Vaccine Alliance, eligible countries have routine seasonal influenza immunization programmes, and most countries in the African region do not have national influenza immunization policies.<sup>18</sup>

The Task Force for Global Health,<sup>19</sup> an international, non-profit organization that seeks to improve the health of people most in need, primarily in developing countries. It is focused on tropical diseases, vaccines, field epidemiology, amongst others, and is supported by the Bill & Melinda Gates Foundation (BMGF), the US Centers for Disease Control and Prevention (CDC), amongst others. It has for years been instrumental in facilitating influenza vaccine donations between suppliers and LDCs and LICs and MICs.

**Figure 3. Per Cent of Respondents Indicating a Likelihood of Introducing Routine Influenza Immunization for High-Risk Groups**



In recent years, the Task Force has successfully fundraised to finance the cost of the vaccine and auxiliary supplies procured and supplied through UNICEF. According to a survey conducted by Gavi, most respondents from Gavi-supported countries indicate that seasonal influenza vaccination for pregnant women or health care workers is likely to be introduced if Gavi were to offer support for seasonal influenza vaccination for these two groups (Figure 3).<sup>20</sup>

Source: Gavi

## 7. Manufacturing and Procurement Timeline

Due to the tight production timeline for seasonal influenza vaccines, if any country demand is not forecasted or included into manufacturers' production plans, manufacturers have limited flexibility to meet sudden onset demand. Due to the increasing demand experienced during 2020 as the authorities around the world try to ease the burden on the health systems ahead of simultaneous seasonal influenza and an expected COVID-19 resurgence, UNICEF anticipates that it will be even more difficult for UNICEF to facilitate access for countries if country requirements are not forecasted in time. To enable countries and partners to plan the procurement and supply of influenza vaccines well in advance, UNICEF encourages countries and partners to observe the standard timelines illustrated in Figure 4 and 5. Specifically, UNICEF draws attention to the timing of the request for cost estimates (CE) and the transfer of funds from in-country partners, which are crucial for UNICEF to facilitate access to the vaccines. For the next influenza seasons, the following timelines should be observed by countries and partners:

- **2021 Southern Hemisphere:** CE should be requested by countries and partners by early October 2020 and funds should be received by UNICEF Supply Division **by the end of November 2020**.

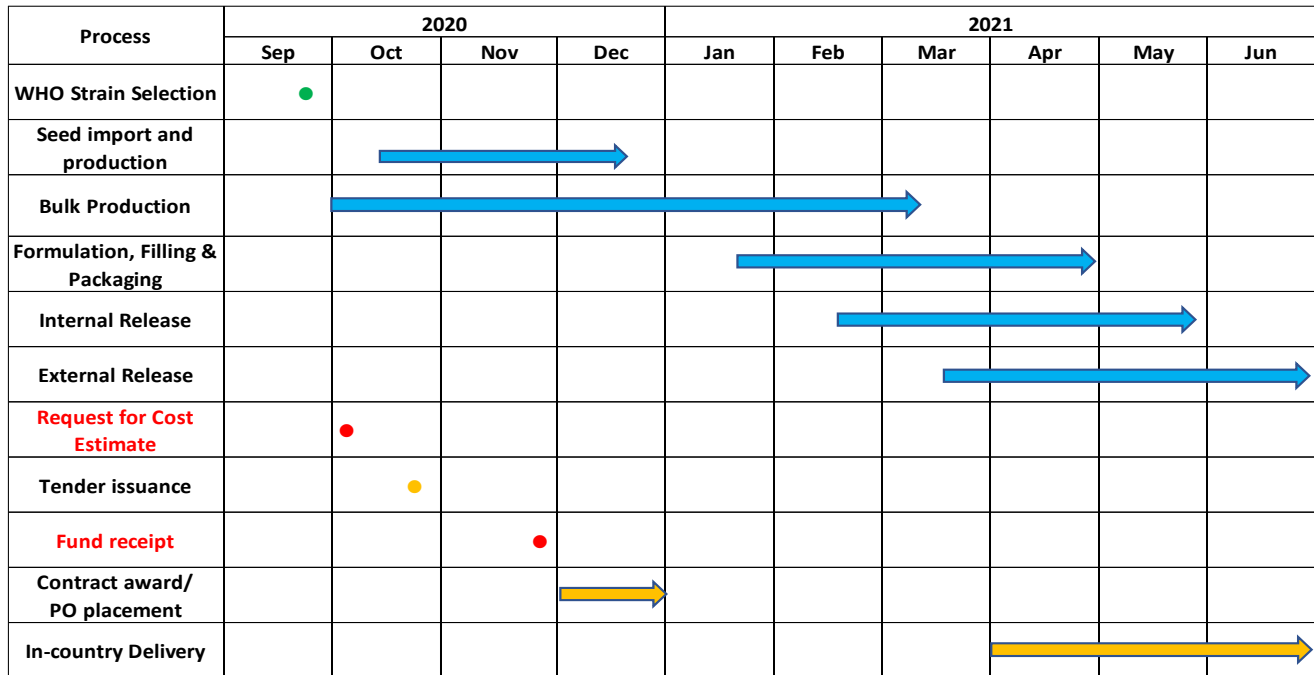
<sup>18</sup> Gavi, The Vaccine Alliance, *Pandemic Influenza Detailed Briefing*, Vaccine Investment Strategy Steering Committee Meeting, Gavi, Geneva, 10-11 September 2018.

<sup>19</sup> The Task Force for Global Health, [Our Programs](#), The Task Force for Global Health, Atlanta, September 2020.

<sup>20</sup> Gavi, *Pandemic Influenza Detailed Briefing*, Vaccine Investment Strategy Steering Committee Meeting.

- **2021/22 Northern Hemisphere:** CE should be requested by countries and partners by mid-November 2020 and fund should be received by UNICEF Supply Division **by the end of January 2021.**

Figure 4. Southern Hemisphere Manufacturing and Procurement timeline



**Legend**

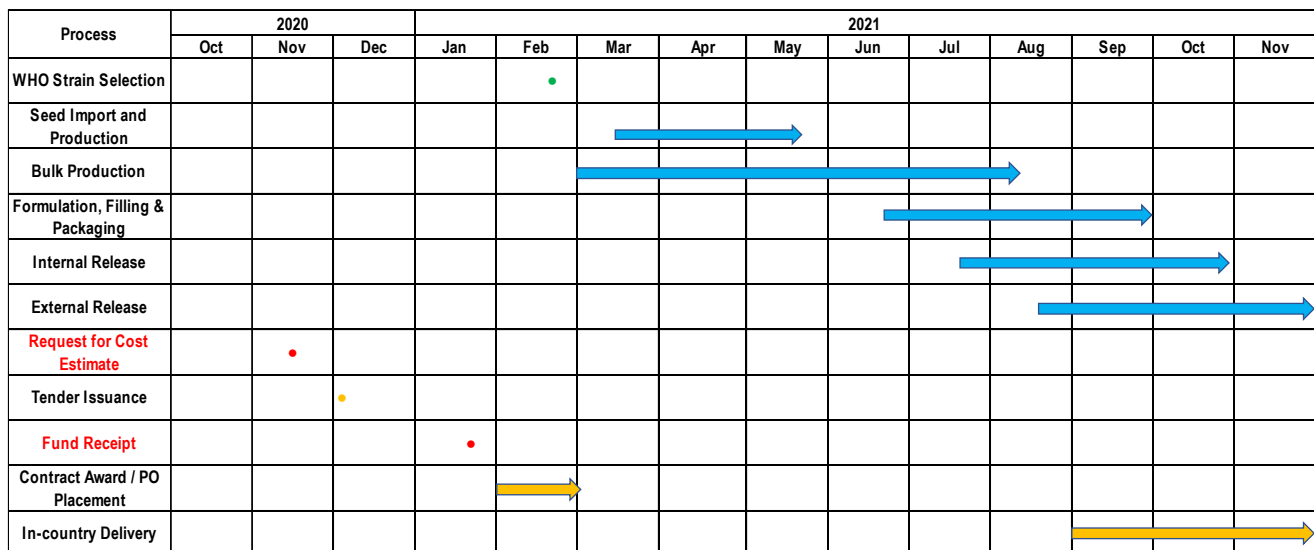
WHO: ●

Suppliers: ● / →

UNICEF Country Offices and country partners: ●

UNICEF Supply Division: ● / →

Figure 5. Northern Hemisphere Manufacturing and Procurement Timeline



**Legend**

WHO: ●

Suppliers: ● / →

UNICEF Country Offices and country partners: ●

UNICEF Supply Division: ● / →

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