

Annual Influenza Vaccine Production Timeline

Step 1

Surveillance

- Influenza vaccine protects against three prominent virus strains, which must first be identified before production can begin each year.
- Ongoing global surveillance is key to predicting which three strains will circulate each influenza season.

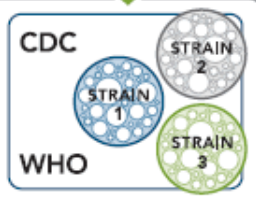


YEAR-ROUND

Step 2

Strain Selection

- World health officials¹ analyze and identify the dominant circulating strains.
- The strains are submitted to the Food and Drug Administration (FDA) to recommend which three to include. The FDA distributes seed viruses to manufacturers to begin the production process.
- Manufacturers' scientists predict the circulating strains for the coming season and begin preparing vaccine at risk before final FDA selection.²



JANUARY-MARCH

Step 3

Manufacturing and Production^{3,4}

- Each virus strain is produced separately and later combined to make one vaccine.
- Millions of specially prepared chicken eggs are used to produce the vaccine. For seven months, fertilized eggs are delivered to the manufacturer. Each egg is cleaned with a disinfectant spray and injected with one strain.
- The eggs are incubated for several days to allow the virus to multiply. After incubation the virus-loaded fluid is harvested.

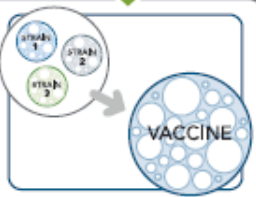


JANUARY-JULY

Step 4

Purification and Testing^{3,4}

- The virus fluid undergoes multiple purification steps and a special chemical treatment to ensure the virus is inactivated, or "killed."⁵
- The virus is split by chemically disrupting the whole virus.
- Viral fragments from all three strains are collected from different batches, and combined upon completion of quality control tests.
- Manufacturers and the FDA test the vaccine concentrate to determine amount and yield of the virus to ensure concentrate is adequate for immunization.

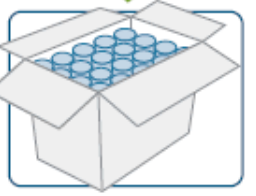


JUNE-OCTOBER

Step 5

Filling and Packaging

- Upon FDA approval and licensing, the vaccine is released for distribution in time for immunization.
- Manufacturers begin filling the doses into vials and syringes, which are then sealed and carefully inspected before labels are applied to show the vaccine batch, lot numbers and expiration date.
- Each lot must be specifically "released" by the FDA before manufacturers can ship.



JULY-DECEMBER

Step 6

Shipping

- Vaccine shipments typically begin in August/September and continue into November.
- With CDC's support, partial shipments are sent early in the season to all customers to ensure broad access for high-risk patients.
- Depending on viral yields and virus activity, additional doses may be released and distributed into December and beyond to support late season immunization.



AUGUST-NOVEMBER; BEYOND AS NEEDED

Step 7

Vaccination

- The CDC recommends particular high-risk populations at risk for influenza and related complications to be immunized every year. Other persons who wish to reduce their risk for influenza may choose to be immunized.
- Immunization generally begins in October or as soon as vaccine becomes available and continues through the influenza season which typically ends in March.
- Immunity develops approximately two weeks following vaccination.⁶



OCTOBER AND BEYOND