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Adult Vaccines for those 50+

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Objectives

At the end of this presentation, the participant will be able to:

- Describe the vaccines indicated for adults 50+
- Describe the vaccine development process
- Discuss clinical considerations for adults with health conditions
- Explain which vaccines are needed for family and caregivers of infants

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Poll #1

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Vaccine Assessment

- Ask the patient for their vaccine record
  - Ask their previous doctor
  - Ask your state's health department (some states track immunizations in immunization registries)
- What if patients can't find their records
  - There may be blood tests to identify antibodies
  - You may repeat vaccines if needed
- Tools to record vaccines
  - Health system apps (e.g., My Chart)
  - Phone apps
- The CDC Adult Vaccine Assessment Tool can help determine what they might need https://www2.cdc.gov/nip/adultimmsched/

Source: https://www.cdc.gov/vaccines/pregnancy/index.html
https://www.cdc.gov/vaccines/adults/vaccination-records.html#record-vacc

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Not just for children: Adult Vaccines for those 50+

- Why?
  - Prevention of disease spread
  - Poor health, pain of disease
  - Missed work
  - $$$ hospital bills
  - Not being able to care for family
  - 60% of flu hospitalizations in those 65+

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Poll #2

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Not just for children: Adult Vaccines for those 50+

- Seasonal flu vaccine every year
- Tdap (whooping cough – Pertussis) if they did not receive it as a child and then a Td (tetanus-diptheria) or Tdap booster every 10 years
- Shingles (herpes zoster)
- Pneumococcal conjugate vaccine (PCV13, PCV15, PCV20)
- Pneumococcal polysaccharide vaccine (PPSV23)
- Covid-19
- If born before 1957, MMR if they have not received it

Source: https://www.cdc.gov/vaccines/adults/rec-vac/index.html

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Flu Vaccine

- Quadrivalent inactivated flu vaccines
  - Afluria Quadrivalent®, Fluarix Quadrivalent®, FluLaval Quadrivalent®, and Fluzone Quadrivalent®
- Quadrivalent cell-based
  - Flucelvax Quadrivalent® - contains virus grown in cell culture and is egg-free
- Recombinant quadrivalent
  - Flublok Quadrivalent® – recombinant (synthetic, no flu virus) and is egg-free
- Quadrivalent + adjuvant
  - Fluad Quadrivalent®, approved for people 65 +
- Quadrivalent high-dose
  - Fluzone High-Dose® – contains a higher dose of antigen, licensed for people 65 +
- Live attenuated (Flumist® nasal) - NOT FOR THOSE 50+

Source: https://www.cdc.gov/flu/prevent/flushot.htm

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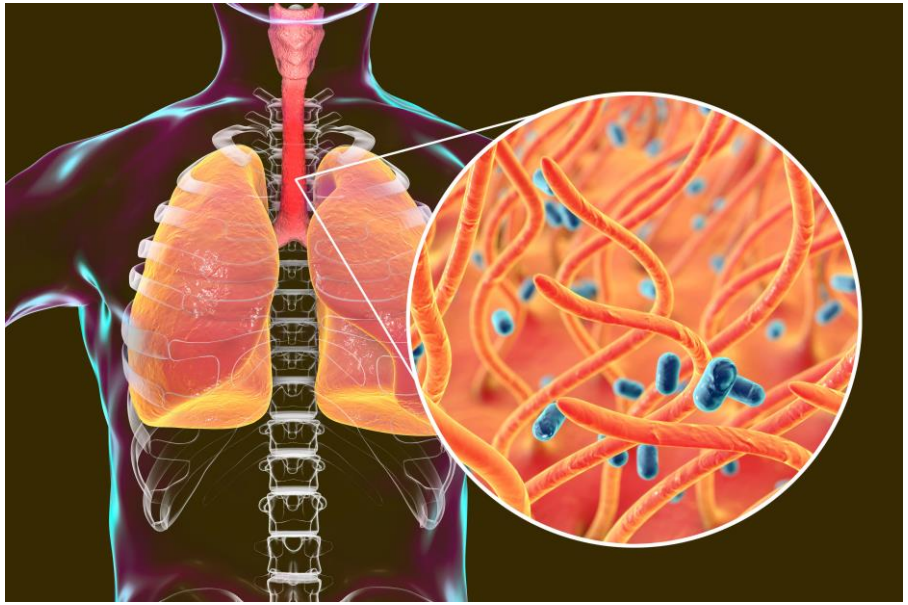
TDap

- 2 vaccines available in the U.S. – Adacel and Boostrix
  - Boostrix preferred in 65+ but either will work



Source: https://www.cdc.gov/vaccines/vpd/dtap-tdap-td/hcp/about-vaccine.html

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Vaccines for Family and Caregivers

- Making sure families and caregivers are up-to-date on vaccines protects the baby
- Newborns do not have fully developed immune systems, so they are vulnerable to infections
- Vaccines recommended at least two weeks before the baby is born:
  - Whooping cough vaccine (DTaP for children and Tdap for preteens, teens, and adults)
  - Flu vaccine during flu season

Source: https://www.cdc.gov/vaccines/pregnancy/index.html

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Shingles

- 1 in 3 will develop shingles in their lifetime and the risk increases as you age
- 2 doses of Shingrix®, 2-6 months apart
  - Even if they've had shingles, even if they've had Zostavax® (even if <5 years ago)
  - Not necessary to screen for prior varicella
  - Do not give with active acute episode of herpes zoster
- Efficacy of prevention of herpes zoster 96-91% for those 50 to 70 years old

Source: https://www.cdc.gov/vaccines/adults/rec-vac/index.html
https://www.cdc.gov/vaccines/vpd/shingles/hcp/shingrix/recommendations.html
https://www.cdc.gov/vaccines/vpd/shingles/hcp/shingrix/about-vaccine.html

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Pneumococcal vaccines 50-64 years old

Only recommended for those with the following conditions:

- Alcoholism
- Cerebrospinal fluid leak
- Chronic heart disease, including congestive heart failure and cardiomyopathies
- Chronic liver disease
- Chronic lung disease, including chronic obstructive pulmonary disease, emphysema, and asthma
- Chronic renal failure
- Cigarette smoking
- Cochlear implant
- Congenital or acquired asplenia
- Congenital or acquired immunodeficiency
  - B- (humoral) or T-lymphocyte deficiency
  - Complement deficiency, particularly C1, C2, C3, or C4 deficiency
  - Phagocytic disorder, excluding chronic granulomatous disease

Source: https://www.cdc.gov/vaccines/vpd/pneumo/hcp/who-when-to-vaccinate.html

Pneumococcal vaccines 50-64 years old

Only recommended for those with the following conditions:

- Diabetes mellitus
- Generalized malignancy
- HIV infection
- Hodgkin disease
- Iatrogenic immunosuppression, including long-term systemic corticosteroids and radiation therapy
- Leukemia
- Lymphoma
- Multiple myeloma
- Nephrotic syndrome
- Sickle cell disease or other hemoglobinopathies
- Solid organ transplant

Source: https://www.cdc.gov/vaccines/vpd/pneumo/hcp/who-when-to-vaccinate.html

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Adults 65 years or older without an immunocompromising condition, CSF* leak, or cochlear implant

For those who have not received any pneumococcal vaccines, or those with unknown vaccination history

If patient and provider decide PCV13 is **not** to be given:

- Administer 1 dose of PPSV23.

If patient and provider decide PCV13 is to be given:

PCV13 (at ≥ 65 years) → At least 1 year apart → **PPSV23** (at ≥ 65 years)

- Administer 1 dose of PCV13.
- Administer 1 dose of PPSV23 **at least 1 year** later.

For those who have previously received 1 dose of PPSV23 at ≥ 65 years and no doses of PCV13

If patient and provider decide PCV13 is **not** to be given:

- Series complete. No additional doses indicated.

If patient and provider decide PCV13 is to be given:

PPSV23 (at ≥ 65 years) → At least 1 year apart → **PCV13** (at ≥ 65 years)

- Administer 1 dose of PCV13 **at least 1 year** after the dose of PPSV23 for all adults, regardless of medical conditions.

Source: https://www.cdc.gov/vaccines/vpd/pneumo/downloads/pneumo-vaccine-timing.pdf

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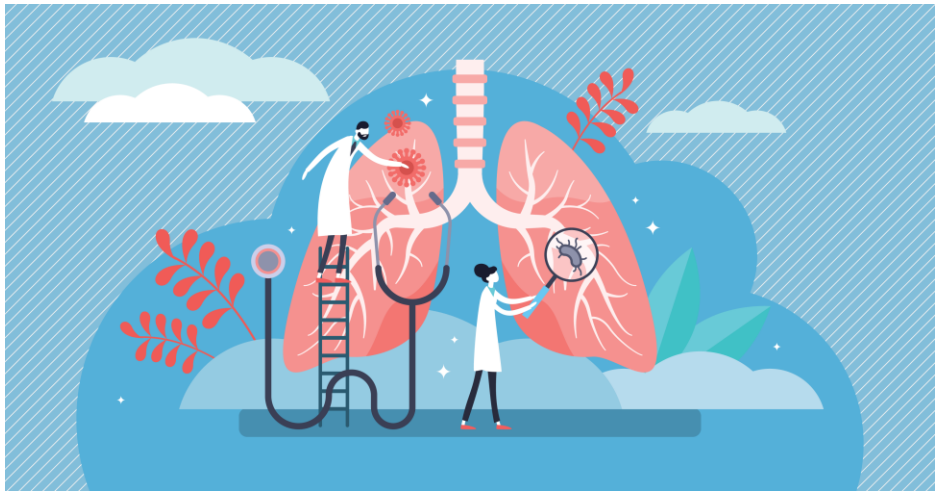
Pneumococcal conjugate vaccines (PCV13)

- PCV13: Prevnar13 ® – 13 serotypes of *Streptococcus pneumoniae*
- PCV15: Vaxneuvance ® – 15 serotypes of *Streptococcus pneumoniae*
- PCV20: Prevnar20 ® – 20 serotypes of *Streptococcus pneumoniae*
- 75% efficacy against invasive pneumococcal disease



Source: https://www.cdc.gov/vaccines/vpd/pneumo/hcp/about-vaccine.html

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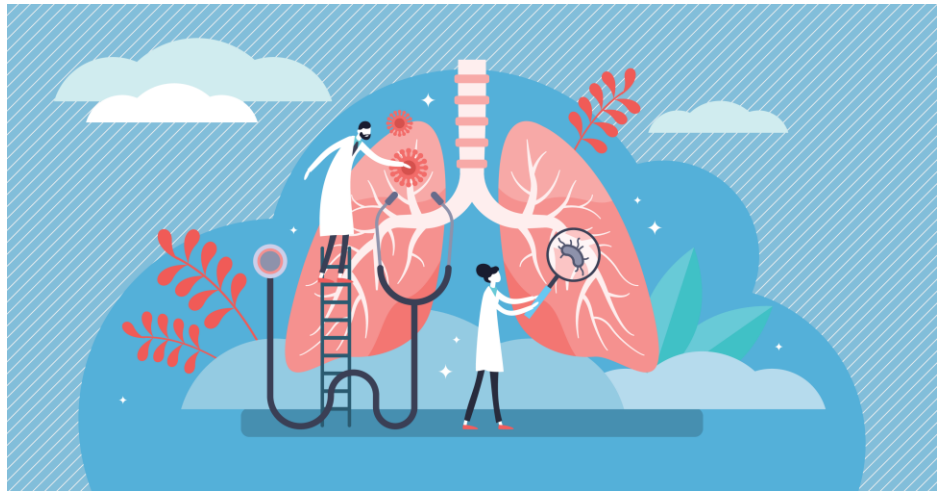
Pneumococcal polysaccharide vaccine (PPSV23)

- Pneumovax23® purified preparations of pneumococcal capsular polysaccharide
- 80% of healthy adults developed antibodies
- 60-70% efficacy against invasive disease



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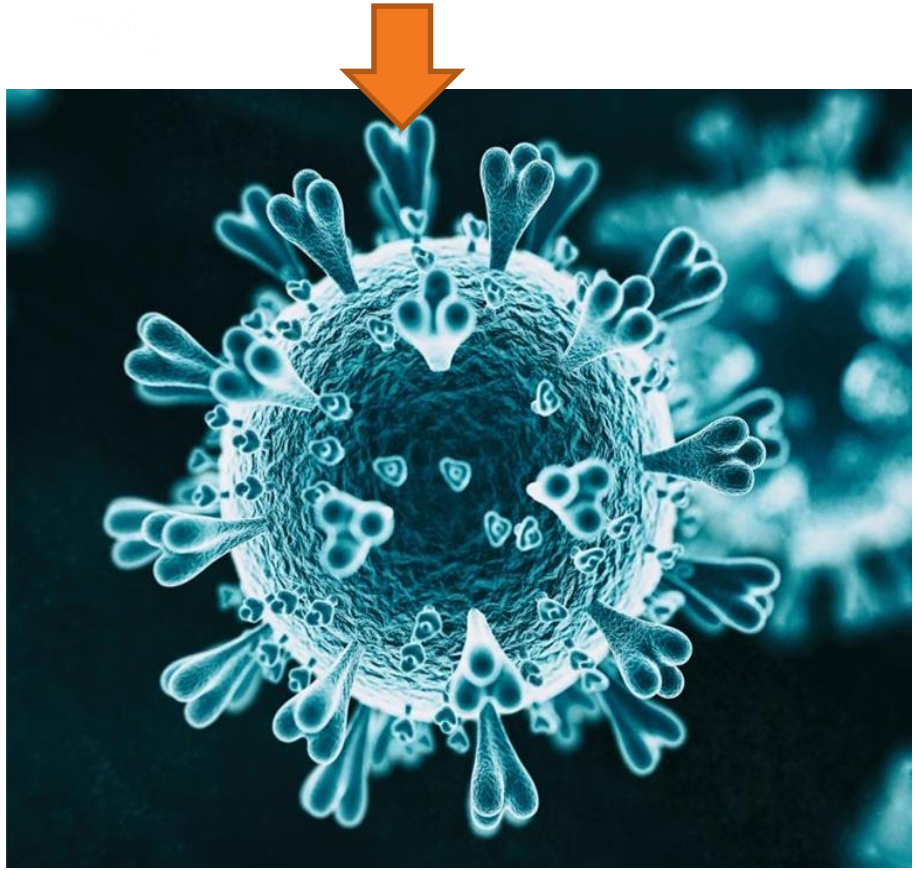
COVID-19 Vaccine Information



- S (spike) protein (arrow) is the target for the vaccine
- The S causes infection and disease in humans
- The vaccine produces antibodies to help prevent illness

Photo source: https://www.brentwoodindustries.com/news/important-message-to-our-customers-regarding-covid-19

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COVID-19 Vaccine New mRNA Technology

- The FDA approved vaccines from Pfizer-BioNTech and Moderna utilize a newer technology - messenger RNA (mRNA)
  - Technology has been around for over a decade
  - mRNA blueprint is transported to our cells to make a piece of COVID-19 virus “spike” protein
  - This “spike” protein triggers a response by our immune system
  - The mRNA will quickly breakdown and will not be incorporated in our own DNA
  - These vaccines cannot cause COVID-19
  - Require 2 doses for full immune response
- This newer technology will allow manufacturers to make vaccine quicker than older technologies

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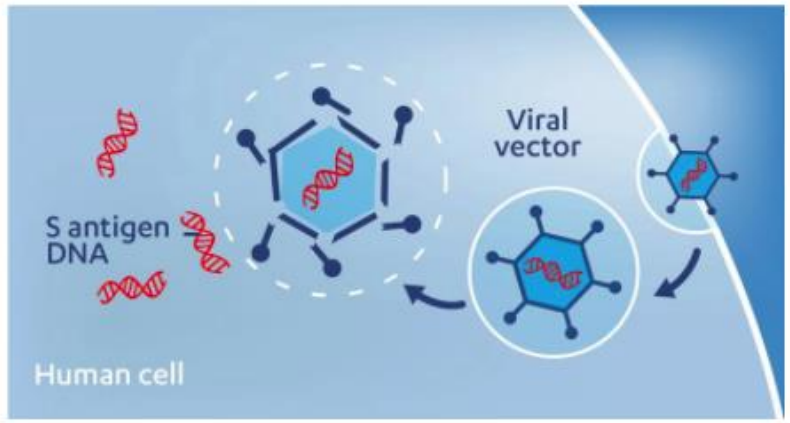
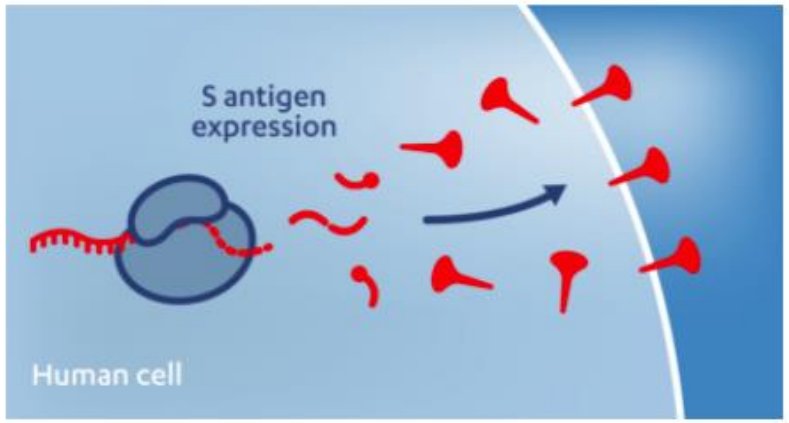
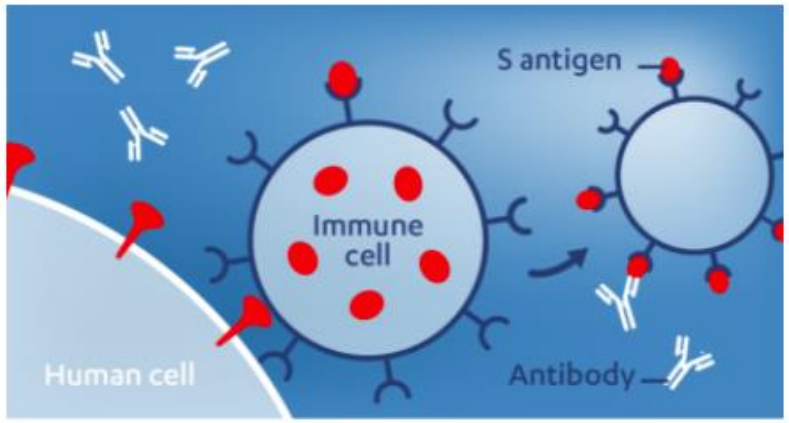
COVID-19 Vaccine Adenovirus Technology

- The FDA approved vaccines from J&J utilize technology that has been used in other vaccines – adenovirus vectors
  - Adenovirus is naturally occurring and is a low prevalence virus that causes cold symptoms
  - Researchers delete a specific gene in the virus so it cannot replicate, making it a delivery vehicle encoding the COVID-19 spike protein
  - These vaccines cannot cause COVID-19
  - Only one dose is required







Source: https://www.janssencovid19vaccine.com/hcp/how-its-designed.html

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COVID-19 Vaccine Efficacy and Side Effects

- Current efficacy of mRNA vaccines is around 95%
- Current efficacy of J&J vaccine is around 66%
- Main common side effects - typical for any vaccine
  - Injection site pain
  - Flu-like symptoms
    - Fatigue
    - Body aches
    - Fever
  - These will be more likely after the second dose for the Pfizer-BioNTech and Moderna vaccines
- Should go away after a couple of days
- **Important: J&J vaccine has rare risk of blot clots in women younger than 50 years of age**
- **Important: These common side effects are a sign that your immune system is working**

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Vaccine Development Process

1. Exploratory stage
2. Pre-clinical stage
3. Clinical development
4. Regulatory review and approval
5. Manufacturing
6. Quality control

Source: Vaccine, Testing and Approval Process, CDC. https://www.cdc.gov/vaccines/basics/test-approve.html

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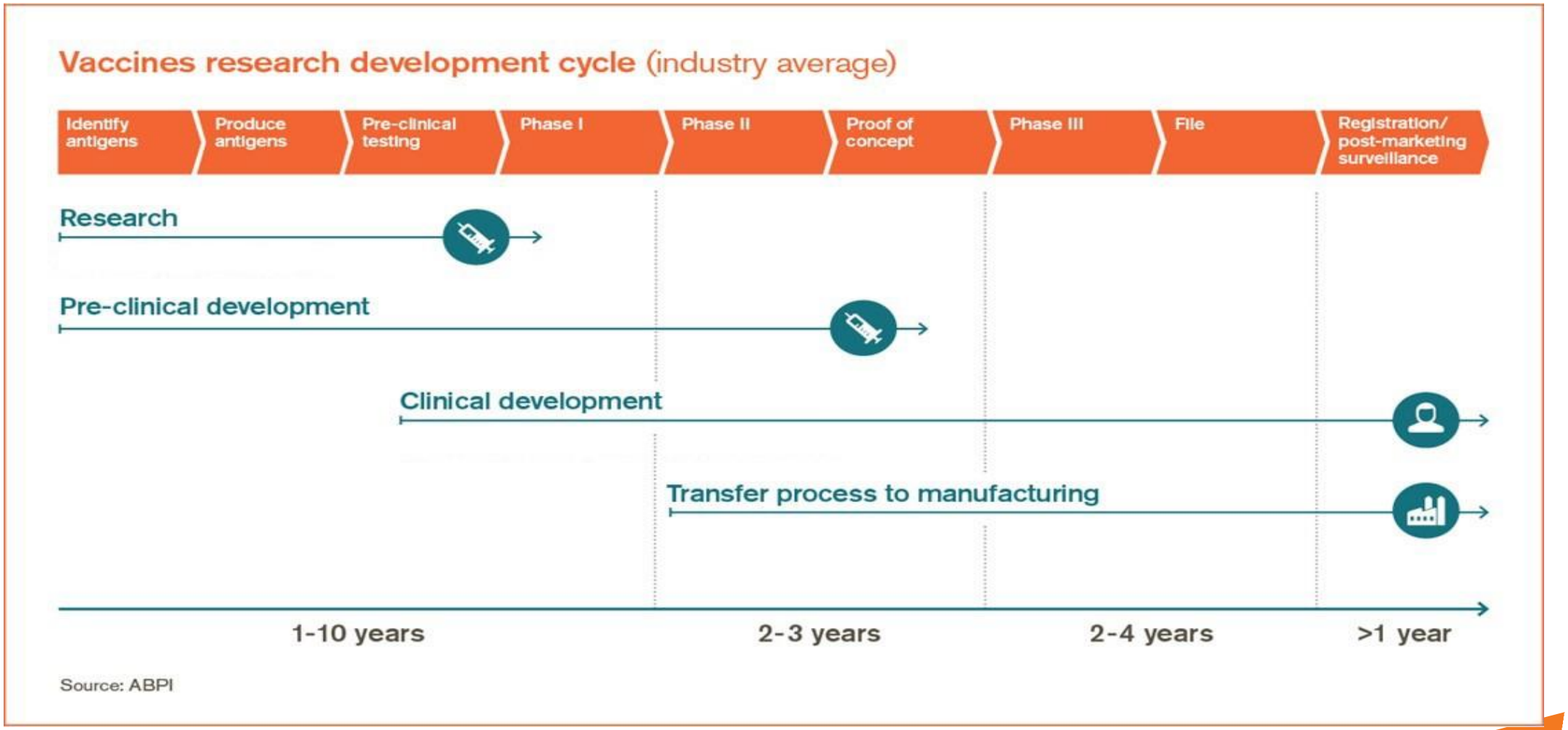
What else is there to know?



Source: https://www.gsk.com/en-gb/research-and-development/development/how-we-develop-new-vaccines/

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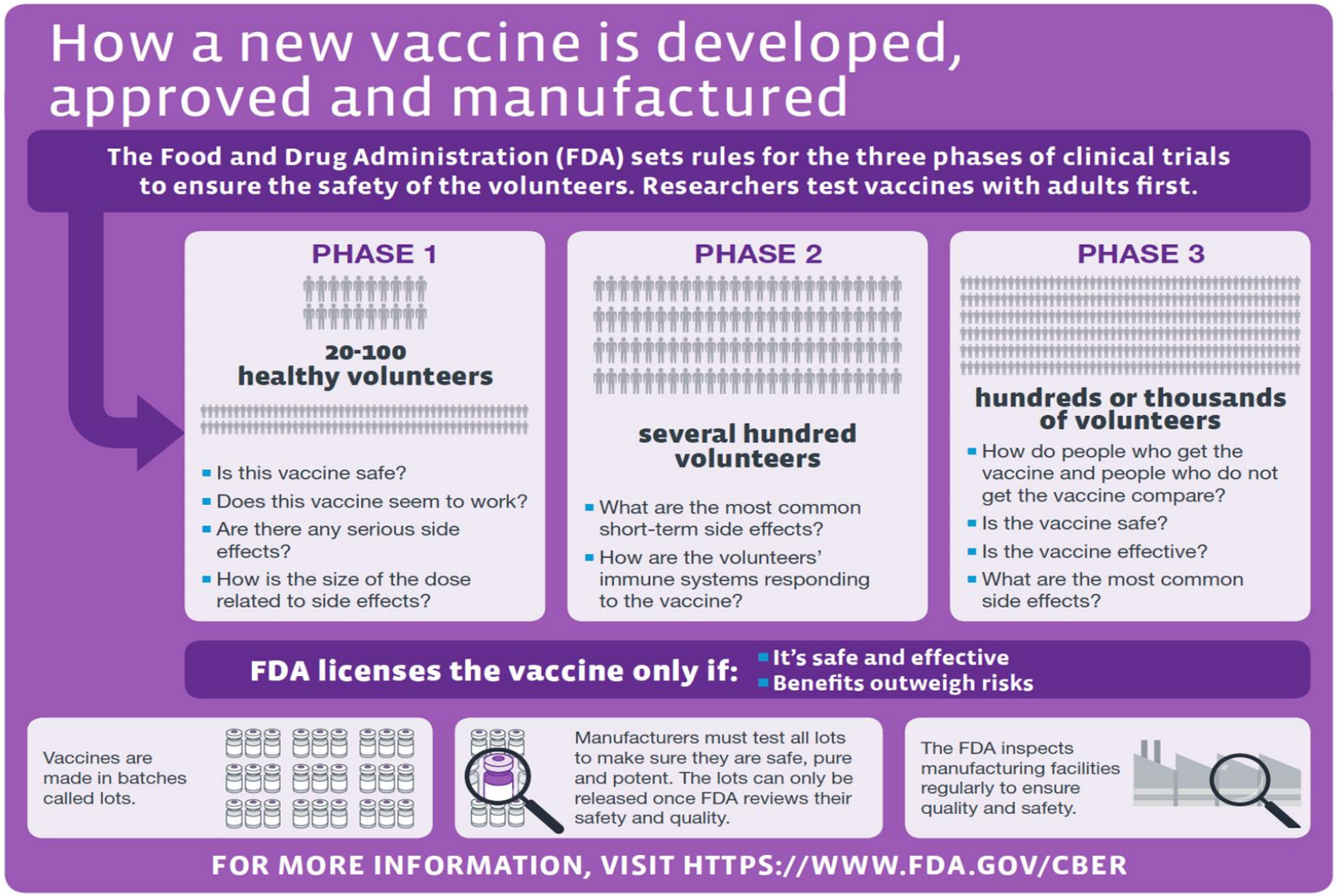

Source: Journey of Your Child's Vaccine, CDC. https://www.cdc.gov/vaccines/parents/infographics/journey-of-child-vaccine.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fvaccines%2Fparents%2Finfographics%2Fjourney-of-child-vaccine-text.html

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COVID-19 Vaccination Development

- No steps were skipped in the development of the vaccine, but some occurred simultaneously
- Clinical trials included numerous patients to study vaccine safety and efficacy
- Current studies include tens of thousands of patients
  - Pfizer vaccine Phase 3 study - over 44,000 subjects
  - Moderna vaccine Phase 3 study - over 30,000 subjects
  - Johnson & Johnson Phase 3 study – over 43,000 subjects
  - Keep in mind most medications we currently use were approved with far less subjects - only a few thousand patients in Phase 3 studies
- Long-term efficacy and effects will be continually studied after the approval of the vaccine - this is standard practice for any medication or vaccine

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Clinical Considerations for Health Conditions

- For those 50-64 the following health conditions may indicate earlier dosing of pneumococcal vaccines (normally at age 65)
  - Heart disease and stroke
  - Diabetes Type I and II
  - Lung disease and asthma
  - Asplenia
  - HIV infection
  - Liver disease
  - Renal disease
  - Immune compromised patients

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Questions?

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