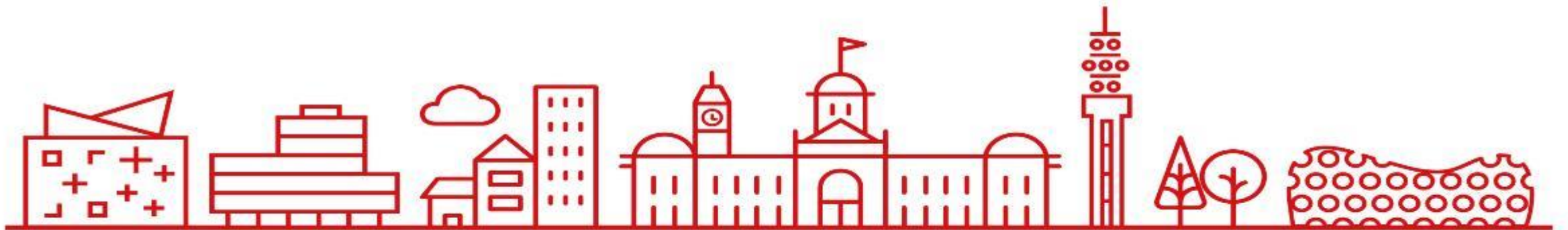


# COVID Testing and Vaccination

Dr Justin Varney  
Director of Public Health  
Birmingham City Council



# Coronavirus-19

- Covid-19 is the disease caused by a newly discovered coronavirus that was identified in December 2019.
- The most common symptoms are **fever, dry cough** and **lose of taste or smell**. Some people develop other symptoms but these are the most common ones.
- Among those who develop symptoms, most (about 80%) recover from the disease without needing hospital. About 15% become seriously ill and require oxygen and 5% become critically ill and need intensive care.
- COVID-19 virus spreads mainly through **droplets of saliva** or **discharge from the nose when an infected person coughs or sneezes**.
- The virus gets into our bodies through our eyes, mouth and nose, when these droplets land there or we touch something contaminated with the droplets and then touch our face.
- We prevent the spread of the virus by **washing hands** regularly, keeping **physical distancing** outside the house we live in of at least 2 metres, wearing a **mask or face covering** when inside, keeping rooms **well ventilated**, avoiding crowds and close contact, and coughing into a bent elbow or tissue



# Free Testing for Covid

## PCR Testing

- Nose & throat swab sent to lab for processing
- Detects very small fragments of the virus genetic code
- Very sensitive so detects very low levels of the virus and only detects Covid-19
- Takes hours and days for a result as complex lab based work
- Used mainly to test **people with symptoms** to check if they are caused by Covid-19
- Book a test through [NHS website](#) or by ringing 119 and twelve testing sites in Birmingham as well as postal kits


## Lateral Flow Testing

- Nose & throat swab used with a testing kit on site
- Detects the virus proteins
- Needs a lot of virus present and only detects Covid-19
- Result within 30 minutes
- Most effective at identifying people who are infectious when there is lots of virus present so used to test **people who have no symptoms (asymptomatic)** and are mixing outside of the house they live in e.g people going to work.
- **All adults should now be testing with LFD twice a week**, you can get these kits through booked appointments and walk-in centres across Birmingham, home testing kits can also be ordered online or collected from sites across the city, there is more information on the [Council website](#)
- You should continue to test even if you have had the vaccine.



HM Government

## KEY FACTS ON VACCINES



Immunisation currently prevents **2-3 million deaths** every year from diseases like diphtheria, tetanus, pertussis, influenza and measles.

\*Source: World Health Organisation

# Vaccines

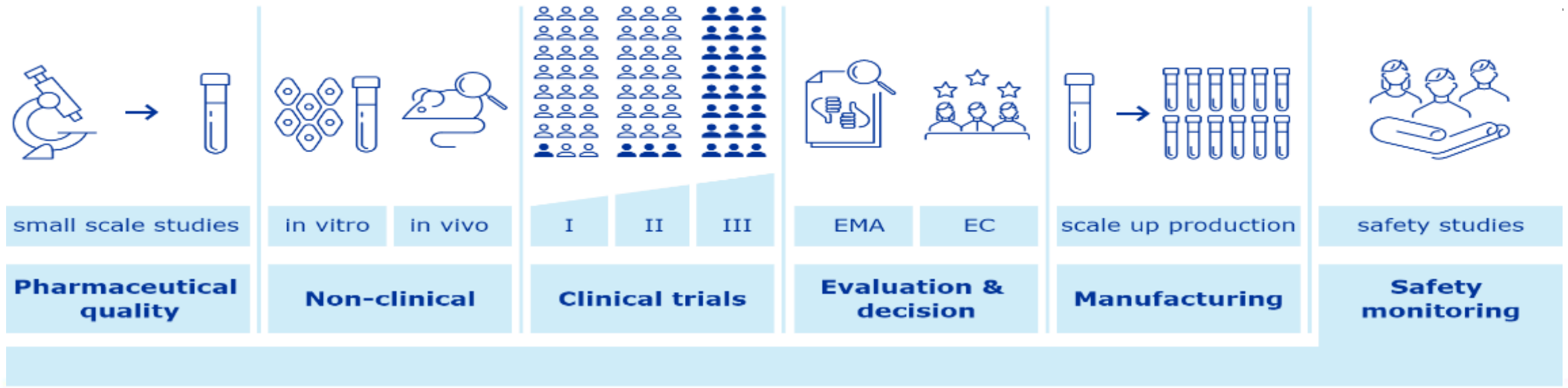
- Our bodies have several different ways to prevent infection, our strongest defence is our skin and stomach, we have a general immune defence system and a specialist targeted learnt immune response to things that have attacked us before (antibodies).
- Vaccination was first recorded in China in 200BC but is often linked most strongly with Dr Edward Jenner Cowpox vaccination in 1796.
- Vaccines are medicines that teach our body to develop a targeted antibody response to a specific disease by exposing us to a bit of the organism that causes the disease without infecting us.
- Antibodies target specific bits of the organisms outer coat, often a bit called a protein spike.
- There are lots of different types of vaccine, some use a dead virus, some use a bit of the virus (e.g. protein) attached to another harmless virus, some use part of the virus on its own, and some use a bit of the virus genetic code to teach a few of cells to create a bit of the virus but not the whole virus.

# Vaccine Development

Vaccines go through a globally standardised process to ensure safety and effectiveness. This involves tests in the lab as well as clinical trials in people to check that the vaccine is safe, effective and effective in different people.

Normally this process takes over a year because at each stage the manufacturers have to get funding, recruit people for trials and go through approval committees.

For Covid-19 across the world there was agreement to fund this research, there was no shortage of volunteers for trials and the committees met when needed rather than making the researchers wait for the next meeting.





# Covid-19 Vaccines

- The COVID-19 vaccine is given as an injection into your upper arm.
- It's given as **2 doses**. You will have the 2nd dose 3 to 12 weeks after having the 1st dose.
- The first dose significantly reduces the risk of dying or ending up in hospital if infected but it doesn't give strong protection from infection, this is why the second dose is needed.
- The Pfizer and Moderna vaccines are both over 90% effective after the 2<sup>nd</sup> dose and the AZ Oxford vaccine is over 80% effective after the second dose.
- The **effects of the vaccine take several weeks to kick in** so it is essential people maintain hands, face, space even after they have had both doses.
- The vaccine **does not contain any animal or foetal products**.



mRNA

These vaccines use a bit of the virus genetic code as a one time only instruction to our cells to create the virus protein spike.

It is only the bit that has instructions for the protein spike, not the whole virus.

The body then reacts to the spike protein to make antibodies that recognise it and will defend against the Covid-19 virus that has this protein on its surface.

Viral vector

These vaccines use a harmless animal virus that can't reproduce to introduce the instructions to make just the spike protein into infected cells.

# Side Effects & Contraindications



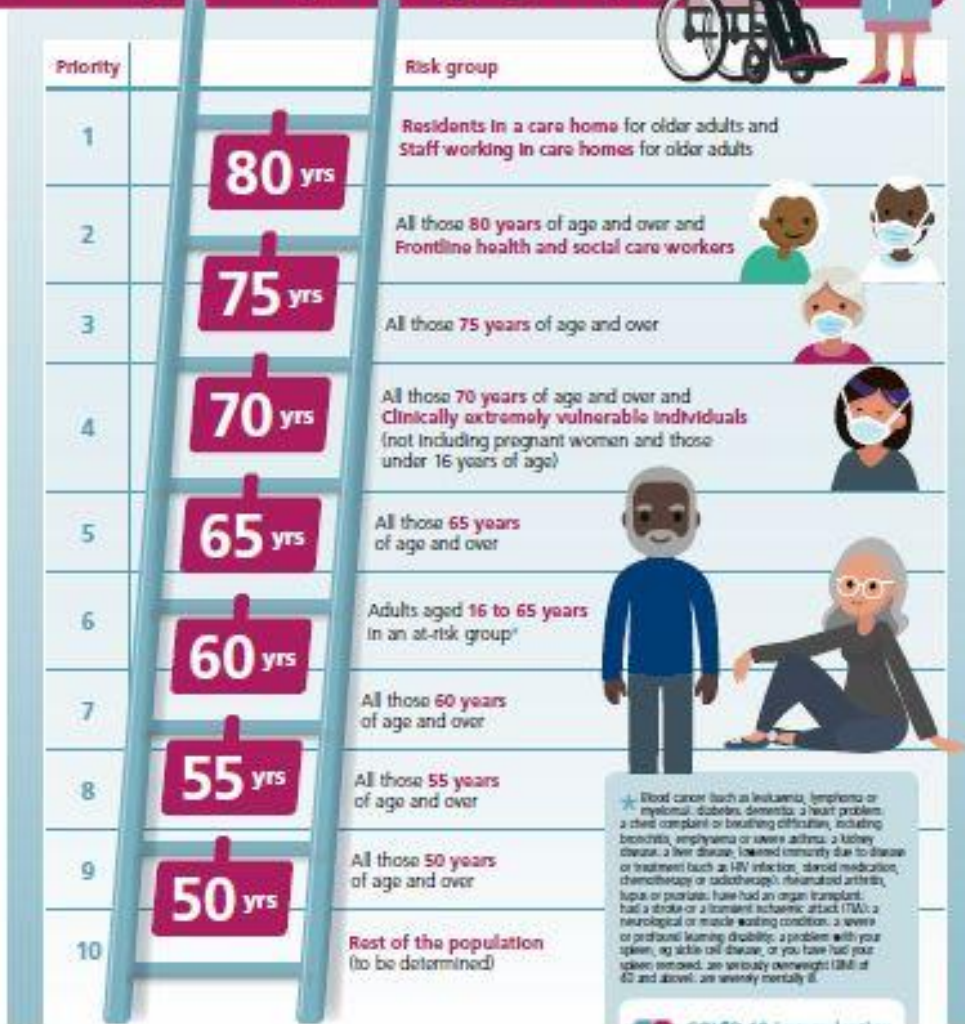
- Most side effects of the COVID-19 vaccine are mild and should not last longer than a week, they are similar to other vaccines and include:
  - a sore arm where the needle went in
  - feeling tired
  - a headache
  - feeling achy
  - feeling or being sick
  
- As with all medications, tell healthcare staff if you've ever had a serious allergic reaction (anaphylaxis) before you start any medicine or vaccination.
  
- Special arrangements may need to be arranged if you've ever had a serious allergic reaction to:
  - some medicines, household products or cosmetics (Pfizer vaccine)
  - a previous vaccine (All Covid vaccines)
  - a previous dose of the same COVID-19 vaccine
  
- The vaccines are now approved as safe for use in pregnancy, although it is sensible to discuss with your midwife when is best to have it, ideally in the middle trimester.

# Vaccination rollout

- The vaccination roll out is being led by NHS England through a matrix of vaccine mass vaccination sites, primary care vaccine hubs and housebound vaccine deployment.
- Vaccine is being deployed to vaccinate the 9 priority groups which have been identified by the Joint Committee for Vaccination and Immunisation (JCVI). These groups have been identified as the groups that are most likely to die or be hospitalised if they catch Covid.
- Now the majority of the 9 priority groups have received the first doses of vaccine and many have had their second dose, a second phase of vaccination has started based on moving down the age groups – currently over 40yrs are eligible.

## COVID-19 vaccination

### First phase priority groups





# Vaccines and new variants

- Viruses continually mutate and change and there have been hundreds of variants that have developed over the last year, most make little difference.
- Variants of concern are variations in the virus that are more infectious or more deadly or make the vaccine less effective, or a combination of these.
- Currently there are variants of concern in South Africa, UK, Brazil and Japan.
- When new variants appear there are research trials done to look at the impact on vaccine effectiveness.
- The research so far suggests the vaccines are effective against the UK and South African variants at reducing death and hospitalisation but it is not as effective at stopping infection completely.
- As we now have vaccines developed it is much faster to adapt them for new variants and this could be given as a booster injection if needed.
- It is important to take the vaccine available now to protect against the current dominant strains of the virus.

# Vaccine risk

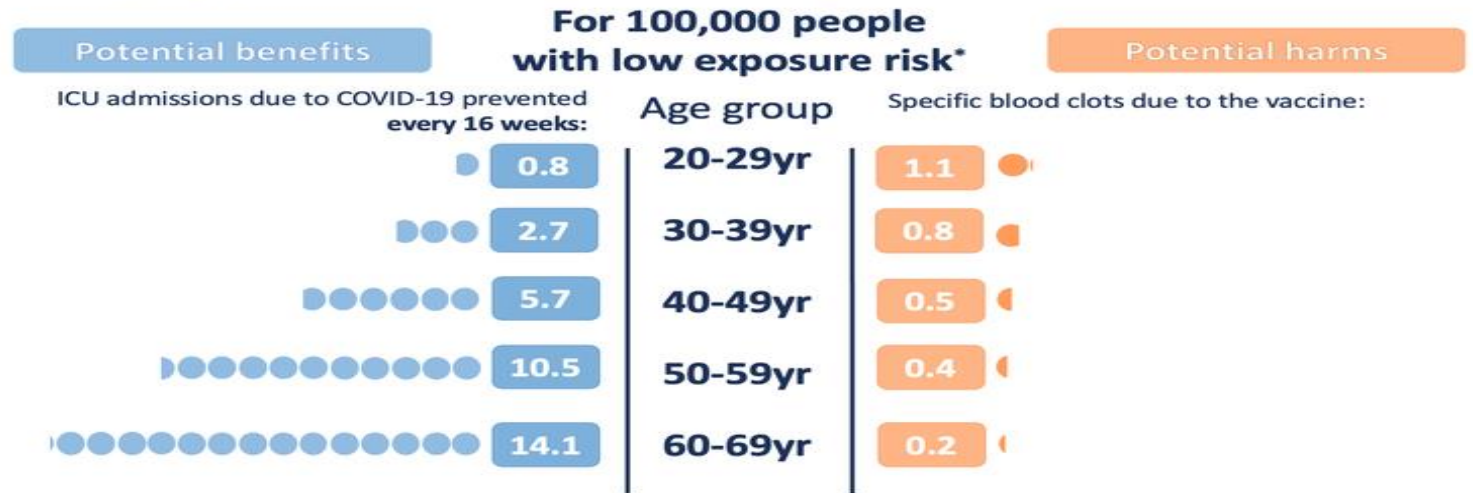
All medicines carry some level of risk.

Some very rare side effects are only seen when we vaccinate very large numbers of individuals.

Risk of blood clots from the vaccine is lower than the risk the covid itself.

People under the age of 30 can opt to have the Pfizer vaccine instead.

## Weighing up the potential benefits and harms of the Astra-Zeneca COVID-19 vaccine



\* Based on coronavirus incidence of 2 per 10,000 per day: roughly UK in March

## Risk of Blood Clots

### AstraZeneca Vaccine



4 cases in 1,000,000 Vaccines

0.0004%

### Birth Control Pill



500 - 1200 cases in 1,000,000 women

0.05% to 0.12%

### Smoking



1,763 cases in 1,000,000 Smokers

0.18%

### COVID Infection



165,000 cases in 1,000,000 Cases

16.5%

## Further information

- <https://www.birminghamandsolihullcovidvaccine.nhs.uk/>
- <https://www.nhs.uk/conditions/coronavirus-covid-19/coronavirus-vaccination/coronavirus-vaccine/>
- Translated information on vaccines
- <https://migrantinfohub.org.uk/covid-19-guidance/#vaccines>
- [https://www.birmingham.gov.uk/info/50247/national\\_guidance\\_during\\_covid-19/2065/coronavirus\\_covid-19\\_-\\_information\\_in\\_other\\_languages/6](https://www.birmingham.gov.uk/info/50247/national_guidance_during_covid-19/2065/coronavirus_covid-19_-_information_in_other_languages/6)