# Immunity to COVID-19

## Natural infection with SARS-CoV-2

- **What it means for you**: May become **very unwell** with COVID-19.  
- Potential to develop long-term complications (long COVID).  
- Can spread virus to others.

## Vaccination

- **What it means for you**: Significantly reduces chance of developing COVID-19 & how unwell you become.  
- Induces an immune response in a **safe & controlled way**.  
- Reduces chance of spreading virus to others.  
- Vaccine cannot give you COVID-19.

## Immune response

- **Natural infection**
  - Varies hugely between people. Many factors impact on immune response effectiveness e.g. age. Some people do not have a detectable long-term immune response.  
  - May be linked with disease severity; people who experience more severe illness are more likely to have a stronger long-term immune response.

- **Vaccination**
  - Varies but most (even older people) produce a strong immune response.  
  - May produce a **more robust immune response**.  
  - Immunity to the virus from natural infection is boosted after vaccination.

## Length of protection

- **Natural infection**
  - Variable & not fully known.  
  - **Reduces over time** & protection tends to be lower in people who were mildly ill.

- **Vaccination**
  - Still to be learnt but two doses (of Pfizer, Moderna or AstraZeneca) produce **long-term protection** so far.  
  - Booster vaccines could maintain a strong immune response.

## Variants

- **Natural infection**
  - Reinfection possible but uncommon.  
  - As response to natural infection is variable, immune system may not be able to recognise a viral variant.

- **Vaccination**
  - Two doses of some vaccines provide strong protection against many currently identified variants.  
  - High antibody levels produced are more likely to cross-protect against new variants.  
  - Vaccines can be adapted to boost immunity against new variants.

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**What it means for you**

- Immune response
  - Length of protection
  - Variants

**Calendar**

- **January**
  - Likely that for most people vaccination will induce more effective & longer lasting immunity compared to natural infection.  
  - Even if you’ve had COVID-19, vaccination will boost whatever immunity you have from natural infection.