

**SPECIAL EDITION**

# VACCINES

**FROM LAB TO LICENSING**



**ADAPTED FROM AN  
ANIMATION**

**HOW VACCINES  
ARE MADE!**

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Developed by Charlie Firth, Oxford Vaccine Group, University of Oxford.

With a special thanks to the incredible focus group participants who informed the creation of this valuable resource.

Visit the Vaccine Knowledge website to watch the animation that this comic book was adapted from or for more vaccine-related information.

<https://VaccineKnowledge.ox.ac.uk/vaccine-development>





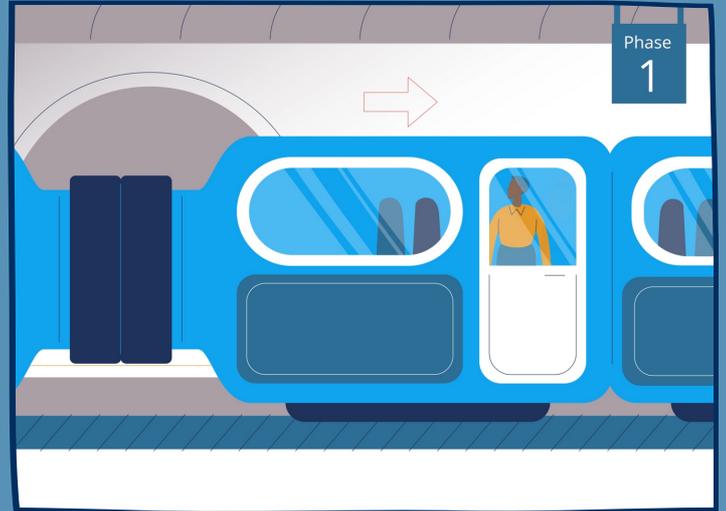
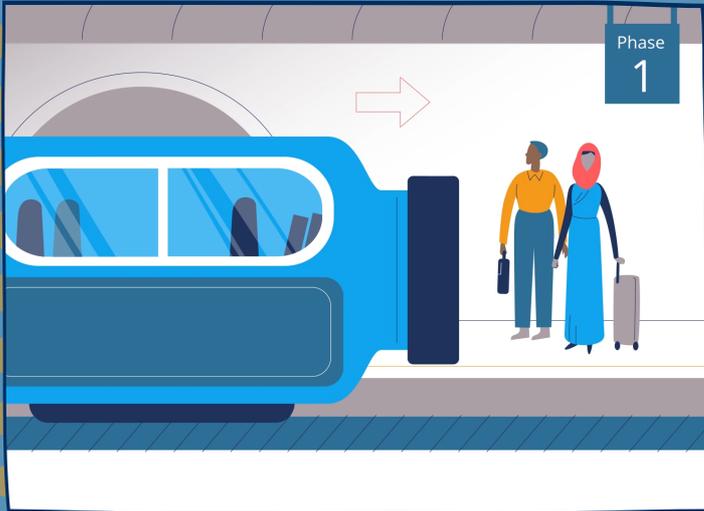
Regulators and ethics committees must agree that a vaccine can be developed before any work begins.



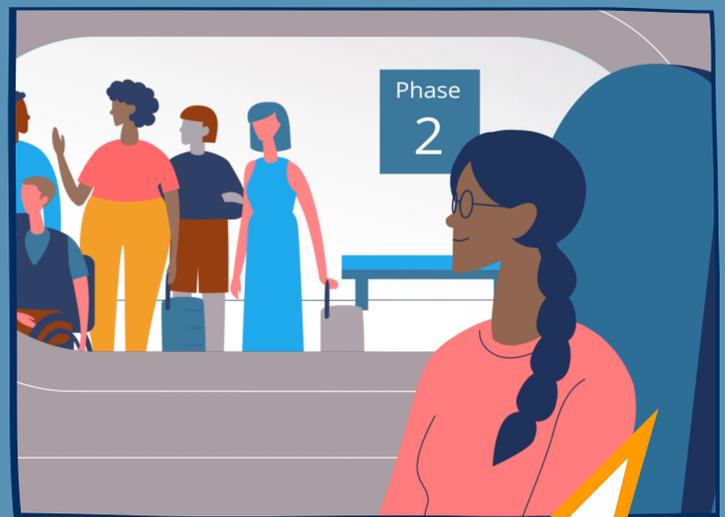
The development process itself takes several stages.



Initial assessment in animals is required by the regulators. While scientists are working on reducing the need for this, it remains necessary in most cases.



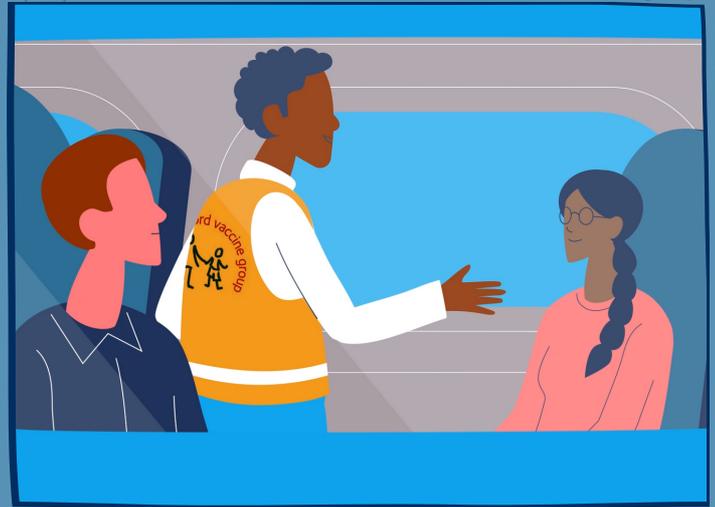
Then, a small group of healthy people, usually fewer than 100, receive the vaccine.



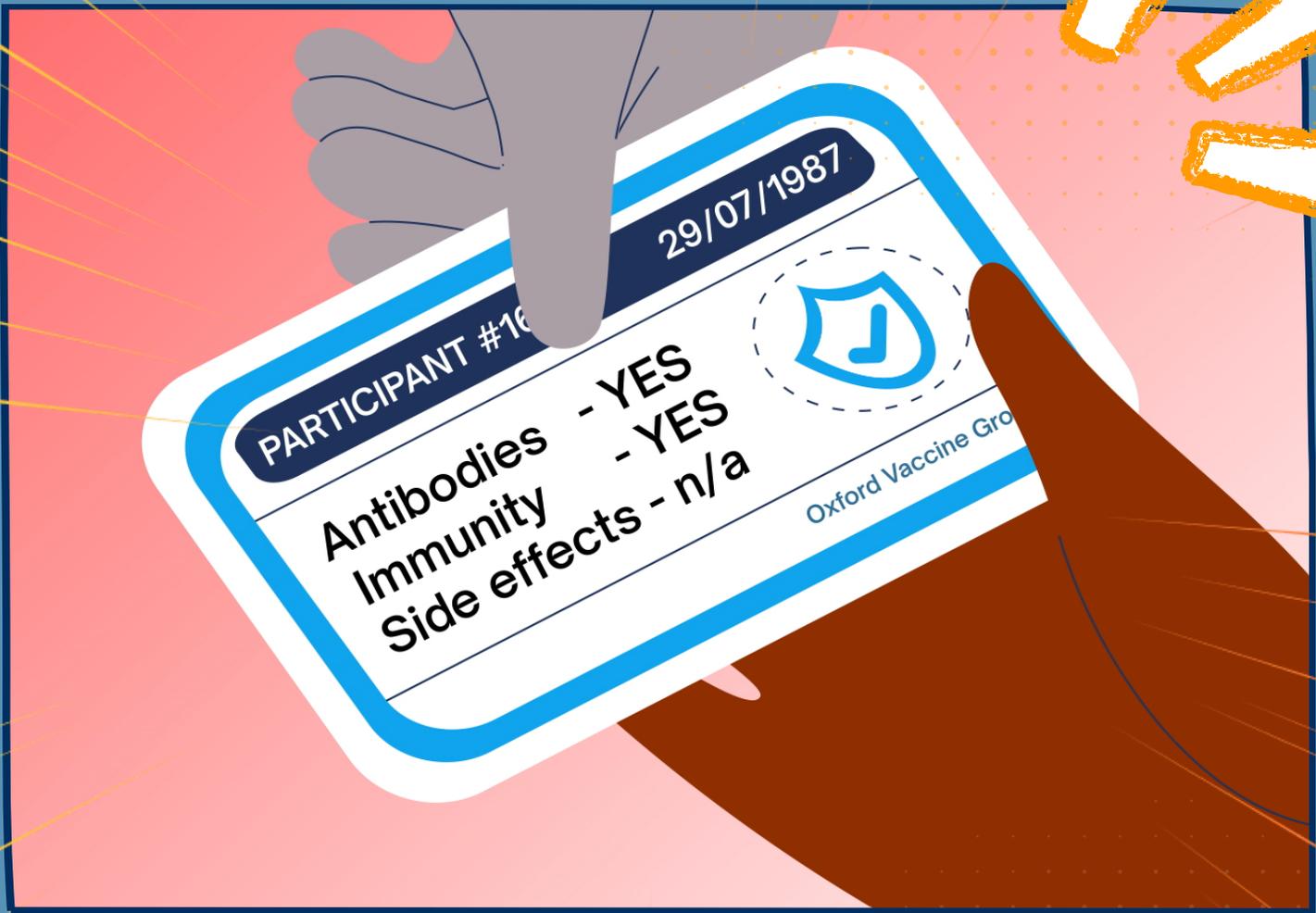
Doctors watch out for side effects, scientists get an idea of how the body's immune system responds.

Next, it's given to a larger group, usually a few hundred.

Here, our team continues to look at side effects and the body's immune response on a larger scale.

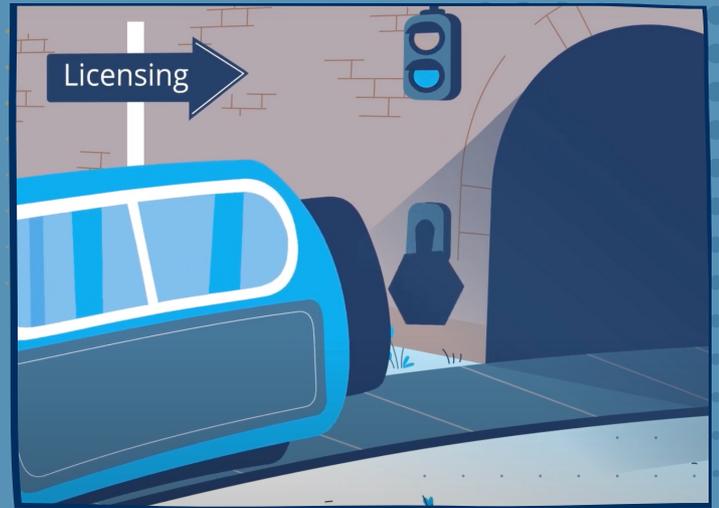


After that, an even larger group of people, sometimes thousands or even tens of thousands, receive the vaccine.

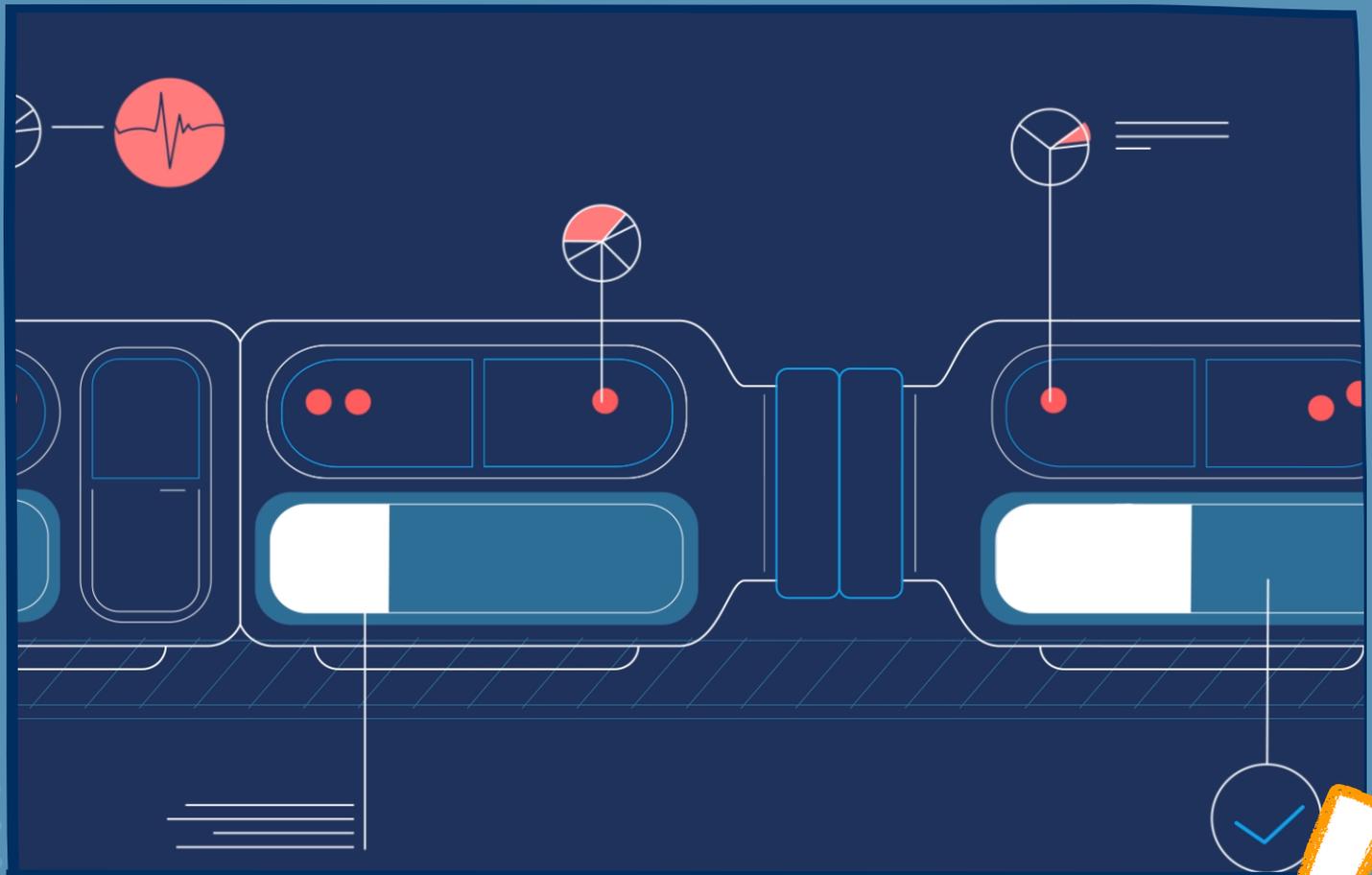


Our scientists want to work out how well the vaccine protects people! They also continue monitoring side effects.





Following this comes a review by the agencies that oversee medical products.



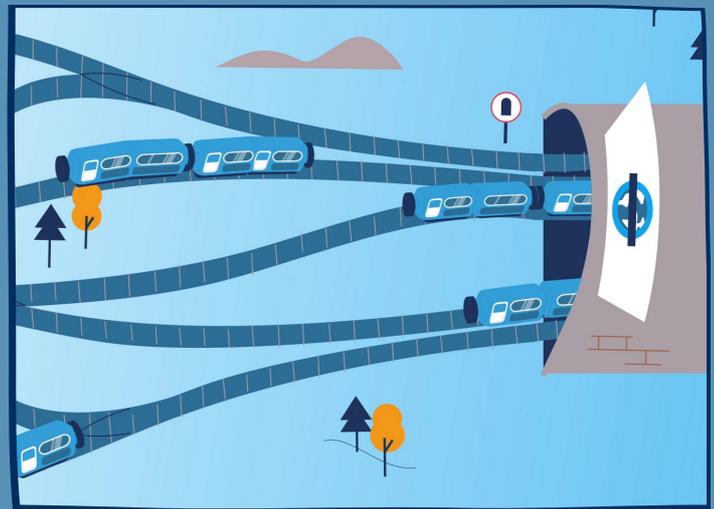
If they find that the vaccine is safe and works well, they can award it a license.



Experts can then recommend its use if they think the vaccine is necessary for their country.

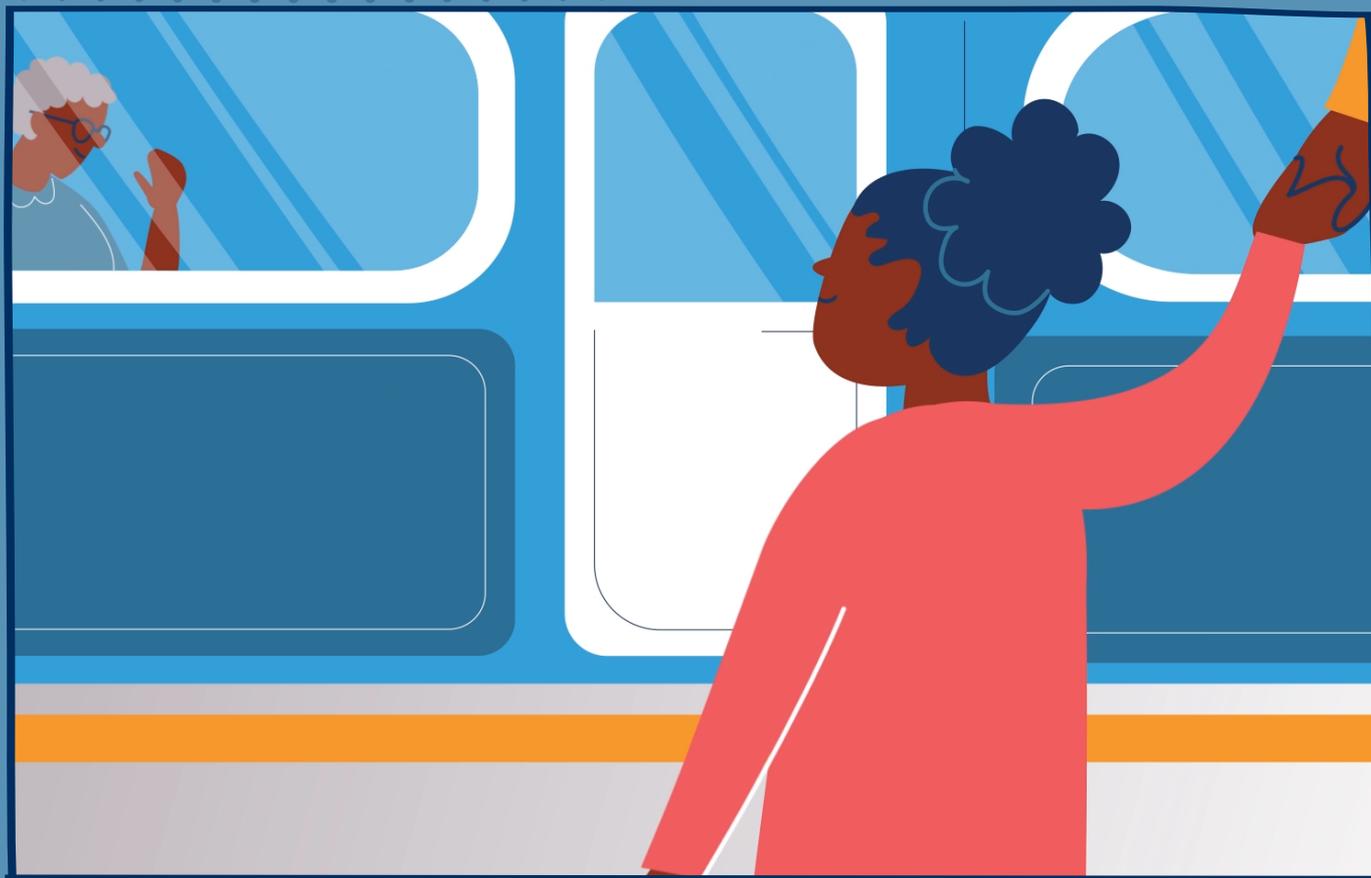


Regulators continue to monitor the vaccine even after it is licensed.



The vaccine manufacturer is required to report any unexpected or unwanted outcomes that may emerge.

Vaccines offer protection against serious diseases.



Our research protects families and future generations.



ensuring a healthier future for everyone, including you.



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