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PARTICIPANT INFORMATION SHEET

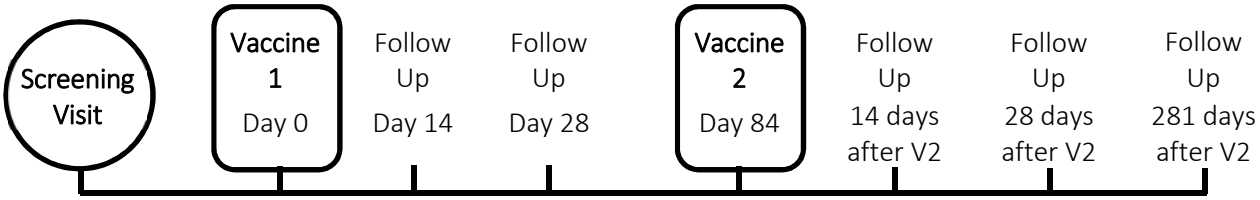
MERS003: A study of a new vaccine against MERS virus in adults aged 50 to 70

We plan to recruit up to 84 people aged 50-70 years to take part in a study for the development of a vaccine against **Middle East Respiratory Syndrome (MERS) Coronavirus**. Our vaccine is called **ChAdOx1 MERS**.

Participants who are eligible to take part in the study will be assigned, at random, to receive two doses of either the ChAdOx1 MERS vaccine or a placebo. 1 in 6 recruited participants will receive the placebo. A placebo is a medicine that contains no active ingredients; in this case, it will be saline (sterile salt water). There will be 7 visits and a screening visit over a 1-year period.

There is no risk of contracting MERS from the vaccine itself, and you will not be exposed to MERS virus at any point during this study.

Study Name	MERS003
Who can take part?	Adults aged between 50 and 70 years in good health (well-controlled health conditions; Full criteria inside). Half of the participants will have previously received at least 2 doses of the Oxford/AstraZeneca COVID-19 vaccine, and half will not (they will have received a different COVID-19 vaccine, or no COVID-19 vaccine).
Vaccine being tested	Two doses of ChAdOx1 MERS vaccine or placebo, given 12 weeks apart
Total participants	Up to 84
Study Aims	To test safety and immune response to the vaccine in adults aged 50-70 years, and to identify any effect of previous Oxford/AstraZeneca COVID-19 vaccination.
Chief Investigator	Prof Maheshi Ramasamy (Oxford Vaccine Group, University of Oxford)
Principal Investigator	Dr Andrea Collins.
Trial Site	Liverpool School of Tropical Medicine (LSTM), Liverpool Life Sciences Accelerator Building, 1 Daulby Street, Liverpool, L7 8XZ
Reimbursement	£360
Risks of participation	Short-lived post-vaccine symptoms, such as mild discomfort of the arm and fever, may occur. A full discussion of risks is contained within (page 11). As this vaccine is in early development, we will monitor the safety of all participants closely.
Benefits of participation	By participating in this trial, you will help research into the development of a safe and effective vaccine to protect against MERS, but you will not directly receive any personal health benefit from the study or its procedures.



Before you make your decision on whether to participate in this trial, it is important that you take the time to understand why the research is being done and what it would involve. Please read this information sheet carefully. If you have any further questions about the trial please do not hesitate to contact us (contact details are on the final page).

What is the purpose of this trial?
This is a trial of a new vaccine (ChAdOx1 MERS) against Middle East Respiratory Syndrome (MERS) in volunteers aged between 50 and 70 years old.

MERS has been identified as one of the most worrying outbreak diseases by global agencies including the World Health Organization (WHO). It is a viral respiratory illness that can cause severe pneumonia and even death. MERS-Coronavirus, the virus that causes MERS, was identified in 2012 in Saudi Arabia. 2,300 cases and over 800 deaths have occurred so far. It continues to cause a small number of cases each year in Saudi Arabia. One of the main concerns about this disease is that it could spread rapidly from country to country and cause a pandemic. Currently, there is no treatment for MERS and no approved vaccine.

MERS has been chosen as a very high priority disease for accelerated vaccine development by the WHO, international vaccine experts and by members of the UK Vaccines Research and Development network.

This trial vaccine has been developed by the University of Oxford. The vaccine is very similar to the Oxford/AstraZeneca COVID-19 vaccine. However, the trial vaccine targets a component of the MERS virus rather than a component of the virus that causes COVID-19.

We have already completed two clinical trials with 53 participants using the vaccine at different doses in healthy adults aged between 18 to 50 years. MERS is known to cause more severe illness in older individuals, so this trial is being carried out in people aged 50-70 years. We want to check that the vaccine is safe and can generate the necessary immune response in this age group.

We also want to investigate whether having previously received doses of the Oxford/AstraZeneca COVID-19 vaccine has any effect on the immune response generated by the ChAdOx1 MERS vaccine. For this reason, we aim to recruit half of our participants from individuals who have previously had the Oxford/AstraZeneca COVID-19 vaccine, and half who have not.

How is the trial going to work?

1. Recruitment and screening

We plan to recruit up to 84 people aged between 50 and 70 years to take part in this study at Liverpool School of Tropical Medicine. Half of the participants in this study will have previously been vaccinated with at least two doses of the Oxford/AstraZeneca COVID-19 vaccine. Participants will be screened for eligibility for the trial with an initial online questionnaire followed by an in-person medical assessment by the study medical staff. Eligible participants will then be invited to attend the first vaccination visit.

2. Random assignment to two-doses of either ChAdOx1 MERS vaccine or a 'placebo'

You will be assigned at random to be given two doses of either the study vaccine (ChAdOx1 MERS) or a 'placebo' injection which does not contain any active ingredient (only sterile salt water, called saline). For every 6 participants recruited, on average, 5 participants will receive the study vaccine and 1 participant will receive the placebo vaccine. The two vaccine/placebo doses will be given approximately 12 weeks apart. The study is 'double blinded'. This means that neither **you nor the study team will know whether you received the ChAdOx1 MERS vaccine or placebo** until the very end of the study. This prevents participants' and researchers' possible biases affecting the results and is in line with international trial standards.

3. Follow up

Participants in the trial will be followed up for 1 year. The trial includes one screening visit, two vaccination visits and five follow up visits. Volunteers will be assessed at each visit and will have a

blood test to measure immune responses. In addition to visits, participants will be asked to complete a symptom diary for the first 28 days after each vaccine dose.

Who is sponsoring, organising and funding the research?
The study is organised and sponsored by the University of Oxford. The study is funded by Coalition for Epidemic Preparedness Innovations (CEPI), an international foundation that has been set up to fund research into vaccines and treatments against emerging infectious diseases.

Length of your participation in the study
If you are eligible to take part, we will enrol you into the study for 12 months starting from your first vaccination visit (Day 0). You may also decide to withdraw from the study early (What will happen if I don't want to carry on with the trial? Page 15).

Can I take part?
In order to be involved in the study, the following **must apply** to you**:**

You must:

Be aged between **50 to 70 years** at the time of your screening visit
Have either received **two or more doses of the Oxford/AstraZeneca COVID-19 vaccine OR have never received a dose of the Oxford/AstraZeneca COVID-19 vaccine**
Be able and willing to **comply with all study requirements** including attending all follow up visits
Be willing to **allow your past medical history to be checked by the study team** (either by allowing us to discuss your medical history with your GP, or by giving us a medical history summary)
Agree to **refrain from blood or blood product donation** during the study
Tell us about any **vaccinations** you may have received recently or expect to receive soon
(**For women who could potentially become pregnant**) Use **contraception** for the duration of the study and have a **negative pregnancy test** at the screening visit and vaccination visit(s)

You must NOT have:

Current and Past Medical Problems
A severe or uncontrolled medical condition (individuals with existing mild/moderate well-controlled conditions may take part)
A history of **neurological** or **immune system disorders**
A history of either a **major blood clot**, **blood clotting disorder**, or **bleeding disorder**
A history of **thrombosis with thrombocytopenia syndrome** (TTS)
A history of **capillary leak syndrome**
A history of **cancer**
A history of **hepatitis B**, **hepatitis C** or **HIV infection**
A **serious ongoing mental health condition** if this may affect your participation in the study
A history of a **severe allergic reaction to a vaccine, including hypersensitivity**
Previously **injected recreational drugs** (within the last 5 years)
A history of **COVID-19 infection** within **30 days** of being enrolled into the study
A history of a **blood transfusion** or "**Immunoglobulin infusions"** within 3 months of the trial

An intake of more than **42 units of alcohol per week** on average (The NHS recommends the following calculator: https://alcoholchange.org.uk/alcohol-facts/interactive-tools/unit-calculator)
A history of **MERS** infection
A history of **allergic reaction to aminoglycoside antibiotics**
Other Vaccines
• You cannot receive an Oxford/AstraZeneca or Janssen COVID-19 vaccine (or any other adenoviral vectored vaccine) within 90 days of the study vaccines. • You cannot receive **flu or other (**e.g. mRNA) **COVID-19 vaccines within 14 days** (before or after) of each study vaccine. This extends to **30 days for any other vaccine**. • You must also be willing to inform the study team if you are offered or receive any **COVID-19 vaccine** during the study.
You must NOT have received any doses of any MERS vaccines in the past (e.g. in clinical trials)
Other Clinical Trials
You must NOT participate in **another clinical trial** that involves receiving a drug or vaccine in the **30 days before the study** starts and for the duration of the study
(In applicable females only) Pregnancy/Breast Feeding During the Study
You must NOT be pregnant or breastfeeding during the study

If you are unclear whether you are eligible to be involved in the study, you can contact the study team (details on page 18) who will be very happy to advise you. The criteria above will be discussed with you in detail at the screening visit by a study doctor to make sure that you are eligible to take part.

What is the vaccine being tested?

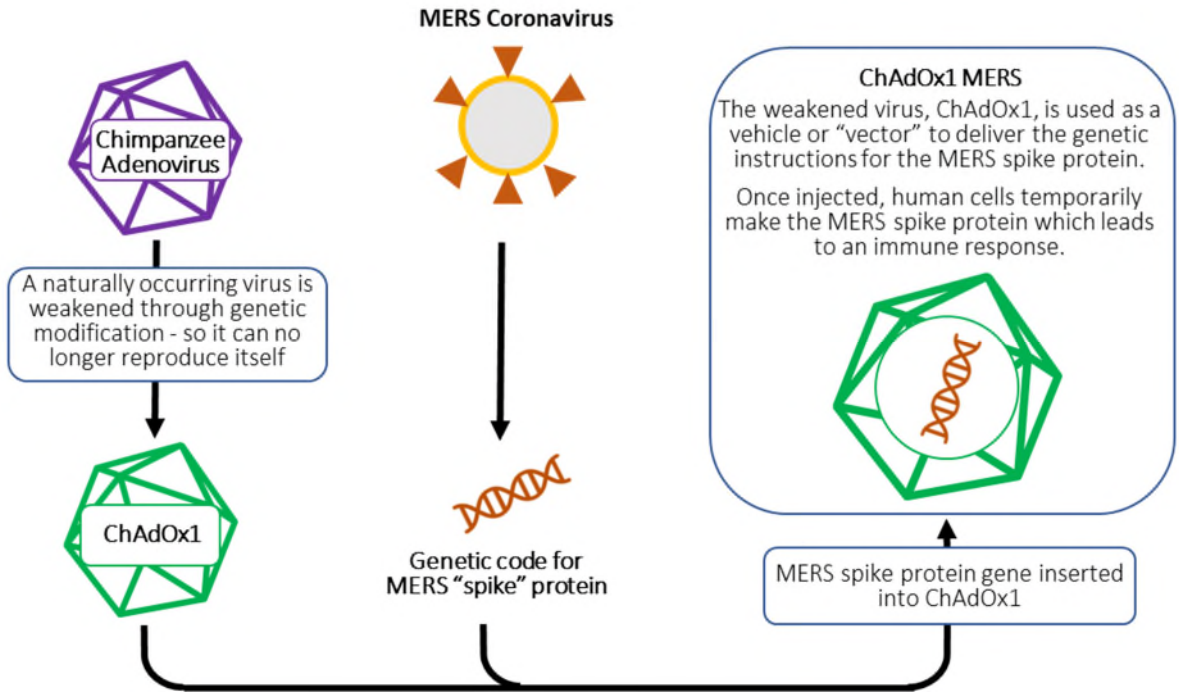
ChAdOx1 MERS consists of a weakened version of a virus called a *chimpanzee adenovirus.* Chimpanzee adenoviruses are naturally occurring viruses that are completely unrelated to the MERS virus. The natural, unmodified versions of chimpanzee adenoviruses can cause mild cold/flu-like symptoms in chimpanzees.

We have developed a profoundly weakened version of a chimpanzee adenovirus through genetic engineering. This modified version of the virus is completely unable to reproduce inside the human body. This means it cannot copy itself in humans and it cannot cause infections or be spread from person to person. We call this modified virus 'ChAdOx1' which stands for 'Chimpanzee Adenovirus Oxford 1'.

We then took the weakened virus and inserted a single gene from the MERS virus. This gene provides the instructions for an important component of the MERS virus called the 'spike protein'. The spike protein is used by coronaviruses to let them invade cells and cause infection (as in COVID-19 infections). We want to investigate whether people who are vaccinated with ChAdOx1 MERS will make an immune response against the MERS spike protein.

The MERS spike protein genetic code is the only component of MERS in the vaccine. MERS virus itself is not used to manufacture the ChAdOx1 MERS vaccine so there is no chance of being exposed to MERS virus at any point during this study, so you cannot catch MERS from the vaccine.

This vaccine technology is the same as that used to make the Oxford/AstraZeneca COVID-19 vaccine.



As part of its manufacture, ChAdOx1 is grown in a lab using modified cells that were originally derived from a sample of human tissue. These cells are called HEK 293 (human embryonic kidney 293) cells. More information on the use of human-derived cell lines in the manufacture of vaccine is available at https://vk.ovg.ox.ac.uk/vk/vaccine-ingredients#Human%20cell%20strains

What doses of vaccine are used in this trial?
The doses we will use are chosen based on experience with similar vaccines, and are equivalent to the approved doses that are used for the Oxford/AstraZeneca COVID-19 vaccine.

Will there be any placebo vaccines?
Participants in the trial are assigned, at random, to either receive the ChAdOx1 MERS vaccine or a 'placebo'. The placebo consists of a sterile salt water solution, with no active ingredient.

How will the study be 'blinded' so that you do not know what vaccine you have received?
'Blinded' means that we will conceal whether you received the study vaccine or the placebo until the very end of the trial, when all participants have completed all follow up visits. All participants will be informed of which vaccines they received at this point. The study team will not be able to share this information with you before this point unless there are exceptional circumstances. Almost all staff involved with the study (except essential staff) will not know whether you received the study vaccine or placebo. Participants and staff are kept blinded to reduce possible biases in the study. This is in accordance with scientific and clinical trial best practice.

Previous experience with other ChAdOx1-based vaccines
Although ChAdOx1 MERS is still in early development, there is now a lot of experience with other ChAdOx1-based vaccines in humans.

Oxford/AstraZeneca COVID-19 vaccine

The Oxford/AstraZeneca COVID-19 vaccine is made using the same ChAdOx1 virus technology that is used for ChAdOx1 MERS. This has been shown to be safe for the vast majority of individuals and highly effective at protecting against severe COVID-19. However, following administration of the vaccine to millions of people, a very rare but serious side-effect of blood clots in combination with low platelets has now been associated with the vaccine. It is currently unknown why this vaccine appears to lead to this clotting disorder. Further details of this are included in this information sheet ("Are there any risks from taking part in the trial?" Page 11).

Other ChAdOx1 vaccines

The University of Oxford has also carried out trials of ChAdOx1-based vaccines against many other diseases such as flu, malaria, meningitis B, TB, HIV and Zika virus. Over 500 individuals have received these other ChAdOx1 vaccine (not including the Oxford/AstraZeneca COVID-19 vaccine). The other ChAdOx1 vaccines were shown to be safe across these trials. They were also able to create strong immune responses against the viruses, bacteria or parasites being targeted.

Do I have to take part?

No. It is up to you to decide whether or not to take part. Your decision will not result in any penalty, or changes to your standard medical care. If you do decide to take part, you will be given this information sheet to keep (or it will be sent electronically) and will be asked to sign a consent form.

What will happen if I decide to take part?

Online pre-screening questionnaire

If you decide that you would like to take part in this study, then you will need to complete a short set of online questions that cover some of the key criteria for participation in the trial. If you are suitable at this point, we will contact you to provide further instructions on the next steps.

Pre-screening phone-call

If you express an interest in taking part and you appear suitable from the pre-screening questionnaire, a member of the study team will contact you by telephone to discuss the study and answer any questions you may have. We would also like to ask you a few more detailed questions to further assess your eligibility.

Medical records consent

If you remain interested and appear suitable for the study, we would arrange for you to come to our clinic for a screening visit. In addition, we would send you a consent form (paper or electronic) asking your permission for the study team to access your medical records to obtain information via the electronic patient records or through your GP. We would then ask you to return a copy of the signed consent form (paper or electronic). A countersigned form will be provided at the screening visit. This consent form is only to allow access to your medical records, and not the consent for enrolment to the study. If you choose to participate in the study, a separate consent will be taken for inclusion into the trial (see below).

Screening visit

This may take place up to 3 months before the vaccination day. This and all other study visits will take place at the Accelerator Research Centre, LSTM and Royal Liverpool Hospital.

At the screening visit you will meet with study staff who will go through this information sheet with you and answer any questions you might have about the trial. If you then decide to take part, and the study team are happy that you have understood the trial information, you will be asked to sign the study consent form.

This will be followed by a physical examination which will involve the doctor listening to your heart and lungs with a stethoscope and examining your abdomen. Your vital signs (blood pressure, pulse, and temperature) will also be measured, and blood samples will be taken. If applicable, a urine sample may also be taken to perform a pregnancy test.

Vaccination visits

If you qualify to be in the trial after the screening visit eligibility checks, we will arrange for you to attend to receive the first dose of either ChAdOx1 MERS or placebo. You will be asked a few questions to check there have been no new problems since your screening visit. Your blood pressure, pulse and temperature (vital signs) will be checked, and blood samples taken. If appropriate, you will have a urinary pregnancy test before vaccination.

The vaccine will then be given as an injection into your (non-dominant) upper arm. We will temporarily cover the vaccine site with a dressing. We will need to keep an eye on you in a waiting area for at least 30 minutes after the vaccine. After this period, your vital signs will be checked again, and the injection site inspected. We will then allow you to go home.

The second vaccination visit (after three months) will follow the same steps as above. Before your second vaccination visit, the study team will ensure you remain eligible to receive the second dose. If there are temporary reasons for being ineligible, for example being unwell, this dose may be delayed until these circumstances are resolved. Overall, the vaccination visits will each take about two hours.

Electronic symptom diary 'eDiary' *(to be completed at home)*

During the vaccination visits you will be given access to an online symptom eDiary via email links sent to your email address. We will ask you to record any symptoms or illnesses you experience in the 28 days following each vaccine, even if you think these are unrelated. For the first 7 days we will also ask you to measure and record your temperature each evening using an oral thermometer that we will provide. We will also give you a tape measure so that if you experience any redness around the injection site you have something to measure this with (see "Vaccine Reactions around the injection site – local reactions" page 11).

Follow up visits

After you have received the vaccination, you will attend the clinic for several short follow up visits, as indicated in the trial visit timeline, up to 1 year after receiving first vaccine in the study. The visits are to check if you are experiencing any problems after the vaccine, review your injection site, check your eDiary and have a blood test. During the course of the trial, you may also be asked to attend for an extra visit, for example, if a blood test needs to be repeated.

OPTIONAL: Home stool sampling

We are asking participants in this study to also provide stool (poo) samples at several timepoints during the study. If you agree to this, you will be provided collection kits and instructions on how to collect samples, which you will do at home. The study staff will explain to you how to collect and return the samples. However, if you prefer not to provide stool samples, you can opt out without otherwise affecting your participation in the study.

We will test these samples for microscopic organisms such as bacteria, parasites and fungi that naturally occupy your gut to see if the mix of these microscopic organisms is influenced by the study vaccines.

Trial visit timeline

Visit	What to expect at the visit
Pre-screening Phone-call	Phone discussion about medical history, and to answer questions about the trial you may have. We will ask you to complete a consent form to retrieve a summary of your medical records.
Screening Visit	Consent discussion and sign consent form, ID check, review medical history, physical examination, vital signs, blood test and urine pregnancy test (if appropriate).
Day 0 Vaccination Visit	Vital signs, blood test, urine or blood pregnancy test (if appropriate), receive vaccine or placebo, remain in clinic for at least 30 minutes post-vaccine. (Optional: return stool sample by post.)
Day 14 Follow up	Follow up medical questions, eDiary reviewed, vital signs, blood tests (Optional: return stool sample by post.)
Day 28 Follow up	Follow up medical questions, eDiary reviewed and completed, vital signs, blood tests
Day 84 Vaccination Visit 2	Vital signs, blood test, urine or blood pregnancy test (if appropriate), receive vaccine or placebo, remain in clinic for at least 30 minutes post-vaccine.
V2 + 14 days Follow up	Follow up medical questions, eDiary reviewed, blood tests. (Optional: return stool sample by post.)
V2 + 28 days Follow up	Follow up medical questions, eDiary reviewed and completed, blood tests.
V2 + 281 days Follow up	Final study visit: Follow up medical questions, vital signs, blood tests. (Optional: return stool sample by post.)

Considerations before taking part in this study

Other vaccinations or medications during the study

If during the trial you require any vaccinations for health, travel, or occupational reasons, you should inform the study team beforehand. We ask you not to receive any other vaccines within 30 days (before and after) of receiving each study vaccine EXCEPT for flu and COVID-19 vaccines which you may receive within 14 days of each study vaccine. If you are offered a COVID-19 vaccine, we ask you to inform the study team so we can reschedule your trial vaccines around your COVID-19 vaccine.

If you are prescribed any new medications during the study, please make a note of these and inform the study team.

COVID-19

You will be required to follow any local COVID-19 guidelines that are in place at the study site during your visits. This may include being asked to wear a face mask during your visits and other measures.

If you develop suspected or confirmed COVID-19 infection near to a planned study visit, please contact the study team before attending. If there is concern you have possible COVID-19, the study team may offer you a COVID-19 test.

Additionally, we will need to know if you receive COVID-19 vaccines or are infected with COVID-19 during the duration of the study so we can properly understand the results of our immunology tests. **If you develop confirmed or suspected COVID-19 or receive a COVID-19 vaccine at any point during the study follow up period then please inform the study team.**

Private insurance

If you have private medical insurance or travel insurance, participation in a trial will often not affect your cover for any conditions unrelated to the trial, but to be certain you must tell your insurer you are planning to participate.

Contraception

There are no data on the use of this vaccine in pregnancy. We therefore require volunteers who could become pregnant to use contraception to participate (exceptions to this are below).

Female participants where any of the following apply will not be required to use contraception:

- Post-menopausal
- Surgical sterilisation
- Complete abstinence from sex with a male partner

Acceptable contraception methods include:

- Oral, injected or implanted hormonal contraceptives
- Intrauterine device (IUD) intrauterine system (IUS)
- Condoms or occlusive cap with spermicide
- Sole sexual partner is a vasectomised male

Male participants in the trial are not required to use barrier methods for the purposes of contraception. There is no evidence that the vaccine can be shed into semen.

Pregnancy

If you were to become pregnant during the trial, you should tell us immediately so that we can review certain trial procedures such as blood sampling. With your consent, we would continue to follow you up for safety reasons but you will not be given any further vaccine as part of the trial.

What should I avoid during the trial?

Blood donation

Under current UK regulations, participants have to refrain from blood donation during their involvement in the study. However, you will be able to restart blood donation once your last study visit has been completed.

Taking part in other clinical trials

You should not take part in other clinical trials where drugs or vaccines are administered during this study. You should also not take part in studies that involve repeated blood sampling at the same time as this trial.

Are there any risks from the ChAdOx1 MERS vaccine?

We can predict, from past experience with ChAdOx1 MERS and other ChAdOx1 vaccines, what the symptoms should be like with the vaccine. However, it is important to remember this vaccine is in an early stage of development and had only been tested in 53 people before this trial. For this reason, there is a chance you could experience an unexpectedly severe side effect or a new side effect that has not been seen before. Potential risks are summarised below:

Vaccine site 'local' reactions

As with any vaccine, you may experience some discomfort at the injection site. Usually this is mild but sometimes individuals experience more significant pain which might interfere with their usual activities. Post-vaccination arm pain usually resolves completely within a few days although may occasionally persist up to a week or even longer.

Other less common but possible symptoms around the injection site might include redness, swelling, itchiness or a feeling of warmth.

General reactions

During the first 24-48 hours after vaccination you may experience flu-like symptoms such as muscle aches, joint aches, feverishness, chills, headache, nausea, tiredness and feeling generally unwell. We would expect these symptoms to resolve within a few days.

How common were reactions in other clinical trials using ChAdOx1 based vaccines?

Vaccine reaction symptoms were measured in volunteers in the large Oxford/AstraZeneca COVID-19 vaccine trials involving over 10,000 volunteers. The percentage of volunteers experiencing symptoms after vaccination is shown below. Symptoms were mostly described by volunteers as mild, although a minority described temporary moderate or severe-intensity symptoms. The dose given to those individuals is equivalent to the dose we plan to use in this trial (What doses of vaccine are used in this trial? page 7).

Percentage of participants reporting side effects in trials of the Oxford/AstraZeneca COVID-19 vaccine	
Vaccine site reactions	**General reactions**
Vaccination site tenderness (64%)	Fatigue (53%)
Vaccination arm pain (54%)	Headaches (52%)
	Feeling generally unwell (44%)
	Muscle aches (44%)
	Feeling feverish (34%)
	Joint pains (26%)
	Nausea (22%)
	Fever 38°C and over (8%)

An analysis of symptoms following the Oxford/AstraZeneca COVID-19 vaccine by the UK's medical regulator, the MHRA, has shown that individuals tend to have fewer and milder symptoms after their second dose.

The other ChAdOx1 vaccines that have been used in smaller clinical trials had similar rates of side effects when used at the equivalent dose.

Post-vaccination symptoms completely resolved within a few days in the vast majority of people in all previous ChAdOx1 trials.

Serious rare blood clot disorder with similar vaccines

The Oxford/AstraZeneca COVID-19 vaccine has been associated with a very rare but serious blood clot condition that can lead to death or serious long-term disability. The condition consists of unusual types of blood clots together with low levels of platelets in the blood (thrombosis with thrombocytopenia syndrome). Most of the clots were a rare brain blood clot known as a 'cerebral venous sinus thrombosis'. Unusual blood clots occurring in other organs along with low blood platelets were also reported. The majority of these cases occurred within the first 3 weeks after vaccination.

This condition is not predictable and has occurred in previously healthy people, although it appears slightly less common in older people. The available data from the independent UK drug regulator (MHRA) shows that approximately 1 out of every 100,000 people aged over 50 who receive the Oxford/AstraZeneca COVID-19 vaccine develops this rare reaction. Approximately 1 in 5 patients who develops this condition, unfortunately dies.

Very low levels of blood platelets (immune thrombocytopenia), that can be associated with bleeding, have also been reported very rarely, usually within the first four weeks following vaccination with the Oxford/AstraZeneca COVID-19 vaccine.

We do not know whether these rare reactions may also occur with other ChAdOx1 vaccines, such as the ChAdOx1 MERS vaccine used in this study. We therefore advise you to seek urgent medical advice from the study team if you experience the following in the first 28 days after each of your trial vaccines:

- Sudden severe headache that does not improve with usual painkillers or is getting worse
- An unusual headache which seems worse when lying down or bending over, or may be accompanied by blurred vision, nausea and vomiting, difficulty with speech, weakness, drowsiness or seizures
- New and unexplained pinprick bruising or bleeding
- Shortness of breath, chest pain, leg swelling or persistent abdominal pain

You will be provided with a 24-hour study mobile number. If you experience any of the above events or become in any way concerned, you can use this to contact the study doctors at any time.

Capillary leak syndrome

Very rare cases of capillary leak syndrome (CLS) have been reported following vaccination with the Oxford/AstraZeneca COVID-19 vaccine. Some affected patients had a previous diagnosis of CLS. CLS is a serious, potentially fatal condition causing fluid leakage from small blood vessels (capillaries) resulting in rapid swelling of the arms and legs, sudden weight gain and feeling faint (low blood pressure). Seek immediate medical attention from the study team if you develop these symptoms following vaccination.

Other serious vaccine reactions

With any vaccination there is a risk of rare serious adverse events. Severe allergic reactions to vaccines (anaphylaxis) are rare but can be fatal. In case of this unlikely event, medication for treating allergic reactions is kept in the clinic room and the study team are appropriately trained in the management of anaphylaxis. Nervous system reactions are also extremely rare but have been reported with vaccinations in the past. A rare neurological illness called Guillain-Barré syndrome (GBS) has previously been associated with a flu vaccine used in the USA during a swine flu outbreak in 1976. This is a condition in which people can develop severe weakness and can be fatal. Cases of GBS have been reported after COVID-19 vaccinations and the UK MHRA have updated their information to list GBS as a possible very rare side effect of the Oxford/AstraZeneca COVID-19 vaccine.

Unknown/unexpected side effects

With any new medicine or vaccine that is in early development there is always a possibility of an unpredicted or unexpected side effect occurring. This could include something severe. If you experience concerning or unexpected symptoms, you should phone the 24-hour study contact number and speak to a study doctor.

Potential interaction with adenovirus-based vaccines (such as the Oxford/AstraZeneca COVID-19 and Janssen COVID-19 vaccines)

When people are vaccinated with ChAdOx1 MERS they should make the intended immune response against the MERS spike protein. However, they may also make an immune response against ChAdOx1 itself. Some scientists believe that having a strong immune response against ChAdOx1 might interfere with future doses of ChAdOx1-based vaccines and prevent them working as well. The same potential interference issue might also apply to other adenovirus-based vaccines (e.g. the Johnson and Johnson COVID-19 vaccine), although these are not currently in widespread use in the UK.

This **theoretical risk** could mean that the ChAdOx1 MERS vaccine in this trial might lead to immune responses against ChAdOx1 that block future doses of ChAdOx1-based (or other adenovirus-based)

vaccines from working as well as they otherwise would. We don't know whether this effect occurs in humans, and this is one of the questions that this study will look at - by recruiting half of participants who have previously had a ChAdOx1-based vaccine (the Oxford/AstraZeneca COVID-19 vaccine) and half who have not.

Reassuringly, studies we have carried out so far have shown that individuals who have previously had ChAdOx1 vaccines make the same level of expected immune response as individuals who have never had a ChAdOx1-based vaccine.

Are there any other potential risks from taking part in the trial?

Blood samples

Blood sampling may cause slight pain and occasionally bruising. Occasionally, people feel light-headed, nauseous or faint. We will take around 55ml at most visits. These are fairly small amounts of blood and should be well tolerated by healthy adults. The **total** amount of blood we will take over the whole trial period is approximately 414 ml. A *single* donation to the NHS blood bank would be approximately 470ml by comparison.

Incidental medical findings

As we carry out several medical tests throughout the trial, it is possible that we pick up previously unknown health issues (e.g. high blood pressure, abnormal blood results). If abnormal results or undiagnosed conditions are found during the study, these would be discussed with you and, if you agreed, your GP would also be informed of these results. We would refer any newly diagnosed conditions to your GP.

Sometimes incidental medical findings might require your GP to carry out further investigations such as blood tests, scans or referral to specialists.

What are the advantages of taking part?

You will not gain any direct personal benefit from the trial as you are unlikely to be at immediate risk from MERS. You should not assume you have gained any protection from future MERS infection even if you receive the ChAdOx1 MERS vaccine within the study.

Will I be paid for taking part in this trial?

Study participants would be reimbursed for their time, travel and inconvenience of taking part in the study. The maximum reimbursement for any volunteer who completes the whole study is £360. All participants will be reimbursed based on the following figures:

- Travel expenses: £15 per visit
- Inconvenience of blood tests: £10 per blood donation
- Time required for visits: £20 per visit

The sum reimbursed is on a pro-rata basis, so, if for example, you choose to withdraw halfway through the study, we would calculate your reimbursement based on the visits you have attended and samples that have been obtained.

Payments are made directly by bank transfer in instalments during the study. For this reason, we require participants to provide their bank details at screening. Bank details are kept confidential. Personal information such as your name, bank details and national insurance number may be shared with the site finance team to process or verify your reimbursement payments. Financial auditors may also audit the records where this information is held. All confidential data will be stored according to the UK General Data Protection Regulation (see below).

You may also receive reimbursement for any unscheduled visits you attend. You would be reimbursed £45 per unscheduled visit.

What if new information becomes available?
Sometimes during the course of a trial, new information relevant to the trial becomes available. If this happens, we will tell you about it and discuss whether you want to, or should, continue in the study. If you decide to continue to take part, you will be asked to sign an updated consent form. On receiving new information, we may consider it to be in your best interests to withdraw you from the study.

If any new information or safety concerns arise during the trial in relation to ChAdOx1, this will be reviewed, and you would be kept fully updated.

What happens if I don't want to carry on with the trial?
At any time during the study you are entirely free to change your mind about taking part, and to withdraw from the study. This would not result in any penalty. We would use the samples and data we have collected from you in our analysis of the study, up until the point you informed us that you wanted to withdraw. You are free to request that your samples are destroyed at any time during or after the study.

In exceptional circumstances, your participation in the study might also be stopped early by the study doctor or the sponsor of the trial.

It is important to note that if you withdraw from the trial early, we will **not** be able to tell you whether you received the ChAdOx1 MERS vaccine or placebo vaccine until all participants have completed the trial unless there are exceptional circumstances.

What will happen to any samples I give during the trial?
Your samples will be assigned a code and will only be identifiable by this code number. Any samples given to researchers outside of the study clinic will not have information that identifies you. The blood, urine and stool samples collected during this study will be analysed in the LSTM and University of Oxford research laboratories. We may also send de-identified samples to other researchers working with us on this research project. This may include researchers in other countries, including outside of the UK. All samples you provide will be tested in a de-identified form. However, as your DNA is unique, samples can never be completely anonymous.

If you choose to take part in this study, we will be asking for your separate permission to store your samples (including cells and DNA), in a collection of samples called the Oxford Vaccine Centre Biobank. Details of this will be provided in a separate booklet after you are enrolled into this study, and you are free to say no to the Biobank and continue to take part in this study if you wish. If you consent to your samples being stored as part of the Biobank, a copy of your informed consent form (which contains your personal information) will also be stored. If you do not wish for your samples to be stored in the Biobank, any unused blood samples will be destroyed 12 months after the last participant has completed the study.

The following tests will be performed on your samples:

- Blood tests of for blood cell counts and liver and kidney function.
- Tests for Hepatitis B, Hepatitis C and HIV (at the screening visit).
- Urine pregnancy testing (if applicable). Pregnancy testing may alternatively be performed on blood samples.)
- HLA typing, a genetic test of components of the body's immune system.
- Tests of immune responses following vaccination looking at your antibodies and immune cells.
- If you opt in, stool samples will be analysed with genetic testing or 'sequencing' of the bacteria, parasites and fungi that naturally occupy your gut. Collectively these are known as the gut 'microbiome'.
- If you opt in, blood samples in this study will be stored in the Oxford Vaccine Centre Biobank and may be used in future vaccine research studies.
- If you opt in, blood samples taken in this study may be used for research involving the creation of specific antibodies called 'monoclonal antibodies'.

Will any genetic tests be done?
We will do genetic tests on your blood samples to look at the patterns of genes that regulate your own individual immune response. These are called Human Leukocyte Antigen (HLA) genes. This will help us to work out which aspects of the immune response to vaccines are due to genetic differences between individuals. We may also try to identify and study the genes that appear to be important in your immune response to the vaccination. You will not receive the results of any genetic tests performed.

What if something goes wrong?
The investigators recognise the important contribution that volunteers make to medical research and make every effort to ensure your safety and well-being. The University of Oxford, as the 'research sponsor', has arrangements in place in the unlikely event that you suffer any harm as a direct consequence of your participation in this trial.

In the event of harm being suffered, while the sponsor will cooperate with any claim, you may wish to seek independent legal advice to ensure that you are properly represented in pursuing any complaint. The study doctor can advise you of further action and refer you to a doctor within the NHS for treatment, if necessary. If you are referred to the NHS during the study then NHS indemnity operates in respect of the clinical treatment which may be provided.

Complaints statement
If you wish to complain about any aspect of the way in which you have been approached or treated during the course of this study, you should contact the research investigators 07935010514Alternatively, you may contact the sponsor organisation of this study (University of Oxford) at the Research Governance, Ethics and Assurance (RGEA) team office on 01865 616480 or email RGEA.Sponsor@admin.ox.ac.uk .

Would my taking part in this trial be kept confidential?
All information that is collected about you during the research will be coded with a study number and kept strictly confidential. Any information about you that leaves the clinic would have your name and address removed so that you could not be recognised, except for letters sent to your own GP . In order to enrol into this study, you are required to consent for us to contact your GP.

We will write to your GP to inform them about your enrolment and study completion status, so they can update your medical records accordingly. Your GP may also be asked to share information about your medical history and give access to any other medical records as required to ensure there are no

medical reasons that would prevent you from taking part. We would only notify your GP of the results of any medical tests with your permission.

Responsible members of the University of Oxford, the relevant NHS Trusts involved in the research and the regulatory agency responsible for clinical trials in the UK, the MHRA, may also be given access to data for monitoring and/or audit of the study to ensure that the research is complying with applicable regulations. No one else will be told that you are involved in the study.

What will happen to my data?

Data protection regulation requires that we state the legal basis for processing information about you. In the case of research, this is 'a task in the public interest.' The University of Oxford is the 'data controller' and is responsible for looking after your information and using it properly. We will be using information from you and your medical records in order to undertake this study.

We will use the minimum amount of personally-identifiable information. Data will be collected and held by LSTM. It will be accessible to staff at LSTM, responsible staff from the University of Oxford who may monitor/audit the data collection process, and inspectors from the regulatory agency responsible for clinical trials in the UK (the MHRA). The University of Oxford Data management and IT Team will be able to view your email address, which is necessary for the eDiary to function. The database servers are held by the sponsor. We will keep identifiable information about you, such as contact details, for a minimum of 5 years after the study has finished. The need to store this information for longer in relation to licensing of the vaccine will be subject to ongoing review. De-identified research data will be stored indefinitely.

At the completion of the study, unless you consent otherwise (e.g. if you request to be informed of other trials), your personal details will not be used to contact you other than in exceptional circumstances concerning your safety. A photocopy of your ID (drivers licence, passport or national ID card) and either your national insurance or passport number for "TOPS Database Registration" (page 17) and payment processing will be taken at the screening visit. We will securely retain copies until the end of the study. Your bank details will be stored for current year plus seven years in line with local site policy.

Data protection regulation provides you with control over your personal data and how it is used. When you agree to your information being used in research, however, some of those rights may be limited in order for the research to be reliable and accurate. Further information about your rights with respect to your personal data is available at https://compliance.web.ox.ac.uk/individual-rights

If you withdraw from the trial, we will keep the information about you that we have already obtained. To safeguard your rights, we will use the minimum personally identifiable information possible.

TOPS database registration

Volunteers participating in this study must not be enrolled in another study that involves receiving investigational medications or vaccines at the same time. In order to check this, you will be asked to provide your national insurance or passport number. This will be entered on to a national database which helps prevent volunteers from taking part in too many clinical trials. More information can be found at *www.tops.org.uk*.

What will happen to the results of the research study?
The results of this research study may be presented at scientific meetings or conferences and published in a scientific medical journal. This can take approximately 2 years after the study is completed. Your individual results would not be identifiable nor would you be identified in any report or publication. A copy of the main research publication will be shared with you.

The de-identified research data from this study will be shared with the collaborating partners who are organising and funding this research work. Data from this study may be used to file patents or licence vaccines in the future or make profits in other ways. You would not be paid for any part of this. Data from this study may be used as part of a student post-graduate degree, for example a MD or PhD.

Who has reviewed the study?
This research has been looked at by an independent group of people, called a Research Ethics Committee, to protect participants' interests. This study has been reviewed and given favourable opinion by South Central - Oxford A Research Ethics Committee The Oxford Vaccine Centre Patient and Public Involvement group have reviewed the main participant-facing documents associated with this trial (Participant Information sheet, Consent form, Lay summary, Invitation letter, advertising materials).

The Medicines and Healthcare products Regulatory Agency (MHRA), which regulates the use of all medicines in the UK, has reviewed the study design and has granted permission to use this unlicensed vaccine in this clinical study.

Further information and contact details
We hope this information sheet has given you enough information to make decision on whether to volunteer for this study. If you would like further information about participating in research please visit the following website: http://www.nhs.uk/conditions/Clinical-trials/Pages/Introduction.aspx

For independent advice about participating in this trial, you may wish to contact your GP.

If you are interested in taking part in this study then please complete the online pre-screening questionnaire at: https://trials.ovg.ox.ac.uk/trials/mers003-online-screening-questionnaire.

If you have further questions about the trial that you would like to discuss with our team, please contact us at:

Email: MERSresearch@lstmed.ac.uk

Tel: 07935010514

Thank you for your interest in taking part in this study.