

# Understanding COVID-19 infection in pregnant women and their babies

**Short Title:** COVID-19 infection in pregnancy and the newborn (code: **periCOVID**)

**PHE Reference:**

**Protocol Version:** 1.2

**Date:** 31 March 2020

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## Confidentiality Statement

**This document contains confidential information that must not be disclosed to anyone other than the Sponsor, the Investigator Team, host NHS Trust (s), and the regulatory authorities.**

## Investigator Agreement

*"I have read this protocol and agree to abide by all provisions set forth therein. I agree to comply with the International Conference on Harmonisation Tripartite Guideline on Good Clinical Practice"*

Chief Investigator Name: Dr Shamez Ladhani

Chief Investigator Signature: 

Date of Signature: 31 March 2020

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## 1.0 AMENDMENT HISTORY

<b>Amendment No.</b>	<b>Protocol Version No.</b>	<b>Date issued</b>	<b>Author(s) of changes</b>	<b>Details of Changes made</b>
1	1.1	26/03/20	Shamez Ladhani	<p><i>*a number of exclusion criteria are not added to the protocol</i></p> <p><i>* Additional information added to participant information leaflet on the samples to be taken, timepoints and who will take the samples</i></p> <p><i>* More information about the blood sampling added to protocol and information leaflet</i></p> <p><i>* Information added about interim analysis and reporting after samples from the first 100 participants are tested</i></p>
2	1.2	31/3/20	Elizabeth Coates	<i>*Section 8 rewritten</i>

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## 2.0 SUMMARY PARAGRAPH

This surveillance has been set up as part of PHE's response to the national outbreak of the novel coronavirus. It aims to answer important questions about the impact of the novel coronavirus on pregnant women and their infants, and the mode of transmission from mother to baby. By collecting sequential samples from pregnant women with confirmed coronavirus disease and, after childbirth, from the newborn infant, we hope to better understand the risk and mode of perinatal transmission of the novel coronavirus in order to develop an evidence base for recommendations, guidance and policy decisions for the clinical and public health management of pregnant women, their infants and the healthcare staff that care for them

## 3.0 BACKGROUND AND RATIONALE

The outbreak of a novel coronavirus (SARS-CoV-2) causing predominantly a respiratory disease (COVID-19) was first reported on December 31, 2019, in Wuhan, China. Within a few weeks, the virus had spread rapidly throughout China and within 1 month to several other countries worldwide, including the United Kingdom. As of 20 March 2020 (9:00am), over 240,000 cases have been diagnosed in 147 countries and areas (including mainland China), with a total of over 9,800 fatalities. The first case in the UK was confirmed on 28 February 2020 and the first COVID-19 death on 05 March 2020. The number of cases and deaths have increased gradually since and, by 19 March 2020, 64,621 people have been tested in the UK and 3,269 were confirmed as positive with 144 deaths due to COVID-19

There are a number of uncertainties about COVID-19 at this stage, including the impact of COVID-19 on pregnant women and their infants, and the mode of transmission from mother to baby. A recent case-series of 9 pregnant women suggested a mild course of COVID-19 in pregnancy. However, pregnancy complications were more common in women infected with previous coronaviruses causing MERS and SARS, and, in 2009, pregnant women accounted for 1% of patients infected with influenza A subtype H1N1 virus but 5% of H1N1-related deaths.

Two cases of possible vertical transmission have been reported. In both cases, it remains unclear whether transmission was prior to or soon after birth. A case series published by Chen and colleagues tested amniotic fluid, cord blood, neonatal throat swabs and breastmilk samples from SARS-CoV-2 infected mothers and all samples tested negative for the virus. Furthermore, in a different paper by the same authors, three placentas of infected mothers were swabbed and tested negative for the virus and, in another case series by the same team, of three infants born to symptomatic mothers, none tested positive for SARS-CoV-2. There is currently no evidence concerning transmission through genital fluids.

Several initiatives are underway to address these important questions. The UK Obstetric Surveillance System (UKOSS) has initiated surveillance (1/3/20-1/3/21) to estimate the incidence of **confirmed** COVID-19 cases in pregnant women and to assess the outcomes of COVID-19 in pregnancy for mother and infant. (<https://www.npeu.ox.ac.uk/ukoss/current->

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surveillance/covid-19-in-pregnancy). Similarly, a British Paediatric Surveillance Unit (BPSU) study is about to commence which will capture COVID-19 cases in neonates and determine the incidence and outcomes.

We at PHE are working with colleagues at St. George's University of London (SGUL) to better understand potential routes of transmission of COVID-19 from pregnant women to their babies and the persistence of virus excretion in mothers and babies. Collecting this information will facilitate definitive clinical management and infection control guidelines for pregnant women and their newborn infants

## **4.0 OBJECTIVES**

### **4.1 Primary Objective**

- To assess the risk of COVID-19 infection in newborn infants born to pregnant women with confirmed COVID-19 infection and determine possible routes of mother-to-child transmission

### **4.2 Secondary Objectives**

- To test for SARS-CoV-2 in the pregnant woman
- To test for SARS-CoV-2 in the placenta and cord blood at birth
- To test for SARS-CoV-2 in newborn infants of women with confirmed COVID-19
- To assess the immune responses to SARS-CoV-2 in pregnant women and their babies
- To determine whether SARS-CoV-2 is found in breast milk
- To determine whether SARS-CoV-2 is found in neonatal urine and faeces
- To determine the duration of excretion of SARS-CoV-2 in all mother and baby samples

## **5.0 SITES, RECRUITMENT AND ELIGIBILITY**

### **5.1 Participation**

- Any pregnant woman with confirmed COVID-19 infection from 24 weeks gestation (i.e. viable foetus) in England
- Potential participants will be provided with an information leaflet and asked to sign a consent form (or next of kin, if participant unable to give consent)
- Pregnant women (including those who present during labour) will have as long as they require to consider taking part in the surveillance.

### **5.2 Recruitment**

This project will be advertised to healthcare professionals across England, through a variety of sources including but not limited to the British Association of Paediatric Medicine (BAPM),

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Royal College of Paediatrics and Child Health (RCPCH), Royal College of Obstetrics and Gynaecology (RCOG) and the British Paediatric Allergy, Immunology and Infectious Diseases Group (BPAIIG).

Clinicians managing pregnant women will be given a phone number to request enrolment. An information leaflet and consent form will be emailed to the clinician.

### 5.3 Subject Eligibility

All pregnant women with confirmed COVID-19 infection from 24 weeks gestation

#### 5.3.1 Inclusion Criteria

Signed consent form

Confirmed COVID-19 infection in a pregnant woman from 24 weeks gestation

#### 5.3.2 Exclusion criteria:

If the mother is under 18 years in prison or unable to make an informed consent for other reasons (e.g. learning difficulties, language barriers)

#### 5.3.3 Temporary Exclusion Criteria

None

### 5.4 Procedures

#### 5.4.1 Unique participant identifier

- Following informed consent, each participant will be allocated a unique 4-digit number (periCOVID 1001, etc.) sequentially upon enrolment. The mother will be allocated with an “M” prefix (M1001) and the baby with a “B” prefix (B1001).

#### 5.4.2 Data collection, sampling and reporting

A brief proforma will be completed to capture:

- Maternal characteristics (age, ethnicity, country of origin, languages spoken and travel)
- Onset and duration of symptoms
- Method of SARS-CoV-2 confirmation (PCR results, swab type, commercial platform)
- Pregnancy information (gestational age at diagnosis, number of foetuses, pregnancy related complications, radiology findings, laboratory findings, ventilation support, ICU admission, estimated foetal weight, foetal abnormalities)
- Delivery information (Gestational age at delivery, delivery method, intrapartum complications, postpartum complications, placental pathology)
- Neonatal outcomes (Evidence of COVID-19, NICU admission, respiratory morbidity, duration and type of ventilation support, infectious morbidity, neurological morbidity)

- Breastfeeding outcomes during the postnatal surveillance period

We will work with obstetric colleagues to recruit eligible pregnant women across England and collect the required maternal samples. We will work with neonatal colleagues to collect the required neonatal samples.

(i) We will aim to collect the following samples from the pregnant woman **at recruitment**:

- *throat swab\* (and lower respiratory tract samples, if available), faeces \*, urine \*, blood*

(ii) we will aim to collect the same samples from the woman **at 1 month** (range 3-6) weeks after the recruitment samples) if she is still pregnant at the time

(iii) we will aim to collect the same samples from the woman **around the time of delivery** as well as:

- *maternal vaginal swab, amniotic fluid swab, placental swab, cord blood and breastmilk \* (colostrum) if possible*

We will aim to collect the following samples from the neonate **around the time of delivery** (up to 48 hours after delivery) as well as:

- *mouth/throat swab\*, urine\*, faeces\* and blood*

*The samples \* above will then be repeated weekly after birth where possible to define the duration of excretion.*

- All blood samples will be taken at the time of routine blood samples, wherever possible. Venepuncture will be performed for the mother and the baby by an experienced member of staff and 10-20 mls and 2-5 mls will be obtained, respectively.
- At a minimum, for immunological assays, blood will be obtained at recruitment, a month later (if still pregnant), at delivery and at 6 weeks postnatally (range 3 to 6 weeks) in the mother, as well as from cord blood and at 6 weeks (range 3-6 weeks) in the infant.
- All samples will be labelled with the participant's unique identification number, which will provide information about the participating site and visit number, and the date of sample
- The samples will be appropriately packed and posted to SGUL, where they will be processed and stored until testing
- The results of the samples will not be available in real time and, therefore, will have no impact on the clinical management of individual patients or infection control
- We will inform all participants of their and their baby's results when they become available



### **5.4.3. Laboratory analysis**

All samples will be stored at -70C until analysis.

#### **5.4.3.1. Swab, breastmilk, urine faeces testing**

Briefly, RNA will be extracted using commercial kits and run in the rTPCR published in February 2020 by the CDC “*CDC 2019-Novel Coronavirus (2019-nCoV) Real-Time RT-PCR Diagnostic Panel*”.

#### **5.4.3.2. Serum testing**

Serum samples will be tested in a commercial ELISA (EDI™) that uses an immunocomplex of the novel CoVID19 recombinant antigen-human anti-CoVID19 IgG/IgM HRP-labelled anti-human IgG/IgM tracer antibody, already in use at PHE Porton.

### **5.4.4 Subsequent visits**

Weekly samples will be taken with the help of the obstetric and neonatal teams whilst the mother and the baby are in the hospital. If they are discharged from hospital, we will post the sampling kits to their residence with clear instructions on how to take the different samples (except blood) themselves. We will work with the obstetric and neonatal teams on collecting the blood sample from the mother and baby at 6 weeks, either at their residence or at the hospital. The blood sample will be taken by an experienced member of staff

### **5.4.5 Data entry, analysis and presentation**

Data collection will be co-ordinated between PHE Colindale and SGUL, where all the data will be held and all data analysis performed. A secure electronic database will be developed for this purpose and sites will be asked to complete questionnaires directly online.

We will perform interim analysis after the results of the first 100 participants become available. We will produce an interim report for the PHE COVID response team

The final results will be reported to relevant authorities. A paper containing the overall results may be submitted for publication in a peer-reviewed journal.

### **5.4.6 Withdrawal of Participants**

Participants will be able to withdraw consent for participation at any time without prejudice. The Investigator can withdraw a subject if, in his or her clinical judgment, it is in the best interest of the subject or if the subject cannot comply with the protocol. If the participant decides to withdraw, explanation is not mandatory, but would be appreciated and if provided this will be recorded in detail. If a subject chooses to withdraw and does not want any data or samples collected used in the service evaluation they will inform the investigators in writing of this decision. We will also stop follow-up of the women and their babies if we become aware that the woman and/or baby has died during the surveillance period.

### **5.4.7 Expenses and Payments**

It is not expected that the participants will incur any costs. If they do occur, however, then any costs incurred by the participants for attending the appointments will be reimbursed upon request.

## **6.0 NUMBER OF SUBJECTS AND DURATION**

We will aim to recruit as many pregnant women in England over 12 months as possible.

## **7.0 COMPLIANCE WITH GUIDELINES**

All data will be collected and handled in accordance with PHE guidelines and policy:

- recommendations of the PHE Caldicott committee
- General Data Protection Act (GDPR)
- Human Rights Act
- Section 3 of the Health Service Regulations 2002

## **8.0 ETHICAL APPROVAL**

This surveillance will be carried out as part of the Public Health England's response to the national outbreak of coronavirus disease in England. The results will be used to provide the required evidence base to inform national guidance and public health policy for pregnant women, their infants and the healthcare professionals looking after them during their period of highest risk.

As this is surveillance, it falls outside of the Health Research Authority remit for ethical review. This is in accordance with the revised guidance in the Governance Arrangements for Research Ethics Committees (GAfREC) that was released in September 2011.

This surveillance has been subject to an internal ethical review by the PHE Research Ethics and Governance Group, to ensure that it is fully compliant with all regulatory requirements.

For completeness, and as part of our duty of care, we are providing all participants a voluntary option to participate, a detailed information leaflet so that they are fully aware of what they are signing up for and a signed consent form to ensure that they have all the information they need to participate

PHE has legal permission, provided by Regulation 3 of The Health Service (Control of Patient Information) Regulations 2002 to collect confidential patient information (<http://www.legislation.gov.uk/ukxi/2002/1438/regulation/3/made>) under Sections 3(i) (a) to (c), 3(i)(d) (i) and (ii) and 3(3) as part of its outbreak response activities

## 8.1 Participant Confidentiality

Personal data collected for the purposes of this surveillance may include name, date of birth, address as well as the test results and any relevant medical information required to assess the surveillance objectives. This data will be held in accordance with the GDPR and the only people with access to this information will be members of our team, or regulatory authorities. Every effort will be made to protect the participants' identity. Samples will only be identified only by a unique identification number. Data will only be used for the purposes of this surveillance, stored in secure facilities with restricted access and destroyed three years after the end of the project.

## 9.0 TARGET DATES

- **Recruitment to commence:** 01 April 2020
- **Completion of recruitment:** 31 March 2021
- **Completion of surveillance:** 31 March 2024

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## APPENDIX 1

### INFORMATION LEAFLET FOR PARTICIPANTS

# Understanding COVID-19 infection in pregnant women and their babies

**Short Title:** COVID-19 infection in pregnancy and the newborn (code: **periCOVID**)

Public Health England (PHE) is working with St. George's University of London (SGUL) to understand the risk of infection in babies born to mothers who develop coronavirus infection in pregnancy. You can find out more about the coronavirus outbreak on this website:

<https://www.gov.uk/government/topical-events/coronavirus-covid-19-uk-government-response>.

We would like to invite you to take part because you are pregnant and have recently been diagnosed with coronavirus infection. Before you decide to take part, we would like you to understand why we are doing this, and what it would involve for you. Please ask us if there is anything that is not clear.

#### **Why are we following-up pregnant women with coronavirus infection?**

The novel coronavirus outbreak is spreading rapidly and we know very little about the risk of infection in pregnant women and if or how the infection might be transmitted to babies or how it may affect them. We would like to take regular samples from pregnant women and their babies to test for the novel coronavirus and immunity against the novel coronavirus. The donated samples will be treated as a gift to PHE meaning that we will not be able to return them to the participants.

#### **Do I have to take part?**

It is up to you to decide whether or not to take part and you should not be placed under any pressure to do so. If you do decide to take part you will be given this information sheet to keep and asked to sign a consent form. If you decide to take part you are still free to withdraw at any time and without giving a reason.

#### **What do you want me to do?**

If you decide to take part, you will be asked to sign a consent form. If you are unable to sign then we will ask your next of kin to sign on your behalf. The doctor or nurse looking after you will complete an online questionnaire about your health and, after your baby is born, the

health of your baby. This questionnaire will have an identification number and will not have your name or any other personal information about you.

### **What samples will you take?**

We will arrange all the tests for you with the doctors and nurses who are looking after you. If you decide to take part, your doctor or nurse will collect the following samples from you: *blood, throat swab, urine and stool sample.*

We plan to take the same samples again a month later if you haven't delivered and again when you go to hospital to deliver your baby.

### **What samples will you take at delivery?**

When your baby is born, the following samples will be collected from you: *vaginal swab, amniotic fluid swab, placental swab, cord blood, and breast milk if possible*

We also plan to collect the following samples from your baby after birth: *blood, mouth/throat swab, urine and stool*

### **What samples will you take after delivery?**

After your baby is born, we would like to collect a *throat swab, urine and stool* sample from you and your baby around the same day every week for 6 weeks. The doctor or nurse looking after you will help collect these samples while you and your baby are in hospital. When you are discharged home, we will post a kit to you and you will be able to take the samples yourself and post them back to us.

We would also like to collect one blood sample from you and your baby at around 6 weeks after delivery. Your local doctor or nurse will arrange this with you at a time and place that is convenient to you and your baby.

### **What will happen to our samples?**

Your samples will be coded with an identification number that is unique to you and your baby and stored with all the other samples until they are tested. Your samples will be tested for the novel coronavirus and to see how your body fights against the coronavirus, including antibodies against coronavirus. Any remaining blood sample after testing will be anonymised and incorporated into the PHE Seroepidemiology Unit collection, unless you ask us to destroy your sample as soon as it has been tested. If you do not want us to transfer your blood sample to the PHE Seroepidemiology Unit collection, this will not prevent your taking part. Your personal data will be stored in accordance with the General Data Protection Regulations (GDPR) and the Data Protection Act 2018.

**What are the benefits to me?**

We will tell you your and your baby's results when all the testing is complete, which will likely be towards the end of the surveillance. Taking part will also help provide important information to protect pregnant women, their babies and healthcare staff looking after them. We will also produce a report of the overall results for the pregnant women in the surveillance for Public Health England and publish them in a medical journal

**What are the disadvantages?**

For some, blood sampling may cause momentary discomfort at the site of the blood draw, possible bruising, redness, and swelling around the site, bleeding at the site, feeling of light-headedness when the blood is drawn, and rarely, an infection at the site of the blood draw. Whenever possible, we will aim to take some extra blood when you and your baby have your routine blood tests. We do not anticipate any other disadvantages from taking part.

**What if I change my mind?**

If you no longer want to be involved, you can withdraw from the surveillance at any time by contacting us ([contact details here](#)). The samples you have already provided will continue to be processed but you and your baby will not be asked to provide any more samples

**What should I do now?**

If you would like to volunteer, all you have to do is to complete and sign the consent form. If you have any questions concerning the taking of blood, or the collection of the other samples, please do not hesitate to ask the team. If you have any further questions regarding this surveillance, please feel free to contact me ([contact details here](#))

**Who has reviewed the protocol for this surveillance?**

This research has been reviewed by PHE Research and Development team and the PHE Research Ethics and Governance Group (PHE REGG NR0188-PeriCOVID).

**What should I do if I have any concerns?**

If you have any concerns, please talk to us. If you are still unhappy, you can contact the Complaints Manager, Strategy Directorate, Wellington House, 133-155 Waterloo Road, London, SE1 8UG or email: [complaints@phe.gov.uk](mailto:complaints@phe.gov.uk)

**Funding**

Public Health England

**Thank you**

## APPENDIX 2

### CONSENT FORM FOR PARTICIPANTS

#### Understanding COVID-19 infection in pregnant women and their babies

**Short Title:** COVID-19 infection in pregnancy and the newborn (code: **periCOVID**)

		Initial
1	I have read the Information Leaflet for Participants on the “ <b><i>Understanding COVID-19 transmission in pregnant women and their babies</i></b> ” (Version 1.2, Dated 31 March 2020)	<input style="width: 100%; height: 40px;" type="text"/>
2	I have been given sufficient time to consider making this decision and have had all my questions answered satisfactorily	<input style="width: 100%; height: 40px;" type="text"/>
3	I agree to donate my and my baby’s samples to Public Health England and St. George’s, University of London	<input style="width: 100%; height: 40px;" type="text"/>
4	I understand that the information I provide, and our samples, will only be labelled with a unique reference number and will not have our name or any personal details recorded	<input style="width: 100%; height: 40px;" type="text"/>
5	I understand that my personal data will be stored in accordance with the Data Protection Act 2018 and the GDPR	<input style="width: 100%; height: 40px;" type="text"/>
6	I understand that our samples will be tested for coronavirus and our immunity against coronavirus, including antibodies against coronavirus	<input style="width: 100%; height: 40px;" type="text"/>
7	I have been informed that I can withdraw at any time without giving a reason.	<input style="width: 100%; height: 40px;" type="text"/>

The following is optional. If you choose to withhold consent, you can still take part in the surveillance.

8 I am happy for PHE to transfer my anonymised blood sample to the PHE Seroepidemiology Unit collection after all the tests are performed.	<input style="width: 100%; height: 30px;" type="text"/>
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Participant name: \_\_\_\_\_ Signature: \_\_\_\_\_

Name of next of kin (if applicable): \_\_\_\_\_ Signature: \_\_\_\_\_

Relationship to participant \_\_\_\_\_

Date: \_\_\_\_\_

Signature of Professional: \_\_\_\_\_

Date: \_\_\_\_\_

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## APPENDIX 3

### Questionnaire to be completed online by clinician

COVID-19 infection in pregnancy and the newborn (code: periCOVID)

**QUESTIONNAIRE** (version 1.2, 31 March 2020)

*(this will be adapted to an online questionnaire using the PHE SelectSurvey tool)*

### PREGNANT WOMAN : At recruitment

*(to be completed by clinician looking after the pregnant woman)*

Participant number:

Date of questionnaire: DD/MM/YYYY

Age (in years):

Self-reported ethnicity (list using national census category):

-

Is the patient currently in paid employment? Y/N

- If yes, occupation?

Mode of conception: spontaneous/assisted

How many weeks pregnant (free text – numbers) :

Expected delivery date:

Number of previous children (0 to10):

### COMORBIDITIES

**Before** pregnancy, did the patient have any of the following?

- Diabetes Y/N – if yes:
  - Type 1
  - Type 2
    - Diet controlled
    - Oral hypoglycaemics
    - Insulin dependent
- High blood pressure Y/N



- If yes, was she prescribed any medication by her doctor Y/N
- If yes, state which medication:
- Heart disease Y/N
  - If yes, please select from the list below
    - Valvular heart disease
    - Ischaemic heart disease
    - Heart failure
    - Pulmonary hypertension
- Any other significant medical condition Y/N
  - If yes, state:

**Since** becoming pregnant, does the patient have any of the following:

- Gestational diabetes Y/N
- Gestational hypertension Y/N
- Pre-eclampsia Y/N
- Obstetric cholestasis Y/N
- Foetal growth restriction Y/N

Has the patient experienced any other complications during current pregnancy? Y/N

- If yes, please detail (free text)

### **MEDICATIONS**

Is the patient on any medication regularly? Y/N

- If yes, please state:

### **SOCIAL HISTORY**

Does the patient drink alcohol? Y/N

- If yes, how many units per **week** (discrete categories): <2, 2-4, 11-15, 16-20, >20

Does the patient smoke? Y/N

- If yes, how many per day (discrete categories): 1-5/day, 6-10/day, 11-15/day, 16-20/day, >20/day

### **EXPOSURE TO SARS-CoV-2**

Has the patient been in contact with anyone with a confirmed diagnosis of COVID-19 in the last one month? Y/N/unsure

– if yes, date of last contact:

- if yes, how was the contact related to the patient? Partner/child/parent/work colleague / friend/ other \_\_\_\_\_

Has the patient been in contact with anyone with a respiratory illness (excluding the confirmed COVID-19 diagnosis above) in the last one month? Y/N/unsure

– if yes, date of last contact:

- if yes, how was the contact related to the patient? Partner/child/parent/work colleague / friend/ other \_\_\_\_\_

Has the patient travelled outside the UK in the last one month? Y/N/unsure  
-if yes, date of return:

Has the patient's partner or household contact travelled outside the UK in the last one month? Y/N/unsure  
-if yes, who travelled?  
- if yes, date of return  
-if yes, did they become unwell  
- if yes, date of becoming unwell

### **CLINICAL PRESENTATION**

Date of first symptoms ? DD/MM/YYYY

- What symptoms reported? (circle first symptom & then tick as many as apply):

Fever	Shortness of breath/breathless	Loss of appetite	Blurred vision	Rash
Dry cough	Sore throat	Nausea/vomiting	Headache	Lethargic
Productive cough	Runny nose	Diarrhoea	Muscle aches	Seizures
Sneezing		Change in sense of smell	Conjunctivitis	Coma
Runny nose		Change in sense of taste		Other .....

### **COVID-19 diagnosis:**

Date of COVID-19 diagnosis: \_\_\_\_/\_\_\_\_/\_\_\_\_

Source of sample1 (e.g. throat swab, blood, stool): \_\_\_\_\_

Source of sample2 (e.g. throat swab, blood, stool): \_\_\_\_\_

Source of sample3 (e.g. throat swab, blood, stool): \_\_\_\_\_

Any other positive microbiology result? Y/N

If Yes, state:

\_\_\_\_\_

### **RADIOLOGY:**

None / positive chest x-ray / positive CT / positive lung ultrasound

- if positive, give details of main findings: \_\_\_\_\_

**Admission to intensive care unit?** Y/N

- If yes, date of admission
- If yes, reason for admission:
- If yes, date of discharge

Respiratory Support?

- none / nasal cannula or face mask oxygen / non-invasive (e.g. CPAP) / intubation and mechanical ventilation / ECMO / other: \_\_\_\_\_

Treatment:

1. Antivirals? Y/N – if Y, state:

Foetal testing:

1. Amniocentesis ? Y/N – if Y, state results:
2. Cordocentesis? Y/N – if Y, state results:

**PREGNANT WOMAN : delivery details**

*(to be completed by clinician looking after the pregnant woman)*

Date of delivery :

Labour : spontaneous / induced

Mode of delivery : unassisted vaginal / operative vaginal (forceps / vacuum), Caesarian

Samples taken around time of delivery:

**Pregnancy outcome**

Livebirth / Stillbirth / Neonatal death / Miscarriage / Termination / Unknown

**Post partum**

Duration in hospital (days):

Complications post-partum: none / postpartum haemorrhage / DVT / PE / Sepsis / ICU admission / other \_\_\_\_\_

**Date of hospital discharge:**

Outcome at hospital discharge: alive / died

If died /date of death:

If died, / cause of death:

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**INFANT: At birth (to be completed by clinician)**

Date of questionnaire completion:

Date of birth of infant:

Gestation at birth (free text – numbers)

Sex – M/F

Number of infants (free text – numbers): singleton/twin/triplet

Birth weight (free text – numbers)

Apgar score at 1 min

Apgar score at 5 mins

Apgar score at 10 mins

Is the infant being breastfed (Yes/No)

Was the infant admitted to NICU after birth (Y/N)

- If yes, date of admission

- If yes, date of discharge

- If yes, reason for admission:

Respiratory problems? Y/N

If Y, respiratory distress syndrome / transient tachypnoea of the newborn / oxygen support only / CPAP for >24 hours / intubation and mechanical ventilation / pulmonary hypertension

- if Y, Duration of supplemental oxygen (days)

- if Y, Duration of CPAP (days)

- if Y, Duration of mechanical ventilation (days)

Infectious morbidity:

None / culture negative sepsis / culture proven sepsis / pneumonia / meningitis / other:

\_\_\_\_\_

Neurological morbidity:

None / Intraventricular haemorrhage / seizures / other: \_\_\_\_\_

Outcome:

Date of hospital discharge:

Outcome at hospital discharge: alive / died

If died /date of death:

If died / cause of death: