NPEU

UKOSS
UK Obstetric Surveillance System

Nuffield Department of
POPULATION HEALTH
Medical Sciences Division
UNIVERSITY OF OXFORD

Outcomes of pregnant women hospitalised with confirmed SARS-CoV-2 - data from the UK national cohort study

Professor Marian Knight, University of Oxford, UK

SARS-CoV-2 and pregnancy evidence

12/19

- Emerging information
- No data on pregnancy

03/20

- First case series published from Wuhan, n=9, in The Lancet
- None severely ill, all had caesarean births, babies all well, no virus detected in amniotic fluid/cord blood/breast milk samples (n=6)

05/20

- 262 publications (Pubmed 29/05/2020), many additional pre-prints
- Many overlapping series, total approx 380 pregnant women reported up to May 12 2020
- All case series, hospital series (or groups of hospitals). One national series (n=13) of pregnant/postpartum women admitted to ICU in Sweden

https://ripe-tomato.org/2020/04/21/covid-19-pregnancy-navigation-page/

UK Obstetric Surveillance System

- Established in all obstetric units in the UK since 2005 (n=194 hospitals)
- Effectively covers the whole birth population of the UK
- Monthly case reporting, including negative case reports
- Rapid responsive studies conducted with other emerging infections (Influenza A/H1N1, Zika virus)
- ‘Pandemic portfolio’ study funded and hibernated in 2012

Knight M, Brocklehurst P, O’Brien P, Quigley MA, Kurinczuk JJ. Planning for a cohort study to investigate the impact and management of influenza in pregnancy in a future pandemic. Southampton (UK): NIHR Journals Library; 2015.
Simpson CR, Beever D, Challen K, et al. The UK's pandemic influenza research portfolio: a model for future research on emerging infections. Lancet Infect Dis. 2019;19(8):e295-e300. doi:10.1016/S1473-3099(18)30786-2

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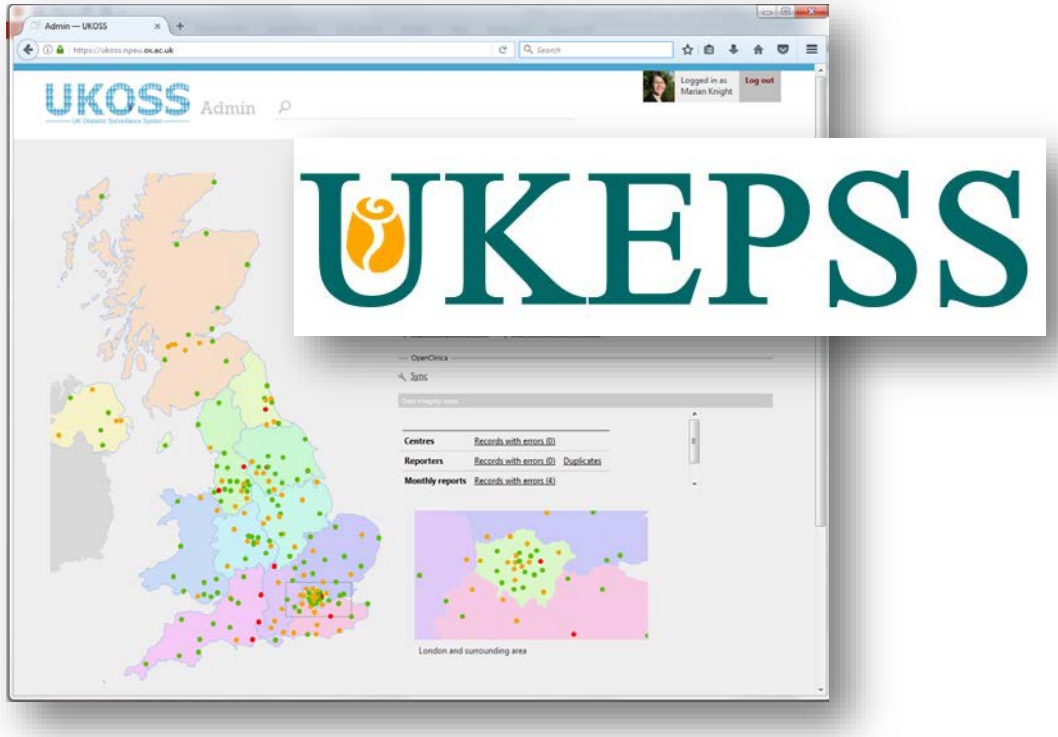
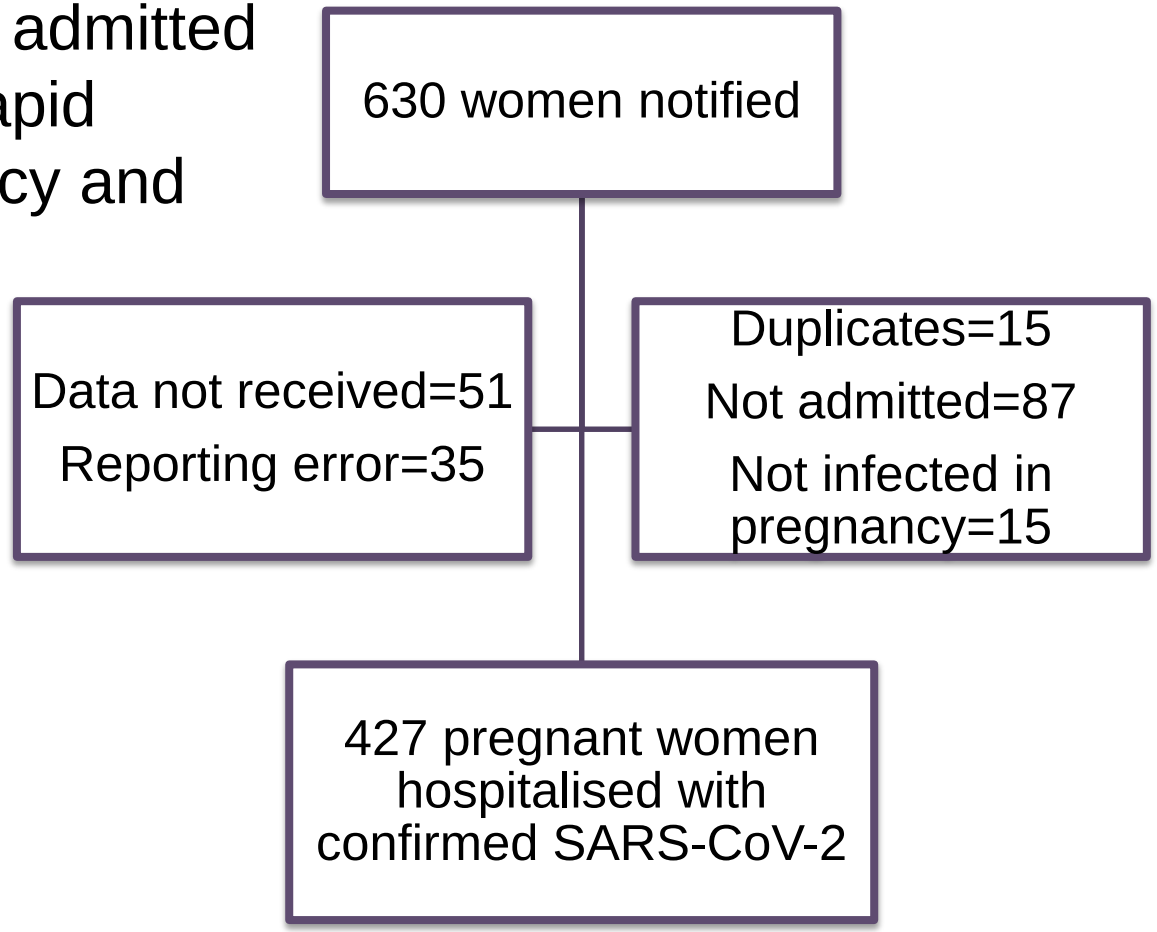
UKOSS SARS-CoV-2 in pregnancy study



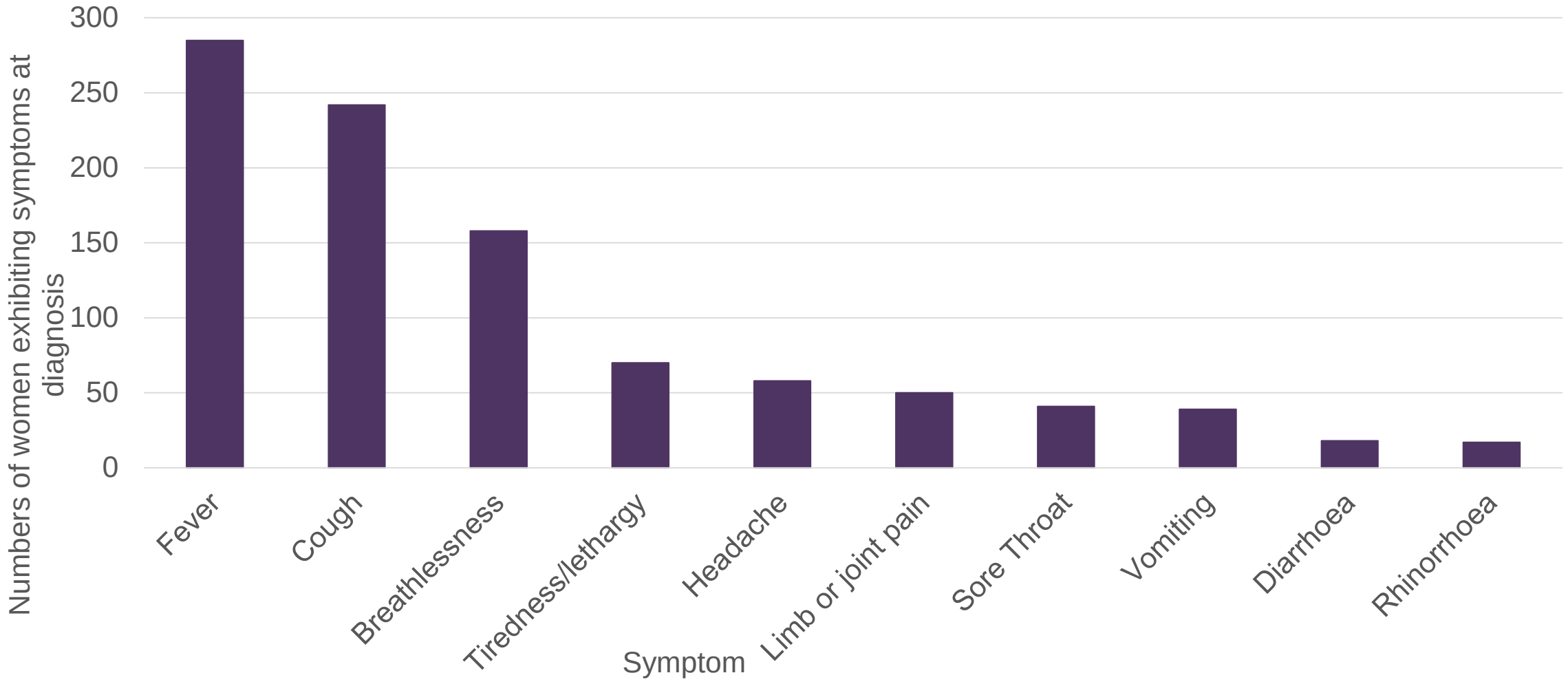
- Activated as an “urgent public health” study 20th March 2020
- Women hospitalised with SARS-CoV-2 infection in pregnancy identified from 01/03/2020
- Live report plus monthly prospective case collection to check case ascertainment
- Information collected on women’s characteristics, treatment and outcomes
- Compared to women giving birth 2017-18

Results

- Detailed analysis completed for women admitted 01/03/2020 to 14/04/2020 to allow for rapid release to inform women and guide policy and practice
- n=427 women
  - 4.9/1000 giving birth (95%CI 4.5-5.4)
- Paper now in press (BMJ)

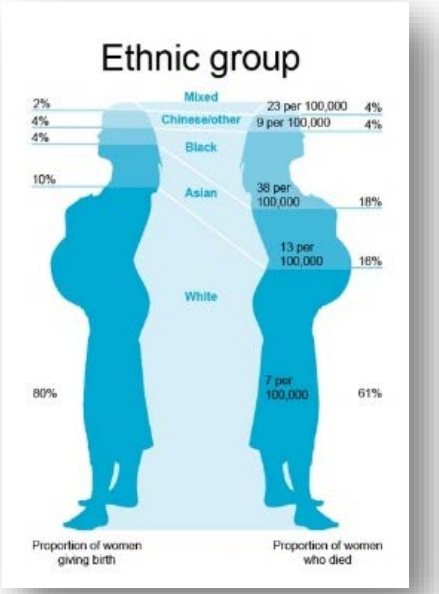


Symptoms


Numbers of women exhibiting symptoms at diagnosis
300
250
200
150
100
50
0
Fever
Cough
Breathlessness
Tiredness/lethargy
Headache
Limb or joint pain
Sore Throat
Vomiting
Diarrhoea
Rhinorrhoea
Symptom

Characteristics of women

	Number of women (%)
Age (years): <20	4 (1)
20-34	248 (58)
≥35	175 (41)
Body Mass index (BMI) kg/m^2: Normal	126 (31)
Overweight	141 (35)
Obese	140 (34)
Missing	20
Either woman or partner in paid work	343 (80)
Black or other minority ethnic group	233 (56)
Current smoking	20 (5)
Pre-existing medical problems	145 (34)
Multiparous	263 (62)
Multiple pregnancy	8 (2)
Gestational diabetes	50 (12)



Cohort comparison

	Women with SARS-CoV-2 (N=427)	Comparison women (N=694)	Adjusted Odds Ratio (95% CI)**
	Number (%)*	Number (%)*	
Age (years): <20	4 (1)	18 (3)	**0.66 (0.14-3.09)**
20-34	248 (58)	477 (69)	**1**
≥35	175 (41)	199 (29)	**1.35 (1.01-1.81)**
Body Mass index (BMI): Normal	126 (31)	337 (50)	**1**
Overweight	141 (35)	181 (27)	**1.91 (1.37-2.68)**
Obese	140 (34)	155 (23)	**2.20 (1.56-3.10)**
Missing	20	21	
Black or other minority ethnic group	233 (56)	131 (19)	**4.49 (3.37-6.00)**
Current smoking	20 (5)	135 (20)	**0.30 (0.17-0.51)**
Missing	8	10	
Pre-existing medical problems	145 (34)	166 (24)	**1.52 (1.12-2.06)**

**Adjusted for all other factors in the table

Gestation at symptom onset

	Number of women (%)
<22 weeks	22 (5)
22-27 weeks	60 (14)
28-36 weeks	170 (40)
37 or more weeks	172 (40)
Missing	3

Management

- Nine women (2%) were treated with an antiviral
  - 8 of whom were given oseltamivir, one of whom also received lopinavir/ritonavir
  - 1 woman was given remdesivir
- Sixty-one women (14%) were given corticosteroids for fetal lung maturation
  - 40 (66%) went on to give birth

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RECOVERY
Randomised Evaluation of COVID-19 Therapy

Outcomes for women

	Number of women (%) (N=427)
Required critical care	40 (9)
Required ECMO	4 (1)
SARS-CoV-2 pneumonia on imaging	101 (24)
Final outcome	
Died	5 (1)
Discharged well	392 (92)
Still admitted	30 (7)

Maternal mortality rate 5.8 (95% CI 1.9 to 13.5) per 100,000 maternities

RESEARCH

OPEN ACCESS

Check for updates

Features of 20 133 UK patients in hospital with covid-19 using the ISARIC WHO Clinical Characterisation Protocol: prospective observational cohort study

Annemarie B Docherty,[1,2] Ewen M Harrison,[1] Christopher A
Riinu Pius,[1] Lisa Norman,[1] Karl A Holden,[6] Jonathan M Rea
Laura Merson,[8,9] James Lee,[8] Daniel Plotkin,[8] Louise Sigfrid
Carrol Gamble,[10] Peter W Horby,[11] Jonathan S Nguyen-Van-
Clark D Russell,[14] Jake Dunning,[15,16] Peter JM Openshaw,[17]
Malcolm G Semple,[19,20] on behalf of the ISARIC4C investiga

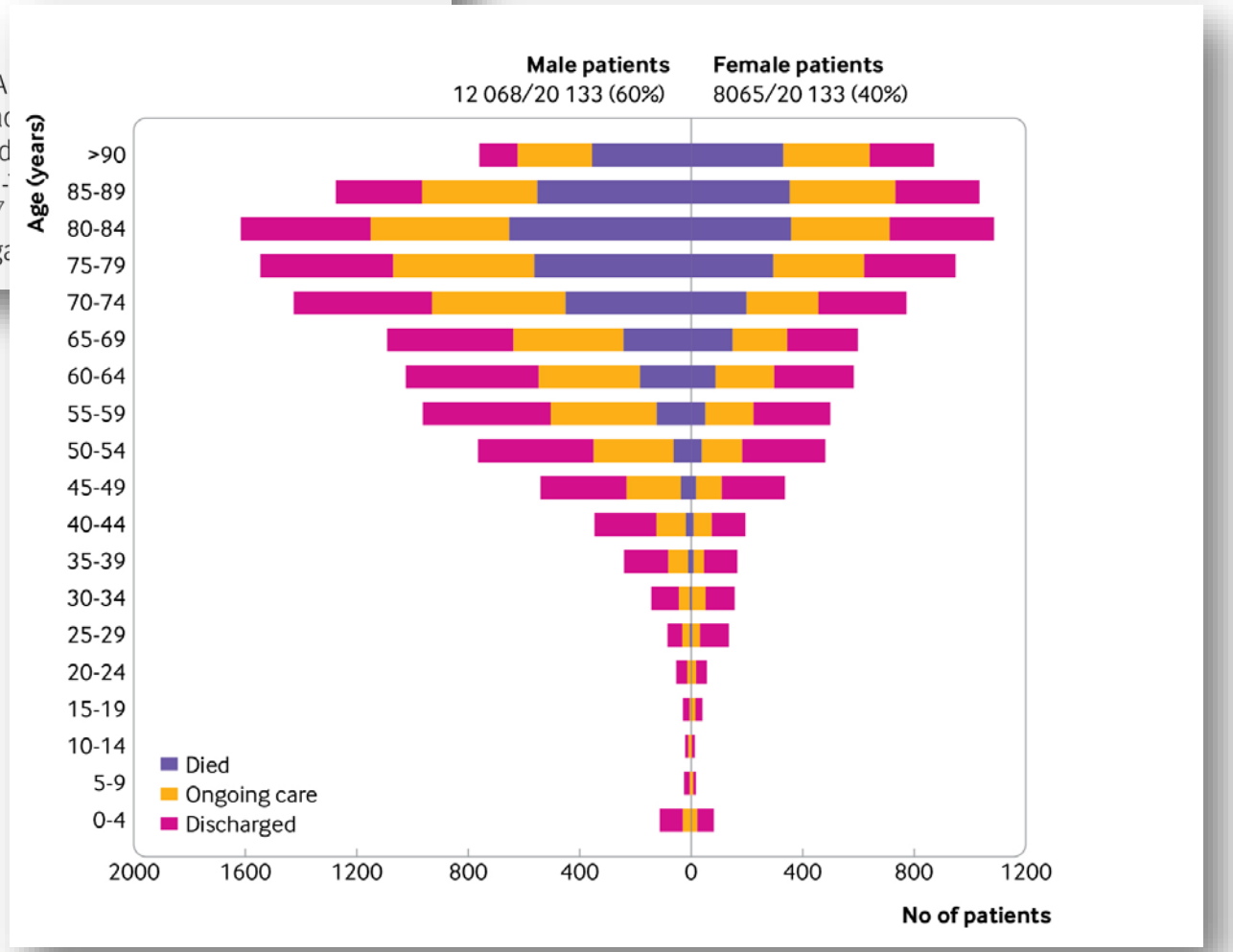


Figure 1: Patients with coronavirus disease 2019 (covid-19) stratified by age and sex

Docherty Annemarie B, Harrison Ewen M, Green Christopher A, Hardwick Hayley E, Pius Riinu, Norman Lisa et al. Features of 20 133 UK patients in hospital with covid-19 using the ISARIC WHO Clinical Characterisation Protocol: prospective observational cohort study *BMJ* 2020; 369:m1985

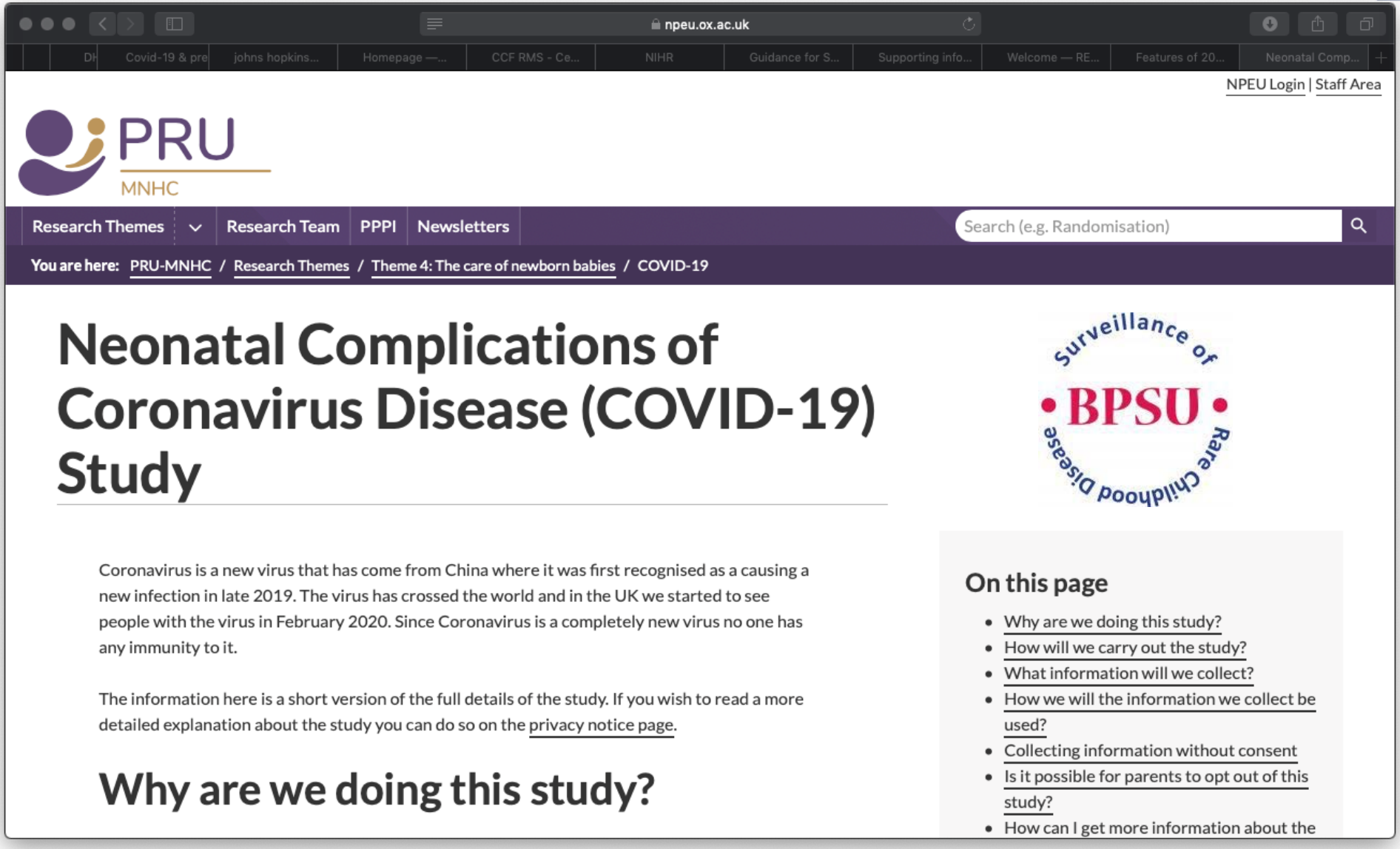
Pregnancy and infant outcomes

	Number of women (%) (N=427)
Ongoing pregnancy	180 (42)
Pregnancy completed	247 (58)
Pregnancy loss	4 (1)
Stillbirth	3 (1)
Live birth	240 (97)
Neonatal death	2 (1)
Gestation at end of pregnancy (weeks)	
<22	4 (2)
22-27	5 (2)
28-31	17 (7)
32-36	41 (17)
37 or more	180 (73)
Mode of birth	
Caesarean – maternal indication due to SARS-CoV-2	39 (16)
Caesarean – other indication	105 (43)
Operative vaginal	25 (10)
Unassisted vaginal	76 (31)

Infant outcomes (live born infants only)

	Live born infants of women with Sars-CoV-2 (N=244)
	Number (%)
NICU Admission	64 (26)
Positive SARS-CoV-2 test	
No	232 (95)
Positive test <12 hrs of age	6 (2)
Positive test ≥12 hrs of age	6 (2)

Using the Shah et al. classification system these should be classified as *possible* neonatally-acquired infections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Neonatal Complications of Coronavirus Disease (COVID-19) Study
Surveillance of
BPSU
Rare Childhood Disease
Coronavirus is a new virus that has come from China where it was first recognised as a causing a new infection in late 2019. The virus has crossed the world and in the UK we started to see people with the virus in February 2020. Since Coronavirus is a completely new virus no one has any immunity to it.
The information here is a short version of the full details of the study. If you wish to read a more detailed explanation about the study you can do so on the privacy notice page.
Why are we doing this study?
On this page
Why are we doing this study?
How will we carry out the study?
What information will we collect?
How we will the information we collect be used?
Collecting information without consent
Is it possible for parents to opt out of this study?
How can I get more information about the

Summary – what does the UK study show?

- These national population-based data mean that we can be confident about our estimates of the frequency of severe outcomes of SARS-CoV-2 in pregnancy
- Pregnant women do not appear more severely affected than non-pregnant
- Hospitalised women are mostly in the late second and third trimester
- Transmission of virus at or around birth occurs but further work is needed to establish mechanisms and impacts of viral transmission to the infant
- This study only collected information on women hospitalised with infection, and does not therefore give:
  - Estimates of infection rates in pregnancy
  - Estimates of rates of asymptomatic infection
  - Information on ‘silent’ effects of asymptomatic infection

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- UKOSS Steering Committee
- UKEPSS leads at the University of Birmingham

Virus images from the CDC Public Health Image Library

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