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Referral pathways into the AMU Virtual Ward for obstetric patients with confirmed or suspected COVID-19, and management of these patients

Background to TICC-19 and the AMU Virtual Ward

During the first peak of the pandemic caused by SARS-CoV-2, the acute medicine and emergency medicine departments developed a triage pathway for patients with COVID, whereby some patients with COVID could be sent home and remotely monitored (figure 3). This COVID triage pathway is called TICC-19 and proved hugely successful to patients, staff and the hospital.

Three main advantages exist to the TICC-19 pathway:

1) Allowing for lung ultrasound instead of chest x ray by clinicians competent in this skill;
2) Standardising the 'stress test' to a 30 metre walk test;
3) Sending patients home with a sats probe and monitoring them remotely.

Many hospital admissions were avoided, and patients were sent home from wards sooner.

In response to the second wave of the pandemic, the Acute Medical Unit has responded by rolling out the TICC-19 project again in collaboration with their ED, GP Hot Hub and acute ward colleagues. A number of iterations occurred during the last peak, and have been put in to place in the interim period.

A key difference is the renaming of the COVID ambulatory clinic to the 'AMU virtual ward' to avoid confusion with the Ambulatory Emergency Care Unit.

The aim of this project is to reduce pressure on the system by distinguishing between patients suspected/positive for COVID who need to remain in hospital and those who can be reviewed safely at home. For those presenting to the emergency department or hot hub it will be necessary to triage patients effectively and in view of the delayed onset of hypoxia in some patients, to have a robust way of identifying those patients who are safe to go home, those who need to come in for a period of observation and those who may be able to be reviewed in an ambulatory setting.

The AMU virtual ward aims to offer patients the safety of the hospital in the comfort of their own homes.

It is important to realise that this pathway is a guideline only. We have not used the NEWS or MOEWs score within this algorithm as the predominant organ failure with COVID-19 is respiratory and hypoxic in nature so clinicians using these tools will need to take into consideration the overall condition of the patient and use their clinical judgement as to who and who should not be discharged to an ambulatory pathway.

Introduction to this document

During the first peak of COVID-19 it became apparent that some pregnant women were reluctant to come to hospital. Also pregnant women are at moderate risk of suffering from severe symptoms, this risk is further increased for pregnant women with co-morbidities such as hypertension, diabetes or raised BMI and/or from a BAME background (RCOG, 2020). There was also an increase in maternal deaths during the first wave of the pandemic (MBRRACE-UK, 2020). Thus there is a clear need to monitor obstetric patients with symptomatic COVID-19 in the acute phase of the disease and this is now considered to be good practice by NHS England (2020).

The RBFT was one of the first hospitals in the country to manage a select cohort of patients with COVID-19 in a 'Virtual Ward' (Thornton, 2020). This was very successful (Nunan et al, 2020): over 800 patients with suspected or confirmed COVID-19 have been safely managed in the comfort of their own home with the safety of the hospital.

The aim of this document is to outline a shared collaborative approach to the safe management of these patients in the community, by extending the AMU Virtual Ward to help care for the respiratory side of COVID-19 for obstetric patients, with expert support from the Obstetric multi-disciplinary team.

Patient care pathway

The same Triage Flowchart used for adults presenting to the emergency department and GP hot hub during the first wave of the SARS-CoV-2 pandemic will be used to triage pregnant and early postpartum women suspected/positive for COVID-19 onto the AMU Virtual Ward (Figure 3).

The TICC-19 pathway has been modified to clearly show the routes that pregnant and postpartum women can be referred onto the AMU Virtual Ward and the necessary assessments required for each of the following referral routes (Figure 1 & 2):

1) In-hospital maternity team (See Figure 2)

2) Emergency department (See Figure 2)

3) GP Hot Hub (see figure 2)

4) Community Midwife (see figure 1)

5) Maternity Triage (see figure 1)

- All pregnant or newly postnatal women must be assessed by a Doctor before referral to the TICC-19 pathway to ensure the most likely diagnosis for the presenting symptoms is COVID-19.

- Suitability for referral to the AMU Virtual Ward will be assessed clinically using resting SpO2 and SpO2 following a standardised rapid walking test of 30 metres, and where available, lung imaging as outlined in Figure 3.

Once referred onto the AMU Virtual Ward, daily phone calls will be made to check COVID symptoms, resting SpO2 and SpO2 following the rapid walking test, the results of which will then be used to decide whether (see Figure 4):

1) The patient is safe to stay at home and continue to be called daily, or is ready to be discharged from the AMU Virtual Ward

2) The patient requires medical assessment and should attend the Emergency Department/ Hot Hub

3) Call 999 as the patient requires urgent medical assessment in the Emergency Department

Patients on the AMU Virtual Ward and staff in the AMU Virtual Ward will also be able to contact the Maternity Triage team with any Obstetric queries (Box C).

Figure 1: COMMUNITY setting Referral routes and assessment of pregnant and postpartum women for admission onto the AMU Virtual Ward in the absence of pregnancy related concerns

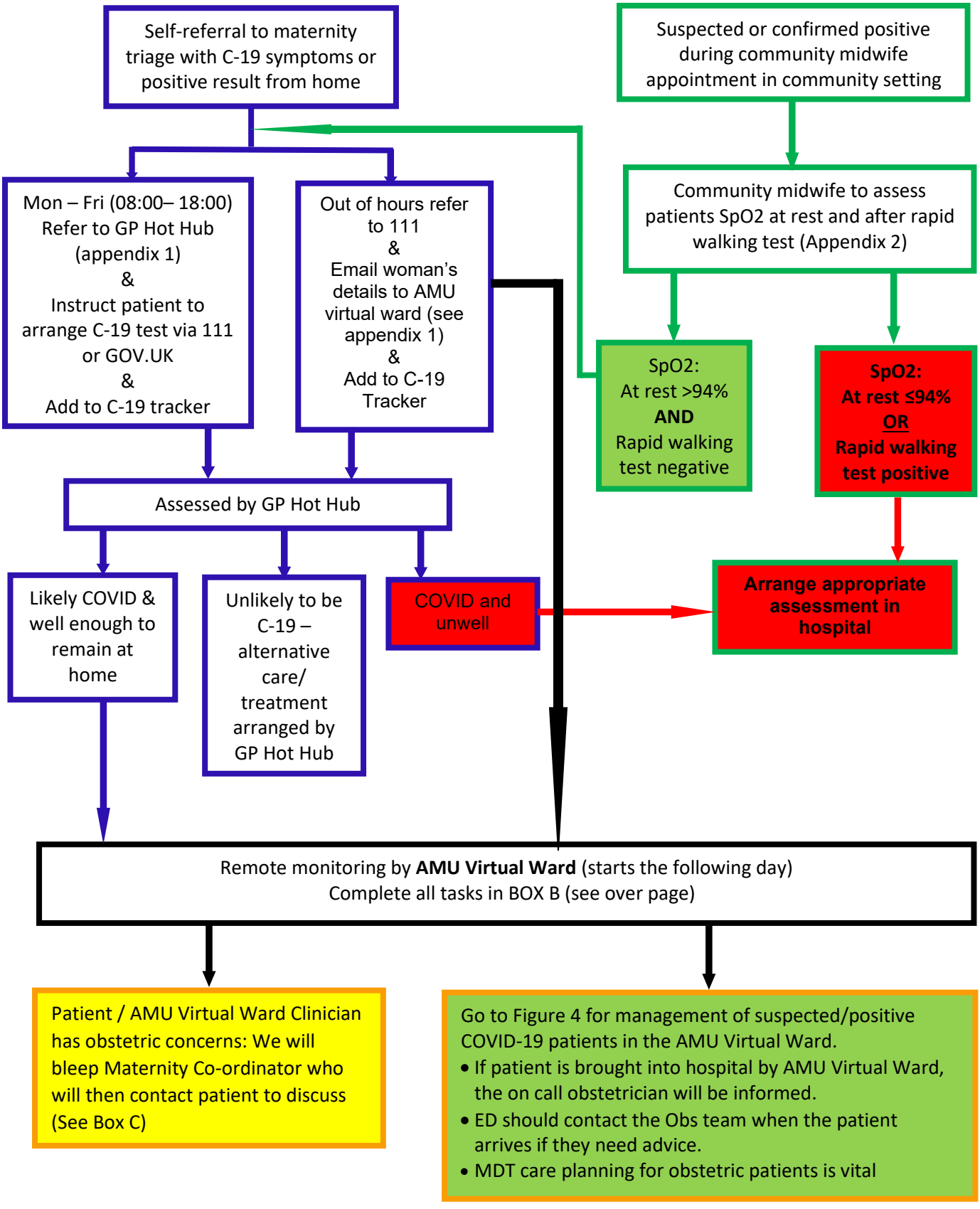
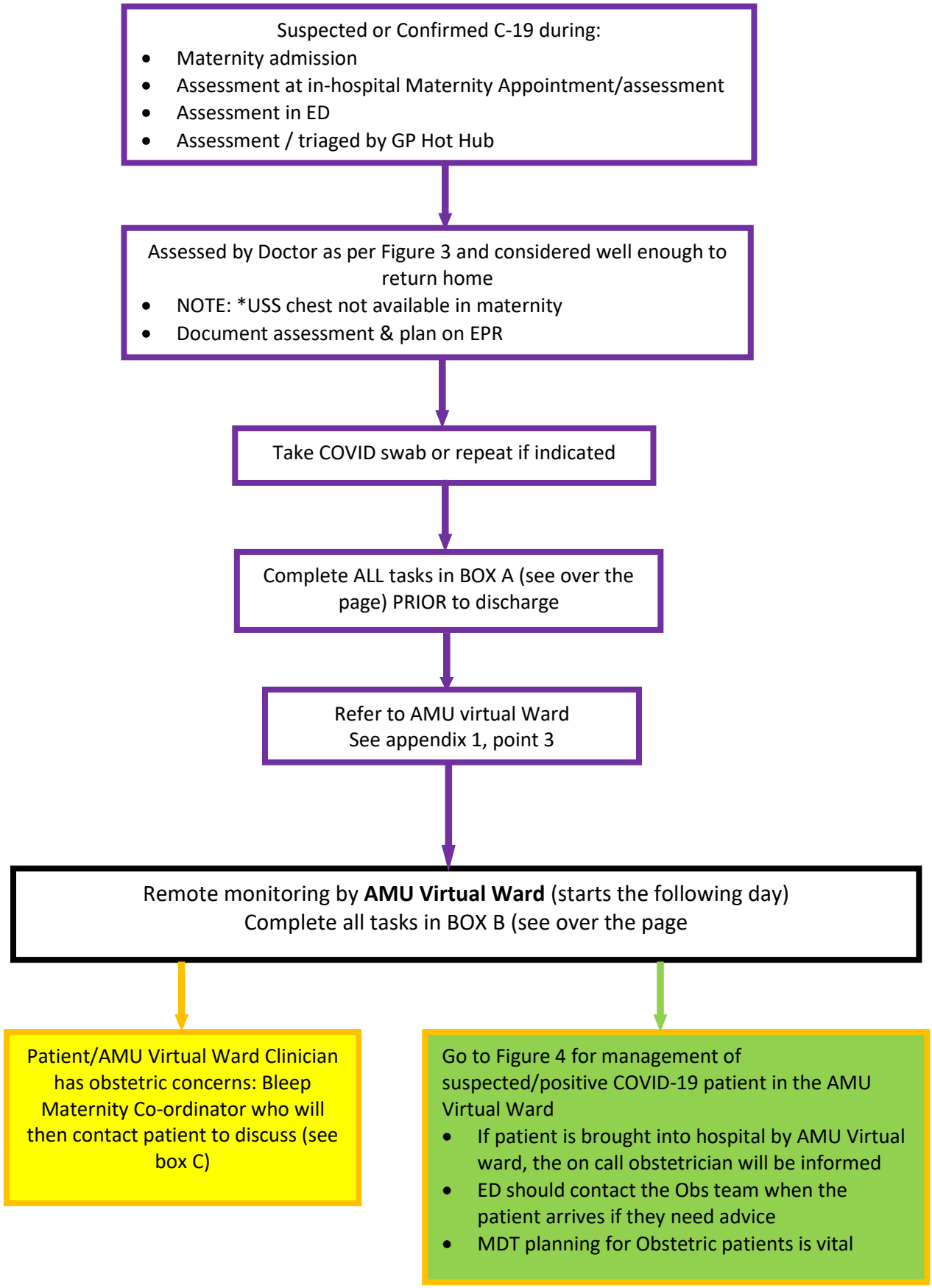


Figure 2: In HOSPITAL Referral route and assessment of pregnant and postpartum women for admission onto the AMU Virtual Ward in the absence of pregnancy related concerns



BOX A – Discharge to home, tasks to complete:

- Re-arrange upcoming appointments in consultation with appropriate clinician
- Ensure patient understands the need for self-isolation for self and other household members
- Confirm contact details on EPR are correct (Virtual ward need mobile and land line if available)
- Make referral to AMU virtual ward for remote monitoring of symptoms (see Appendix 1, point 3)
- Discuss COVID-19 remote monitoring calls that will commence the following day
- Provide and discuss oxygen saturation probe and information leaflet (see appendix 1, point 4)
- Risk assess for LMWH - provide medication, sharps box & education if required. Advise all women to hydrate and remain mobile (See Appendix 1, point 2)
- Inform patient they can call AMU Virtual ward patient line, 111 or 999 if concerned re worsening C-19 symptoms - **If from BAME background discuss the need to ask for help early if symptoms are worsening**
- Encourage individual to call Maternity Triage if concerned about their unborn baby or has a pregnancy related concern.
- Document conversation on EPR
- Inform maternity triage of patient (Maternity triage will add patient details to remote monitoring tracker)

BOX B – AMU Virtual Ward

- If referred from source outside of maternity – AMU Virtual Ward to inform Maternity Triage of patient
- If needed provide/arrange delivery of oxygen saturation monitor & information leaflet
- Appropriate clinician to fill out blue card prescription for LMWH and PA will take this to outpatient's pharmacy for processing and arrange medical move to deliver tinzaparin and sharps container to the patient
- Patient can call AMU Virtual Ward patient line, 111 or 999 if concerned re worsening C-19 symptoms - **If from BAME background discuss the need to ask for help early if symptoms are worsening**
- Encourage individual to call Maternity Triage if concerned about their unborn baby or has a pregnancy related concern.
- Document conversation on EPR

BOX C – Pregnancy concerns to refer to Maternity Triage

- Patient is concerned about fetal movements
- Vaginal bleeding
- Concerned that may be leaking fluid from vagina
- Abdominal pain
- Contractions
- Symptoms of pre-eclampsia: severe headache, epigastric pain, visual disturbances e.g. flashing lights, nausea/vomiting, severe swelling of face, hands or feet
- Generalised itching (not accompanied by a rash)

If the patient has pregnancy related concern not listed above, please contact triage for advice/referral

Figure 3: Triage Flowchart for Covid-19 Positives/Suspected Patients

New, continuous cough?
Shortness of breath?
Fever >37.9C?
Loss or change of smell/taste?
Pneumonia suspected or already diagnosed (imaging positive)?
or other clinical suspicion of Covid-19

* FLOW CHART IS A GUIDELINE ONLY *

Aims:

1. Identify suspected Covid-19 patients who do not require hospital admission.

2. Start intensive therapy pathways for those with respiratory insufficiency.

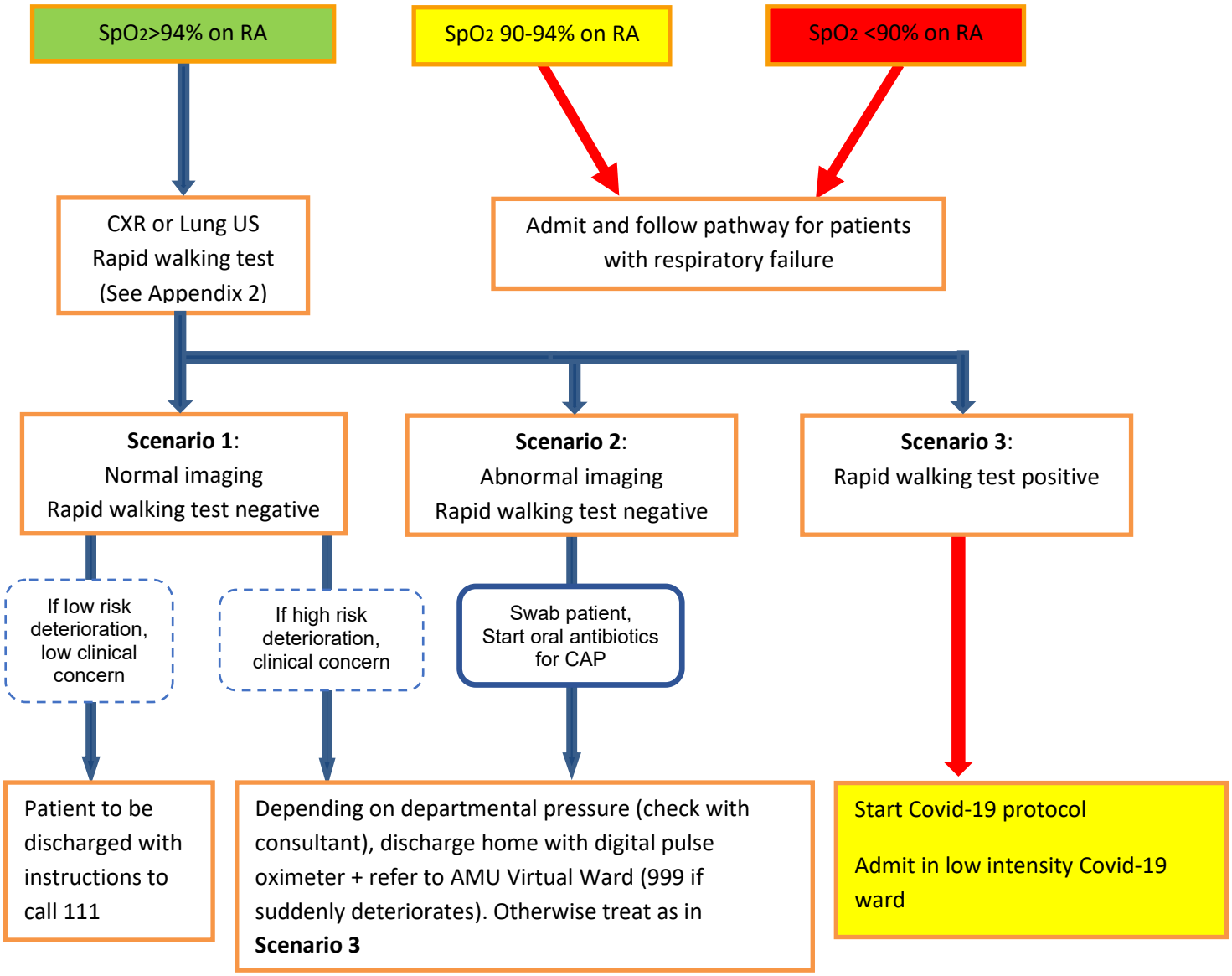


Figure 4: Pathway for Suspected/Confirmed COVID Patients in the AMU Virtual Ward

FLOW CHART IS A GUIDELINE ONLY

Skype / Phone patient

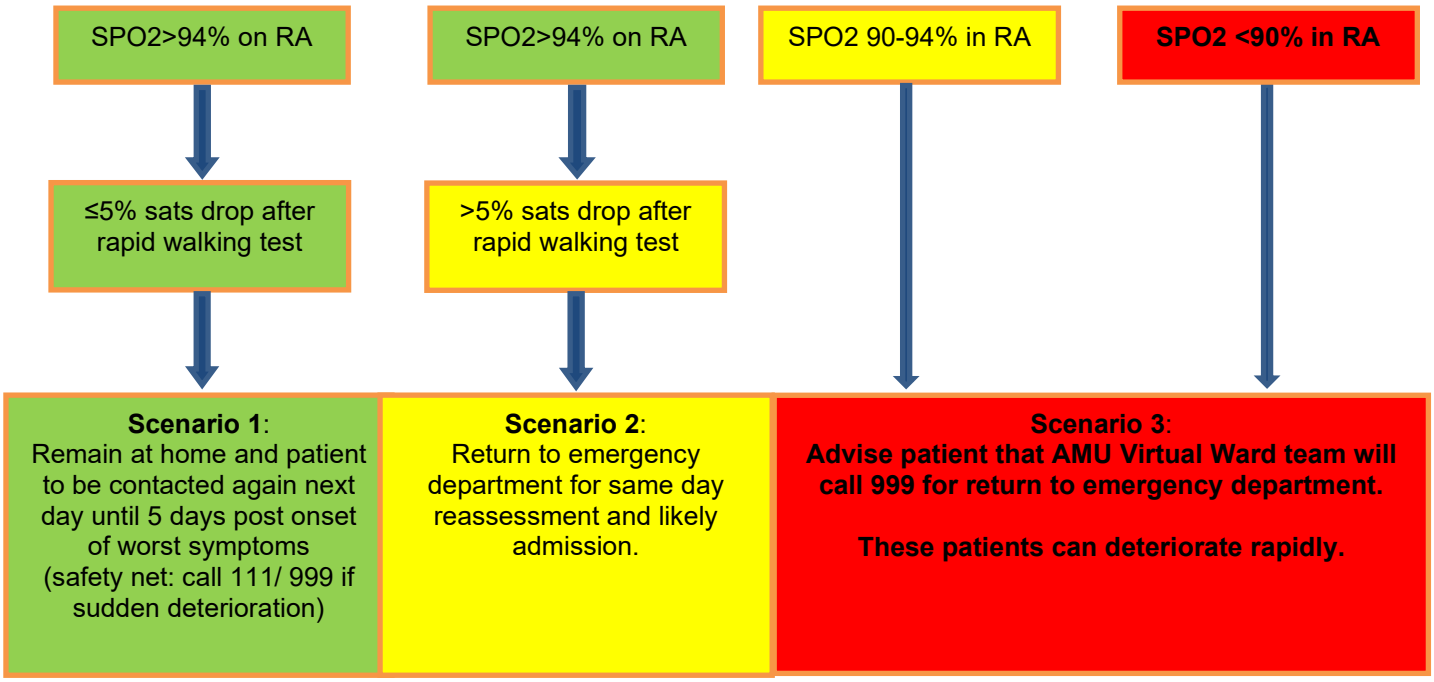
Ask for sats readings at rest and walking test sats readings

Aims:

1. Identify confirmed / suspected Covid-19 patients who can remain at home whilst monitored in the AMU Virtual Ward.

2. Identify confirmed / suspected Covid-19 patients who need to return to hospital.

3. Identify those patients who no longer need monitoring.



Appendix 1

1. Referral to GP Hot Hub (in the absence of any pregnancy specific concerns)

Referrals should be made over the phone Mondays to Fridays between 09:00 – 17:00:

Out of hours' patients should be advised to contact 111

The following information is required by the Hot Hub

- Brief History (incl. COVID status, when symptoms started, and how symptoms are manifesting, if at all):
- Any relevant medical history
- Any relevant obstetric history
- COVID Risk Factors: BMI, Age, ethnicity, co-morbidities not mentioned in medical or obstetric history
- VTE risk assessment, is Tinzaparain required if C-19 is suspected or confirmed?

Referrals should be documented on EPR in clinical documents

2. VTE Assessment, Tinzaparin and patient information

All pregnant or newly postnatal women who are suitable for referral for remote monitoring of C-19 symptoms should be risk assessed for LMWH:

- Suspected or confirmed COVID-19 should be considered as a Transient Risk Factor, further classified on the RBFT Maternity VTE assessment form as Current Systemic Infection <=2 risk factors. For those self-isolating at home, COVID-19 in the absence of additional VTE risk factors does not require prophylactic treatment and the individual should be advised to stay well hydrated and mobile
- If additional risk factors are identified Tinzaparin should be prescribed accordingly. The RCOG (2020) advise that LWMH commenced for those self-isolating should continue until the individual recovers from the illness (between 7-14 days)

The maternity specific VTE assessment can be found on EPR as described below or can be viewed here:

- Obstetric view
- Ad Hoc
- Maternity folder
- VTE Assessment

Patient information/education regarding self-administration of Tinzaparin is available is various formats:

- Patient information leaflet for self-administration of Tinzaparin
- Instruction on how to down load the RBFT maternity IBook that contains an educational video for self-administration of Tinzaparin. Video can be found in Chapter one, page 21 (Movie 1.4)
- If a woman needs additional support to self-administer Tinzaparin this should be discussed with the Midwifery Community co-ordinator between the hours of 10:00 – 16:00, Monday – Sunday

3. Referral to AMU Virtual Ward (in the absence of any pregnancy specific concerns)

- **Only patients who have been assessed by a Doctor to exclude other possible causes of symptoms can be referred to AMU Virtual Ward for remote monitoring of symptoms**
- All pregnant and newly postnatal women who are suspected or confirmed positive for C-19 and assessed as well enough to return/remain at home should be referred to AMU Virtual Ward for remote monitoring of symptoms unless the patient declines.
- All those being referred should have a COVID-19 swab taken/arranged and have a VTE assessment

To refer a patient to the AMU Virtual Ward please call Mon-Sun 9am to 5pm. Outside of these times please email the referral. Referral information required:

- Correct Patient contact information including mobile and land line
- Brief history of C-19 including COVID status, when symptoms started, and how symptoms are manifesting, if at all
- Brief previous medical history, highlighting C-19 risk factors
- Brief obstetric history
- VTE assessment, is Tinzaparin required?
- Are resting sats >94%? Yes / No
  (If no, patient should be admitted for oxygen therapy)
- Rapid Exercise Test (30 metres / 40 steps): if drop in sats >5% patient should remain in hospital. What is drop in sats?
- Sats probe given?

Remember to inform the patient that:

- They will be phoned from the AMU Virtual Ward the next day.
- Ask the patient to call the Patient Information Line if they do not hear from the AMU Virtual Ward team by 1pm the next day.
- Give the patient information leaflet and pulse oximeter to the patient. Ensure they understand what to do
- Advise who to contact is they are concerned about themselves or their unborn baby

Referral should be documented on EPR in Clinical Documents
Remote assessment by AMU Virtual Ward will be documented on EPR in Clinical Documents

- Patients will not be accepted without a phone number, sats probe, patient leaflet, diagnosis, baseline sats, walking test sats.
- Patients sent home without sats probes and phone numbers etc will be handed back to the referring team.
- Patients can be referred with negative COVID swabs, or if you think the diagnosis is flu, but this needs to be documented.

4. Oxygen Saturation Probes

- Oxygen saturation probes are located on the ward
- If additional Oxygen Saturation probes and/or patient information leaflets are required contact AMU Virtual Ward team

Appendix 2

1. Rapid walking test.

Take baseline oxygen saturations. Encourage the patient to walk at the highest possible speed for 30 meters/40 steps on a linear path. Sit the patient down and re-measure oxygen saturations. The test is considered positive if the absolute oxygen saturation has fallen by more than 5%.

Stepping quickly up and down a 2 steps stool for 30 seconds could be an alternative in limited spaces (no supportive evidence).

About 20% of patients who are discharged from the emergency department on this pathway will require readmission. Mortality for patients who fail the walking test can be as high as 20%.

2. Lung Ultrasound.

Lung ultrasound should only be used in place of a chest x ray by clinicians confident in their lung ultrasound ability. 12-point lung ultrasound. If A lines (horizontal lines) in all zones, then lung ultrasound 'normal' If anything more than 2 B lines at the four base points the scan is abnormal. If multiple B lines at the base patient can be discharged. If consolidation or confluent B lines, admit. If anterior or posterior B lines more than 2 in two areas, admit.

3. Adaptation of pathway for inpatient use.

Patients assessed as inpatients on medical wards may be able to go through the same triage pathway to be discharged (ie walking test negative but imaging changes to go home with a sats probe and monitored through ambulatory).

Where inpatients are deemed medically fit for discharge but have target oxygen saturations other than the standard targets of >94% at rest and maximum drop of 5% after the rapid walking test, this must be documented on EPR by the Consultant discharging the patient onto the AMU Virtual Ward pathway.

References

MBRRACE-UK. (2020). Rapid report: Learning from SARS-CoV-2 related and associated maternal deaths in the UK. [Online]. Available at: https://www.npeu.ox.ac.uk/assets/downloads/mbrrace-uk/reports/MBRRACE-UK_Maternal_Report_2020_v10_FINAL.pdf

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