

Speciality guides for patient management during the coronavirus pandemic

# Clinical guide for the management of haemoglobinopathy patients (sickle cell disease and thalassaemia) during the coronavirus pandemic

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“...and there are no more surgeons, urologists, orthopaedists, we are only doctors who suddenly become part of a single team to face this tsunami that has overwhelmed us...”

Dr Daniele Macchine, Bergamo, Italy. 9 March 2020

As doctors we all have general responsibilities in relation to coronavirus and for these we should seek and act on national and local guidelines. We also have a specific responsibility to ensure that essential care continues with the minimum burden on the NHS. We must engage with management and clinical teams planning the local response in our hospitals. We may also need to work outside our specific areas of training and expertise and the General Medical Council has already indicated its support for this in the exceptional circumstances we may face. [www.gmc-uk.org/news/news-archive/how-we-will-continue-to-regulate-in-light-of-novel-coronavirus](http://www.gmc-uk.org/news/news-archive/how-we-will-continue-to-regulate-in-light-of-novel-coronavirus)

Haemoglobinopathy services may not seem to be in the frontline with coronavirus but we do have a key role to play and this must be planned. In response to pressures on the NHS, the elective component of our work may be curtailed. However, haemoglobinopathy services will need to continue to deliver care. We should seek the best local solutions to continue the proper management of our patients while protecting resources for the response to coronavirus. In addition, we need to consider the small possibility that the facility for patients may be compromised due to a combination of factors, including staff sickness and supply chain shortages among others.

## High-risk patients

Patients with both sickle cell disease (SCD) and thalassaemia are likely to be at increased risk of complications from COVID-19. Patients at highest risk include

- the elderly (those aged over 50 in our population)
- those with a history of respiratory or cardiac disease
- those with other co-morbidities.

## Leadership

- It can be very stressful during a crisis. Support each other and share the workload. Do not expect the clinical director to do all the co-ordination!
- Identify pathways that require actions outside normal provider pathways, including contingency plans for supply chain issues.

## Categories of haemoglobinopathy services to consider

- **Obligatory inpatients:** Will continue to require admission and ongoing management, e.g. sickle cell crisis and acute chest syndrome. Pathways must be expedited to allow rapid treatment and discharge.
- **Elective inpatients/day case activity:** Routine transfusions should continue where necessary. Clinicians will need to prioritise transfusions and decide if they are necessary, can less blood be used and can transfusion frequency be increased? All other elective admissions should be deferred unless deemed absolutely necessary.
- **Investigations and monitoring:** Patients on hydroxycarbamide or iron chelation will need regular monitoring to continue, but this could be done virtually and on an extended schedule (maximum interval 12 weeks for hydroxycarbamide). Off-site phlebotomy and pharmacy services should be used if possible. All other non-essential investigations should be postponed.
- **Outpatients:** Consider urgency of the appointment, the requirement for diagnostics and the need for face-to-face contact? Rapid access clinics can avoid admission or facilitate early discharge. Where possible appointments should be conducted remotely and non-urgent appointments deferred, particularly those requiring diagnostics for surveillance. Patients should not attend outpatients or day unit if they have temperature/ respiratory/coryzal symptoms.

## Communication between patients and teams

Encourage patients to let their specialist teams know if they have symptoms or have to self-isolate; or if they are admitted to hospital.

Teams should consider if they have the resources to maintain regular contact via telephone with patients who are self-isolating. They should set up a generic email for patient queries, manned by clinical staff.

Teams should consider setting up mechanisms of communication between nearby trusts/networks so that they can provide clinical advice in the event of staff sickness, e.g. via WhatsApp or email groups.

## What to say to patients

Refer patients to up-to-date advice on the [NHS](#) and [Public Health England](#) (PHE) websites. There are also resources on the [UKTS](#) and [Sickle Cell Society](#). Further resources will be added to the National Haemoglobinopathy Panel website once this is launched.

The following should also be discussed:

- travel: delay non-essential travel
- school: follow issued advice by the authorities as per other children. Children with SCD are at increased risk and should not be attending school and should be socially distancing.
- work: explore options to work from home as appropriate.
- social distancing and shielding: PHE advice applies to patients with Sickle cell disease – see links below, including the higher risk groups identified that should now be shielding instead of just social distancing. Patients with thalassaemia who are hyposplenic or if they are iron loaded (particularly cardiac iron) should be socially distancing.

Further advice for vulnerable people is given [here](#) and extremely high risk patients [here](#).

## Blood supply

NHSBT is working to maintain the blood supply and will update clinical teams if problems develop or are anticipated. Currently routine transfusion treatments should continue. It may be necessary to prioritise patients for transfusion and there may be a need to limit units of blood given, to offer top up rather than exchange transfusion or postpone non-essential transfusions. NHSBT will inform trusts when or if this becomes necessary.

Haematology Co-ordinating Centres (HCCs) and Specialist Haemoglobinopathy Teams (SHTs) should review their lists for regular transfusion on a weekly basis, with reference to latest NHSBT advice. Each team should identify which patients could be delayed/deferred if blood shortages or staff illness make this necessary.

The risk of transfusion-transmitted infection is currently thought to be low.

Current BSH advice recommends using blood that is <10 days old for top-up transfusion and <7 days old for exchange transfusion in SCD, and <14 days old in thalassaemia. As there is little evidence to support these recommendations **and** as there may be blood shortages, clinicians and transfusion staff should consider relaxing these criteria for transfusion and using older blood. Using recently donated blood may be more important in emergency exchanges than in elective exchanges. Extended phenotype matching should take priority over age of blood.

## Haemopoetic stem cell transplantation/gene therapy

Transplantation and gene therapy for non-urgent non-malignant conditions (SCD and thalassaemia) will be halted until the situation stabilises.

## Rare anaemias

- There is currently no evidence that conditions such as pyruvate kinase deficiency are exacerbated by coronavirus and patients should follow the national guidelines for the general public.
- Patients who have had a splenectomy are at higher risk of coronavirus and should socially isolate.
- Patients with Diamond Blackfan Anaemia (DBA), who have an associated immunodeficiency, are on steroids as per the steroid guidance, have adrenal insufficiency and are on steroid replacement, have iron overload, have had a BMT within one year or chronic GVHD should follow advice on shielding.

## Frequently asked questions/specific haemoglobinopathy issues

- **Sickle cell disease and acute chest syndrome:** Symptoms for acute chest syndrome and coronavirus overlap, and coronavirus infection may increase the risk of acute chest syndrome. Clinicians should be extra vigilant for this complication and should treat patients fulfilling the criteria for acute chest syndrome (respiratory signs and symptoms, abnormal chest X-ray) as per national guidance. This will include treatment with top-up or exchange transfusion. Clinicians should consider early top up transfusion if there are clinical concerns (e.g. desaturation on exercise) and/or rapidly evolving chest involvement. There may be an increased need for emergency transfusion during this time. Services should develop plans for how they can provide emergency apheresis capacity.
- **Exchange transfusions:** Manual exchange transfusion is not thought to be an aerosol generating procedure. If the unit has a Standard Operating Procedure (SOP) for manual exchange using a closed system, normal protection should be used. It may be advisable to use full PPE where there is no SOP and a closed system is not being used (dependent on local advice). There is no evidence that automated exchange transfusions are aerosol generating. Apheresis machines need deep cleaning after exposure to a patient with suspected or confirmed coronavirus infection (refer to manufacturers manual on cleaning and disinfection).
- **Patients with a fever:** Patients with a fever of  $>37.8^{\circ}\text{C}$  require a clinical review, either virtually or in person. They should be advised to call NHS 111, inform them of their symptoms and haemoglobinopathy condition and then urgently contact their clinical team for review. If they cannot access their clinical teams and are acutely unwell they should attend the Emergency Department (A+E) in the usual way. If they present out of hours the patient or the admitting medical/haematology teams should be encouraged to contact the haemoglobinopathy teams. If self-isolating they should receive additional antibiotics, phone follow-up should be arranged and they should be asked to present to their clinical team if their symptoms worsen.
- **Red flag symptoms:** Patients should be encouraged to attend the Emergency Department (A+E) or call 999 if any of the following occur:
  - Uncontrolled pain  $>7/10$  despite usual home analgesia
  - Respiratory distress (new shortness of breath or increased breathlessness compared to baseline particularly at rest or on minimal exertion) +/- chest pain
  - Persistent fever  $>38^{\circ}$
  - Severe headache, confusion or neurological changes.

Clinicians should be aware that patients with SCD and Thalassaemia may present with these symptoms in the absence of coronavirus and the usual pathways for investigation and management should be followed. Infants with SCD with fever or shortness of breath should follow standard procedure according to their provider's policies; some are advised to call their local Emergency Departments (A&Es) or the ward (if they have an open access policy)

- **Management of acute pain:** Patients should be encouraged to treat pain as usual but to contact their clinical team if they have a fever or respiratory symptoms.
- **Hydroxycarbamide:** There is no evidence that being on hydroxycarbamide increases a person's risk of coronavirus infection as long as they are not myelosuppressed. Patients should be urged to remain on their usual hydroxycarbamide dosages to maintain good health and avoid hospital admission. It may be advisable to avoid routinely starting or dose-escalating hydroxycarbamide, to reduce the need for repeated phlebotomy and hospital visits until the situation has stabilised. For stable patients it is reasonable to extend the interval between blood monitoring.
- **Annual reviews:** These should be done virtually or delayed. Routine ophthalmology, echocardiography and imaging should not be ordered. Urgent investigations should be requested as appropriate.
- **Transcranial Doppler (TCD) screening:** These may need to be postponed, but services should consider how they can continue to provide this screening for essential groups. Patients with Sickle Cell Anaemia (HbSS and HSB<sup>o</sup>Thalassaemia) needing their first TCD, and patients with previous conditional or first abnormal TCDs should be prioritised. TCDs in younger patients (especially those <10 years) should also be prioritised unless they are already on transfusion and stable, in which case their scans can be delayed. Additional advice to clinicians is currently being developed, including how to manage patients that are shielding in line with the latest PHE guidance. Clinicians should discuss with their vascular scientists about how this service can be provided. Clinicians should consider changing patients who are currently on transfusion for primary stroke prevention to hydroxycarbamide as per the HCC's TWITCH (TCD With Transfusions Changing to Hydroxyurea) protocol.
- **Iron chelation:** Routine monitoring for iron overload and for the effects of iron chelation should continue. For patients on regular transfusions,

outpatient review should be co-ordinated to take place at the same time as transfusion. Clinicians should consider if routine MRI monitoring for iron overload can be postponed (e.g. in stable patients, on long term chelation). If a patient develops fever, all chelation agents should be stopped.

- **Ibuprofen:** Concerns have been raised about taking ibuprofen. In febrile patients with suspected coronavirus infection, other agents should be used in preference to ibuprofen, if possible, until further evidence is available. Please refer to the PHE and NHS England web sites for the most up-to-date advice.
- **Non Transfusion Dependent Thalassaemia (NTDT):** Patients who have had a splenectomy are at increased risk of coronavirus and should follow recommendations for social distancing.