



Children's Services

Management of Haemoptysis in Paediatric  
Cystic Fibrosis Patients

Guideline and Management

Extended until August 2021 (Covid-19)

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## Guideline Statement

Subsequent to implementation of the Scottish Government's National Delivery Plan for Specialist Children's Services, NHS Lanarkshire delivers paediatric Cystic Fibrosis (CF) care to the local population in partnership with Royal Hospital for Children Glasgow (RHCG). This guideline has been developed to provide direction to staff in relation to the management of haemoptysis in this group of children.

## Background

Cystic fibrosis is a life-shortening condition which predominantly affects the lungs and digestive system. Haemoptysis refers to expectoration (coughing up) of blood and is a well recognised complication of CF. It may represent haemorrhage from enlarged and tortuous bronchial arteries, respiratory infection, or local causes. The volume of blood expectorated is highly variable, ranging from blood streaked sputum to life-threatening haemorrhage. Episodes of haemoptysis which are more than "blood streaked sputum" require immediate hospital attendance for medical review, observation and further investigation and management.

NHS Lanarkshire's guideline is based upon the same principles as RHCG's protocol and is in line with the West of Scotland cystic fibrosis standards of care.

## Aims

The aims of this guideline are:-

- To promote timely recognition of haemoptysis
- To provide guidance for staff on the assessment and management of haemoptysis
- To promote consistently good practice

## Short Life Working Group

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## Review of Guideline

February 2021

## Management

Any child presenting with haemoptysis requires prompt review by medical staff and close observation.

## Assessment

In assessing a child with possible haemoptysis, the following points must be considered:

Source of blood

Is this definitely haemoptysis? Consider haematemesis or epistaxis in differential diagnosis

Severity of blood loss

How much blood was coughed up?

Streaks of blood only

< 5mls

≥ 5mls

Is the child haemodynamically stable?

Observations

CEWS score

Examination

Has the bleeding ceased or is it ongoing?

Does the patient have underlying liver disease?

Presence of a coagulopathy

Is the patient on vitamin K?

Platelet count

Does the child have symptoms suggestive of respiratory infection e.g. increased cough?

## Investigations

- Bloods – to include FBC, coagulation, U&E, LFTs, group & save
- Chest X-ray
- Sputum sample – send for bacterial culture, AAFBs and TB culture

## Management

### Resuscitation: ABC

Careful assessment of hemodynamic status and resuscitation with oxygen and intravenous fluids is paramount and should be performed in line with APLS guidelines.

### Management of small haemoptysis (blood-streaked sputum – <5ml) in absence of coagulopathy / thrombocytopenia

May be indicative of an infective exacerbation. Have a low threshold for commencing antibiotics. The choice and route of antibiotics will depend on clinical status and recent cultures. Guidance can be found in the antibiotic protocol, case notes and parent-held CF management plan.

If no evidence of infection and the patient is clinically well and haemodynamically stable, they may be discharged home with instructions to continue with physiotherapy as CF management plan.

The CF team must be informed of the attendance at the time (if within normal working hours) or the next working day (if not). Patients are encouraged to seek advice on first episode of haemoptysis or (in a patient with known occasional haemoptysis) if happening persistently.

### Management of small haemoptysis (< 5ml) in presence of coagulopathy / thrombocytopenia

- Admit for close observation and careful documentation of any further blood loss
- Establish intravenous access
- Bloods as above including group & save
- Discontinue Hypertonic Saline until haemoptysis stops
- Inform consultant on call and, if within working hours, University Hospital Wishaw (UHW) CF Team. Out with working hours contact UHW CF team next working day.
- Discontinue NSAIDs and resume once bleeding stops.

### Management of larger haemoptysis (>5ml)

Usually represents haemorrhage from enlarged and tortuous bronchial arteries and can be life-threatening

- Inform consultant on call and, if within working hours, UHW CF team. Out with working hours contact UHW CF team next working day.
- Admit child
- Establish intravenous access
- Bloods as above including group & save
- Discontinue Hypertonic Saline until haemoptysis stops
- Stop chest physiotherapy until haemoptysis has ceased
- Consider IV Vitamin K +/- fresh frozen plasma (FFP)
- Commence IV antibiotics (choice guided by recent cultures, CF antibiotic protocol, case notes and parent-held CF management plan)

- Discontinue NSAIDS and resume once bleeding stops.

Significant haemoptysis should be discussed (consultant to consultant) with the respiratory team at RHCG, with a view to transfer after stabilisation. RHCG have better access to detailed imaging, bronchoscopy and have close links with Queen Elizabeth University Hospital Glasgow's CF team who provide interventional radiology, for example angiography and bronchial artery embolisation.

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## References

Cystic Fibrosis: Management of Haemoptysis (2012) Paediatric Respiratory Reviews. 13: 200-205.

Cystic Fibrosis Trust (2011) Standards for the clinical care of children and adults with CF in the UK. CF Trust, Kent.

Wilkinson, J (2007) Management of Haemoptysis in Cystic Fibrosis. Royal Hospital for Sick Children, Glasgow.

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