Pan-Birmingham NHS
Cancer Network

Coversheet for Network Site Specific Group Agreed Documentation

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Diagnosis and Staging protocol

(Children's Cancer Measure 7A-114)

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1. Background

This document has been complied to ensure that all children diagnosed with cancer have the correct investigations for both diagnosis and staging. It also sets out where these investigations should ideally be carried out. The Children's Cancer Measure 7A-114 is as follows:

The CCNCG should in consultation with the POSCU MDT's and the PTC diagnosis and treatment MDT, produce a single Diagnosis and Staging protocol for the CCN which fulfills the following:

- It should cover the process of initial diagnosis, and assessment of stage/extent/severity of disease; and where considered appropriate the process of confirmation of relapse/recurrence and it's extent/severity.
- It should specify between PTC and POSCU's:
  i. Which establishment is responsible for which investigations
  ii. Which establishment is responsible for communicating which specified results
  iii. The format of the results and mechanisms of communication
- It may include one or both of the following as considered relevant by the protocol writers
  i. instructions common to some or all disease types
  ii. instructions specific to a named disease type

The Principal Treatment Centre (PTC) for children's cancers in the West Midlands is Birmingham Children's Hospital (BCH). The Principal Treatment Centre for young people with cancer (age 16-24) is University Hospital Birmingham (Queen Elizabeth Hospital). Bone tumour care is shared with the Royal Orthopaedic Hospital, Birmingham.

There are seven Paediatric Oncology Shared Care Units (POSCUs);

- Royal Shrewsbury Hospital (Level 3 POSCU)
- University Hospital of Coventry and Warwickshire (Level 3 POSCU)
- University Hospital of North Staffordshire, Stoke on Trent (Level 3 POSCU)
- New Cross Hospital, Wolverhampton (Level 2 POSCU)
- Worcester General Hospital (Level 1 POSCU)
- Hereford County Hospital (Level 1 POSCU)
- Queens Hospital, Burton on Trent (Level 1 POSCU)

2. Advice for medical staff without a POSCU

This advice applies to paediatricians, surgeons, A&E departments, etc.

If cancer suspected, phone and speak to the appropriate paediatric oncology or haematology SpR at Birmingham Children's Hospital to discuss case and next actions. Further investigations for diagnosis and staging are not expected to be done locally unless required to stabilise the child prior to transfer to either;-

1) Birmingham Children's Hospital (PTC) or
2) The nearest POSCU – Whilst awaiting a bed in Birmingham

If cancer diagnosis made after preliminary local investigations (including biopsy) then proceed as above to agree appropriate next steps. Any investigations or samples will need to be accessible by the oncology/ haematology team at Birmingham Children's Hospital.

3. Advice to medical staff with a POSCU

This advice applies to paediatricians, surgeons, A&E departments, etc.

If cancer suspected, either contact the lead consultant for children's cancers at the POSCU for advice on next steps, or contact relevant person at BCH as in para 2 above.

If cancer diagnosis made after preliminary local investigations (including biopsy) then proceed as in para 2 above to agree appropriate next steps. Any investigations or samples will need to be accessible by the haematology or oncology team at Birmingham Children's Hospital.

It may be appropriate to carry out further investigations locally while awaiting a bed at Birmingham Children's Hospital. This should be agreed with the relevant clinical team at BCH. Early discussion is advised so that the correct investigations are done in the right place in a timely fashion.

3.1 All Patients

- FBC
- Blood Group and Save
- Coagulation Screen
- U&E, Creat, LFT, Ca, Mg, PO_4, LDH
- Uric Acid
- Serology for VZV, CMV, EBV and measles titre
- *Hb electrophoresis – 1-3mls in EDTA in patients with Afro-Caribbean background

Additional Staging Investigations dependent on tumour type and after discussion with the relevant team at the Birmingham Children's Hospital

3.2 Leukaemia

- FBC and blood film
- CXR
- Bone Marrow Aspirate (usually at PTC unless agreed by PTC to be done at a Level 3 centre)
- Lumbar Puncture (usually at PTC unless agreed by PTC to be done at a Level 3 centre)

3.3 Lymphoma

- CXR
- CT/MRI Abdo
- Bone Marrow Aspirate (almost always at PTC unless agreed by PTC to be done at a Level 3 centre)
- Biopsy of Primary tumour (PTC)

3.4 CNS and spinal cord tumours

- CT Head
- MRI Head +/-Spine (POSCU or PTC).
- Bone Scan
- Bone Marrow Aspirate and Bilateral Trephines (PTC)
- Lumbar Puncture (PTC)
    - (NB at day 15 or greater from surgery for medulloblastoma, PNET, ependymoma and germ cell tumour after approval is given by the treating neurosurgeon)
- AFP + HCG -serum and CSF - if suspected germ cell tumour (PTC, neurosurgical decision)
- Endocrine investigations – as directed by endocrinologist for midline supratentorial tumours
- Biopsy of primary tumour (PTC)

3.5 Germ cell tumours

- AFP + HCG – If suspected germ cell tumour
- Biopsy of primary tumour (PTC)

3.6 Neuroblastoma

- CXR
- Ferritin
- 24 hour Urine Catecholamines (NB a spot urine can sometimes be obtained if there are difficulties collecting a 24 hour urine.)
- Bone Marrow Aspirate and Bilateral Trephines (PTC)
- MIBG (PTC)
- Biopsy of Primary tumour (PTC)

3.7 Renal tumours

- CXR
- USS Abdo
- CT Chest/Abdomen
- Biopsy of Primary tumour (PTC)

3.8 Soft tissue sarcoma

- Imaging of Primary tumour – Plain Radiograph
- MRI
- CXR
- CT chest
- ^{99m}TC whole body bone scan
- MRI of sites suspicious in bone scan
- Bone Marrow Aspirate and Bilateral Trephines (PTC)
- Biopsy of Primary tumour (PTC)

3.9 Bone tumours

- Plain Xray
- MRI - Local
- CXR
- CT Chest
- Biopsy of Primary tumour (PTC e.g. Royal Orthopaedic Hospital, Birmingham or Robert Jones & Agnes Hunt Hospital, Oswestry)
- Bone Marrow Aspirate and Bilateral Trephines (PTC or Bone Centre)

3.10 Retinoblastoma (BCH is a designated Retinoblastoma Centre)

- Bone Marrow Aspirate and Bilateral Trephines (BCH)
- Whole Body MRI (BCH – if stage 4 disease suspected)
- Retinal Camera (BCH)

3.11 Hepatoblastoma

- AFP
- USS Abdo
- Abdo CT/MRI
- CT Chest
- CXR
- Biopsy of Primary tumour (PTC)

3.12 Other tumours

- Please discuss individually

3.13 Relapse

- The above site specific investigations should be considered in any relapse. As soon as a relapse is suspected early discussion with the Principal Treatment Centre should occur. Ideally the named consultant for the child should be contacted as soon as is practical to discuss the options.
- Discussion should include what investigations are appropriate and where these should be done.

4. Transfer of Information

- The responsibility for communication is equally shared between the POSCU and the PTC. All information should be shared.
- Information is routinely transferred by letter, but consideration should be given for transfer of preliminary information by phone call, fax or secure email.
- The principal responsibility lies with the person and organisation who has requested the investigation and the results should be shared in a timely manner.
- From the POSCU – the written results of any investigations should be forwarded with the initial transfer letter or as soon as possible.
- From the POSCU – copies of any imaging done locally should be sent as soon as possible e.g. via PACS link up or via CD.
- From the PTC – it is acceptable to wait for the discharge, initial letter confirming completion of all staging investigations so that a final summary can be sent. The exception to this is when any results need to be shared earlier to enable treatment or stabilisation of the child.
- From the PTC - copies of any imaging should be sent to the POSCU if requested by the POSCU and the PTC consultant is in agreement.