Midland Burn ODN Referral Guidelines

Guidelines for the Admission and Transfer of Burn Patients in the Midlands

Date	Developed March 2012.
The Guidelines Support	National Burn Care Severity Thresholds
Circulation	University Hospitals of Birmingham NHS Foundation Trust Birmingham Children's Hospital NHS Foundation Trust Nottingham University Hospitals NHS Trust University Hospitals of Leicester NHS Trust University Hospitals Coventry and Warwickshire NHS Trust University Hospitals of North Midlands NHS Trust East Midlands Ambulance Service NHS Trust West Midlands Ambulance Service NHS Trust East Midlands LAT Specialised Commissioning West Midlands LAT Specialised Commissioning Emergency Departments in the East and West Midlands Specialised Burns Service Clinical Reference Group Mid Trent Critical Care Network EM Major Trauma Network WM Major Trauma Network
Author	Clinical Advisory Group (CAG) of Midland Burn ODN
Contact	Mr N Moiemen e-mail: Naiem.Moiemen@uhb.nhs.uk
Approved	Midland Burn Operational Delivery Network Board
Approval date	Reviewed October 2013. Ratified January 2015.
Review date	January 2016

Organisation	Name	Role	Signature
MBCN	Mr Moiemen	Network Clinical Lead	
UHB / RCDM	Col. Jeffery	Service Clinical Lead	
BCH	Miss Wilson	Service Clinical Lead	
NUH	Dr Fletcher	Service Clinical Lead	
UHL	Miss Agarwal	Service Clinical Lead	
UHCW	Mr Park	Service Clinical Lead	
UHNM	Mr Rayatt	Service Clinical Lead	
EM LAT	Christine Richardson	Head of Spec. Commissioning	
WM LAT	Rachel O Connor	Head of Spec. Commissioning	

Table

Introduction

This document describes the thresholds for referral of children and adults with burn injuries in the Midlands. The primary purpose of the guidelines is to ensure that those responsible for managing burn patients in either primary or secondary health care are aware of when to refer patients to a specialised burn service.

Burn care is organised using a tiered model of care (centre, unit and facility) whereby the most severely injured are cared for in services recognised as centres and those requiring less intensive clinical support are cared for in services designated as either burns units or facilities. Adherence to these Guidelines will make optimum use of the resources available in the Midlands. A burn care centre will also provide unit and facility level of care to the local population.

These Guidelines also describe the agreed thresholds at which patients should be cared for in the three tiers of burn care provided in the Midlands. The burn services are listed in Table 1 below.

This document has been produced in consultation with burn clinicians working in the burn services in the Midlands. Any deviation from the nationally agreed thresholds has been identified. The commissioners of specialised burn care and the service leads for each of the burn providers in the Midlands have approved these referral guidelines (see Page 1).

Table 1 Burn Services in the Midlands (Description of Capability)

Hospital	Level of Service	Description of patients treated and cared for in service
University Hospitals Birmingham NHS Foundation Trust	Burns Centre	Adults with minor, moderate, severe and complex severe burns
Birmingham Children's Hospital NHS Foundation Trust	Burns Centre	Children with minor, moderate, severe and complex severe burns
Nottingham University Hospitals NHS Trust	Burns Unit	City Hospital campus: Adults with minor, moderate and severe burns Queens Medical Centre: Children with minor and moderate burns
University Hospitals of Leicester NHS Trust	Burns Facility	Adults and Children with minor burns
University Hospitals Coventry and Warwickshire NHS Trust	Burns Facility	Adults and Children with minor burns
University Hospitals of North Midlands NHS Trust	Burns Facility	Adults and Children with minor burns

Referral of patients with burn injuries to Specialist Burn Care Services

The first point of contact for advice regarding the admission, transfer or treatment of a patient with a burn injury should be the local burn service. There are a number of factors that will influence the need for a patient to be referred to a specialised burn service. These include the size (TBSA - total body surface area), type and severity of the burn, the age of the patient, presence of an inhalation injury and any significant co-morbidity. All burn services in the Midlands will manage burns patients at the lower end of the referral threshold (minor burns / facility level care). Patients with more complex or severe injuries will be referred to a burn unit or a burn centre (unit / centre level care). The local burn service will assist any referrer in ensuring that patients from the Midlands are admitted to the right service. Alignment with major trauma referral pathways is facilitated by having the burn unit and centre level services (Nottingham and Birmingham) co-located with major trauma centres. The burn services in the Midlands and the level of care they provide are shown in Table 1.
The referral pathway guidance in this document must be used for burn Injured patients, not the Major Trauma referral pathway.

Initial indication for referral to a specialised burns service

- A child with a partial thickness burn greater than 2% TBSA
- An adult with a partial thickness burn greater than 3% TBSA

In addition to the % TBSA thresholds described for children and adults any patient with a burn injury regardless of age or %TBSA that presents with any of the following should be discussed with the local burn service and consideration given for the need for referral:

- Inhalation injury is defined as visual evidence of suspected upper airway smoke inhalation, laryngoscopic and/or bronchoscopic evidence of tracheal or more distal contamination / injury or suspicion of inhalation of non soluble toxic gases.
- A full thickness burn greater than 1% TBSA
- Burns to special areas (hands, face, neck, feet, perineum)
- Burns to an area involving a joint which may adversely affect mobility and function
- Electrical burns
- Chemical burns
- Suspected non-accidental injury (NAI). Any burn with suspicion of non-accidental injury should be referred to a specialised burn service for an expert assessment within 24 hours.
- A burn associated with major trauma
- A burn associated with significant co-morbidities
- Circumferential burns to the trunk or limbs
- Any burn not healed in 2 weeks

Patients should be referred to a burn facility, unit or centre depending on the severity of their injury. To ensure that patients are managed in the right service at the right time there are agreed thresholds for each level of service for children and adults.

Patients with non-survivable burn injuries

Decisions associated with implementation of End of Life Care as a result of a burn injury must only be made by two medical consultants one of which should be a consultant burn surgeon. When deciding the best location and service to care for the patient with a burn injury that is regarded as non survivable the needs of both the patient and their family must be considered. In these circumstances the local burn service is available to give advice regarding the best location for the care and management of the patient. Depending on the circumstances this may be the local hospital or a burn service. The overriding principle should be that there is discussion between the medical team responsible for the initial treatment and the consultant burn surgeon on call in either the local burn unit or burn centre.

Thresholds for Children with Burn Injuries

Burn Facility (BF)

A burn facility should not admit children with a primary diagnosis of a burn injury if they are under 6 months old.

Children over 6 months old with a burn less than 5% TBSA can be managed in a burn facility unless a significant percentage of the burn injury is assessed as being non-blanching or full thickness burn (FTB). The referring doctor should discuss any significant[1] burn injury with the consultant on call for burns in their local burn unit or centre.

The following children should be referred to a burn unit or centre:

- Children with an inhalation injury defined as visual evidence of suspected upper airway smoke inhalation, laryngoscopic and/or bronchoscopic evidence of tracheal or more distal contamination / injury or suspicion of inhalation of non soluble toxic gases
- Children over 6 months to 1 year old with up to 1% TBSA FTB
- Children between 1 and 10 years old with FTB of more than 2%TBSA
- Children between 10 and 16 years old with a FTB of more than 5% TBSA
- Children with any significant burn to the face, hand, feet or genital area
- Children with a circumferential burn to a limb
- Children with high voltage electrical burns
- Children with severe chemical burns

[1] Significant is defined as any injury where the refer feels that greater MDT expertise is required

Burn Unit (BU)

A burn unit will routinely admit children for the management of both minor and major burn injuries. Guidance on the age and severity of burn injury to be managed within a burns unit is shown below:

- Children between 6 months and 1 year with a burn less than 10% TBSA
- Children older than 1 year with a burn less than 30% TBSA
- Children older than 1 year with a FTB of less than 20% TBSA

If a child with a TBSA between 20 to 30% is to be admitted to a burn unit then the admitting consultant should inform the consultant on call at the children's burn centre. All children with an inhalation injury (irrespective of the presence of burn injury) should be referred to a PICU with a specialised burn care service on site.

Considerations for discussion and referral to the burn centre are:

- Children predicted to require respiratory support or admission to PICU specifically for their burn injury for more than 24 hours.
- Children with a burn injury associated with significant multiple injuries (Major Trauma). The best location for the treatment of these children must be decided following discussion between the major trauma service and the consultant burn surgeon in the local burn unit. Discussion must also take place between the consultant on call for burns at the burn unit and burn centre for all children that meet centre level referral thresholds.
- Children with severe chemical burns.
- Children with high voltage electrical burns.

The overriding principle in respect of where to admit children at the upper range of the thresholds is that there is engagement between clinicians in both the unit and centre and that the location for definitive care takes into consideration the clinical needs of the child, the resources available and the risks associated with additional travel times. Neonates should only be admitted to a burns service with an on-site NICU. The management of neonates should be discussed with the burn consultant in the burn centre and the neonatal service. Neonates with burn injuries should be managed in a higher level of burn service than children with similar burn injuries (a neonate with a facility level injury should be referred to a unit and neonate with a unit level injury should be referred to a centre). A neonate is defined as being up to 4 weeks after birth if born at term (37 to 42 weeks) or up to 60 weeks post conception if born pre-term (before 37 weeks).

Burn Centre (BC)

A burn centre will manage children with all severities of burn injuries including those that require complex paediatric intensive care. This includes children of any age with a burn of any severity and children requiring ventilator support and those that have sustained a burn in conjunction with significant multiple injuries (Major Trauma).

Neonates should only be admitted to a burns service with an on-site NICU[2]. The management of neonates should be discussed with the burn consultant and the neonatal service. A neonate is defined as being up to 4 weeks after birth if born at term (37 to 42 weeks) or up to 60 weeks post conception if born pre-term (before 37 weeks).

A summary of thresholds for referring children to the different levels of burn services in the Midlands based on their %TBSA and age is shown in Table 2.

Table 2 Summary of Referral Criteria for Children with Burn Injuries

Service Type	Age	% TBSA	Comment
Burn Facility	 6 months – 1Year 1 – 10 Years 10 – 16 Years	 < 5 % TBSA < 5 % TBSA < 5 % TBSA	Refer to BU or BC if: > 1%TBSA FTB > 2%TBSA FTB > 5%TBSA FTB
Burn Unit	< 1 Year > 1 Year > 1 year	< 10 % TBSA < 30 % TBSA < 20% FTB	A child with non-blanching / FTB over 20% TBSA is to be referred to a BC.
Burn Centre	0 -16 Years	All	To manage children and adolescents (0 to 16 years). Neonates[3] are to be discussed with the Burn Consultant and the neonatal service. BC will manage children with all severities of burn injuries including those that require complex paediatric intensive care.

[2] BCH does not have a stand alone NICU on-site but they provide fully complaint NICU beds within the on site PICU.
[3] A neonate is defined as being up to 4 weeks after birth if born at term (37 to 42 weeks) or up to 60 weeks post conception if born pre-term (before 37 weeks).

Thresholds for Adults with Burn Injuries

Burn Facility (BF)

A burn facility will admit adults over 16 years with a burn of less than 10% TBSA

Exclusions to the above which will trigger referral to a burn unit or burn centre are:

- Patients with an inhalation injury defined as visual evidence of suspected upper airway smoke inhalation, laryngoscopic and/or bronchoscopic evidence of tracheal or more distal contamination / injury or suspicion of inhalation of non soluble toxic gases
- Patients with compromised immunity
- Patients that are pregnant and present with complications as a consequence of the burn injury
- Patients with a non-blanching burn injury greater than 5% TBSA
- Patients with circumferential burns requiring escharotomy
- Patients with any significant burn to the face, hand, feet or genital area
- Patients with a circumferential burn to a limb
- Patients with high voltage electrical burns
- Patients with severe chemical burns

Burn Unit (BU)

A burn unit will admit adults over 16 years with a burn of less than 50% TBSA[4] this includes patients with circumferential burns requiring escharotomies and patients with inhalation injuries. An inhalation injury is defined as visual evidence of suspected upper airway smoke inhalation, laryngoscopic and/or bronchoscopic evidence of tracheal or more distal contamination / injury or suspicion of inhalation of non soluble toxic gases. All patients that are admitted with burns over 25% TBSA should be discussed with the consultant burn surgeon on call at the BC. Patients with burns over 25% TBSA together with an inhalation injury should be discussed with the consultant burn surgeon on call at the BC with regard to referral. Patients with greater than 40% TBSA burns that are full thickness or deep dermal that require surgical excision and grafting should be referred to a burns centre.

Considerations for discussion and referral to the burn centre are:

- Patients with a burn injury associated with significant multiple injuries (Major Trauma). The best location for the treatment of these patients must be decided following discussion between the major trauma service and the consultant burn surgeon in the local burn service. For all patients that meet centre level referral thresholds there must be a discussion between the consultants on call for burns at the local burns service and the burn centre.
- Patients with compromised immunity
- Patients that are pregnant and present with complications as a consequence of the burn injury

[4] This is a MBCN local agreement. The National Threshold is 40%TBSA.

- Patients with severe chemical burns or high voltage electrical burns
- Patients with a burn injury and associated significant co-morbidities

The overriding principle in respect of where to admit patients at the upper range of the thresholds is that there is engagement between clinicians in both the unit and centre and that the location for definitive care takes into consideration the clinical needs of the patient, the resources available and the risks associated with additional travel times.

Burn Centre (BC)

A burn centre will manage patients over 16 years with all severities of burn injuries including those that require complex intensive care. This includes patients of any age with a burn of any severity and adults requiring ventilator support and those that have sustained a burn in conjunction with significant multiple injuries (Major Trauma). A burn centre will manage patients with the most complex burn injuries including patients with burn injuries greater than 50% TBSA that are full thickness or deep dermal that require surgical excision and grafting.

The principle on which decisions are made in respect of where to admit adults with a burn injury and major trauma is that there is engagement between clinicians from both the trauma and burn services (this includes engagement between burn clinicians in both the unit and centre).

The location for definitive care must take into consideration the clinical needs of the patient, the resources available and the risks associated with additional travel times.

A summary of thresholds for referring adults to the different levels of burn services in the Midlands based on their %TBSA and age is shown in Table 3.

Table 3 Summary of Referral Criteria for Adults with Burn Injuries

Service Type	% TBSA	Comment
Burn Facility	< 10 % TBSA	Non complex burn injuries
Burn Unit	>25% TBSA >25% TBSA + inhalation injury < 40 % TBSA < 50 % TBSA	Inform BC Discuss with BC and consider referral Deep dermal or full thickness burns With no inhalation injury
Burn Centre	All	All ages and severity of burn injury including those requiring complex intensive care