

**Midland Burns Operational Delivery network**

**Publication**

**Document name**

**MANAGEMENT OF BURN INJURIES IN THE EMERGENCY DEPARTMENT.**

**Document purpose:**

This document contains the main principles of the immediate management of burn injuries in the Emergency Department.

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**Contact.**

Guideline Working Group

**Publication date:**

**Next Review due:** 2024

**Date Reviewed:** July 2021

**Ref. No.** <https://www.mcctn.org.uk/burns.html>

**Target audience:**

Midland Burns Referring Services, Midland Emergency Departments East and West Midlands Minor Injury Departments, Major Trauma Centres, Trauma Units, Local Emergency Hospitals, East and West Midlands Ambulance Services.

**Additional circulation list:**

East and West Midlands referring services  
University Hospitals of Birmingham NHS Foundation Trust.  
Birmingham Women's and Children's Hospital NHS Foundation Trust  
Nottingham University Hospitals NHS Trust  
University Hospitals of Leicester NHS Trust.  
East and West Midlands Ambulance service.  
West Midlands Major Trauma and Critical Care Network  
East Midlands Major Trauma and Critical Care Network.

**Superseded document(s):**

Burns management in the Emergency department ( Referral Pro-forma ) 2017

**Action required:** Dissemination to MTC, TU, LEH personnel and dissemination to Ambulance Provider Representatives for information.

**Contact details for further information:**

Midland Burns Operational Delivery Networks

Website <https://www.mcctn.org.uk/burns.html>

**Address**

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**Document status:**

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**Purpose.** To outline the main principles of the immediate management of burn injuries in Emergency Departments based in the East and West Midlands

**Scope of document**

Limited to giving guidance on the immediate care of the burn injuries in Emergency Departments based in the east and West Midlands. Guidance for Emergency Departments based outside of the Midlands is not included in the scope of this document.

**Introduction**

The immediate and accurate care of the burn injury in the Emergency Department is crucial to patient outcomes from admission until transfer to a specialized burns service. This document provides a guided approach to the care of all burn injuries attending Emergency Departments in the Midlands.

These guidelines have been reproduced in consultation with the MBODN and the burns clinicians within this network and agreed accordingly.

**Standards**

National Standards for Provision and Outcomes in Adult and Paediatric Burn Care G.O.5 A, B, C, E, F, H and L. (British Burns association 2018)

**Recommendations**

- 1) The expectation is for staff working in Emergency Departments to familiarize themselves with this document and additional adjunct guidelines which can be found on the Midland Burn Operational Delivery Network website <https://www.mcctn.org.uk/burns.html>
- 2) Where it is possible, staff should receive teaching / educational sessions to support information documented in MBODN guidelines

**References**

- 1) <https://www.mcctn.org.uk/burns.html>
- 2) National Standards for the Provision and Outcomes in Adult and Paediatric Burn Care. (BBA 2018)
- 3) Emergency Management of Severe Burns.2019 17<sup>th</sup> edition.

**Version control and record of amendments**

Date	Amendment	Lead

Patient demographic data sticker

## Burns Management the Emergency Department

(Referral Pro-forma)

Date of admission	
Time of Admission	
Year of admission	
Age of patient	

Actual Time  
of Injury

Paediatric

Adult

WEIGHT in  
KG

### AIRWAY

Is the patient presenting with any of the following. Please circle Y / N.		
Stridor / change in voice	Y	N
Injury in enclosed space.	Y	N
Singed nasal hair	Y	N
Facial burn / burns to mouth	Y	N
High carboxyhaemoglobin.	Y	N
Brassy cough/ change in voice	Y	N
Carbonaceous sputum.	Y	N
Circumferential /semi circumferential neck burns	Y	N
Administer high flow oxygen if required	Y	N

Is there any suggestion the patient has sustained an Airway / Inhalation injury?

**Yes / No**

If **yes** please seek senior anaesthetic review immediately.

Intubation may be required. If indicated use an uncut ETT to allow for facial oedema

## BREATHING

Has this patient any of the following which may suggest a breathing impairment?  
**(Please circle Y/N)**

Circumferential chest burns: <b>Needs immediate discussion with local burns service.</b>	Y	N
O <sub>2</sub> saturation lower than expected	Y	N
Respiratory rate outside expected limits	Y	N
Any other evidence of Broncho-pulmonary or chest wall injury	Y	N
Consider Carbon Monoxide / Cyanide poisoning, especially burns occurring in enclosed spaces (Bloods available with ABGs) Treat as departmental policy.	Y	N
Elevated lactate, arrhythmias, reduced GCS and reduced arterial-venous oxygen saturation difference: Consider Cyanide poisoning. Use of antidote recommended.	Y	N

## CIRCULATION

Has the patient any of the following which may suggest circulation impairment?  
**(Please circle Y/ N)**

Tachycardia	Y	N
Tachypnoea	Y	N
Reduce level of consciousness	Y	N
Central and peripheral capillary refill time >2 seconds	Y	N
Cool peripheries / Circumferential limb burn.	Y	N

<b><u>POINTS TO NOTE</u></b>		
<b><u>All patients requiring fluid resuscitation should have:</u></b>		
• Two large-bore intravenous cannulas and through the burn if necessary.	Y	N
• An indwelling urinary catheter attached to an hourly urine collection bag. (Discuss with receiving burns service)	Y	N
• IV fluid resuscitation should be commenced as per ATLS protocol	Y	N
• If this does not improve parameters repeat primary survey looking for causes of shock.	Y	N
Please take bloods for the following:		
FBC (Inc. Haematocrit ) U&E,	Y	N
ABG,	Y	N
G&S	Y	N
CK	Y	N
Clotting screen	Y	N
BHCG	Y	N
Absence of peripheral pulses requires immediate contact with local burns service as <b>ESCHAROTOMIES</b> may be required .Please follow directions below	Y	N

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**IF PATIENT REQUIRES ESCHAROTOMY PLEASE FOLLOW DIRECTIONS BELOW**



Contact to be made with the Burns and Plastic Surgery team.  
Consultant or SpR grade if the need for escharotomy is suspected.

Escharotomies are performed by plastic surgeons in the operating theatre.

Diathermy **MUST** always be immediately available when any escharotomy procedure is carried out

In immediate escharotomy situations, only carry out chest incisions, until satisfactory ventilation is achieved, then **STOP**.

Local anaesthetic and adrenaline infiltration along incision lines will reduce blood loss and improve comfort.

Escharotomy wounds should be dressed with appropriate haemostatic dressings, e.g. calcium alginate e.g. Kaltostat dressings with overlying absorbent dressings.  
Avoid tight dressings as will further restrict.

An escharotomy may cause bleeding and damage to underlying structures.

Do **NOT** perform a fasciotomy.

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**DISABILITY**

Does the patient have a GCS <9?	Please indicate.	GCS .... / 15	
Pupils equal and reacting to light?	Please indicate.	Reactive	Unreactive
<b><u>CONSIDER</u></b>			
Toxic exposure?		<u>Y / N</u>	
Carbon monoxide and hydrogen cyanide		<u>Blood results</u>	
Any associated trauma?		<u>IDENTIFY OTHER TRAUMA</u>	
Limbs Chest Abdominal Head Other None			
Ensure ABG's normalised		ABG Results	
Notable comments			

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**EXPOSURE, ENVIRONMENT AND EVALUATION**

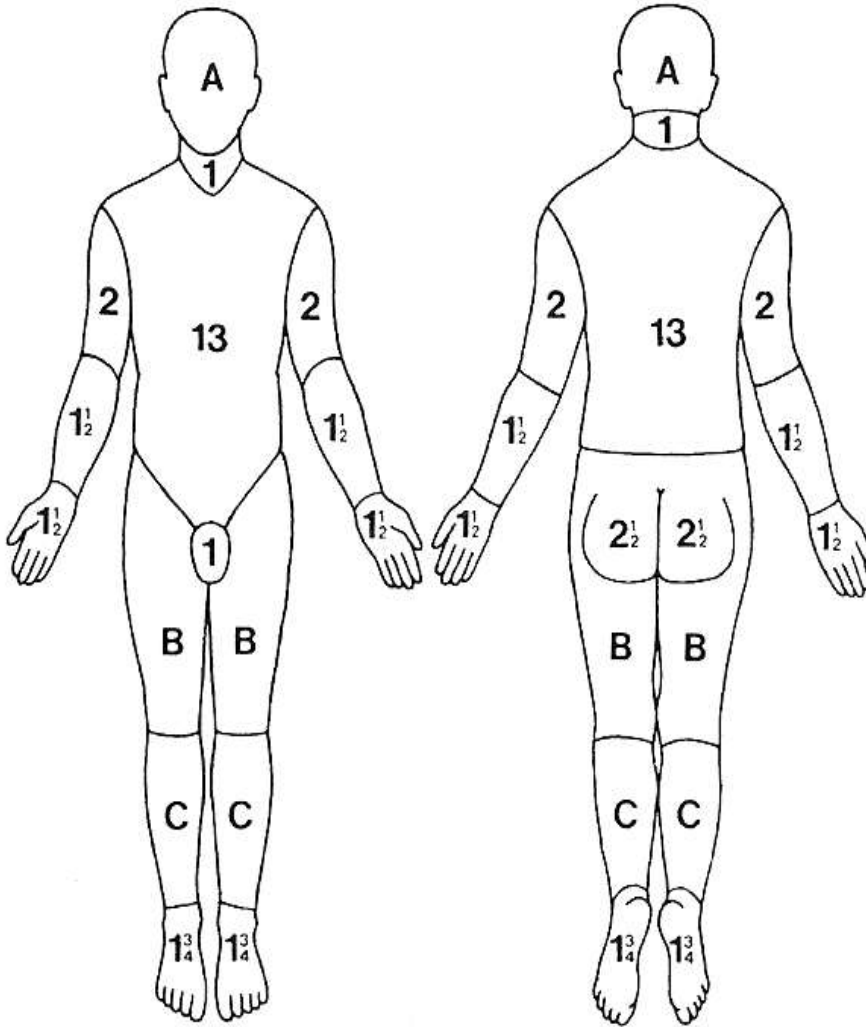
Measure core temperature and maintain >36C	Current Temp _____C
<p><b><u>Assess Total Burn Surface Area. ( TBSA) %.</u></b></p> <ul style="list-style-type: none"><li>• Use Lund and Browder chart below to document findings.</li><li>• The patients whole hand including fingers = 1%.</li><li>• Ignore simple erythema</li><li>• Total Burn Size = .....% TBSA</li><li>• Partial thickness: = .....% TBSA</li><li>• Full thickness: = ..... % TBSA</li><li>• Total: = .....% TBSA</li><li>• Revised Baux Score = .....</li></ul> <p>**(Revised Baux Score: Age + % TBSA and add on 17 if severe smoke inhalation (SSI) present **</p>	_____%
Question to ask = does burned skin and unburnt skin = 100%	
Be as clear and accurate as is possible	



# CHART FOR ESTIMATING SEVERITY OF BURN WOUND

NAME \_\_\_\_\_ WARD \_\_\_\_\_ NUMBER \_\_\_\_\_ DATE \_\_\_\_\_  
 AGE \_\_\_\_\_ ADMISSION WEIGHT \_\_\_\_\_

## LUND AND BROWDER CHARTS



IGNORE  
SIMPLE ERYTHEMA

Partial thickness loss (PTL)  
 Full thickness loss (FTL)

REGION	%0	
	PTL	FTL
HEAD		
NECK		
ANT.TRUNK		
POST.TRUNK		
RIGHT ARM		
LEFT ARM		
BUTTOCKS		
GENITALIA		
RIGHT LEG		
LEFT LEG		
TOTAL BURN		

### RELATIVE PERCENTAGE OF BODY SURFACE AREA AFFECTED BY GROWTH

AREA	AGE 0	1	5	10	15	ADULT
A=1/2 OF HEAD	9 1/2	8 1/2	6 1/2	5 1/2	4 1/2	3 1/2
B=1/2 OF ONE THIGH	2 3/4	3 1/4	4	4 1/2	4 1/2	4 3/4
C=1/2 OF ONE LEG	2 1/2	2 1/2	2 3/4	3	3 1/4	3 1/2

**FLUID RESUSCITATION WITH HARTMAN'S SOLUTION**



**ADULT >15% OF TBSA burned require IV fluid resuscitation = (Major Burn)**

**CHILDREN >10% OF TBSA burned require IV fluid resuscitation = (Major Burn)**

RE - CONFIRM THE **ACTUAL TIME OF INJURY** THIS ENSURES CORRECT FLUID MANAGEMENT.

Use the **Parkland Formula** (see below) to calculate the amount of fluid required in the first 24 hours post burn injury. This should be given in the form of a balanced electrolyte solution (Hartman's / Plasmalyte). Fluid requirement for the first 24 hrs is always calculated from **time of injury**.

**2 -4 mls fluid x %TBSA burn x weight (kg) = Total Fluid Volume (TFV) over 1<sup>st</sup> 24hrs from time of injury.**

**Resus fluid is given in two parts: 50% of TFV for 8 hours + 50% given in next 16 hours.**

***Fluid for 1<sup>st</sup> 8hrs = 50% of TFV***

***Fluid for 9 – 24hrs = 50% of TFV***

**Maintenance fluids**

**Adults**

No maintenance fluids

**Children.**

Calculate as normal with 0.9% saline +5% Dextrose

**Urine output target**

**Adults** 0.5 ml/ kg/hr

**Children And Infants** 1- 2 ml/ kg/hr

**Does the patient require catheterisation?**

**PLEASE DISCUSS WITH RECEIVING BURNS SERVICE**

**Catheterise and attach an hourly urine device**

**FLUID RESUSITATION IS ONLY A GUIDE AND INFUSION RATES SHOULD BE ADJUSTED AND TITRATED TO DELIVER APPROPRIATE URINE OUTPUT**

**WOUND COVER AND AMBULANCE TRANSFER**

Is the burn patient fit for transfer?	Please indicate.	Y	N
<ul style="list-style-type: none"> <li>Is the patient critical and do they require ITU / PICU?</li> <li>If transferring, does the patient require critical care on route?</li> <li>If transferring does the patient require standard care on route?</li> <li>Do they require burns centre treatment and require care on route?</li> </ul>		Y	N
<ul style="list-style-type: none"> <li>Cover the burn wounds in loose cling film prior to transfer.</li> <li>If transfer is to be delayed, clean the burn wounds then cover with a non-adherent dressing e.g. Silflex / Atrauman</li> </ul>			
<p>All ambulance transfers for resuscitation burns must be performed by crews who can and will continue to provide:</p> <ul style="list-style-type: none"> <li>on-going fluid resuscitation</li> <li>thermal regulation</li> <li>monitoring throughout transfer</li> </ul>			
Please attach any X-rays and blood results to the patient's notes.		Y	N
<p><b>COMPLETE AMPLE:</b></p> <ul style="list-style-type: none"> <li>Allergies</li> <li>Medicines</li> <li>Past medical history</li> <li>Last meal</li> <li>Events</li> </ul>		Y	N
<p><b>NO</b> antibiotics required in E/D.</p>			

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- In the first instance ED's should contact their local burn service for advice.
- If a burn bed is required and one is not available in the Network region the Burn clinician/service will advise ED departments to contact the National Burn Bed Bureau to find one.
- Contact with the burns service should be maintained for further advice/support until a bed is found.

**NATIONAL BURN BED BUREAU TELEPHONE NUMBER = 01384 679036**

**The local burns service will provide support and guidance with burn injured patients admitted to Emergency Departments. This will help ensure burn injured patients are directed to the correct level of burns care service.**

Hospital	Level of Service	Description of patients treated and cared for in service.	Contact Telephone Number Address
<b>University Hospitals Birmingham NHS Foundation Trust</b>	Burns Centre	Adults with minor, moderate, severe and complex severe burns	Tel: 0121 627 2000 Queen Elizabeth Hospital Birmingham Mindelsohn Way Edgbaston, Birmingham B15 2WB
<b>Birmingham Women's and Children's Hospital NHS Foundation Trust</b>	Burns Centre	Children with minor, moderate, severe and complex severe burns	Tel: 0121 333 9999 Birmingham Women's and Children's Hospital, Steelhouse Lane Birmingham B4 6NH
<b>Nottingham University Hospitals NHS Trust</b>	Burns Unit	<b>Adults City Hospital campus:</b> Adults with minor, moderate and severe burns	Tel: 0115 969 1169 Nottingham City Hospital Hucknall Road Nottingham NG5 1PB
<b>Nottingham University Hospitals NHS Trust</b>	Burns Unit	<b>Children Queens Medical Centre:</b> Children with minor and moderate burns	Tel: 0115 924 9924 Queens Medical Centre Derby Road Nottingham, NG7 2U
<b>University Hospitals of Leicester NHS Trust</b>	Burns Facility	Adults and Children with minor burns	Tel: 0300 303 1573 Leicester Royal Infirmary, Infirmary Square, Leicester, LE1 5WW
<b>University Hospitals of North Midlands NHS Trust</b>	Burns Facility	Adults and Children with minor burns	Tel: 01782 715444 Royal Stoke University Hospital, Newcastle Road, Stoke-on-Trent, ST4 6QG