

**Final Report of the Seventh National Burns Annual Mortality Audit (2021)****United Kingdom and Republic of Ireland****Held Monday, 26<sup>th</sup> April 2021**

*In April 2021, the 7<sup>th</sup> annual specialised burns audit meeting was held, and almost all specialised burn services from across the UK and Ireland participated. This document sets out the background and context to the audit meeting, provides a short synopsis of the event and makes proposals for future national audit meetings.*

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**1 Introduction**

- 1.1 The NHS England National Standards for Burn Care requires all burn networks to undertake an annual, Morbidity and Mortality audit. In late 2014, it was agreed by the Clinical Leads for the four burns Operational delivery Networks that a nationally consistent approach to M&M audit would be made for the audit year, 2014-2015. In addition, it was also agreed that there should be a first, national mortality audit.

This first truly national audit, held in June 2015, was very successful and it was agreed at that meeting, that an annual event would take place. Since 2016, an invitation to participate has been extended to all services in the United Kingdom and Republic of Ireland.

- 1.2 The purpose of the audit is to add an additional layer of governance and scrutiny to the existing burn service & network audit function, and to support services and networks in sharing experiences and good practice, with the aim of improving patient outcomes and quality of care. The national audit is a requirement of the *British Burns Association (BBA) National Standards for Provision and Outcomes in Adult and Paediatric Burn Care (2018)*.
- 1.3 The 2021 audit meeting was again hosted by the Midlands Burn Care Network and, due to the Coronavirus Pandemic, was held on Microsoft Teams as a web event.

Dr Kevin Chung, MD, Professor of Medicine and Surgery at the Uniformed Services University of the Health Sciences, Maryland USA, chaired the meeting, and over 100 senior burns clinicians attended, representing burn services in England, Wales, Scotland and Ireland.

**2 Methodology and Process**

- 2.1 This 2021 audit has continued the historic process of selecting cases. Since 2016, it has been agreed that for services in England and Wales, the mortality audit cases would be chosen at each of the Burns Operational Delivery Network (ODN) audit meetings. Each ODN holds an annual mortality audit and *all* deaths are presented.

It was agreed that these local ODN meetings were an appropriate way of identifying cases that were outliers (scored) or were unusual in some other way. It was agreed that the Burn Injury Database (iBID) would be utilised to help "validate" the cases that services presented.

It has been agreed that all Serious Untoward Incidents (involving the care of adults or children) and all paediatric deaths will be presented.

Services in Scotland, Northern Ireland and Ireland were invited to identify cases in a similar way, although it was recognised that iBID was not available to them to validate their cases.

- 2.2 The April 2021 Audit meeting covers the inclusive period, April 2020 to December 2020. This is to enable the national audit meetings to convert the audit period, from a fiscal year (April to March) to a calendar year (January to December). This brings the audit in line with the IBID database, making validation easier.
- 2.3 At the April 2021 meeting, services presented their cases using a template originally developed by the burn centre at Morriston Hospital, Swansea. This included:
- An overview summary of all new referrals in each burn service (in-patients and out-patients), for adults and children and categorised by the size of the burn injury(%TBSA).
  - A summary of all paediatric and adult resus / ventilated cases.
  - A summary of all serious incidents investigated under the NHS Serious Incident Framework.
  - A summary analysis of all deaths, providing high-level details of all burn mortalities in 2018-2019, including demographic and clinical information and the Modified Baux score.
  - A presentation time-line for the cases identified as outliers, showing the key events and interventions during the patient episode.
  - A presentation time-line for cases identified as exceptional or unexpected survivors.
- 2.4 ***As is the case for all of the network and national M&M Audit meetings, there are no formal or published written notes of the meeting. This is because the audit discussions relate to confidential patient information.***

### 3 Chair's Report

- 3.1 What an incredible honour it was for me to participate in the capacity of chair of your 7th National Burn Annual Mortality Audit. I commend the leadership and clinical staff from of all the burns centres in the UK and the Republic of Ireland for your overall professionalism and commitment to clinical excellence as exhibited by your enthusiastic participation in this continuous improvement and learning platform to help identify targets of opportunity for elevating and optimizing burn care. I will summarise three important takeaways from my perspective as an outside observer.
- 3.1.1 Transfer Issues
- *A common theme identified centred on the timely transfer of severe burns when patients presented initially to a non-burn hospital. It should be noted that similar issues surrounding timely communication and transfers were noted during past audits.*
  - *A multipronged system-wide solution is clearly needed to optimize this phase of care. Potential solutions could include:*
    - *Need for improved and regular education and outreach on the part of each individual burns centre with surrounding referring facilities.*
    - *Exploration of the establishment of a telemedicine capability.*
    - *Establishment of a mechanism to provide timely feedback (both positive and constructive) to referring facilities.*
    - *Establishment and tracking of a consistent metric (time to transfer) as a quality measure.*
- 3.1.2 Fluid resuscitation Quality Measures
- *There is a noticeable lack of consistent measurement and tracking of 24 and 48 hour fluid requirements for severe burns. With the relatively low frequency of burn that require a fluid resuscitation, this may represent a potential blind spot as you cannot identify the presence of a problem if there is no measurement. As such, I would suggest the establishment of some sort of standard reporting mechanism agreeable to all the sites such as the routine reporting (perhaps in this forum – through the standardized slides) of 24 hour fluids received for all patients with >20% burns, represented in cc/kg/TBSA. Morbidity associated with over or under resuscitation might also be tracked. Ie – ACS, ARDS, AKI etc.*

### 3.1.3 Addition to resuscitation metrics to the IBID Registry

- Although the registry has many pertinent fields, essential metrics of resuscitation end point at 24 and 48hrs are not included.
- Recommend adding these fields to assist with 3.1.2

***Dr Kevin Chung, MD, FCCM, FACP, COL, MC, USA***

*Professor of Medicine and Surgery*

*Uniformed Services University of the Health Sciences*

*Maryland USA*

*June 2021*

## 4 **Summary and conclusions**

- 4.1 Clinicians attending the meeting agreed that this 2021 audit event had again been an overwhelming success. None of the individual cases discussed at the meeting was identified as requiring further investigation or action.

Towards the close of the meeting, a number of common themes and issues were identified and there was agreement that further work would be appropriate, in a number of areas. The following is a brief summary of the issues that were noted:

### 4.1.1 SJS TENS – Guidelines

- Variation in SJS TENS pathways among burns providers, even within the same network.
- Further work is needed to streamline the pathway and still comply with the BBA-BAD guidelines.

### 4.1.2 Fluid Resuscitation audit and Abdominal compartment syndrome

- The National Audit meeting has been collecting high-level patient information, related to children (and more recently, adults) with a burn injury requiring fluid resuscitation (with or without ventilation). It was agreed that this work should be looked at more thoroughly and a report prepared for circulation before next year's national audit meeting.
- Emphasis should be made on resuscitation endpoints; mls/ Kg/ %TSBA during the 1<sup>st</sup> 24hrs and the 2<sup>nd</sup> 24hrs and the UoP: Mls/Kg/hr.
- Figures related to patients receiving fluid resus (with or without ventilation) has been collated through the national audit meeting since 2016. These data should be analysed and reported.

### 4.1.3 Transport, transfers, and retrievals

- This was a project first discussed in 2017-2018. The London & South East network undertook a short, pilot audit in 2018 and a presentation was made to the 2019 National Audit meeting. At the time, it was agreed that a review of the dataset was needed, to make the audit more suitable to a national roll-out.
- This work was not completed as progress was interrupted by the pandemic, but should be restarted as a priority.

### 4.1.4 Hypothermia management protocol

- This topic is associated with the transport issue, noted above and is a topic that was also raised in previous years. This is primarily related to delayed transfer to the final destination and consideration should be given to a policy that ensures that patients with burn injuries should only stop at one ED.
- A National audit of the interval from the time of injury to the time of arrival to the destination would be important to quantify the scale of the problem in UK and Ireland.
- A project approach should be adopted, to develop a management protocol.

#### 4.1.5 End of life care

- The day showed very robust examples of quality End of Life Care.
- Sharing experiences and challenges is well needed. The view of the National ODN group on how this can be achieved would be very valuable.

#### 4.1.6 Nexobrid

- There are wide variations on the use of Nexobrid.
- Burns professionals need to improve the evidence base for using the treatment – some services use Nexobrid far more than others.
- A review of the UK experiences and sharing success and unfavourable results transparently and independently could be a good way forward.

4.2 It was agreed that the issues raised above should be discussed at the next meeting of the National Burns ODN Group (for England and Wales) and proposals would be drawn-up to create a series of national audit projects.

## 5 **Actions**

- 5.1
- ❖ The 8<sup>th</sup> National UK and Ireland Burns Audit meeting will be held in April 2022. Until there is clarity on public meetings, it is planned for the meeting to be held again on MS Teams.
  - ❖ The National Burns ODN Group will work with the networks, NHS England and colleagues in Scotland and Ireland, to bring forward an action plan for the following topics:
    1. Continued engagement related to the SJS TENS pathway.
    2. Working with IBID, develop metrics and a data-set that provides routine analysis of patients receiving fluid resuscitation and mechanical ventilation.
    3. Re-invigorate the process for a national audit of transport, transfer and retrievals, with a focus on comparing outcomes and delivering an improved pathway for mutual aid.
    4. Associated with the transfer / retrieval issue, develop a national management protocol for hypothermia.

Each of the above issues will be covered on the agenda for the next national audit meeting.

#### **Mr Naiem Moiemem**

*Burns and Plastic Surgeon,  
Queen Elizabeth Hospital Birmingham  
Clinical Lead, Midlands Burn ODN*

#### **Pete Siggers**

*LSEBN Network Manager  
Chair, National Burns ODN Group*

July 2021

**APPENDIX 1 – Participating Services**

<b>England and Wales</b>	
<b>Northern Burn Care Network:</b>	<ul style="list-style-type: none"><li>– Pinderfields, Wakefield</li><li>– Alder Hey Hospital, Liverpool</li><li>– Preston, Lancashire Teaching Hospitals</li><li>– Royal Victoria Infirmary, Newcastle</li><li>– Manchester Burns Services</li><li>– Mersey Burns Services</li><li>– Sheffield Burns Services</li></ul>
<b>London &amp; South East of England:</b>	<ul style="list-style-type: none"><li>– St Andrews, Broomfield Hospital, Chelmsford</li><li>– Queen Victoria Hospital, East Grinstead</li><li>– Chelsea &amp; Westminster Hospital</li><li>– Stoke Mandeville</li><li>– Oxford John Radcliffe Hospital</li></ul>
<b>South West UK Burn Care Network:</b>	<ul style="list-style-type: none"><li>– Morrision Hospital, Swansea</li><li>– Bristol Royal Children’s Hospital</li><li>– Southmead Hospital</li><li>– Salisbury General Hospital</li><li>– Derriford Hospital, Plymouth</li></ul>
<b>Midland Burn Care Network:</b>	<ul style="list-style-type: none"><li>– Birmingham Children’s Hospital</li><li>– Nottingham University Hospital</li><li>– University Hospital Birmingham</li><li>– Leicester Royal Infirmary</li><li>– Royal Stoke University Hospital</li></ul>
<b>Scotland</b>	<ul style="list-style-type: none"><li>– Glasgow</li><li>– Livingstone (Edinburgh)</li></ul>
<b>Ireland</b>	<ul style="list-style-type: none"><li>– Dublin</li></ul>

**National Audit  
Attendance :**

Alexandra Murray	Consultant Plastic Surgeon and Clinical Lead	Stoke Mandeville Hospital
Andy Ward	Dietitian	Stoke Mandeville Hospital
Clara Upson	Band 7 Physiotherapist	Stoke Mandeville Hospital
Daisy Ryan	RCS/ Blond McIndoe Research Fellow	Stoke Mandeville Hospital
Dan Markeson	Consultant	Stoke Mandeville Hospital
Fadi Issa	Consultant Plastic and Burns Surgeon	Stoke Mandeville Hospital
Zoe Avent	Advanced Nurse Practitioner	Stoke Mandeville Hospital
Andy Johnston	ICU Consultant & National Defense Advisor for ICM	Royal Centre for Defence Medicine
BILAL TAIB		Birmingham Children's Hospital
Clare Thomas	Head of Nursing	Birmingham Children's Hospital
Darren Lewis	Consultant Burns & Plastic Surgeon	QE Burns Centre
Dawn Turner	Manager Burns	QE Burns Centre
Elizabeth Chipp	Consultant Burns Surgeon	QE Burns Centre
Federica D'Asta	Burns Fellow	Birmingham Children's Hospital
Jane Leaver	Lead Nurse MBODN	Midlands Burn ODN
Juliet Chivenga	Advanced Occupational Therapist	Birmingham Children's Hospital
Kirsty Floodgate		QE Burns Centre
Naiem Moiemem	Consultant	QE Burns Centre
Oliver Sawyer	Consultant Burns & Plastics BCH/UHB	Birmingham Children's Hospital
Ralph Jepson		Birmingham Children's Hospital
Randeep Mulhi	Consultant in Intensive Care Medicine	QE Burns Centre
Rizwana Imran	Burns Research Fellow Queen Elizabeth	QE Burns Centre
Shivanand Chavan	Consultant Anaesthetist	QE Burns Centre
Steven Cook		Midlands Burn ODN
Tomasz Torlinski	Consultant in ICM	QE Burns Centre
Anthony Sack	Adult burns research audit nurse	Southmead Burns Service
Bart Bednarz		Southmead Burns Service
Catalina Estela Ferrero	Consultant	Bristol Children Hospital and Southmead Hospital
Julia Cadogan	Clinical Psychology	Bristol Children Hospital
Nicola Mackay	Lead Nurse SW Burn ODN	SW Burn Care Network
Sankhya Sen	Consultant Burns and Plastic Surgeon	Bristol Children Hospital and Southmead Hospital
Shirin Pomeroy	Paed Burns CNS	Bristol Children Hospital and Southmead Hospital

Agnes Watson	Consultant Anaesthetist	St Andrew's, Broomfield
Beki Baytug	Consultant in Anaesthesia and Burns ICU	St Andrew's, Broomfield
Catherine Spoors	Burns ICU Clinical Lead	St Andrew's, Broomfield
David Barnes	Clinical Lead for Burns	St Andrew's, Broomfield
Emma Borrows	Consultant - paediatric burns intensive care	St Andrew's, Broomfield
Harish Bangalore	Consultant PICU	St Andrew's, Broomfield
Joana Neves	Consultant Anaesthetist	St Andrew's, Broomfield
Rachel Wiltshire		St Andrew's, Broomfield
Vicky Dudman	Occupational Therapist	St Andrew's, Broomfield
Caroline Reddy	Clinical Nurse Education Facilitator	St James's Hospital
Helen Nolan	Clinical Nurse Manager	St James's Hospital
Kevin Cahill		St James's Hospital
Mark Abrahams	Consultant	St James's Hospital
Odhran Shelley	Director National Burn Unit Ireland	St James's Hospital
Nora Nugent	Consultant Plastic Surgeon, Clinical Lead Burns, Chair LSEBN ODN	Queen Victoria Hospital
Hilal Bahia	Consultant Burns and Plastic Surgeon	The Wallace Burn Unit, St John's Hospital, Livingston
Thomas Reekie		The Wallace Burn Unit, St John's Hospital, Livingston
David McGill	Consultant Plastic Surgeon	Glasgow Royal Infirmary
Nick Arkoulis	Consultant Plastic Surgeon	Glasgow Royal Infirmary
Alison Smith	Matron Burns & Plastics	Whiston Hospital (Mersey Adults)
Anirban Mandal	Burns and Plastic Surgeon	Whiston Hospital (Mersey Adults)
Catherine Rarraty	Associate Specialist	Alder Hey Children's NHS Foundation Trust
David Stockdale	Northern Burns Network Manager	NHSE (NW)
Dilnath Gurusinghe	Locum Consultant Burns & Plastic Surgeon	Whiston Hospital (Mersey Adults)
Jennifer Stevens	Ward Sister	Alder Hey Children's NHS Foundation Trust
Joanne Moore	clinical lead physiotherapist	Alder Hey Children's NHS Foundation Trust
Lindsey Bidston	Ward Manager	Whiston Hospital (Mersey Adults)
Louise Campbell	Burns nurse specialist	Alder Hey Children's NHS Foundation Trust
Natalie Holman	Clinical Psychologist	Alder Hey Children's NHS Foundation Trust
Sian Falder	Consultant Burns & Plastic Surgeon	Alder Hey Children's NHS Foundation Trust
Tracey Walker	Directorate Manager, Burns & Plastic Surgery	Whiston Hospital (Mersey Adults)
Hodan Abdi	Burns service data analyst	Chelsea and Westminster Hospital

Isabel Jones	Consultant Plastic Surgeon	Chelsea and Westminster Hospital
Joanne Atkins	Consultant Plastic and Burns Surgeon	Chelsea and Westminster Hospital
Jorge Leon-Villapalos	Consultant Plastic Surgeon	Chelsea and Westminster Hospital
Kate Attrill	Physiotherapist	Chelsea and Westminster Hospital
Katherine Elworthy	Matron	Chelsea and Westminster Hospital
Pete Saggars	Network Manager	Chelsea and Westminster Hospital
Sara Boylin	Practice Development Sister	Chelsea and Westminster Hospital
Barbara Hensman	Ward Manager	Royal Manchester Children's Hospital
Clare McGrory	Clinical Specialist Burns Physiotherapist	Wythenshawe
Jacky Edwards	Consultant Nurse	Wythenshawe
Mamta Shah	Consultant Plastic Surgeon	Royal Manchester Children's Hospital
Nadeem Khwaja	Consultant Burns & Plastic Surgeon	Wythenshawe
Nancy Higginbottom	Burns Matron	Wythenshawe
Samantha Macnally	Consultant Burns & Plastic Surgeon	Wythenshawe
Vicky Edwards	Senior specialist nurse burns outreach	Wythenshawe
Claire Woods	Consultant Anaesthetist	Northern Regional Burns Centre
Ian Clement	Consultant in Critical Care	Northern Regional Burns Centre
Thomas Cairns	Consultant in Intensive Care Medicine	Northern Regional Burns Centre
Andrea Cronshaw	Childrens Burns and Plastics Clinical Nurse	Nottingham University Hospitals
Anthony Fletcher	Cons anaesthetist	Nottingham University Hospitals
Ciaran O'Boyle	Consultant Plastic Surgeon	Nottingham University Hospitals
Mary Kennedy	Service Improvement Nurse	Nottingham University Hospitals
Saiidy Hasham	Locum consultant plastic surgery and burns	Nottingham University Hospitals
Siji Joseph	Senior Nurse	Oxford John Radcliffe
Chidi Ekwobi	Consultant Plastic Surgeon and Burns Clinical Lead	Royal Preston Hospital
Marcia Roach	burns clinical nurse specialist	Royal Preston Hospital
Hollie Carpenter	Clinical Specialist Physiotherapist	Salisbury District Hospital
AJ Stephenson	Consultant Burns and Plastic Surgeon	Sheffield Adult and Paediatric Burns Units
Jasmine Tang	Plastic Surgery Consultant	Sheffield Adult and Paediatric Burns Units
Ceri Beynon	Consultant Anaesthetist	The Welsh Centre for Burns and Plastic Surgery



Jeremy Yarrow	Burns Consultant	The Welsh Centre for Burns and Plastic Surgery
Jo Bowes	Consultant Anaesthetist	The Welsh Centre for Burns and Plastic Surgery
Jon Cubitt	Consultant Burns Surgeon	The Welsh Centre for Burns and Plastic Surgery
Muhammad Javed	Consultant	The Welsh Centre for Burns and Plastic Surgery
Peter Drew	Consultant Burns & Plastic Surgeon	The Welsh Centre for Burns and Plastic Surgery
Sarah Hemington-Gorse	Consultant	The Welsh Centre for Burns and Plastic Surgery
Susan Salerno	ward manager	The Welsh Centre for Burns and Plastic Surgery
Kevin Chung		
Alan Phipps	Consultant Plastic Surgeon	Pinderfields Hospital
Brendan Sloan	Consultant in Anaesthesia and Intensive Care	Pinderfields Hospital
Hayley Byford	Paediatric Burns staff nurse	Pinderfields Hospital
Michael Richardson	Burns Specialist Nurse	Pinderfields Hospital
Natasha de Vere	Consultant paediatrician with burns liaison role	Pinderfields Hospital
Preetha Muthayya	Consultant Burn Surgeon	Pinderfields Hospital
Stephanie Raynor	clinical nurse specialist	Pinderfields Hospital
ALEXANDRA EFIMOV		
CLAIRE WARE		
CW LASERHAIR		Chelsea and Westminster Hospital
REBECCA HASHAM	PHYSIOTHERAPIST	
TIBERIU SIMU		QE Burns Centre