



Implications for Plastic Surgery Manchester Arena Experience

Ken Dunn
Burn and Plastic Surgeon
Manchester

Who am I?

- Burn surgeon in Manchester from 1996
- Working on burns organisation from 1997
- Med.Dir. UK Burn Injury Database, launched 2005
- UK clinical lead for Coding and Classification 2013
- GIRFT CL Plastics, Hands and Burns 2018-2020

Plan for the session – KWD views

- Some NHS truths
- Nature of modern MI events
- Local Plans for B&P
- Lessons from Manchester
- Implications for national plans

Recognising that in the NHS: compared to EU/100K population

- Fewer ward beds
- Greater occupancy **Less Capacity**
- Fewer ICU beds
- Less spending **Less Resilience**
- Fewer doctors
- Higher workloads

Burn Major Incident Group

- 2004
 - Started work in March 2004
 - Capacity based on the results from the NBBB
 - Initial plan in 2006, revised 2010
 - Not actioned by DH
- 2017
 - Part of a national MI Plan
 - Chaired by Jacky Edwards

OFFICIAL



NHS England

Emergency Preparedness, Resilience and Response

Concept of Operations for managing Mass Casualties



OFFICIAL

1 of 43



OFFICIAL



NHS England

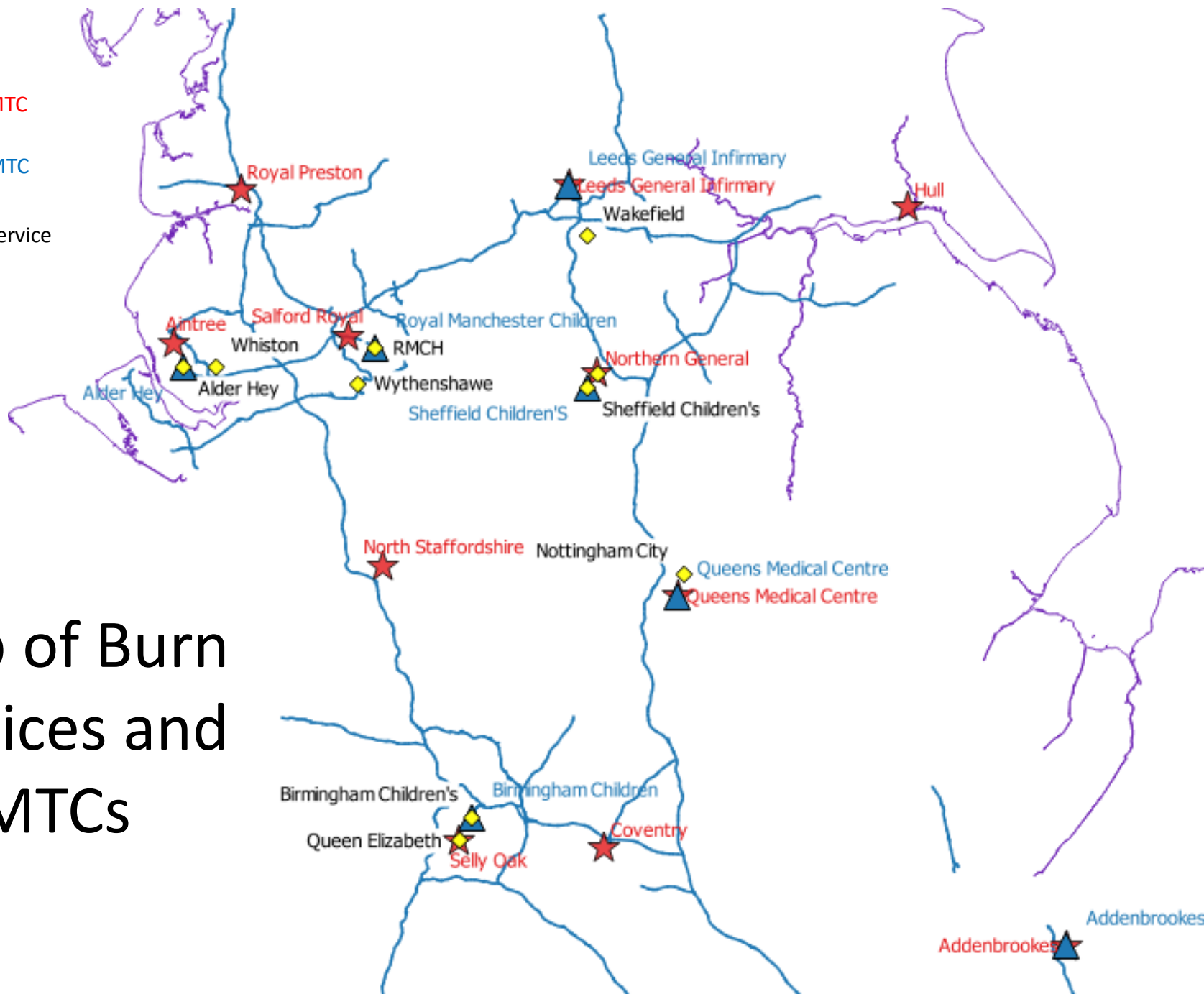
Emergency Preparedness, Resilience and Response

Concept of Operations for the management of Mass Casualties (Burns Annex)



OFFICIAL

- ★ Adult MTC
- ▲ Paed MTC
- ◆ Burn Service



Map of Burn Services and MTCs

Consequences

- Very limited capacity
- Secondary transfers highly likely
- Primary assessment is key
- Command and control complex but essential
- Retention by non-specialists to be the norm
- Pre-emptive education and preparation vital

No plan to cover Plastic Surgery or Orthoplastics



Manchester
Academic Health
Science Centre

MANCHESTER
1824
The University of Manchester



**Greater Manchester Academic Centre for
Acute Care and Trauma (GM-aCAT)**

Manchester Arena Attack

22 May 2017

Reflections on the response

Thanks to my colleagues

Greater Manchester Trauma System Network (GMTSN)



Major Trauma Centre Collaborative

- Central Manchester
 - Manchester Royal Infirmary
 - Manchester Children's Hospital
- Salford Royal
- Wythenshawe



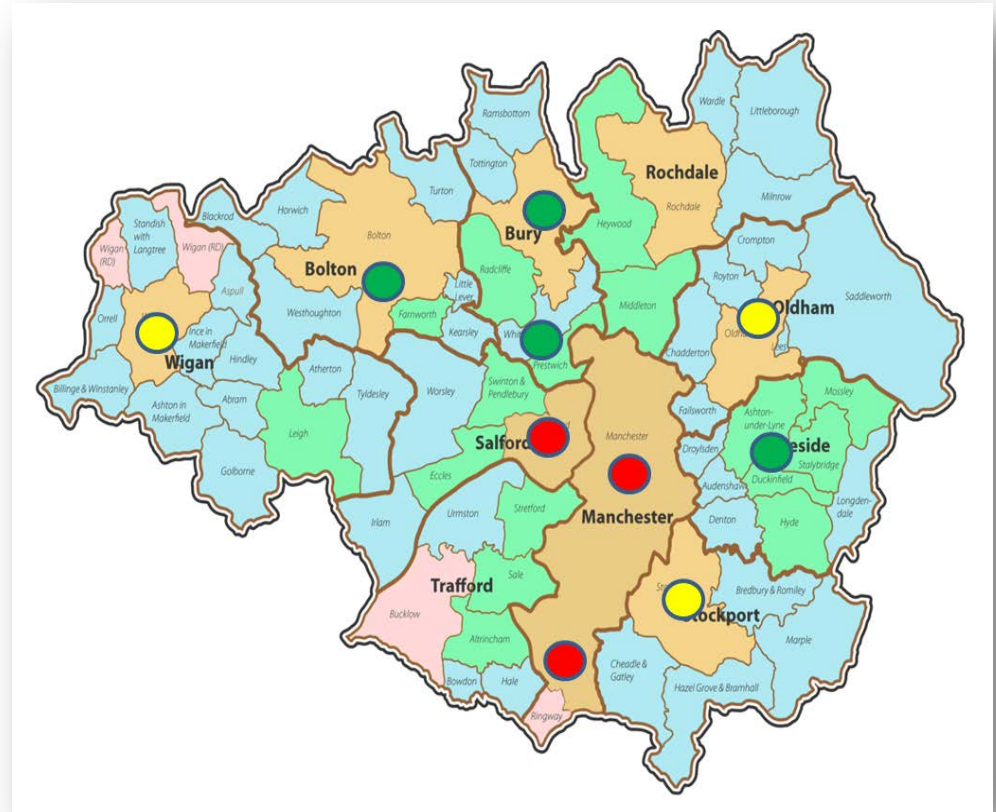
Trauma Unit

- Oldham
- Stockport
- Wigan



Local Emergency Hospital

- Bolton
- Bury
- North Manchester General



3 million population

EPRR: Greater Manchester Capability Distribution plan

Over 12 years

Under 12 years

Pre-determined GM P1
capability for the first 2
hours

Salford Royal
20

CMFT
20

UHSM
20

CMFT
20

Pre-determined GM P2
capability for the first 2
hours

Oldham
15

Stockport
15

Wigan
15

Bolton
10

Pre-determined GM
P3 capability for the
first 2 hours

Tameside
40

NMGH
30

RUCC
10

Fairfield
20

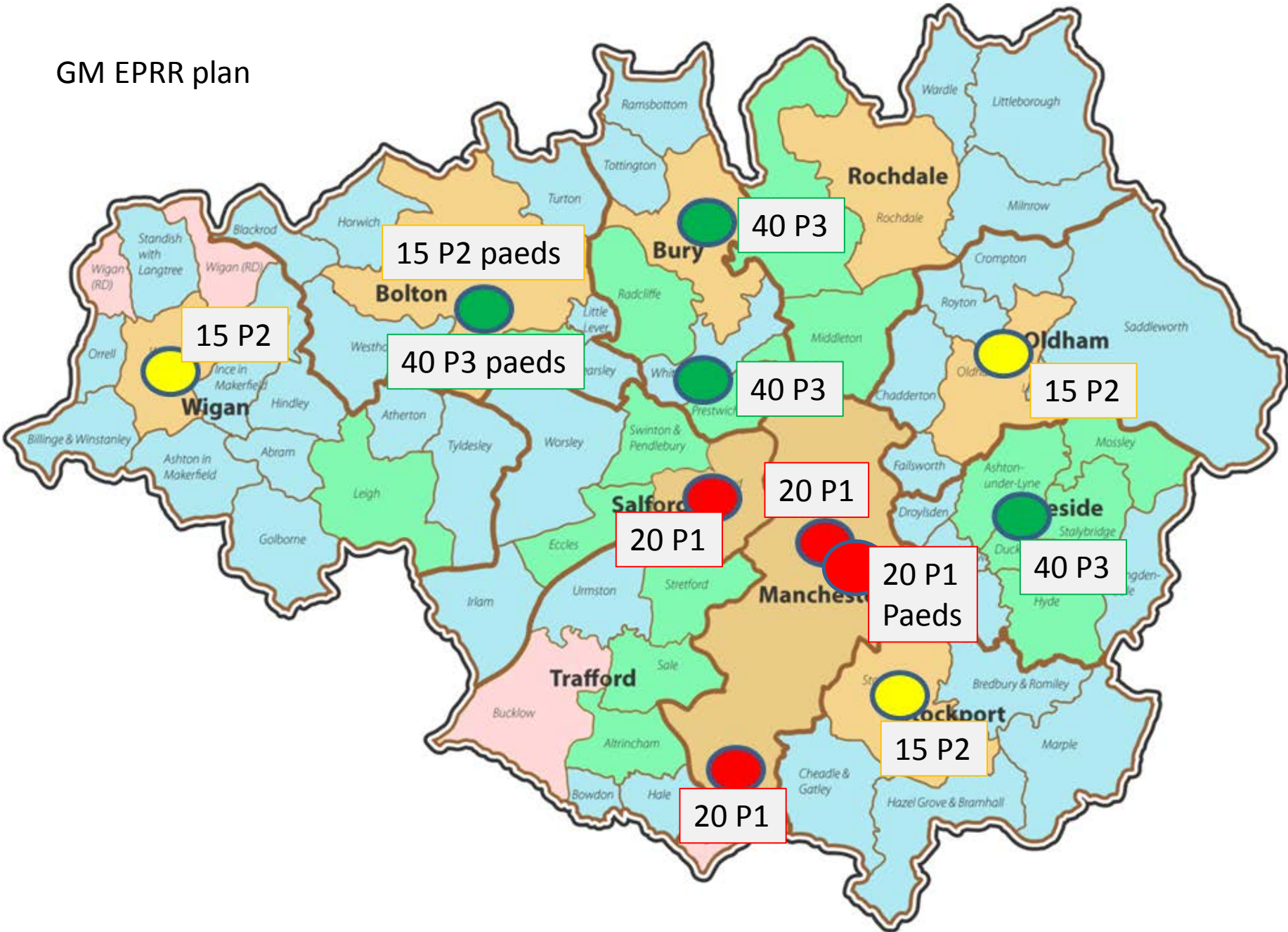
Bolton
20

WIC/ MIU
+ Mass Casualty
Treatment
Centres*

P3 adults Paeds

Capacity = 300

GM EPRR plan

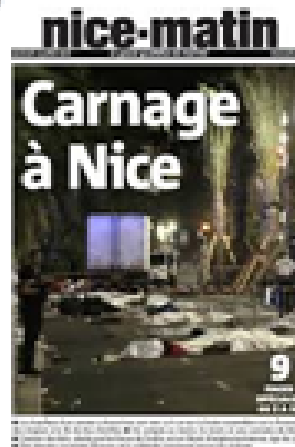


An Anticipated Event

- Paris November 13th 2015
- Brussels 22nd March 2016
- Nice July 14 2016
- Berlin December 19th 2016
- London 22nd March 2017



Figure 1. Recovery Room, Hospital Saint Louis, Paris, November 13, 2015.



Largely a PS event rather than Burns

NW Mutual B&P Support

- Preston
- Whiston
- Alder Hey
- (Chester)
- Wythenshawe
- RM Children's
- Christie

Meetings in Sept and November 2016

- Established mutual support agreement
- Started a process of response and communication
- Needs to link with GM and Con Ops

Based on 1996 response



Consultant Level Information

Name	
Primary Site	
Home postcode	
Home landline	
Home email	
Mobile	
Work email	

Happy to assess and treat MI cases:

	Burns Trauma	Plastics Trauma
Children	Y / N	Y / N
Adults	Y / N	Y / N

Closest large ED to home (tick):

Manchester Royal Infirmary
 Royal Manchester Children
 North Manchester General
 Salford Royal
 Wythenshawe
 Trafford General

Hospital sites

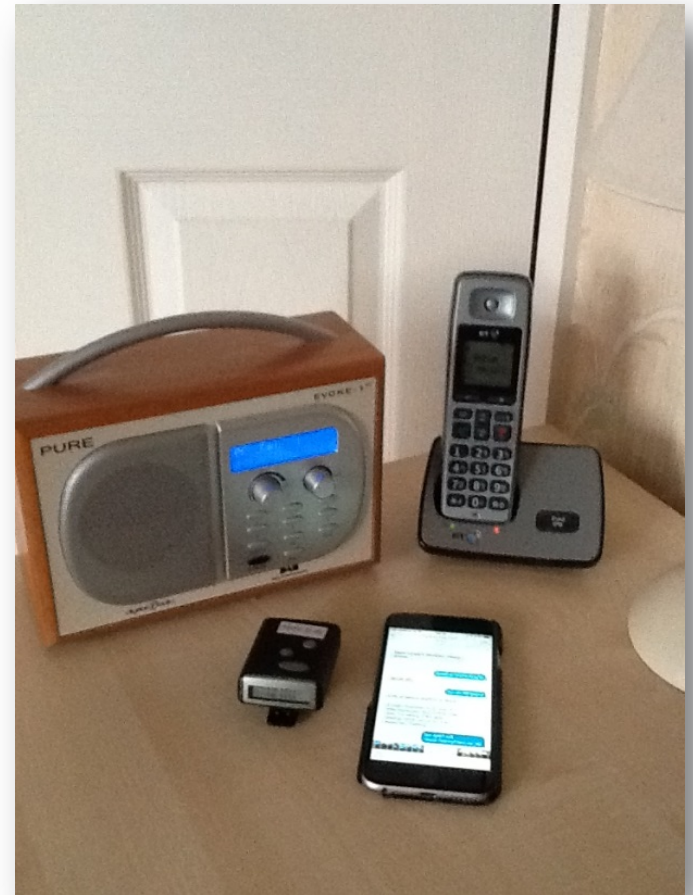
familiar with (tick):

Primary Contractual Site (tick):

Communication

Coordinating your individual team response

- How do you contact each other?
 - Daytime
 - Nighttime
 - On call or not on call
- Mobile telephone
 - Muted or not?
 - Problems with blind spots
- Landline
 - Do you have one?
 - Do you need one?
- Pager?
 - Where is it?
 - Is it muted?
- WhatsApp
 - Independent of switchboards
 - Problems with blind spots
 - Secure, but not totally?





NWAS NHS Trust ✓

@NWAmbulance

We confirm that we are responding to an incident at the Manchester Arena. Please follow [@gmpolice](#) for updates at this time.

RETWEETS
261

LIKES
166



11:21 PM - 22 May 2017

13 261 166



G M Police ✓
@gmpolice

Following

Police statement on incident at Manchester Arena

Police statement on incident at Manchester Arena

Emergency services are currently responding to reports of an explosion at Manchester Arena. There are a number of confirmed fatalities and others injured. Please **AVOID** the area as first responders work tirelessly at the scene. Details of a casualty bureau will follow as soon as possible.



3:44 PM - 22 May 2017

52,465 Retweets 32,854 Likes



993 52K 33K



Tweet your reply

Low energy blast injuries

Secondary penetrating injuries



19 Dead at Scene
3 Others on arrival in Hospital

North West Ambulance Service (N WAS)

Triage priorities

P1 Immediate 21
(Life threatening)

P2 Urgent
(Serious)

P3 Delayed
(Walking wounded)

P4 Dead 22
(0-2)



59 in total transported by N WAS

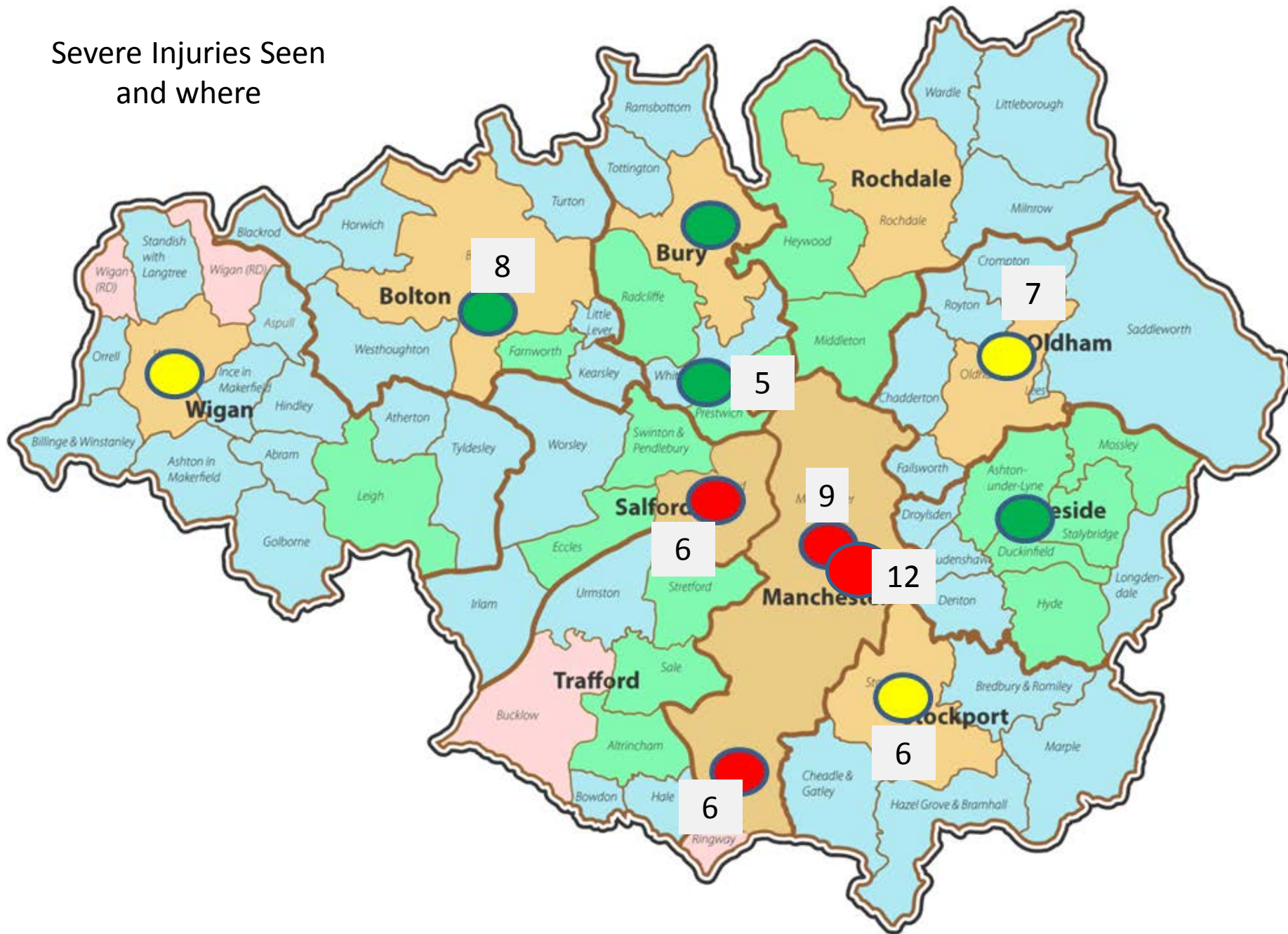
“NWS delivered the right patients to the right place at the right time”

Trafford
Centre
Simulation

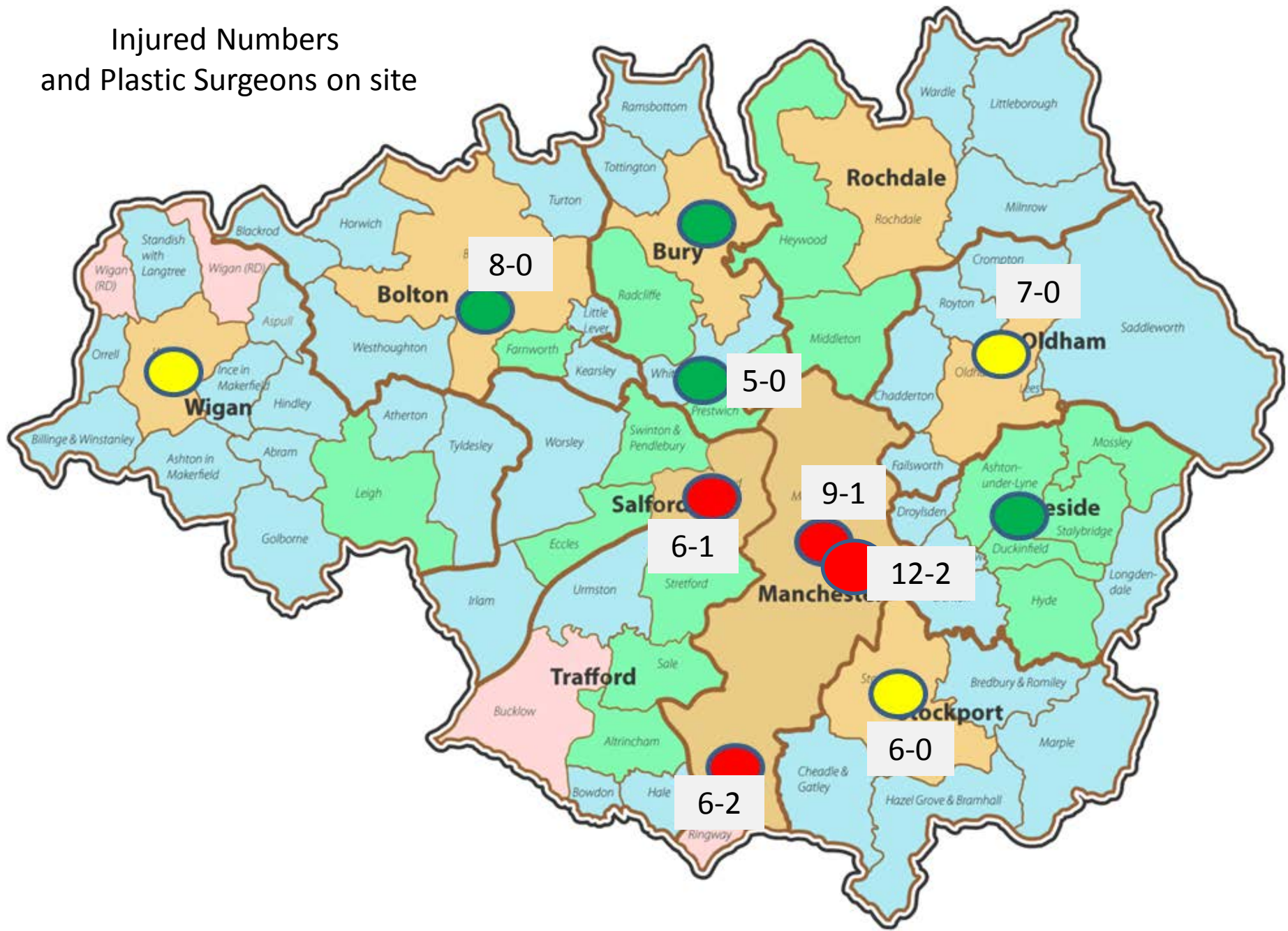
Arena attack
Reality

- Demand well within capacity planning
- Simulation resembled reality
- What if demand had exceeded capacity?

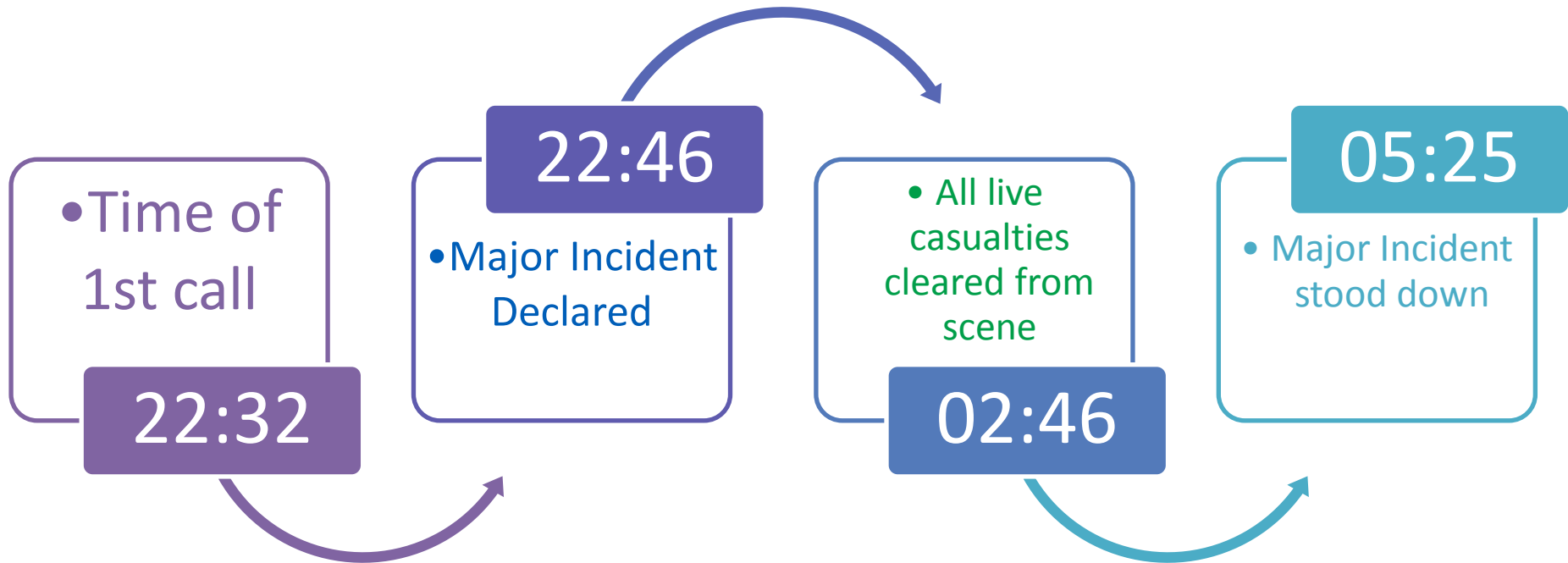
Severe Injuries Seen and where



Injured Numbers and Plastic Surgeons on site



Incident Timeline



Demand for Orthoplastics in the first week



- 25 Plastic theatre lists
- 20 Orthopaedic lists
- Elective lists cancelled for 8 days
- Mean operations
 - 3 per patient (1-6)
- Mean operation time
 - 3 hours (1.2 – 7.8h)
- Longest operation 12.4 hours
- Stepped down too early





Greater Manchester Orthoplastic Service
Wythenshawe Hospital
“The Manchester worker bees!”

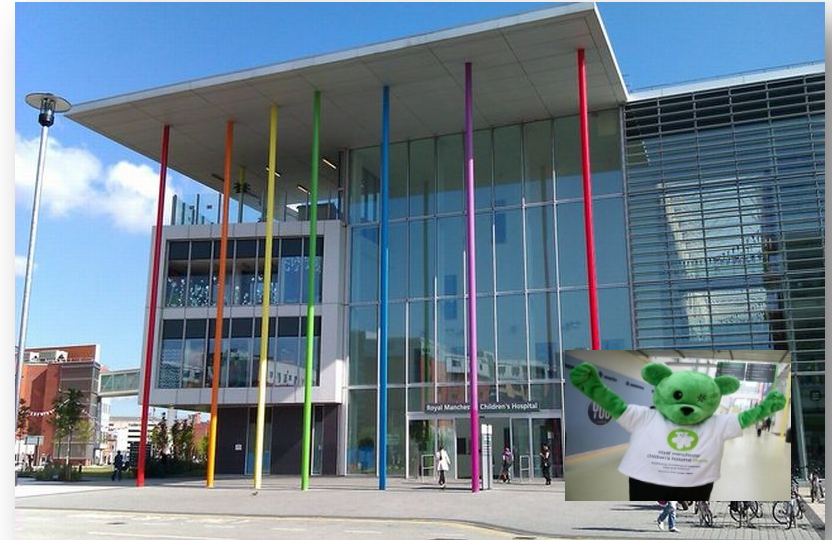


Thanks to
Mr Jason Wong

Royal Manchester Children's Hospital Paediatric Major Trauma Centre

ROYAL
MANCHESTER
CHILDREN'S
HOSPITAL

- Mass casualty events
 - Rare
- Penetrating trauma
 - Unusual
- Blunt trauma
 - Conservative treatment
- Parents and children
 - Want to be co-located
- Paediatric trauma units
 - Even less experience



The prolonged surgical response Team working

Twice daily theatre meetings

Daily rehabilitation meetings

Input from
Royal Centre for Defence Medicine
Birmingham

Reports

Manchester Arena Attack

**NHS-E Clinical Debrief
8 June 2017**

**This document is the result of a confidential clinical meeting.
Please do not distribute to organisations outside of the NHS**



The Kerslake Report:

An independent review into the preparedness for, and emergency response to, the Manchester Arena attack on 22nd May 2017



27th March 2018

Lessons: re Event

- small enough to be manageable within GM plan
- NW ambulance service triage and placement was excellent
- NW regional response was adequate
- trusts stood down too early
- consumable (ortho kit, micro) concerns significant
- PS theatre extra provision was too short, especially for children
- must immediately cancel ALL elective activity
- must include the immediate re-routing of other trauma

Lessons: re Care

- benefit of using whole body CT is to identify soft tissue defects not clinically suspected
- record-keeping shortfall of surgery done
- need pictures with annotations of the surgery & postop events / plans
- PS being used to document the range of soft tissue defects
- value of involving general medicine and general paediatricians to review trauma cases
- max in the first few days of 2 hours in theatre with 1 hour of knife time

Department/Staff

- need for a Bronze Controller for B&P if the event is larger
- need a 'benign dictator' to establish what will happen and who does what
- must be an acceptance that consultants will undertake whatever they are asked to do
- psychological support needs to be on offer from the start

Education Prep

- need to create PDFs of all action cards to be printed and stored in boot of all cars plus credit card size versions for the individual
- hardcopy of the plans should also be stored on all PS active spoke sites.
- an educational site using Moodle(?) should contain the action cards plus key lessons
- should be regarded as (actually useful) mandatory training.
- key staff need to undertake specific media training with departmental approval others should avoid media contact to stop the 'foot in mouth' syndrome

NHS Organisational

- significant infrastructure questions in GM persist
- rehabilitation lacking for kids more than adults, particularly in community, but overall poor
- current GM planned response is politically driven and not logical
- the importance of NHS passport
- regional plan(s) for PS need to be created
- creation of a burns-like national PS plan is needed?
- the importance of an overall EPRR MI management system

Questions:

How much is too much?

When can you tell?

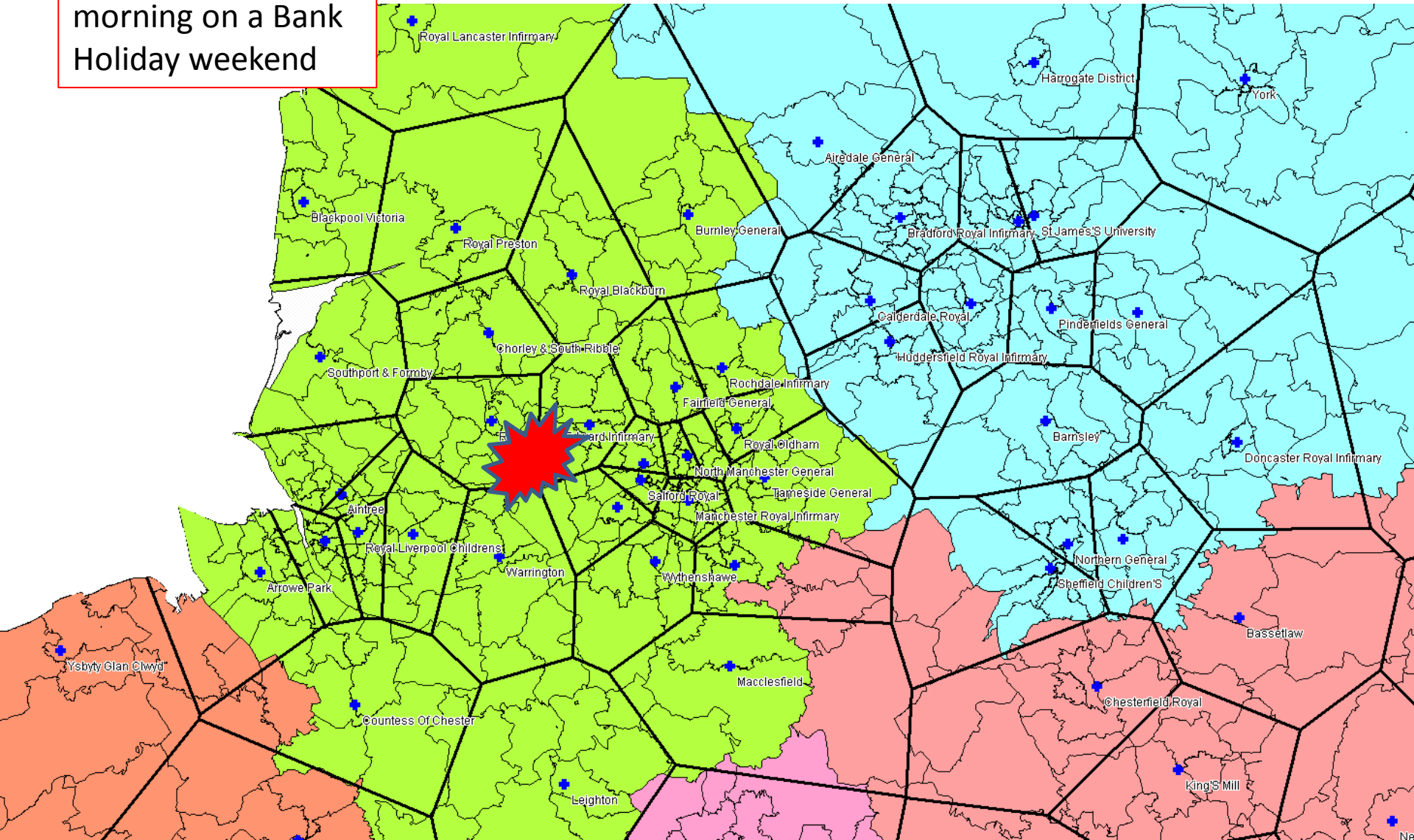
And when it is too much do you:

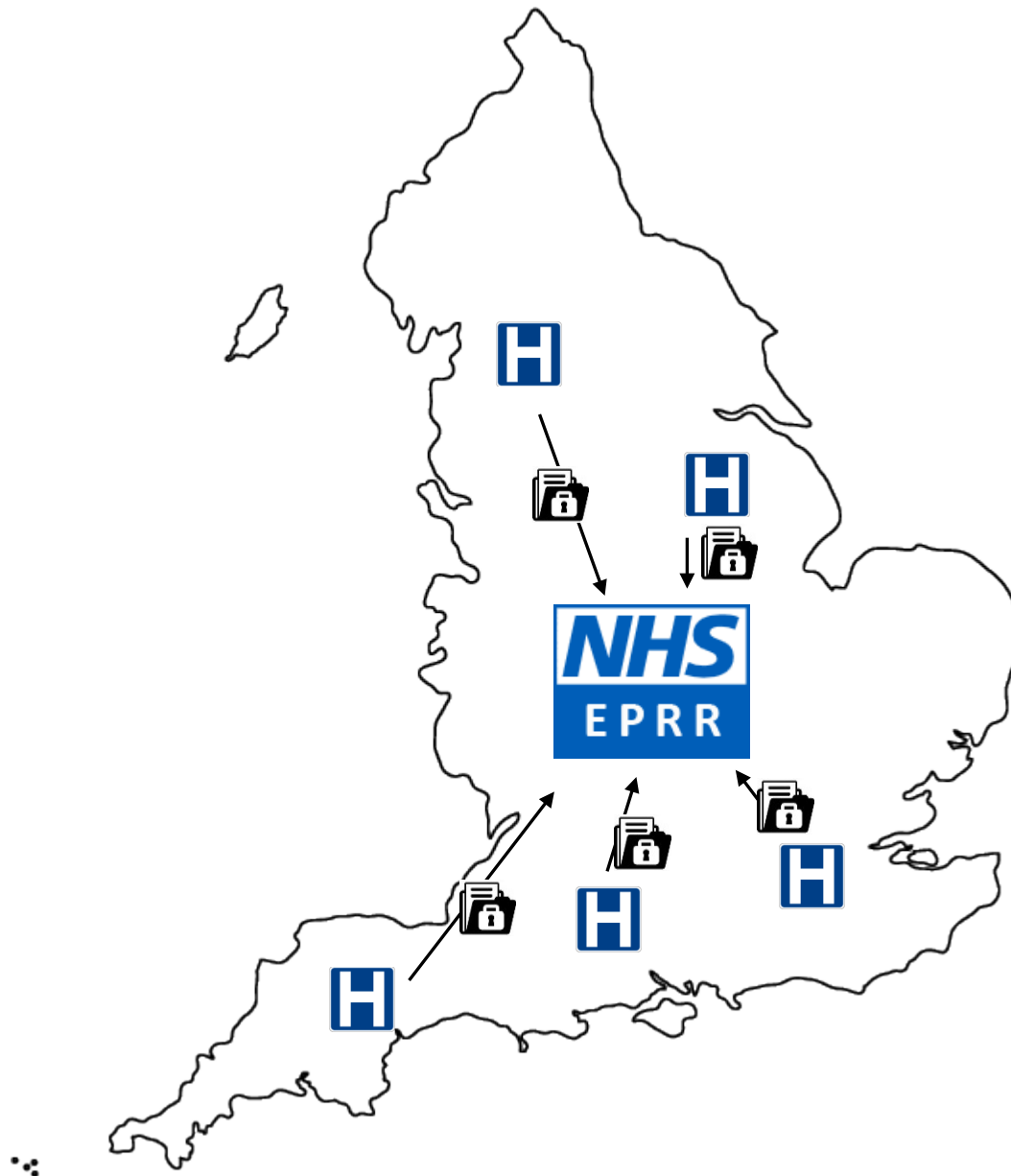
Send the patient


or

Sent the staff

02:30 on a Saturday
morning on a Bank
Holiday weekend





Incident/Emergency Report 

Incident Date 10/01/2017

Incident Time 08:17 am

Nature of Incident Crash/Blast

Patients Affected 54

Patients Managed 52

 Priority 1 Priority 2 Priority 3 Priority 4

NAME | INJURY | LOCATION



	Patient	DOB	Location	Admitted	Injury	Injury Score	Unmet Needs	Transfer
	BLOGGS JOE	04/05/1955 (61)	Guy's and St Thomas' NHS Foundation Trust : Ward 7	10/01/2017 12:13 pm	Soft Tissue : Muscle/Tendons	24	34	No
↑	DOE JOHN	12/03/1948 (68)	Guy's and St Thomas' NHS Foundation Trust : Wilson Ward	10/01/2017 11:07 am	Bony : Displacement Spinal	22	13	No
↑	MAN SUPER	04/05/1984 (32)	Great Ormond Street Hospital NHS Foundation Trust : Ward 27	10/01/2017 13:34 pm	Soft Tissue : Muscle/Tendons	19	15	Yes
↑	ONYMOUS AN	29/07/1974 (42)	Barts Health NHS Trust : Joplin Ward	10/01/2017 13:13 pm	Bony : Displacement Vascular	19	8	No
↑	MAN BAT	14/09/1964 (52)	Royal Free London NHS Foundation Trust : Ward 9	10/01/2017 12:13 pm	Soft Tissue : Muscle/Tendons Abdominal	17	6	No
↑	BLOGG JOE	04/05/1955 (61)	Guy's and St Thomas' NHS Foundation Trust : Ward 7	10/01/2017 12:13 pm	Soft Tissue : Muscle/Tendons	14	4	No
↑	DOE JOHNS	12/03/1948 (68)	Guy's and St Thomas' NHS Foundation Trust : Wilson Ward	10/01/2017 11:07 am	Bony : Displacement Spinal	12	5	Yes
↑	MAN SUPERS	04/05/1984 (32)	Great Ormond Street Hospital NHS Foundation Trust : Ward 27	10/01/2017 13:34 pm	Soft Tissue : Muscle/Tendons	9	7	No
↑	BACK HUNTCH	29/07/1974 (42)	Barts Health NHS Trust : Joplin Ward	10/01/2017 13:13 pm	Bony : Displacement Vascular	8	5	No
↑	DUST FAIRY	29/07/1974 (42)	Barts Health NHS Trust : Joplin Ward	10/01/2017 13:13 pm	Bony : Displacement Vascular	2	0	No
↑	ONYMOUS ANN	29/07/1974 (42)	Barts Health NHS Trust : Joplin Ward	10/01/2017 13:13 pm	Bony : Displacement Vascular	5	2	Yes
↑	HOOK CAPTAIN	14/09/1964 (52)	Royal Free London NHS Foundation Trust : Ward 9	10/01/2017 12:13 pm	Soft Tissue : Muscle/Tendons Abdominal	8	5	No
↑	NAME NON	14/09/1964 (52)	Royal Free London NHS Foundation Trust : Ward 9	10/01/2017 12:13 pm	Soft Tissue : Muscle/Tendons Abdominal	2	0	Yes
↑	PAN PETER	14/09/1964 (52)	Royal Free London NHS Foundation Trust : Ward 9	10/01/2017 12:13 pm	Soft Tissue : Muscle/Tendons Abdominal	4	0	No

Prioritise

PATIENT DETAILS

Joe Bloggs : 04 January, 1967 (50) : 123 456 789

UNIVERSITY HOSPITALS BIRMINGHAM NHS FOUNDATION TRUST QUEEN ELIZABETH HOSPITAL ITU May be moved to Neurosurgical ward 407/409

INJURY	SEVERITY	UNMET NEED
Brain	4	0
Thoracic	0	0
Cardiac	1	4
Vascular	1	0
Burn	2	2
Abdominal	4	1
Pelvic	3	1
Spinal	3	4
Orthopaedic	2	4
Skin/soft Tissue	0	0
	20	16

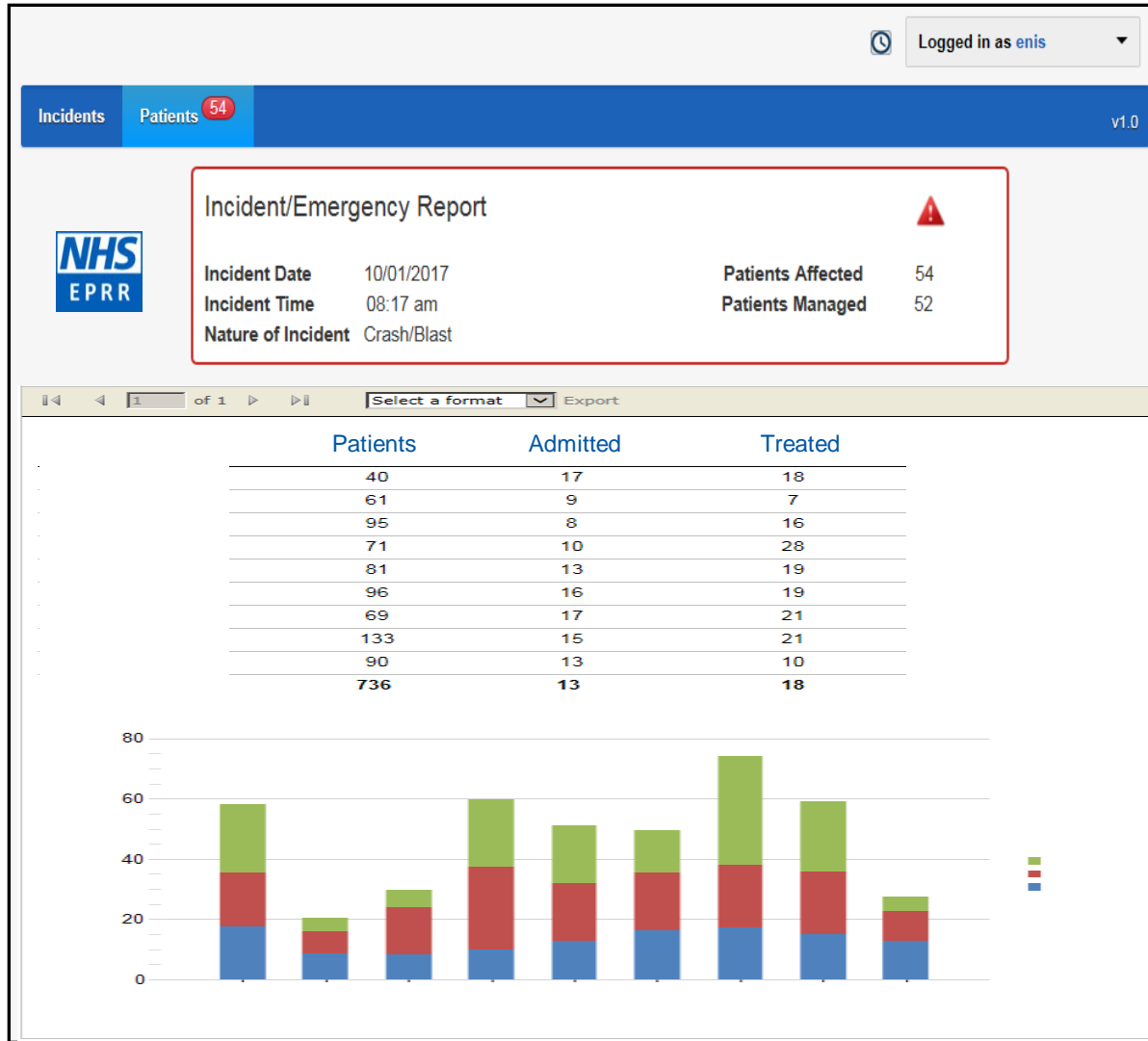
Buttons:

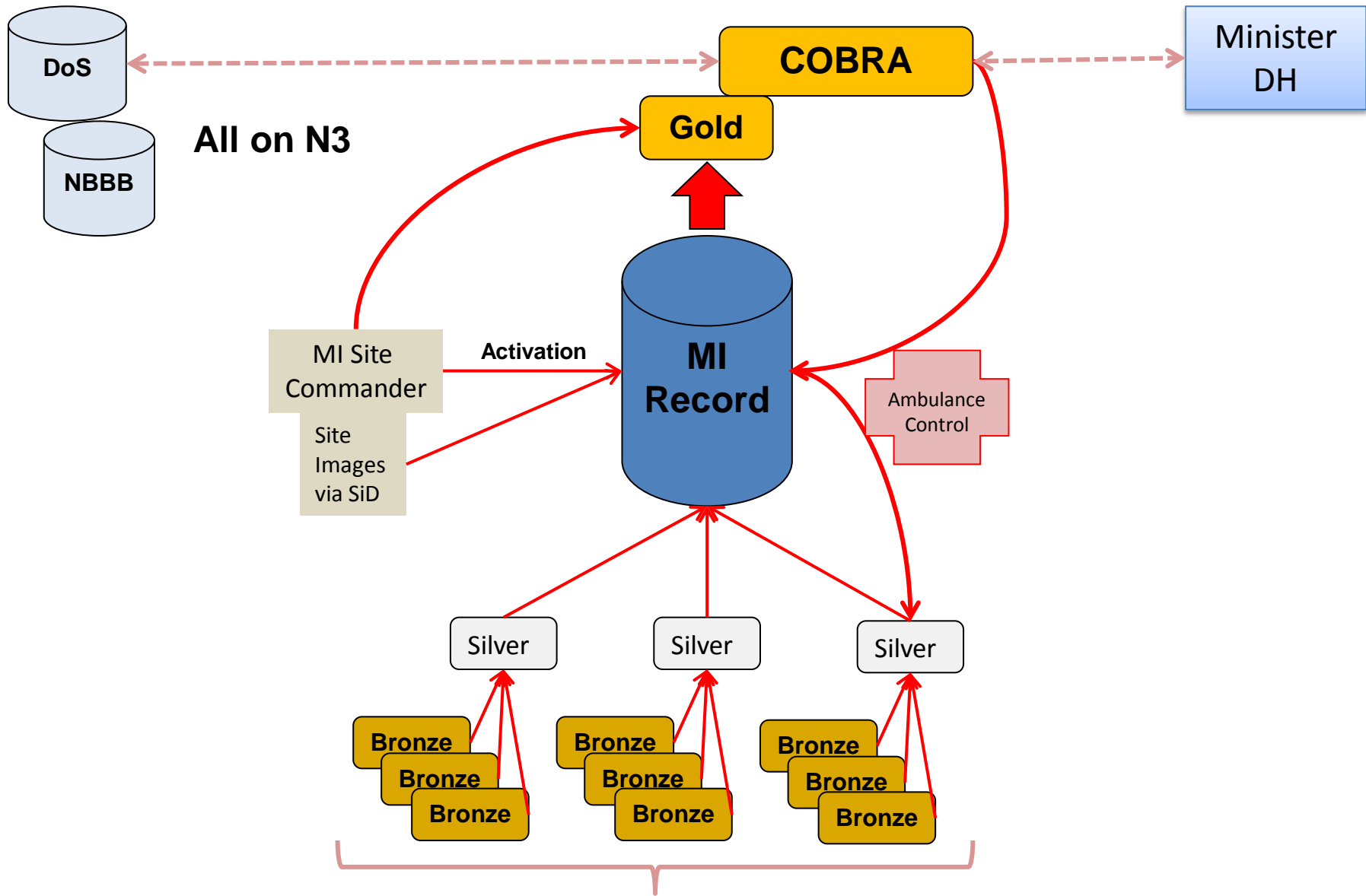
Prioritise

Priority 1

Patie	Transfer
BLOC	No
↑ DOE	No
↑ MAN	Yes
↑ ONY	No
↑ MAN	No
↑ BLOC	No
↑ DOE	Yes
↑ MAN	No
↑ BACH	No
↑ DUST	No
↑ ONY	Yes
↑ HOO	No
↑ NAME NON 14/09/1964 (52) Royal Free London NHS Foundation Trust : Ward 9 10/01/2017 12:13 pm Soft Tissue : Muscle/Tendons Abdominal 2 0	Yes
↑ PAN PETER 14/09/1964 (52) Royal Free London NHS Foundation Trust : Ward 9 10/01/2017 12:13 pm Soft Tissue : Muscle/Tendons Abdominal 4 0	No

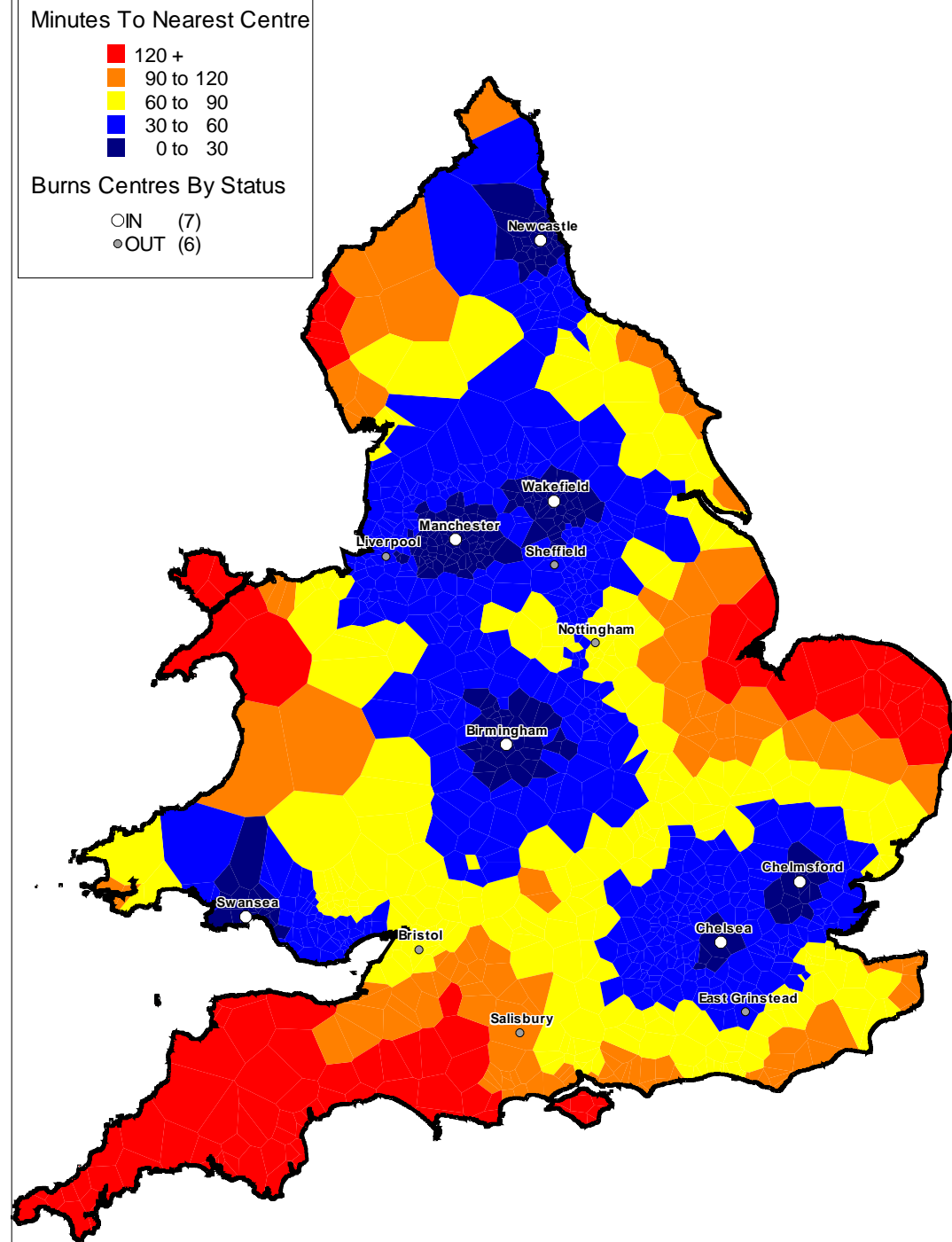
Reporting Dashboard





All clinical teams comms across all sites via Forward Clinical app

Travel time analysis



Intercepted Referrals



NHS BURNS

Demo Burns Referral System Demo v2.1.1

[<< Home](#)

Referral Submitted


You have successfully entered details of your referral request.

Please contact the Burns Service below:

Referral ID : 14

MDSAS Test Centre (MDSAS Test Centre)
0161 277 7917

The unique QR Code below can be used with the MDSAS Referrals Mobile App to upload wound images to this referral.




Major Incident

⚠ Important!

A major Incident/Emergency at **Manchester City View House** was reported today **10/01/2017 at 08:17 am.**

Is this patient referral a direct result of the incident above?



* = Required Field

[Having Problems?](#)



Referral made between systems

NHS networked computer

Access via a web browser (Chrome or Internet Explorer 8.0+)

<http://referrals.mdsas.nhs.uk/>



Welcome to MDSAS Referrals

From this site you can access the referral systems for various specialities




Spinal Injuries

National Spinal Injury Referrals

[Spinal Referrals >](#)

Burn Injuries

Burn Injury Referrals

[Burns Referrals >](#) 


Orthoplastics and Trauma

Plastics and Trauma Injury

[Coming Soon >](#)

Dermatology

Dermatology Referrals

[Coming Soon >](#) 



SiD:Secure Image Data

Download the complementary app to your smartphone to add photos to your referral



Injury Details

NHS BURNS

Burns Referral System v2.4.3

[<< Home](#)

Welcome
Introduction

Patient Referral
Your Details ✓
Patient Details ✓

Injury Details
Checklist

* = Required Field

[Having Problems?](#)
[Watch help video here](#)

Injury Details

Date & Time of Injury: * Date : * Time : 24hrs

Arrived in A&E: Date : Time : 24hrs

Describe Injury:

* Type of Injury:

Locality: Livingspace:

Activity: Category:

What percentage is superficial or superficial dermal burn? % TBSA ?

What percentage is deep dermal or full thickness burn? % TBSA ?

Calculated total 0 % TBSA (S/SD TBSA + DD/FT TBSA)

* Does the patient have an airway injury? Yes No

* Does the patient require Fluid Resuscitation? Yes No
(>15% TBSA in adults, >10% TBSA in children)

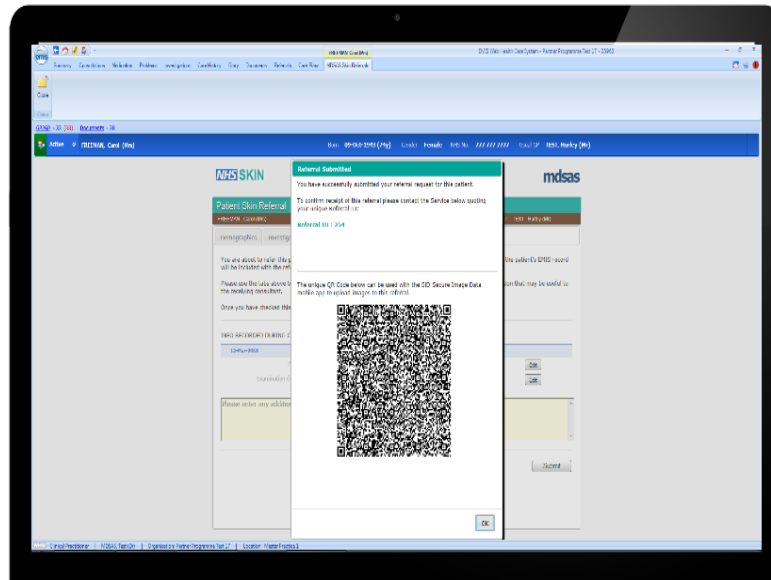
**OFFICIAL FIRST AID GUIDANCE: COOL BURN WITH 20MINS OF COOL RUNNING WATER
PLEASE PROVIDE FIRST AID TO PATIENT IF NOT YET PERFORMED**

Medication:
(Treatment so far)

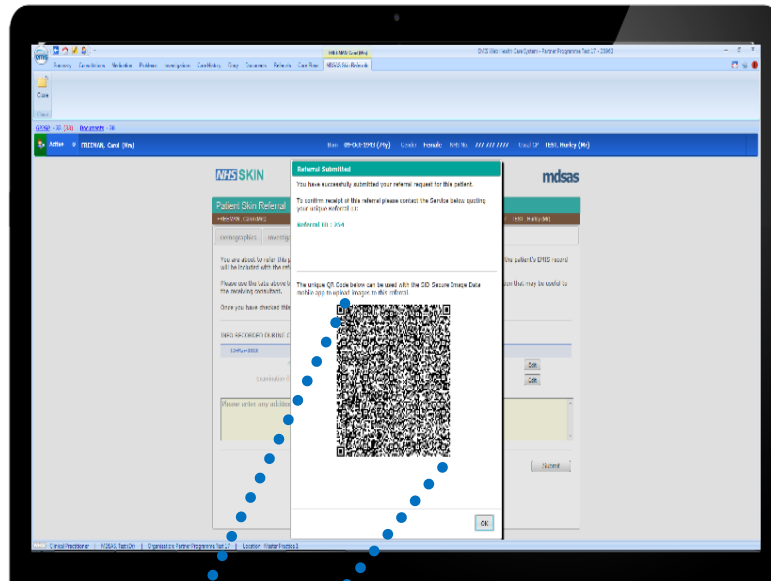
Other comments / past medical history / comorbidities:

You can upload photos from your computer's hard drive here, alternatively you can send photos using the MDSAS referrals mobile phone app and the unique QRcode appearing after you click submit.
(The patient's photo consent form, Lund/Browder and other forms can also be photographed and included)

No file chosen



Secure
NHS N3
web
database
platform
accepting
various
datasets



1



Viewing the referral


NHS Referral Details ✕

Referral ID - 59 M M

Patient Referrer Injury Details Airway Resuscitation **Images** Status

Images

There are 2 images uploaded to this referral record.



[Show QR-Code](#)

Export Save Close

[Management guide](#)
[Referral videos](#)

to v3.3

Options / Alternatives

999 eye

SiD

Info and images from scene

MDSAS
EPRR

Norse
MI

Patient recording and transfer management

Forward
app

Team communication / coordination over all sites

With thanks to our
colleagues at
The Christie Hospital,
Liverpool and Leeds for
their help plus
the many offers of help
from all over the British
Isles