

From Bastion to Blairgowrie: How the Scottish Trauma Network can Learn from Military Experience



PREVENTION



PRE-HOSPITAL



ACUTE



REHABILITATION



MAJOR INCIDENT PLANNING

High readiness deployable medical capabilities in the Royal Air Force

Sqn Ldr Becky Woolley
RAF Medical Officer

Scope



Operational Patient Care Pathway

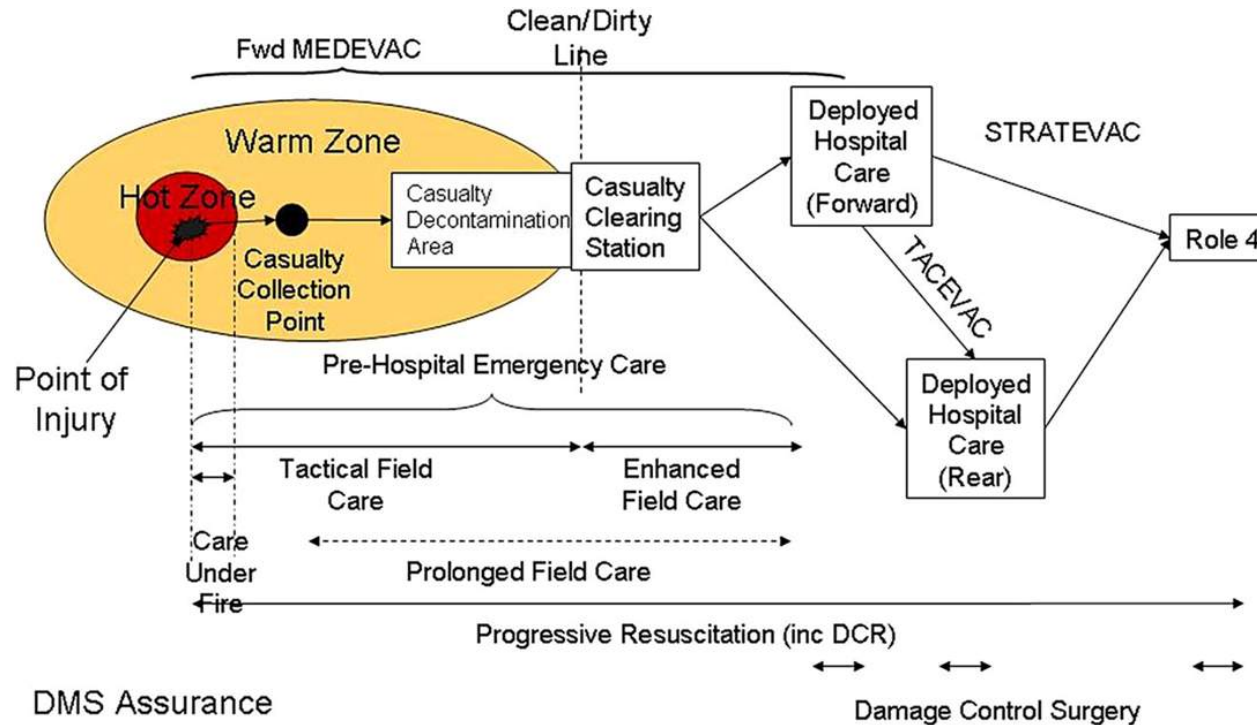
RAF capabilities

- Forward Aeromedical Evacuation
- Role 1(L)
- Aeromedical Evacuation
- Critical Care Air Support Team

Real life experience



Operational Patient Care Pathway



<https://jramc.bmj.com/content/160/1/64> accessed 20 Mar 19

“A unified approach for clinical care to all operational patients arising from the Defence PAR, exposed to the ‘all-hazards environment’, deployed on military operations”

Forward Aeromedical Evacuation

- *“Fwd AE provides Pre-hospital Emergency Care from the Point of Injury or illness to the initial Medical Treatment Facility as expeditiously as possible: contributing to the promotion, maintenance and restoration of health of the deployed force situated within complex mission space”*

RAFMS Fwd AE CONUSE, May 2015

Role 1(Lead)

- PHC up to 500 PAR
- Occupational medicine
- Fwd AE/AE
- Environmental Health and Force Health Protection
- Dispensary
- Battle Field Ambulance with driver
- 5 bed resus bay

Aeromedical Evacuation

- Tactical and strategic
- Essential for safety of patient in air as well as moving through the chain of care



Critical Care Aeromedical Support Team



- Strategic moves
- Con Anaes/ICM
- ITU nurse
- Flt medic
- MDSS Technician



RAF capabilities in action

Humanitarian and Disaster Relief

- Advance party
- Role 1(L) team and facility
- FWD AE
- CCAST in Theatre



What was delivered?

- Primary Health Care
- Force Health Protection
- Aviation medicine
- Aeromedical capability
- Command and Control
- Critical care in the air
- Medicine to remote regions
- Reassurance to troops



Summary



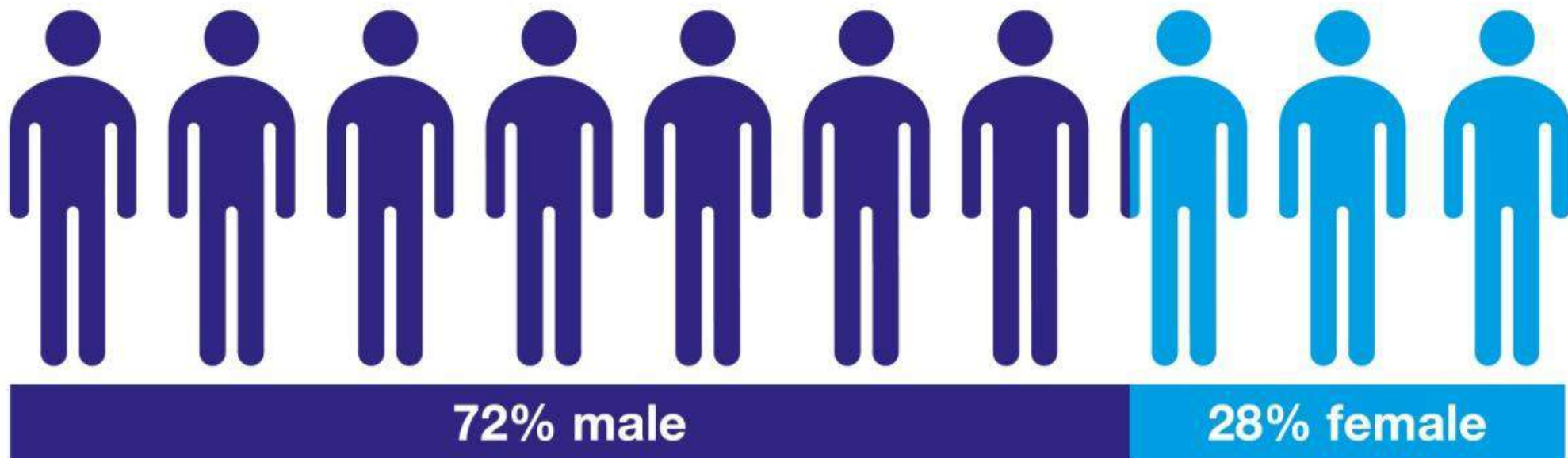
- Air-minded capabilities at readiness
- Relevant to deployed environment
- Tried and tested



Pre-hospital

Peter Lindle

Consultant Paramedic, Major Trauma
Scottish Ambulance Service



45%
caused by
low and
high falls



A stylized dark blue icon of a person in mid-fall, with arms and legs outstretched.

34% caused
by moving
vehicle accidents



A stylized dark blue icon of a car, shown from a side profile.

32% aged between 40-59



84% by ambulance



10% by air ambulance



6% by themselves





**SCOTTISH
TRAUMA
NETWORK**



*“He who would become a surgeon should
join an army and follow it.”*

Hippocrates

“Medicine is the only victor in war.”

William Mayo









(C) ABC







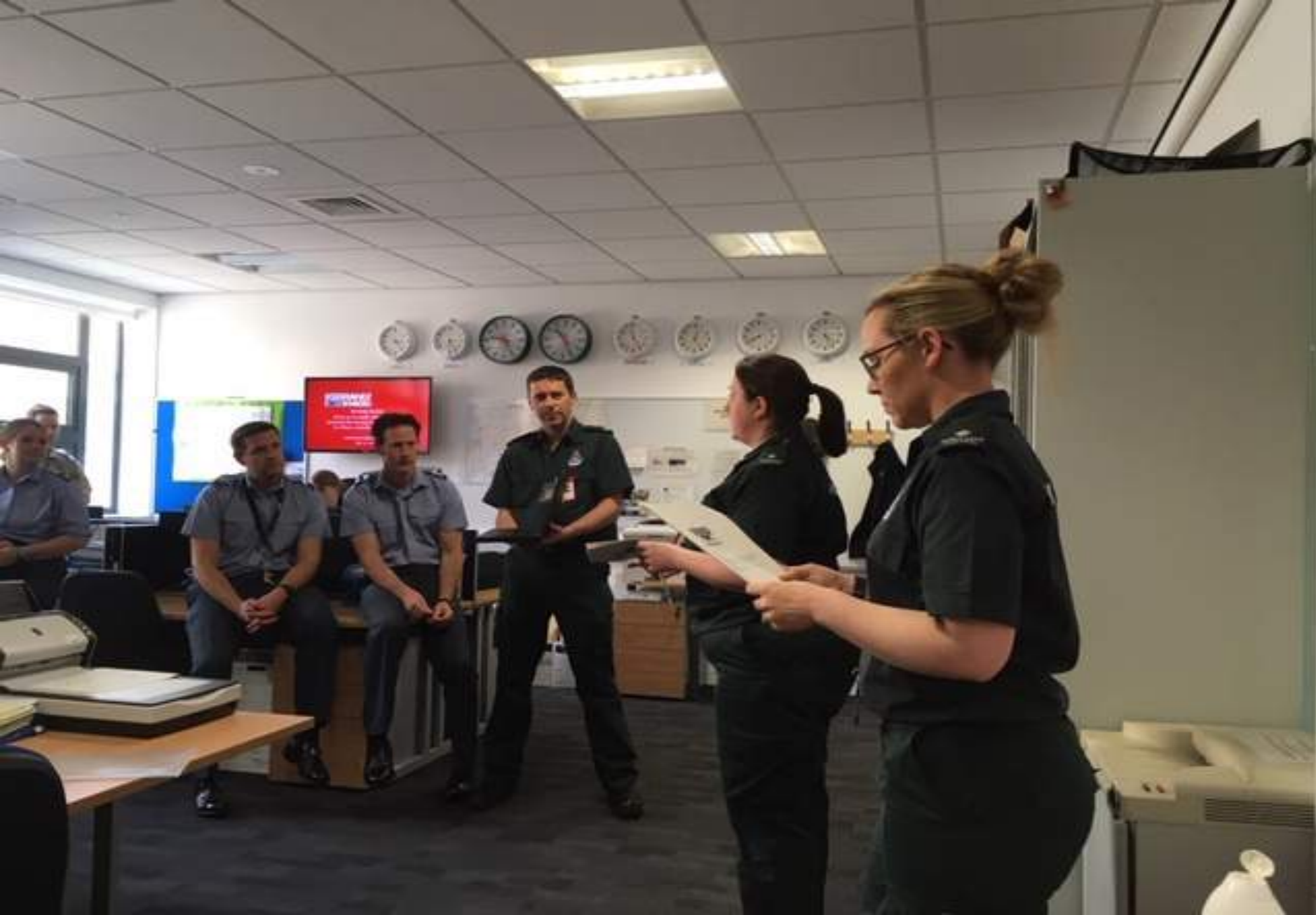




Gama Aviation STC

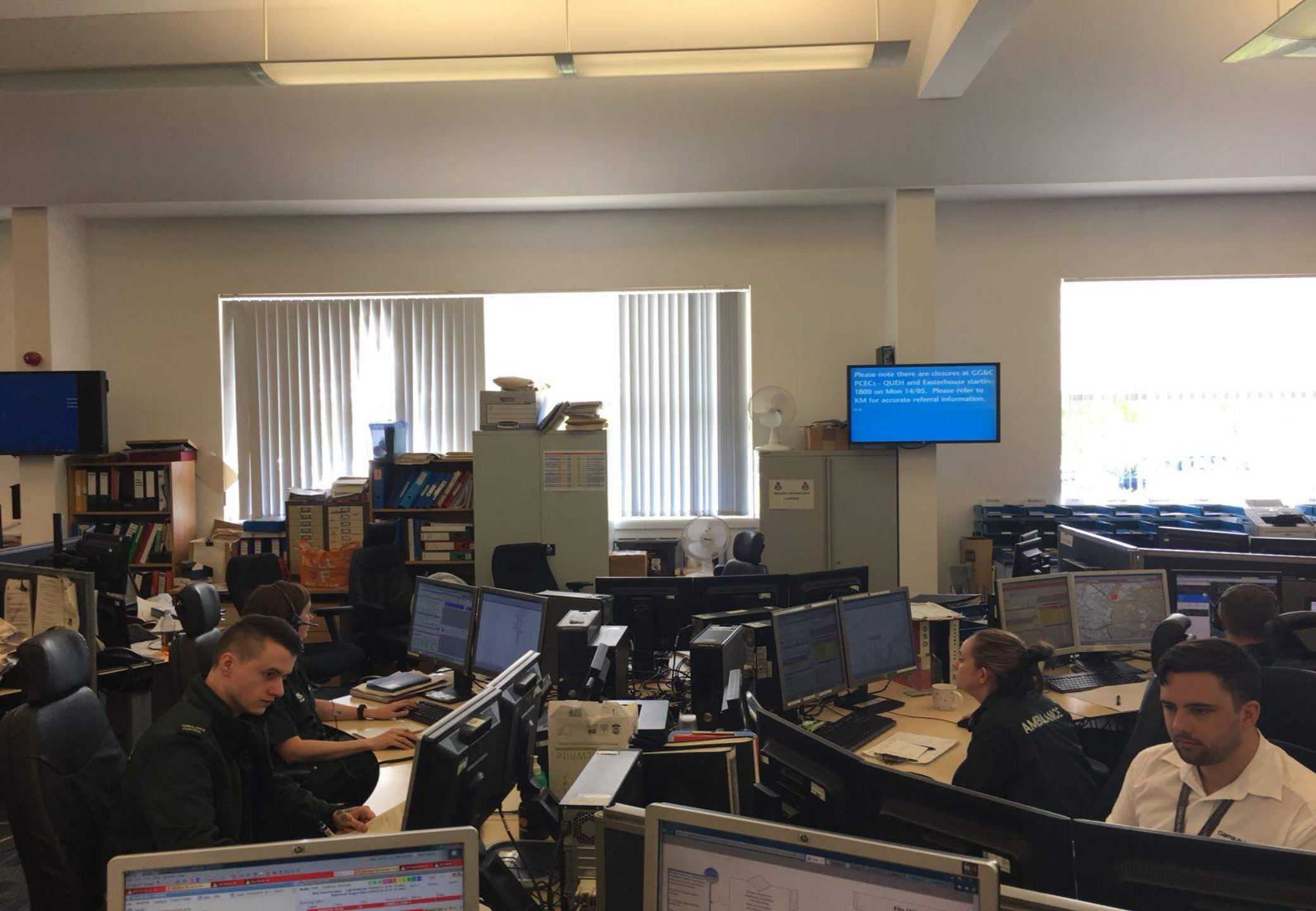
G-SASD







Specialist
Services
Desk

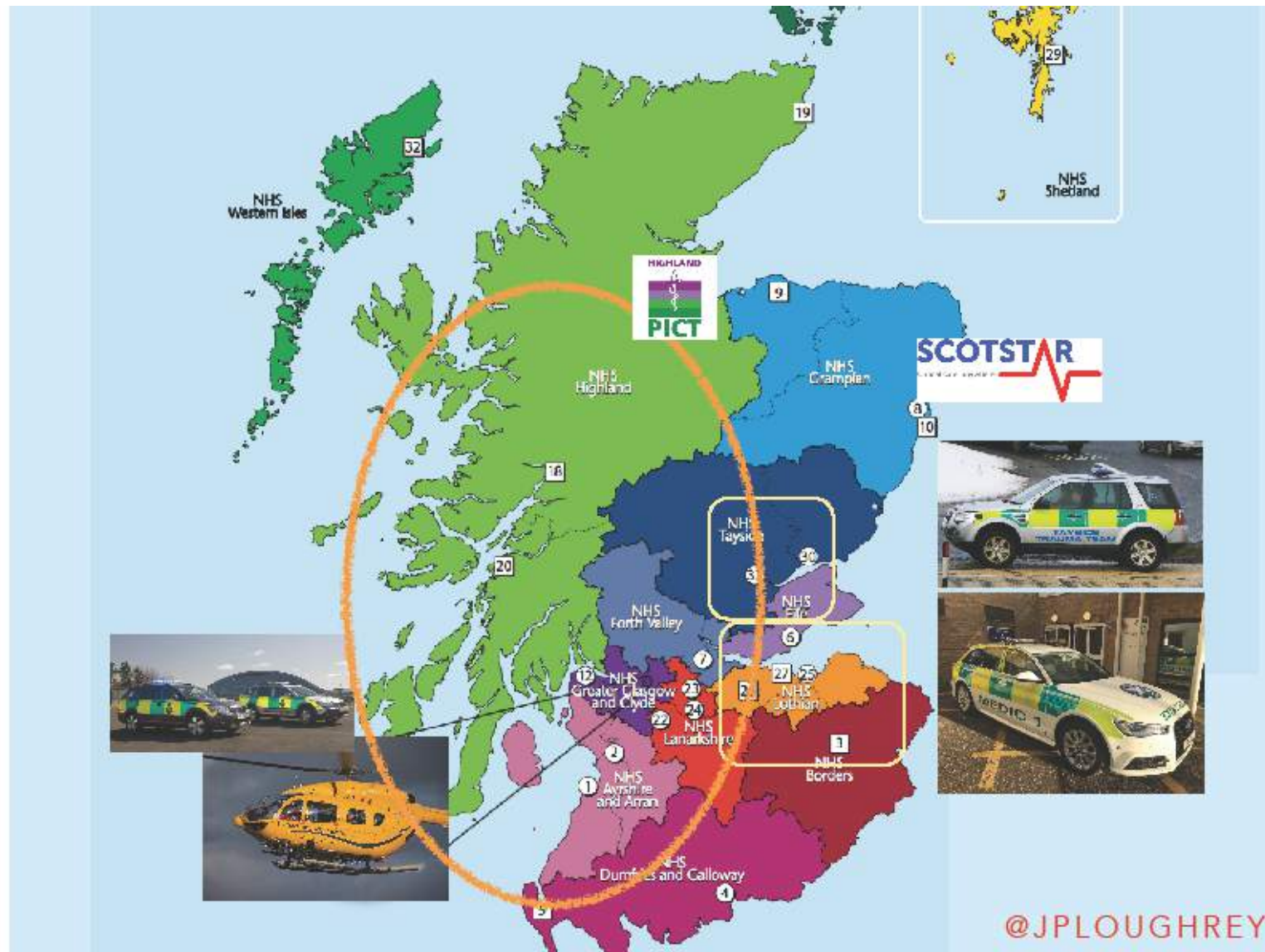


Please note there are closures at GG&C
PCECs - QUEH and Easterhouse starting
1800 on Mon 14/05. Please refer to
KM for accurate referral information.

AMBULANCE



AMBULANCE





Emergency: From Battlefield to Barts



Source: British Army. 2015. *Battlefield approach saving civilian lives*. AirMedandRescue. <https://www.airmedandrescue.com/story1059>


Thank You

Email: p.lindle@nhs.net

A black and white photograph of two soldiers in full combat gear, including helmets and body armor, lying in a trench. The soldier on the left is resting their head on their hand, while the soldier on the right is looking towards the camera. In the background, a large plume of dark smoke rises from the trench. The ground is cracked and dry.

Blood and treasure

Lessons from Military Medical Innovation



Aim and outline

Describe

Describe military medical innovations in the past 15 years

Illustrate


Illustrate examples of adoption of military innovation by NHS Scotland

Discuss

Discuss the importance of ongoing innovation

Innovation

“Something NEW or
DIFFERENT introduced”
Oxford English Dictionary

Enlarge 



Military Medical Innovations

Team medic/first responder training

Combat tourniquets

Haemostatic dressings

Physician led prehospital emergency care

Pre-hospital blood products

Trauma whole body CT protocols

Digital x-ray

Strategic critical care transfer

Forward aeromedical transfer

Damage control surgery

Damage control resuscitation

Massive transfusion with 1:1:1


Rotational Thromboelastometry

Trauma team approach

Collective theatre team training

Residential rehabilitation

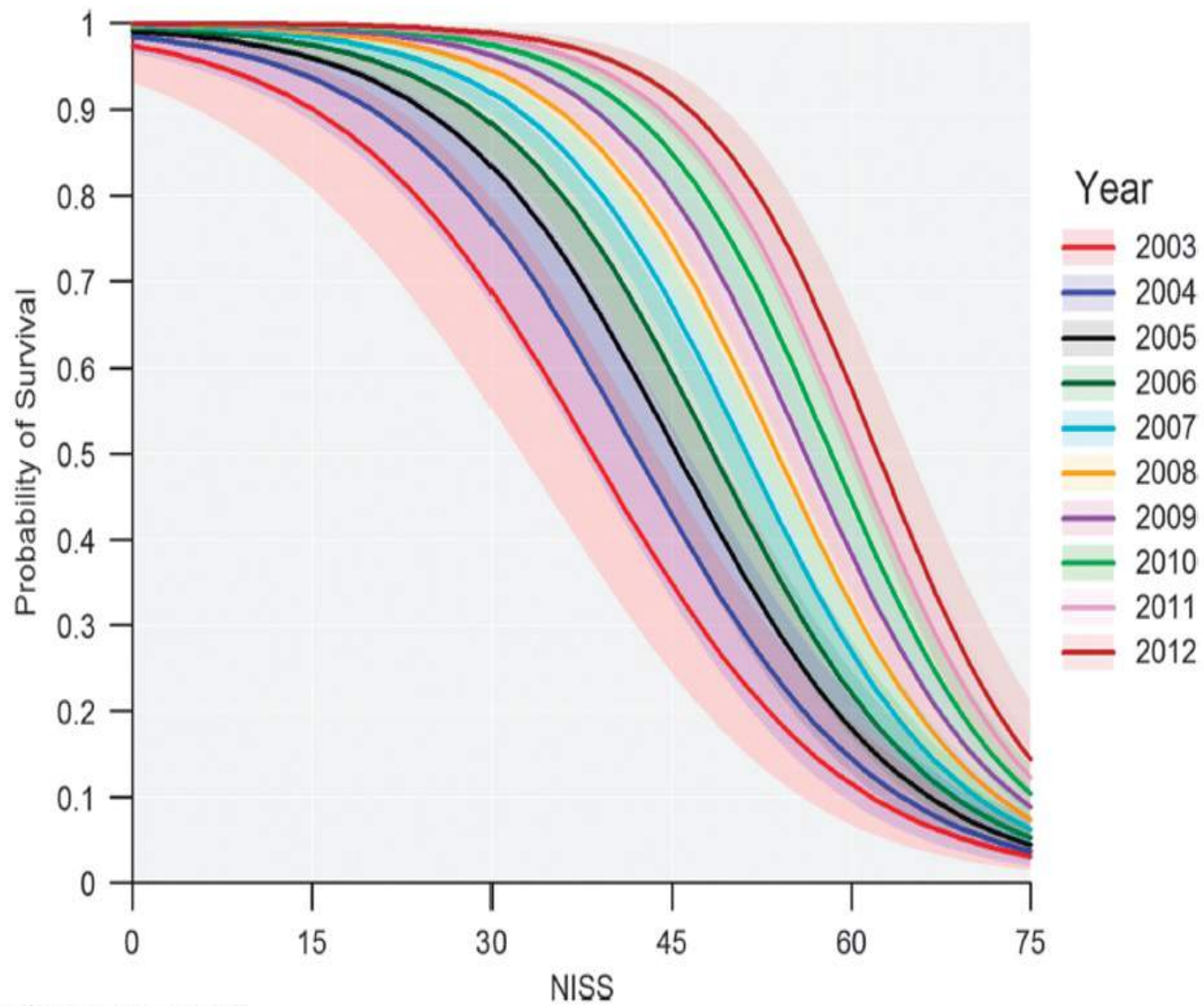
Advanced personal protective equipment



Why Innovate?

“Continuous innovation prevents the **cyclical regression** of military medicine that occurs between conflicts, causing an **intellectual deficit** that is ‘repaid’ in **servicemen’s lives** at the start of every new conflict”

Medical Director Defence Medical Services, 2014



Innovation imperatives



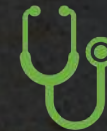
Political and
social



Environmental



Technological

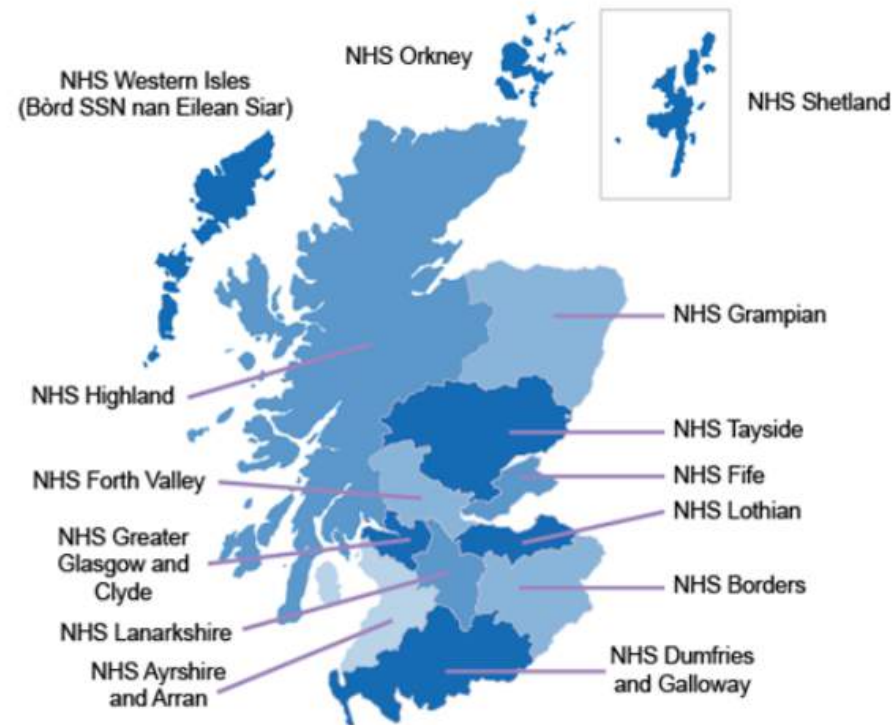


clinical

NHS

A stylized blue wave graphic that curves under the 'NHS' text and over the 'SCOTLAND' text.

SCOTLAND



Tasking



Adult Trauma Triage Tool ≥ 16

Use this tool to Triage all Significantly Injured Patients
or Patients involved in a High Mechanism Incident



Clinical Judgement is important and valued.

If you are concerned that your patient's triage category does not reflect their needs, you require clinical or logistical advice please contact the **Trauma Desk** directly on

03333

990 211

or by airwave by placing a callback to your local area dispatcher who will arrange a callback from the Trauma Desk.



Triage Questions

Step 1

Assess your Patient's Physiology

Does your Patient have any of the following:

- Systolic blood pressure < 90 mmHg. or no radial pulse
- Glasgow Coma Scale < 14
- Respiratory Rate < 10 or > 29 breaths/min

Step 2

Assess your Patient's Injuries

Does your Patient have any of the following:

- Penetrating injury to head, neck, torso or extremities proximal to elbow or knee
- Chest Wall instability or deformity
- Two or more proximal limb fractures
- Crushed, degloved, mangled or pulseless extremity
- Amputation proximal to wrist or ankle
- Suspected Pelvic Fracture
- Open or Depressed Skull Fracture
- Paralysis

Step 3

Assess the Mechanism of Injury

Did any of the following occur:

- Fall > 20 Feet
- High Risk Vehicle Accident
 - With $> 12"$ Intrusion
 - Ejection (partial or complete)
 - Death in same passenger compartment
- Vehicle Striking Pedestrian/Cyclist at > 20 mph
- Motorcycle accident at > 20 mph

Step 4

Special Considerations

Are any of the following present:

- Age > 55 years
- Bleeding Disorder or Anticoagulant Treatment
- Isolated Burns (Liaise with Trauma Desk)
- Pregnancy > 20 weeks
- Morbid Obesity

YES
NO

Response Category

Should the airway become compromised and cannot be managed, consider conveying/diverting to the nearest locally designated Emergency Department

Major trauma centre care



Your Patient requires Major Trauma Centre (MTC) Care

- If < 45 minutes from MTC = convey to MTC
- If > 45 minutes from MTC = contact Trauma Desk



If you do not think your patient requires MTC, contact Trauma Desk

Remember to pre-alert the receiving hospital via airwave if you are managing a patient triaged to MTC

Trauma unit care



Your Patient requires Trauma Unit (TU) Care

- Convey to the nearest TU, or MTC if closer
- If > 45 minutes from TUMTC contact Trauma Desk



If you do not think your patient requires TU/MTC, contact Trauma Desk

Local



Convey your patient to the nearest Local Emergency Hospital



If you think your patient requires TU/MTC, contact Trauma Desk





“Red Teams”

Pre-Hospital blood products



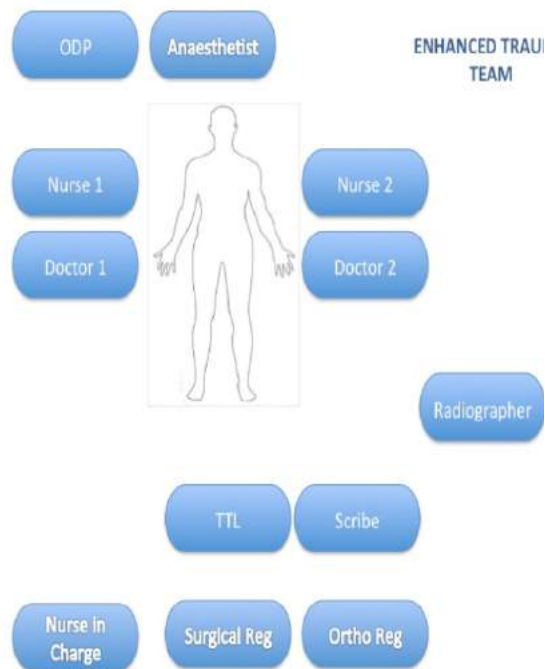
ATMIST

		Pre-alert		
Age	<input type="text"/>	Gender	<input type="text"/> M <input type="text"/> F	Time (onset/incident) <input type="text"/> :
Mechanism/Illness		<input type="text"/>		
Injuries suspected		<input type="text"/>		
Signs				
RR	<input type="text"/>	<div>Eye opening 4 Spontaneous 3 To voice 2 To pain 1 Nil Verbal response 5 Orientated 4 Confused 3 Inappropriate words 2 Incomprehensible sounds 1 Nil Motor 6 Obeys commands 5 Localises to pain 4 Withdraws from pain 3 Abnormal flexion 2 Abnormal extension 1 Nil</div>		
SpO2	<input type="text"/> %			
HR	<input type="text"/>			
BP	<input type="text"/>			
GCS/AVPU	<input type="text"/>			
BM	<input type="text"/>	<div>Use AVPU for medical/GCS for Trauma</div>		
Temp	<input type="text"/>			
NEWS	<input type="text"/>			
ETA	<input type="text"/>			
Requirements?		<input type="text"/>		

PAHAM V 2.3 /Nov 2017 Owners: Fitzpatrick, Maxwell & Steele

Code Red

SPECIALTY	TRAUMA TEAM	ENHANCED TRAUMA TEAM	CODE RED TRAUMA TEAM
Emergency Medicine	TTL (CONSULTANT/ST4+) DOCTOR DOCTOR NURSE 1 NURSE 2	TTL (CONSULTANT) ST4+ DOCTOR NURSE 1 NURSE 2 NURSE TEAM LEAD (scribe) RECEPTIONIST	TTL (CONSULTANT) ST4+ DOCTOR NURSE IN CHARGE NURSE 1 NURSE 2 NURSE TEAM LEAD (scribe) RECEPTIONIST
Orthopaedics		REGISTRAR	REGISTRAR
General Surgery		REGISTRAR	CONSULTANT/REGISTRAR
Radiography	RADIOGRAPHER	RADIOGRAPHER	RADIOGRAPHER
Anaesthesia		REGISTRAR/CONSULTANT ODP	CONSULTANT/REGISTRAR ODP (Theatre coordinator paged)
Critical Care			CONSULTANT/REGISTRAR
Radiology		(notified when patient on CT table)	(notified when patient on CT table)



Hospital Trauma Team

Culture?

REALISTIC MEDICINE

CAN WE:



Innovative
organisation

Adopt
Create
Translate
Avoid Constipation!



Ongoing
innovation





DMS
Defence Medical Services

NHS

SCOTLAND

Future?

STN scoping exercise – what more can we learn from the armed forces in major trauma? What matters to patients?

Claire Tester

MSc DipCot PG DIP. PG Cert. HCPC reg. MRCOT

Scottish Major Trauma Centres

**SAVING LIVES.
GIVING LIFE
BACK.**



**SCOTTISH
TRAUMA
NETWORK**

Scoping key objectives were outlined as an opportunity to explore;

- What more can be learned from the armed forces intensive rehabilitation model which can inform the NHS and MTCs in rehabilitation?
- To identify any potential for collaborative working which might involve staff and / or patients;
- And to identify the experience of rehabilitation and needs of patients through interviews

Methodology

- Project initiation document (PID)
- 2 meetings with Major Semakula, and Surgeon Captain Mark Henry at Redford Barracks, Scotland's Regional Rehabilitation Unit for the armed forces.
- 3 former NHS patients consented to share their experience of rehabilitation after major trauma injury

Army Model - is a hub & spoke model

- A. Pre admission; The initial acute medical treatment is at the site of the trauma incident which may be in a different country.***
- B. Major Trauma Medical Centre; Army personnel injured in line of duty are flown to Birmingham to the Queen Elizabeth II hospital where all major trauma injured army personnel are treated acutely. This is identified as the Centre for Defence Medicine***
- C. Rehabilitation; When medically stable the person is transferred to the Defence Medical Rehabilitation Centre (DMRC) at Stanford Hall***

Army Model continued

- Focus - on rehabilitation and re-ablement.
- Rehabilitation centre is for all army personnel in need of intensive rehabilitation, regardless of their own geographical army base.
- Complex trauma patients will remain at Stanford Hall (DRMC) for, 'as long as they need' up to a year. There are 3 key clinical groups at DRMC – Centre for Complex trauma; Centre for Neuro rehabilitation; and Force Generation Groups with Centres for; Spinal Injuries; Lower Limb Injuries and Centre for Specialist Rehabilitation.
- 14 Regional Rehabilitation Units (RRU) are the spokes

Feedback from NHS patients

- Attitude - *focussed*
- Returning Home – *ready?*
- Ongoing support – *home, work, community*
- Strengthening and conditioning - *programme*
- Understanding own injuries
- Frustrations – *navigating*
- Time – *need more*

Findings for improved outcomes

- The Army model of rehabilitation for major trauma / poly trauma patients is a hub and spoke model with significant coordination and iteration between DMR and RRU.
- There is a longer available time for rehabilitation provided by the Army.
- Expectation raised high, focus on ambition, discipline and achievement – to return to army duties.
- Staff and patients share the clinical expectations of what the patient can achieve – with higher expectations of patients than NHS.
- Army patients tend to be; ambitious, disciplined and focussed.
- There is a full daily programme for every patient with a contract (commitment) and an intensity of rehabilitation
- Psychological environment – group work/ peers/ camaraderie/ responsibility
- Strengthening and conditioning programme for ongoing fitness & stamina.

Contact me

**SAVING LIVES.
GIVING LIFE
BACK.**



Claire.testers1@nhs.net

Claire Tester

Integrated Manager – Independent Living (West) & Professional Occupational
Therapy Lead – Dundee Health & Social Care Partnership

Formerly AHP Improvement Advisor for Major Trauma – EAST MTC

Mass Casualty, Major/Specialist Incident Care

Jim Dickie

Head of Strategic Operations and Resilience
Scottish Ambulance Service

EXCLUSIVE

Paramedics primed to deal with disaster

**AMBULANCE
SORT**

Scottish paramedics are trained to use specialist chemical and ballistic protection equipment to cope with terror attacks
Pictures: Mark Gibson



**PAGES
4-5**

SPECIAL OPS

Learning outcomes

- Provide an overview of Legislative and Scottish Government requirements for Major Incidents
- Outline organisational Major/Mass/Specialist Incident training
- Briefly describe Special Operations capabilities
- Provide an overview of operational learning into practice

Major Incident

“Any event which, due to its perceived potential or actual severity, complexity, location, or the number or type of patients it produces, or requires special arrangements to be implemented by the Service“

Major Incident Plan V5
Scottish Ambulance Service
Sept 2018

Mass Casualty Incident

“A disastrous single or simultaneous event(s) or other circumstances where the normal major incident response of several NHS organisations must be augmented by extraordinary measures in order to maintain an effective, suitable and sustainable response”

Mass Casualty Incident Plan
NHS Scotland, February 2015

Legislation and Scottish Government Requirements



- Civil Contingencies Act 2004 (CCA) and the Civil Contingencies Act 2004 (Contingency Planning) (Scotland) Regulations 2005
- The Scottish Government Health and Social Care Directorates (SGHSCD) and Scottish Ambulance Service (SAS) agreement regarding national specialist operational response capability to provide patient care in hazardous environments on behalf of the NHS in Scotland.



Major/Specialist Incident training

Scottish Ambulance Service

- Community First Responders
- Initial Clinical training
- JESIP/MI e-learning for all
- Leadership and Management
- Operational and Tactical Command
 - Including Joint On Scene Incident Command (JOSIC)
- Event Command
- Specialist Operational (SORT)
- Emergo training and exercising
- Specialist Command – CBRN and MTA
- Scottish Multi-Agency Training & Exercising Unit (SMARTEU) cses
- Scottish Resilience Development Service (ScoRDS) cses
- Strategic Command development

Military

- Initial entrant training – Officer and other ranks
 - Inc Battlefield First Aid
- Initial Officer Development – Leadership and Command
- Command courses
 - Commissioned Officer and Non Commissioned Officers
- MIMMS
- BATLS
- Specialist – CBRN and CT
- Medical Humanitarian and Stabilisation Operations (MHSEO)
- Joint Medical Operations Planning Course (JMOP)
- Plethora of Strategic Command courses

Specialist Operations – capabilities and taking care to the patient





Examples of Learning into Practice

Scottish Ambulance Service

- IED, CBRN, MTA threat, risk and operations – regular operations with Police Scotland/EOD etc.
- Infectious Diseases – VHF e.g. Ebola – only UK case managed by SAS SORT. Numerous false alarms.
- Major/Multiple/Mass Casualty – various
 - Tactics/Training
 - Equipment (PPE, Clinical kit etc)
 - Techniques
 - Procedures

Military

- IED, CBRN, MTA threat, risk and operations – Iraq, Afghanistan, UK (Salisbury)
- Ebola outbreak - West Africa
 - UK Ambulance Services supported pre-deployment training for UK military contingent
- Mass Casualty - various



Summary

- Scottish Ambulance Service is a key part of a wider response mechanism during Major/Mass/Specialist Incidents
- Although different focus in terms of overall roles – comparisons can be drawn and lessons learnt from both NHS and Military practice to support patient care
- Opportunity to continue this good work through ongoing engagement with our Regular and Reserve Forces

Any questions?



Thank you

