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1. **INTRODUCTION/PURPOSE**

1.1 Plymouth Hospitals NHS Trust is a Major Trauma Centre and as a result, is mandated to provide high quality care to the severely injured trauma patients. Traumatic injury requiring immediate or Damage Control Surgery (DCS) is rare, but when encountered it best served by a unified and swift institutional response. Such actions will help to maximise patient safety and minimize patient morbidity/mortality. The World Health Organisation suggests that this is best served by the generation of clinical guidelines and standard operating procedures (SOP).

1.2 This SOP will enable and encourage the safe and effective provision of DCS, through mobilizing the correct personnel, equipment and real estate. Emphasis will be placed on clear and effective lines of communication, mutual role awareness, good team behaviours and clear escalation and de-escalation features.

1.3 This SOP is not intended to replace the clinical decision making of senior clinicians. It serves to provide approved guidance to all care providers. It aims to assist in how best identify and prepare the trauma patient, staff, laboratory and theatre suite for their DCS.

1.4 For further clinical guidance please refer to Trauma Call and Traumatic Cardiac Arrest SOP dated July 2013. For the specific management of Paediatric patients requiring DCS see the guideline listed above.

2. **THE STANDARD OPERATING PROCEDURE**

2.1 This SOP aims to assist with the safe and effective transfer to theatre and provision of DCS to the complex multiply injured patient.

3. **APPLICATION: TO WHOM THIS SOP APPLIES**

3.1 This Guideline will relate to all patients, identified in the ED or prior to hospital arrival, who have been identified to be at risk of life threatening haemorrhage, requiring contamination control or restoration of perfusion and have a subsequent requirement for DCS.

3.2 This SOP applies to all Hospital Trauma Call Team members and level 4 Theatre team members within PHNT. All T&O and General surgeons should be familiar with the guideline; other sub specialties may be called on for definitive surgery or collaboration and subsequent decision-making regarding the patient’s care.

3.3 The policy will be implemented by personnel in ED, main theatres, Anaesthetisa and Intensive Care departments.

4. **DAMAGE CONTROL SURGERY - GUIDELINE TRIGGERS**

4.1 This guideline will be triggered when there is a need to transfer patients to an operating theatre for DCS to arrest life-threatening haemorrhage, reduce contamination or restore perfusion. This surgery should follow DCS principles and may include surgery for proximal haemorrhage control, packing, or a combination of both. See Appendix 2

4.2 Likely activation may be predictable and should be anticipated from prehospital notification of patient injuries and physiology (ATMIST). Activation may also be made at any stage of the patients Trauma Bay treatment. See Trauma Call SOP.

4.3 This guideline can be activated in part (“DCS Standby”), via Trauma Team Leader (TTL) communications with Theatre Reception/Coordinator (Ext 55400) see Appendix 2. Full activation (“DCS DECLARED”) usually requires discussions with the relevant single specialty
Consultant, however DCS DECLARED can be activated by the TTL. DCS phone ext 55400 should be notified of named speciality.

4.4 Standard triggers for ACTIVATION OF DCS GUIDELINE include:-

i/ ED Thoracotomy/Traumatic Cardiac Arrest
ii/ Urgent Abdominal, Chest or Pelvic Surgery
iii/ Exsanguinating Haemorrhage requiring proximal control
iv/ Non responder to Haemostatic resuscitation and MTP with suspected solid visceral injury

4.5 TTL and the assembled team are encouraged to consider as part of their initial assessment, “do we need to action or standby the DCS Guideline” or “do theatres need to be made aware?”. This may be done as part of the 10 minute trim.

4.6 DCS STANDBY is encouraged if the TTL suspects that surgery may be required. When STANDBY is called, a theatre will be made available as quickly as possible – This situation may be STOODOWN at a later time. Triggers for DCS STANDBY include:-

i/ A likely requirement for time critical/life saving surgery after CT scanning has been completed.

4.7 Staff are reminded that when the guideline is in STANDBY, the theatre coordinator (ext 55400) will require regular updates regarding ETD from ED/CT. This is more important during silent hours.

4.8 Be advised that activation and implementation of this guideline differs in and out of office hours. Trauma Team Members and Leaders are encouraged to consider the activation of this guideline early, outside of the normal working day, to enable sufficient staff generation.

5. ACTIONS ON ACTIVATION – See Appendix 4

5.1 Activation will occur via ext 55400 (DCS Phone) Theatre Coordinator and Duty Floor Anaesthetist ext 37158 (on call Anaesthetists outside Office hours). Please reserve ext 55400 for essential DCS communications only. As a key part of the “DCS Standby” or “DCS Declared” an ATMIST statement is required, with the proposed surgery and site detailed. It is useful to use this comprehensive list to describe the surgery to aid communication.

<table>
<thead>
<tr>
<th>Resuscitative Thoracotomy</th>
<th>Complex Airway Management</th>
<th>Vascular Shunt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resuscitative Laparotomy</td>
<td>Craniotomy</td>
<td>Fasciotomy</td>
</tr>
<tr>
<td>Pelvic Packing</td>
<td>Thoracotomy</td>
<td>External Fixation</td>
</tr>
<tr>
<td>Junctional Control</td>
<td>Laparotomy</td>
<td>Debridement</td>
</tr>
<tr>
<td>Upper Limb</td>
<td></td>
<td>Splint</td>
</tr>
<tr>
<td>Lower Limb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neck</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.2 Theatre Coordinator will locate and open the DCS Guideline Box and action it’s contents.
5.3 Theatre Coordinator and Senior Nurse will identify the next available theatre and hold for potential use. See Appendix 5. The designated theatre team will be alerted and all efforts made to deliver the Guideline Box and administration to that designated theatre.

5.4 Designated theatre teams will obtain respective Role and Responsibility cards and liaise regarding equipment requirements, surgical set requirements etc – See Appendix 7. Absent team members as designated by Appendix 5 should be sought as a matter of urgency.

5.5 Out of hours, theatre team generation may well be delayed, due to off site team members. As a result efforts should be made to notify these personnel early. See Appendix 5 staff generation matrix.

5.6 The receiving theatre should be configured in a way that will allow at least two surgical teams access to the patient, see appendix 10 for a suggested layout.

5.7 All subteams should acquire the appropriate equipment as per appendix 9 and assist other sub teams as appropriate. The scribe will require assistance with the placement of blood usage, swab count and team list; the Runners may be suitably placed to assist with this.

5.8 Nurse in charge is well placed to liaise with Theatre Coordinator regarding estimated time of arrival of the casualty. One or more members of staff should be tasked to wait in the level 4 corridor to receive the mobile Trauma Team and direct to the designated theatre.

6. PATIENT TRANSFER ARRANGEMENTS

6.1 The assembled Trauma Team having activated the DCS Guideline will call Theatres on Ext 55400.

6.2 Movements to theatre may occur direct from ED or from CT. Patient movements will require sufficient portering staff and only after pre move checklists have been completed in line with the trauma call SOP.

6.3 The patient transfer should involve all Trauma Team Members with coordination from TTL and attending Anaesthetist. Consideration of maintaining rapid infusion device use in transit should be given, certainly in the transient and non-responder.

Transit considerations include:-

i/ Designated staff member to depart in advance and ‘hold’ lift.
ii/ Infusion teams to continue manual infusion methods if rapid infusers are removed.
iii/ ‘Lift Holder’ heads straight to theatres when relieved, ahead of the remainder of the team, down the stairs, to identify Theatres POC.
iv/ Theatres must direct the inbound trauma team to the identified theatre. Direction will be required via the appropriate route in. ie Via patient reception for Th 7, Via Recovery for Th 9-10.

7. TRAUMA TEAM RECEPTION

7.1 Trauma team will arrive in theatre with the patient, who should be allowed to transfer the patient directly to the operating table and establish adequate ventilation.

7.2 All receiving staff will remain ‘hands off’ the trauma patient and ensure a ‘Silent Cockpit’ whilst the Trauma Team Leader delivers their ATMIST handover to the surgery team; this process will serve as an effective WHO surgical checklist ‘Sign in’- See Appendix 11. The Scribe will require all documentation from the TTL, including details of all individuals present.
7.3 The Trauma Team should remain in theatre until stood down by the lead clinician a suitable
time for this is on establishment of haemorrhage/proximal control.

7.4 The designated lead surgeon should adhere to the WHO checklist for ‘Time Out’ and also
utilize this as a way of delivering information regarding the surgical sequencing to the wider
team. The WHO checklist needs to be abbreviated in this patient population, enabling the
maintenance of patient safety, team focus and pragmatism. See appendix 11.

7.5 Liaison with Intensive Care Medicine must occur to inform them of likely organ support
requirements and estimated length of surgery/post operative ICM requirements.

7.6 Surgeons, Anaesthetists and Intensivists should be encouraged to discuss treatment options,
estimated time lines, prognosis and futility at earliest possibility.

8. SURGERY/ANAESTHESIA CONDUCT

8.1 By the very nature of DCS, Surgery Teams are encouraged to pursue a Damage Control
approach i.e. the completion of surgical procedures to prevent exsanguination, control
contamination and restore perfusion, in order to achieve physiological stability. This often
means that surgery is abbreviated to allow the acidaemic, coagulopathic and hypothermic
patient’s physiology to be normalized. It is anticipated that the entire surgical episode should
not last longer than an hour.

8.2 Within the surgical episode patients may require a ‘Surgical Pause’, where the surgical teams
will temporarily cease surgery allowing the anaesthesia team to address acidaemia,
coagulopathy and hypothermia. The ‘Surgical Pause’ serves as a useful break in the
proceedings and may allow all specialties to discuss the care delivered, assess efficacy,
prognosticate, discuss futility, boundaries to care and brief families. The 20 minute Brief will
help to identify this requirement – See appendix 8.

8.3 Major trauma patients requiring DCS will be recipients of Massive Transfusion. Up to 40% of
these patients may be coagulopathic. To that end, the Anaesthesia teams are encouraged to
maintain regular blood sample provision and good communications with laboratory staff and
Haematology/Transfusion physicians. Utilisation of point of care coagulation testing eg
ROTEM™ or TEG, to fine tune blood product replacement is encouraged. Appendix 8 Blood
Product Template is designed to provide all team members an update on blood products used
and pending. Blood Bank 52828 Haematology/Transfusionists can be reached through
switchboard.

8.4 Anaesthetists are encouraged to prompt the surgical teams on a 20 minute basis, as a
minimum or after every 2 + 2 RBC and FFP. Communications back and forth are encouraged
to establish:

- Time since surgical start/ Knife to Skin
- Systolic BP
- Temperature
- Acidaemia/ Serum pH
- Coagulation/ROTEM results
- Kit – Equipment/ Blood products used, remaining and required.
- Plan – Surgical and Anaesthetic

It is hoped that the brief above, in the context of anaesthesia, resuscitation and surgical
progress will allow physicians to establish the trajectory of a patients’ condition, the
requirement for a ‘Surgical Pause, likely physiological trajectory and prognosis. It may also
prompt discussions regarding the appropriateness of current treatment, staging or potential
futility of care. See Appendix 8.
9. **INTENSIVE CARE MEDICINE**

9.1 At all times, early communication is key to success. Effective communications with ICU to keep them fully informed of the situation in theatre and estimated surgery length/progress, will be useful. ICU can be reached through switchboard, bleep 0110 or ext 31418.

10. **DEBRIEF**

10.1 An effective debrief will enable the development and improvement of this guideline. After each DCS episode, all staff members are encouraged to perform a debrief process using the Appendix 12 template. This will serve to identify areas of excellence and/or those requiring further attention and improvement.

11. **AUDIT**

11.1 Activation of this guideline will be audited in both Stand by and Declared states. The impact of ‘Damage Control Standby’ on level 4 efficiency will be monitored along with every ‘Damage Control Declared’ patient.

12. **SUMMARY OF THE POLICY**

12.1 Improving the ED/Theatres interface, with a DCS guideline aims to improve the patient outcome through informed decision-making and optimized team behaviours of all attending staff.

12.2 This guideline promotes and encourages a safe, organized and measured institutional response, to physiologically unstable patients, undergoing potentially hazardous movements around the hospital.

12.3 Provision of a guideline and common trajectory serves to improve team behaviours and formulate a distributed situation awareness, on which to base sound decision making.
Damage Control Surgery (DCS) Phone Ext 55400

Please restrict the use of this phone to communications with the ED regarding DCS patients only.

On receiving a call on this phone please record the details below:

After DCS Stand-down or completion of DCS episode, please photocopy and/or send the details below to Dr Paul Moor Anaesthetist or Dr David Wise Emergency Dept Physician.

<table>
<thead>
<tr>
<th>Time of Call</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Trauma Team Leader Name</td>
<td></td>
</tr>
<tr>
<td>Patient Name DOB Hosp Numb (May be Unique Trauma Number)</td>
<td></td>
</tr>
<tr>
<td>Age Time of injury Mechanism of Injuries Injuries sustained Signs and Symptoms Treatment given</td>
<td>ATMIST</td>
</tr>
<tr>
<td>DCS Standby</td>
<td>Time Declared</td>
</tr>
<tr>
<td>DCS Activation</td>
<td>Time Declared and Named Surgeon</td>
</tr>
<tr>
<td>DCS Stand-down</td>
<td>Time Stood-down</td>
</tr>
</tbody>
</table>
Appendix 1 - DCS response Flowchart

- **'DCS Standby' Alert received from TTL**
  - Call taken by Theatre coord/Nurse in charge/DFA
  - ON 'DCS standby' - Identify and hold next available theatre
  - (ED Resus ext 31322/52511)

- **Identify next available theatre and hold current list**
  - Stop next patient send
  - Alert Scrub, Surgical, Anaesthetic and support staff in the designated theatre - See Appendix 5

- **Identify Assemble and Brief designated theatre teams**
  - Disseminate Laminated Appendices to staff groups for preparation and guidance. Identify and hold staff and equipment for DCS Declared

- **When "DCS Declared"**
  - Consider placement of DFA in ED for forward communications/aid transfer

- **Coordinate arrival and Handover from Trauma team**
  - TTL will lead transfer of the patient
  - Consider placing staff member by the lift shaft, to guide Trauma Team to theatre

- **During surgery ensure sufficient resources - reassess regularly**
  - Many staff and resources will be required for -
    - Potential multi site surgery
    - Blood product/Sample collection and drop off
    - Regular lab and ABG samples

- **Alert ICU early regarding likely bed requirement**
  - Update ICU team regularly with progress reports and likely ETA

- **Lead team debrief post surgery**
  - Often easy to perform immediately after the event and patient clear of the department
APPENDIX 2 DCS ESCALATION/DEESCALATION

TTL may request a DCS standby on the basis of:-
- Prehospital ATMIST
- Nonresponder to resuscitation
- ED Thoracotomy

**Urgent Requirement for:**
- Pelvic packing/fixation
- Laparotomy
- Thoracotomy

TTL and Named surgeon identify an immediate DCS requirement

**Code red trauma call**

"Damage Control Standby - Hold next available theatre"

Contact Theatres:
- DCS phone ext
- 55400
- Do not use DCS phone for routine calls
- (DFA ext 37158)
- (Theatre Reception ext 32779)

"Damage Control Declared"

"Damage Control stand-down"
Appendix 3 DCS Box Location & Contents

LOCATION

Level 4 theatre complex
Below the front desk but the red DCS phone

CONTENTS

Current Damage Control Surgery Guideline
Appendices - Laminated cards for guidance/roles and responsibilities etc
Spare DCS ORSOS Form
Spare Swab Count Board for Surgical Team 2
Phone Directory - Useful Numbers
Appendix 4 Actions on DCS Activation

You have just received a call from the DCS activation phone 55400.
This box contains laminated cards to assist and guide Derriford Theatres personnel.
It will guide you in the preparation to receive and provide life saving surgery to the critically unwell trauma patient.
Follow the instructions below, as per the Damage Control notification from ED.

---

**Damage Control Declared**

Alert the following:
- Theatre Coordinator
- Nurse in Charge
- Duty Floor/Senior Anaesthetist Ext 37158

- Identify and prepare a suitable DCS Theatre - See App 6
- Identify and hold sufficient DCS Staff - See App 5
- Distribute the laminated assistance cards to respective team members
- Populate and prepare the theatre and equipment

---

**Damage Control Standby - Hold next available theatre**

Alert the following:
- Theatre Coordinator
- Nurse in Charge
- Duty Floor/Senior Anaesthetist Ext 37158

- Identify and hold a suitable DCS Theatre - See App 6
- Identify and hold sufficient DCS Staff - See App 5
- Distribute laminated assistance cards to designated team members
- All staff to locate & hold, DCS Surgical Sets and required equipment
## Appendix 5 DCS Staff Generation Matrix

| Theatres Staff       | At least 2 scrub teams  
<table>
<thead>
<tr>
<th></th>
<th>At least 2 Circulators</th>
</tr>
</thead>
</table>
| Anaesthetic Staff    | 2 Anaest ODPs - if second theatre is already running contact on call ODP  
|                      | 2 Anaesthetists including a Consultant +/- DFA in Hours. Neuro/Paeds consultant can be reached via Switchboard out of hours  |
| Runners/Porters      | At least 2 runners required without in theatre responsibilities  
|                      | Required to run Lab Samples/ ABGs and Blood product collection  |
| Surgical Teams       | **Consultants should be present**  
|                      | Gen Surg Reg: 89403  
|                      | Orth Reg: 0201 (779 0201)  
|                      | NeuroSurg Reg: 1009 (779 1009)  
|                      | Cardiotoracic Reg: 89295  |
| ICU Staff            | Lead Physician to liaise with ICU Consultant/Senior.  
|                      | Update ICU Nurse in Charge regarding post op plans and dependency.  |
| Scribe               | Dedicated Scribe to to administer theatre command and control  |
### Appendix 5 DCS Staff Generation Matrix

**Ideal Staffing levels include**

- Orthopaedic (Extremity/Pelvic) Surgeon
- General (Cavity/Haemorrhage Control) Surgeon
- Scrub Nurse x 2
- OCP x 2
- Runners x 2
- Circulators x 2
- Scribe x 1
- Anaesthetists x 2
- ICU aware
- SDU aware
- Blood Bank/Labs aware

Ensure that designated theatre staff have the competencies suited to the trauma case.

Consider replacement/augmenting designated DCS staff with those from another theatre who may be more suitable, as they become available.

Modifications may be required in the event of Paediatric Trauma - see guideline

---

**Out of Hours**

First on call teams may be busy in theatre.

The trauma patient may need to be held in the ED with the Trauma Team in attendance until the necessary surgical teams are assembled.
Appendix 6 Theatre Identification Matrix

**IN HOURS**

Which Theatres are free? 9,10 7,8 preferred
Consider an all stations tanncy:

**DCS Guideline Standby, request all theatres report to main desk with current surgical progress and estimated completion time.**

Is there a case closing?
Hold designated theatre and delay send in DCS Standby
Prepare theatre and staff when DCS declared
Selection considerations:-
Patient access via patent reception for Theatres 7,8
Patient access via recovery for Theatres 9,10
Avoid Theatre 6 due to neurosurgery on call contingency
Orthopaedics theatres are preferred over other theaters due to convenient access and space.

**OUT OF HOURS**

Theatre availability usually less of a problem BUT Staffing will need greater attention.
Theatre 9 or 10 for ease of access.
Appendix 7 Command Team

**Theatre Command Team constitutes:**

- **Theatre Coordinator**
- **Nurse in Charge of Theatres**
- **Duty Floor Anaesthetist (in Office Hours) - Use the DFA phone OOH**

**Main Effort:**

To coordinate the DCS episode within theatres and the wider hospital

Typically the Theatre Coordinator receives DCS phone activation/standby call

Ensure that the ATMIST information is extracted from the ED call

Notify Duty Floor Anaesthetist and Nurse in Charge immediately

Use and distribute the DCS box resources e.g. roles and responsibilities

Assist in the workforce generation and theatre identification

DFA may consider moving forward to the ED for further information e.g. Predominant Injuries/surgical requirement and ETA on DCS activation

Ensure that the trauma team with patient are directed to appropriate route into theatre.

Provide point of contact for ED, ICU and theatre staff.

Coordinate clinical updates for family members and know their whereabouts (may be done through ED or ICU) e.g. ED/ICU waiting areas.

If elective patients are placed on hold whilst establishing a DCS theatre, defer to operations staff to discuss with appropriate surgical teams and ward staff to plan continuation/cancellation of the remaining cases.
Appendix 7  Scribe

Main Effort:-
To ensure the high quality documentation of intheatre and DCS associated events.

WHO?
May be registered or suitable unregistered staff member

ROLE?
Prepare an area in theatre from which to administrate the surgical case.
Prepare second swab count board for scrub team 2.
Organize team list (Appendix 7) completion, with staff members, grade and role within the theatre including arrival times bleep/contact numbers.
Document the main clinical events (guided by medical staff) e.g. Laparotomy, thoracotomy, cardiac arrest, and times which they occur.
Every 10-15 minutes document the outcome of anaesthetic/surgical discussion regarding the control of bleeding, blood product usage, clotting situation, metabolic and cardiovascular status and temperature - see app 13
After surgery has finished, complete the audit sheet in the DCS box.
### Appendix 7 DCS Team List

<table>
<thead>
<tr>
<th>Team Member</th>
<th>Surname/Sleep Numb</th>
<th>Arrival Time</th>
<th>Departure Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgeon 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surgeon 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scrub 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scub 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anaes 1</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Anaes 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ODP 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ODP 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Runner 1</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Runner 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circulator 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circulator 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICU Consultant</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix 7 Lead Clinician

Main Effort - To coordinate the DCS team and operative sequencing

WHO?

The Lead Clinician may be the Consultant Surgeon or Anaesthetist involved in the DCS case. The Lead Clinician will have a beneficial overview of the progress and management of the situation. It may be also appropriate to establish surgical, anesthetic and nursing leads.

WHEN?

The transfer of the responsibility for the patient, from the Trauma Team Leader to the DCS team, will occur in theatre.

A formal hand-over from the TTL to the DCS team should commence with the ATMIST template. This will constitute the main part of the Sign In process.

Whilst the surgical teams are preparing the patient, lead Clinician is to ensure a Time Out /Sign Out process occurs. - See App 7 Scribe Team List

ROLES?

Maintain an Overview of patient care
Maintain good situation awareness of all aspects of resuscitation
Coordinate Surgical Teams and respective interventions
Assess the effectiveness of resuscitation and drive the discussions regarding escalation of care/futility.
Plan ongoing care, discharge as required.
Ensure verbal handover and written notes accompany the patient
Liaise with other specialties as required.
Appendix 7 Surgical Teams

Main Effort -

To coordinate and perform Damage Control Surgery to enable Damage Control Resuscitation

It is recommended that depending on the patients injuries (e.g. predominant Cavity/Pelvis/Extremity) and surgical experience, the surgeons identify themselves as Surgeon 1 (lead surgeon) and Surgeon 2.

This role may well change as surgery progresses or as surgeons are stood down/replaced.

If only one surgical team is utilised, surgeon 2 should consider remaining as surgical assistant.

The Lead Surgeon will coordinate the sequencing of surgery and ensure liaison with Anaesthesia to monitor the patients physiological response to surgery and resuscitation.

Ensure that all team members are aware of your plan and sequencing.

Communicate frequently

Consider ICU/surgical pause to reverse pathophysiology
Appendix 7 Anaesthesia Team

**Main Effort**

To coordinate Anaesthesia and Damage Control Resuscitation

Two Anaesthetists are required as a minimum:-

**Anaesthetist 1** To deliver the trauma anaesthetic, including airway, infusions, medications and equipment responsibilities.

**Anaesthetist 2** To coordinate and deliver the Damage Control Resuscitation. To ensure adequate IV/IO access exists. To Anticipate current and future blood product requirements in context of the current and expected physiological and surgical course.

**Anaesthetist 3** e.g. DFA in Office Hours. Provide Overwatch and second opinion. Assess staffing levels and overall theatre response. Point of contact and liaison.
Appendix 7 Scrub/ODP Team

**SCRUB TEAM**

At least 2 scrub staff are required

One Scrub nurse/ODP per surgical team

Preferably 1 Orthopaedic competent and 1 General/Vascular competent

**ODP TEAM**

At least 2 ODPS are required

ODP 1 - to perform routine trauma anesthesia role, assisting Anaesthetist 1.

ODP 2 - to take an integral role in the ordering, collecting, administering and recording blood products administration along with the Lead Anaesthetist or Anaesthetic Registrar. She/he may be required to source extra equipment e.g. Rapid infusor or organize the running of ABG/blood samples to the laboratory.
## Appendix 7 ODP Suggested Kit list

### ESSENTIAL

- ECG Leads
- NIBP lead and Cuff (Small/Medium/Large)
- Pulse Oximetry Ear and finger probes
- Transducer cables
- Bunny Ears
- Temp cable
- Pressure bags (1x 500ml and 1x 1000ml)
- ROTEM/TEG
- Rapid Infusor

### IMPORTANT

- 2 x PK Pumps
- 2 x GH Pumps
- Cell Salvage & operator

### USEFUL

- MAC and triple lumen CVC lines
- RIC line
- Swan Introducter
- EZ IO / FAST IO device
- Intercostal drain
- Double lumen ETT
Appendix 7 Runners/Circulators

RUNNERS

Normally theatre Health Care Assistants, 2 will normally be required. One Runner assigned to the Scrub teams and One to the Anaesthesia team.

**Scrub Runner:**
To provide kit and equipment to the surgical teams.

**Anaesthesia Runner:**
Main roles include the delivery of laboratory blood samples and collection of blood products by hand. The delivery of ABGs to ICU for processing. Assist with the collection of additional anaesthetic equipment.

CIRCULATORS

At least 2 Circulators are required, one for each scrub team.

**CIRC 1** - to perform routine trauma anesthesia role, assisting Anaesthetist 1.

**CIRC 2** - to take assist in the ordering, collecting, administering and recording blood product administration along with the Lead Anaesthetist or Anaesthetic Registrar.

She/he may be required to source extra equipment e.g. Rapid Infusor or organize the running of ABG/blood samples to the laboratory.
### Appendix 8 Blood Product Template

<table>
<thead>
<tr>
<th></th>
<th>NUMBER AVAILABLE IN BLOOD BANK</th>
<th>LEVEL 4 BLOOD FRIDGE</th>
<th>TRANSFUSED</th>
</tr>
</thead>
<tbody>
<tr>
<td>RED BLOOD CELLS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FRESH FROZEN PLASMA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLATELETS</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>CRYO</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 20 Minute Brief - Surgical/Anaesthesia Comms

To occur every 20 minutes or after every 4 units of blood products transfused

- Time since Knife to Skin (KTS)
- Systolic Blood Pressure (with/without treatment)
- Temperature
- Acidemia/Serum pH
- Lottig/ROTEM results
- Kit - Equipment/Total blood products used, remaining, required
- Surgical progress and plan
- Do we need a surgical pause? Are ICU aware?
# Appendix 9 Theatre Equipment Requirements

| **SURGICAL SETS** | **GENERAL LAPAROTOMY**  
| | **THORACTOMY**  
| | **ORTHO TRAUMA SET**  
| **PATIENT WARMING** | Operating table with warming mattress in place  
| | 2x Forced Air warmers and disposables  
| | Nasopharyngeal temperature probe  
| | Raise the theatre temperature immediately  
| **FLUID ADMINISTRATION** | At least 1 Belmont rapid Infusor  
| **AUTOLOGOUS BLOOD COLLECTION** | Know the location of cell saver apparatus and allocate an operator  
| **PATIENT MONITORING** | Standard AAGBI Monitoring  
| | Point of Care testing - e.g. ROTEM/TEG in theatre or Anaesthetic Room  
| | Consider Cardiac output monitoring eg Oesophageal doppler/Licco  
| **LABORATORY SAMPLING** | Sufficient Blood tubes and forms may be obtained from the recovery |
Appendix 10 Suggested Theatre Layout
Appendix 11 WHO CHECKLIST

SIGN IN - Scrubbed, draped and in theatre.
Sign in will take the form of a Trauma Team Leader ATMIST handover -
this is likely to be all of the patient information to hand

TIME OUT

Lead surgeon to confirm the likely action/procedure

Consent - This is life saving surgery and at best a form 4 will be completed

Allergies

Blood Products available and required

Actions on

e.g.

Surgeon - This polytrauma patient requires a laperotomy/thoracotomy for
proximal hemorrhage control. My plan is to open the abdomen/cHEST and
pack. I will then assess and see what happens with further resuscitation

Anaesthetist - This polytrauma exsanguinating patient requires an RSI/Ils
intubated and ventilated and will undergo DCS. MT is ongoing and more
products will be required. We should review the need for definitive surgery
once proximal and physiological control has been achieved.

SIGN OUT - As for elective surgery
Appendix 12 DCS Debrief Form

<table>
<thead>
<tr>
<th>Date</th>
<th>Age</th>
<th>Sex</th>
<th>Outline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trainer</td>
<td>Hospital no</td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Learning points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation prior to patient arrival</td>
</tr>
<tr>
<td>Team organisation</td>
</tr>
<tr>
<td>Clinical plan</td>
</tr>
<tr>
<td>Interventions</td>
</tr>
<tr>
<td>Temporal flow</td>
</tr>
<tr>
<td>Patient safety</td>
</tr>
<tr>
<td>Crowd control</td>
</tr>
<tr>
<td>Conflict resolution</td>
</tr>
<tr>
<td>What if</td>
</tr>
<tr>
<td>Documentation</td>
</tr>
</tbody>
</table>
APPENDIX 13

Plaster Trolley
Packing List

Tactics, Techniques
and Procedures

Sister Osborn 01 Aug 16

Top

Metal Bucket

Synthetic Undercast Padding
7.5 cm X 10
10 cm X 10
15 cm X 10

Plaster of Paris Slabs
10 cm X 1 Box
15 cm X 1 Box

Plaster of Paris Roll
5 cm X 10
7.5 cm X 10
10 cm X 10
15 cm X 10

Synthetic Roll
5 cm X 10
7.5 cm X 10
10 cm X 10

Top Drawer

Crepe Bandage
5 cm X 10
10 cm X 10
15 cm X 10

Narrow Plaster spreaders X 1
Broad Plaster spreaders X 1
Tough Cut Scissors X 2

Transpore Tape X 2

Bottom Drawer

Fleecy Web Roll (5 cm X 3m) X 2 rolls
Fleecy Web Sheets (22.5 cm X 40 cm) X 2 packs

Stockinette
5 cm X 2 rolls
7.5 cm X 2 rolls
10 cm X 2 rolls

Bottom

Rolls of Bags for Bucket
Inco pads X 10

Props X 2

In Department

Plaster saw

To be restocked daily by Theatre 9 HCA during morning theatre set up
DCS Trolley Packing List

Plymouth Hospitals NHS

Tactics, Techniques and Procedures