



TRAUMA CODE CRIMSON – ST GEORGE HOSPITAL (SGH)

1. Purpose	An explanation of the process to be undertaken once a Code Crimson is called by a pre-hospital team or the Emergency Department (ED) Team Leader identifies the haemodynamically unstable patient requiring expedition to Operating Theatre / Interventional Radiology
2. Risk Rating	Medium
3. National Standards	1 – Clinical Governance 5 – Comprehensive Care 6 – Communicating for Safety 7 – Blood Management 8 – Recognising and Responding to Acute Deterioration
4. Employees it Applies to	Emergency Department medical and nursing staff, Trauma Service medical and nursing staff, Operating Theatre Staff, Blood Bank, General Surgical Teams, Radiology, Interventional Radiology, Clerical Staff

5. PROCESS

Contents

- 5.1 [Outline](#)
- 5.2 [Pre Hospital Activation](#)
- 5.3 [Emergency Department Activation](#)
- 5.4 [Trauma Team Required + Code Crimson Activation – Pre- Patient Arrival Roles and Responsibilities](#)
- 5.5 [Code Crimson Patient Arrival in ED](#)
- 5.6 [Definitive Point of Care](#)
- 5.7 [Transfer to Definitive Care](#)
- 5.8 [Individual Team Member Responsibilities for Code Crimson](#)
- 5.9 [ED By-Pass](#)
- 5.10 [Patient Identification](#)

- Appendix 1: [Summary of Code Crimson Pathway](#)
- Appendix 2: [Activation of Code Crimson](#)
- Appendix 3: [Registration of an Unknown patient for code crimson](#)
- Appendix 4: [Activation of Code Crimson from ED to Switch](#)



5.1 OUTLINE

- A small number of severely injured trauma patients require time-critical surgical or interventional radiological procedures to arrest life-threatening non-compressible haemorrhage following either blunt or penetrating trauma (NSW Institute of Trauma and Injury Management Trauma 'Code Crimson' Pathway).
• Those patients who remain hemodynamically unstable due to on-going haemorrhage are unlikely to benefit from a prolonged period of time in the Emergency Department (ED). This is a process to expedite transfer to definitive intervention (Operating Theatre (OT) or Interventional Radiology (IR)) via the ED, or on rarer occasions, straight from the helipad.

Note: This may mean bypassing the ED for a small, select group of critically injured patients

5.2 PRE HOSPITAL ACTIVATION

- Pre-hospital personnel may activate a Code Crimson for trauma patients meeting the following criteria:
o Persistent haemodynamic instability unresponsive to pre-hospital intervention and trauma care secondary to ongoing haemorrhage in blunt or penetrating trauma
• SGH requires defined systems to expedite damage control resuscitation and haemorrhage control in these patients.

Table with 2 columns: Blunt trauma, Penetrating trauma. Rows include: Abdominal trauma with grossly positive eFAST, Uncontrolled maxillofacial haemorrhage, Gross pelvic disruption, Massive haemothorax, Traumatic amputation, Penetrating trauma to chest / abdomen, Junctional penetrating trauma, Pericardial tamponade on eFAST, Penetrating neck wounds with hard signs of vascular injury.

- Medical Retrieval will notify the ED of a Code Crimson patient via the ED BAT phone using usual handover practice (MIST/ETA). The MIST/ETA will be recorded by the NUM/In-charge nurse who answers the BAT phone.
• If retrieval haven't activated a code crimson and the EDSS/Senior ED Registrar feel the patient meets code crimson criteria they can activate a code crimson based on the MIST criteria that's received.

5.3 EMERGENCY DEPARTMENT ACTIVATION

- See flowchart on Appendix 2
• The ED Consultant or Senior Registrar will confirm Code Crimson activation.
• In exceptional circumstances where retrieval haven't activated a code crimson an EDSS/Senior ED Reg can activate a code crimson.



5.4 TRAUMA TEAM REQUIRED + CODE CRIMSON ACTIVATION – PRE- PATIENT ARRIVAL ROLES AND RESPONSIBILITIES

- Once the notification is received of a Trauma Team Required + Code Crimson the appropriate clinicians are to make their way to the ED. The following outlines the responsibilities of specific personnel to ensure the full team of senior clinicians is aware and prepared for the arrival of a Code Crimson patient.

5.4.1 ED NUM/In-charge

- Ensure the MIST and ETA is recorded as per pre-hospital information via the BAT phone
- Ensure the most senior ED medical officer (MO) is aware of Code Crimson activation
- Phone 2222 (switch board) and activate “Trauma Team Required + Code Crimson”, (As one Lan Page). Switchboard to then phone the Trauma Hotline and notify that a Code Crimson has been activated.
- Those required to attend a Trauma Team Required should immediately attend the ED
- Notify the clerical staff and if the patient’s identity is not known or isn’t provided in the pre-hospital information, the patient will be allocated the next available unknown patient identifier, as per [SGH WPI229 Unknown patients - Process for Registering in iPM](#)
- Notify the Triage nurse
- Notify the resuscitation nurse team leader/scribe to commence preparation and ensure automatic activation of Massive Transfusion Protocol (MTP) has occurred by blood bank.

The helicopter activation pathway will still occur independently of this Trauma Code Crimson process, as per the [SGH CLIN300 Helicopter Operating Procedures](#).

5.4.2 Admission/Clerical

- The In Charge will notify the clerical officer of the pending arrival of the code crimson patient.
- If patients’ identity is known register patient following the standard patient registration procedure.
- If the patients’ identification is not provided by Pre-hospital Personnel, the patient will be allocated the next available unknown identity by the designated Clerk in the ED as per [SGH WPI229 Unknown patients - Process for Registering in iPM](#) which is outlined in [Appendix 3](#).
- Clerical staff should print 5 pages of patient stickers and inform the medical team leader when the patient is registered.
- The clerical staff must ensure they change the arrival time on eMR to reflect the actual patient arrival time, once the patient has arrived.

The patient’s details should remain as an *Unknown* whilst in ED and should NOT be updated by ED Clerical staff even if the patient’s identity is later confirmed.

5.4.3 ED Staff Specialist or most Senior ED MO

- Assumes role of Medical Trauma Team Leader for the Code Crimson and should:
 - Confirm that the Trauma Hotline Consultant/Fellow have been contacted
 - Prepare the resuscitation team
 - Ensure ultrasound, EZ-IO, Haemorrhage Control Box are available



SGH CLIN548 Clinical Business Rule

- After hours, if the Team Leader is an ED Registrar, notify the EDSS on call and request that they attend the Emergency Department
- Confirm with the Resuscitation nurse team leader/scribe that automatic activation of the massive transfusion protocol has occurred by blood bank and an ETA of blood products.

5.4.4 On-call Trauma Hotline Consultant/Fellow

- Contact ED Staff Specialist or ED Admitting Officer on the BAT phone to ascertain MIST, ETA and other available details.
- During business hours, attend the ED when the Trauma Team required + Code Crimson is activated.
- Ensure the following personnel have been notified of an inbound Code Crimson patient and that attendance to ED is requested. Available MIST and ETA should be provided to:
 - General Surgical Consultant and Fellow on-call via switch
 - On-call Anaesthetic Consultant
 - Subspecialty - (Orthopaedic, Neurosurgery, Vascular, Cardiothoracic) as required
- Ensure blood bank have activated MTP;
 - Blood bank personnel should follow the existing protocols for emergency release blood and MTP activation
 - Notify the On Call Interventional Radiologist should MIST suggest the requirement for urgent IR on patient arrival
- Out of hours the Trauma Consultant/Fellow should make their way to St George Hospital, and notify the ED Medical team lead of ETA, and that designated calls have been completed.
- **Note: Out of hours the on call Trauma Consultant/Fellow may delegate the following calls while they are travelling to the ED:**
 - On Call surgical registrar to call:
 - General Surgeon/Fellow

It remains the responsibility of the On Call Trauma Consultant/Fellow to ensure that all required calls have been made, and that personnel are en route to the ED with ETA. This information must then be communicated to the ED Medical Team Leader.

5.4.5 On-call Surgical Fellow/Consultant

- Head to St George Hospital ED and notify Medical Team Leader on arrival

5.5 CODE CRIMSON PATIENT ARRIVAL IN ED

5.5.1 Code Crimson KPI

- Disposition of patient determined within 20 minutes of arrival at St George Hospital

5.5.2 Actions

- Patient remains on pre-hospital stretcher for handover from Pre-hospital Personnel and/or transport to definitive care/CT
- Following handover, damage control resuscitation continues incorporating the [Massive Transfusion Protocol](#) - The patient and all fluids should be warmed.
- Rapid primary survey including eFAST:



- Airway – Anaesthetist confirms Airway secured
- Breathing - Exclude/manage tension pneumothorax
- Circulation - Control external haemorrhage
 - Tourniquet
 - Compression dressing or skin staples for scalp
 - Consider tight wound packing with QuikClot or Kerlix
 - Consider iTClamp – in Haemorrhage box
- Additional vascular access – intravenous/intraosseous
- Blood drawn for urgent Group and Match 4 units
- CXR/PXR – if time and patient haemodynamic status permits
- Medical Team Leader, in discussion with the surgical consultants, determines the appropriate management/disposition of the patient according to the following:
 - Immediate transfer to the operating theatre where resuscitation can continue pending decision making
 - The patient must not be transferred to OT until the Duty Anaesthetist has determined that:
 - an appropriate operating theatre is available
 - the patient can be managed safely

Note: *This does not automatically mean that the patient will undergo surgery at this time. If the patient stabilises it may be appropriate to proceed to CT to facilitate decision-making.*

OR

- Immediate transfer to Interventional Radiology on notification that the Angiography Suite is ready to receive the patient

OR

- Transfer to CT if patient responds to damage control resuscitation
- The Intensive Care Registrar/Fellow in attendance in ED must notify the ICU NUM/ Nurse In Charge that the Code Crimson will require ICU admission. Once the ICU Pod and Bed Number are known this should be communicated to the ED Medical Team Leader. The ICU MO should remain in ED to assist as required by the ED Medical Team Leader (airway, vascular access etc.).

5.6 DEFINITIVE POINT OF CARE

5.6.1 Operating Theatre (OT)

● Duty Anaesthetist:

- Once the decision to move to OT has been made the Duty Anaesthetist must contact the OT NUM (Page 111) to notify OT of the patient
- The patient must not be transferred to OT until the Duty Anaesthetist, in consultation with the OT NUM, has determined that an appropriate operating theatre is available and that the patient can be managed safely

● OT NUM:

- Liaise with Duty Anaesthetist regarding available OT space. If no space immediately available:
 - Determine the next available theatre or which list can be interrupted rapidly to accommodate the Code Crimson patient
 - Communicate the need to interrupt a case/list to the surgeon in the affected theatre
- Organise all relevant staff



- Warm the trauma theatre
- Set theatre doors to open.
- Have staff member available to direct trauma team to theatre
- **Anaesthetic Nurse:**
 - Move fluid warmers and forced air warmer to designated theatre
 - Liaise with Blood Bank staff re: patient moving from ED to OT and arrange for collection of required products by theatre orderly
 - Assist with resuscitation

Blood Bank must be notified of decision to move to OT so that any blood products can be sent directly to OT

5.6.2 Interventional Radiology

- The patient should not be moved to the angiography suite until the ED team is notified by the IR staff that they are ready to receive the patient
- The ED Medical Team Leader co-ordinates the necessary personnel in discussion with the Trauma Consultant. This includes nominating the appropriate medical officer to manage the airway in an intubated patient (ED, anaesthetics, ICU).
- Blood bank should be notified of a change in location prior to leaving the Emergency Department and an orderly should be allocated the role of collecting products.
- Damage control resuscitation continues in IR incorporating MTP, as directed by the Medical Team Leader/Duty Anaesthetist in discussion with the Trauma Consultant.

5.7 TRANSFER TO DEFINITIVE CARE

- ED staff prepare/transfer patient ensuring all necessary personnel and equipment accompany the patient
- If additional ED resources are required to safely transfer the patient this must be discussed with the ED NUM/In-charge and ED Medical Team Leader

5.8 INDIVIDUAL TEAM MEMBER RESPONSIBILITIES FOR CODE CRIMSON

5.8.1 Switchboard Operator

- It is the responsibility of the Switchboard Operator to activate the paging system with the "Trauma Required + Code Crimson"
- Call the Trauma Hotline and notify a "Code Crimson" patient with ETA if known
- Facilitate contacting the required staff on their mobile or home numbers

5.8.2 ED Medical Team Leader

- Brief the Trauma Team regarding MIST and need for rapid decision-making
- Communicate a proposed plan and disposition prior to the patient's arrival
- Ensure **hands off** handover with patient remaining on the pre-hospital bed
- Ensure that only time critical investigations/interventions are performed
- Discuss with the Duty Anaesthetist and General Surgery/Trauma Consultant the appropriate disposition of the Code Crimson patient.



5.8.3 Resuscitation Nursing Team Leader/Scribe

- Allocate roles
- Liaise with Blood Bank to confirm automatic activation of the Massive transfusion Protocol (if required)
- Prepares the resus room and ensures blood box, drugs and required resuscitation equipment is available.
- Re-confirm with Blood Bank when patients location has changed (ie – sending MTP to OT not ED)
- Ensure that members of the ED Nursing team have the following resources available to expedite transfer: cardiac monitoring, portable oxygen, ventilator, transport bag and drugs from the ED
- During transport continue the role of nursing team leader/scribe when the patient leaves the ED until directed to stand down by the ED Medical Team Leader/on-call Trauma Consultant
- Notifies blood bank if a second ED resus esky is required for a second ED patient

5.8.4 Trauma Fellow/General Surgical Fellow

- The Trauma Fellow/General Surgical Fellow contacts the OT NUM/In-charge (pager 111) to notify of imminent patient transfer, ensuring that:
 - There is an available theatre
 - The patient can be safely managed in the Operating Theatre
- Describe case requirements following discussion with the Trauma Consultant/General Surgeon.
- Confirm that the trauma theatre has been warmed.
- Inform the ED Medical Team Leader when the Operating Theatres are ready to receive the patient
- ***These tasks may be performed by the General Surgical Registrar/Trauma Registrar out of hours pending the arrival of the Trauma Fellow/General Surgical Fellow***

5.8.5 Duty Anaesthetist

- Notify the consultant on call of the imminent arrival of a Code Crimson patient and request that they attend the Emergency Department
- Maintain communication with the OT NUM (pager 111)

5.8.6 Radiographer

- Attend and remain in Trauma Resuscitation bay once “Trauma Team Required + Code Crimson” page is received
- Pre-registration allows for an MRN to be made available prior to the patient’s arrival – images can be requested prior to the patient’s arrival where appropriate
- Direction regarding need for imaging will be received during pre-brief by ED Medical Team Leader/Trauma Consultant – if necessary the radiographer should seek clarification due to the time critical nature of the Code Crimson patient
- Interventional Radiology: it is the responsibility of the On Duty Radiographer to liaise with the Interventional Radiology Nurse



5.8.9 Emergency Department Nurse NUM/In-charge

- Ensure the “Trauma Team Required - Code Crimson” has been activated and immediately inform the most senior ED medical staff member
- ED NUM/In-charge is required to ensure that all appropriate medical/nursing/allied health members are present on receiving pre-hospital notification

5.8.10 Emergency Department Orderly

- Collect blood/products from Blood Bank
- Once the patient is moved to OT/IR – the orderly should hand over to the OT orderly.
- Notify ED Nursing Team Leader/Scribe if insufficient orderly staff are available to take over.

5.8.11 Blood Bank

- Automatic activation of the Massive Transfusion Protocol when code crimson is activated
- Liaise with the nursing team leader- 34455
- Send products as they are ready, no need to wait for the whole MTP pack to be ready to dispatch
- Ensure that blood/products are sent to the ED pending notification of patient transfer to definitive care location (Operating Theatre/Interventional Radiology/ICU).
- Send products to notified care location.
- Requests return of ED blood esky for restocking once esky is no longer required/empty.

5.9 ED BY-PASS

In rare circumstances, where recommended by Pre-hospital medical personnel, if the Code Crimson patient is in extremis, they may bypass the ED at the discretion of the on-call ED Staff Specialist/Trauma Consultant in consultation with the Anaesthetics Consultant/Fellow and the Surgical Consultant/Fellow.

Bypass will usually be to the Operating Theatre but may be to Interventional Radiology
Bypass can occur from the Helipad, or from the Ambulance bay.

The decision to proceed with ED Bypass can only be made when the Trauma Surgeon/Fellow or General Surgeon/Fellow are present in the hospital to receive the Code Crimson patient at the ED Ambulance Bay or the Helipad, and liaise with the Pre-hospital personnel. If there is no Surgeon/Surgical Fellow in the hospital the patient must be transferred to the ED for ongoing resuscitation and management.

- If the decision to bypass ED is made by the on-call Trauma Surgeon/Fellow or General Surgeon/Fellow in attendance:
 - The ED Medical Team Leader and the On Call Anaesthetist/Anaesthetics Registrar must be notified of a planned ED Bypass
 - The On Call Anaesthetist/Registrar must notify the OT NUM and determine the next available operating theatre, or which list can be interrupted.
 - The patient can only be transferred to the Operating Theatre when the Anaesthetics Consultant/Fellow notifies the Team Leader that an operating theatre is available and the patient can be managed safely. Every effort should be made to expedite this process.



5.9.1 In the Operating Theatre

- On arrival in the operating theatre a “hands off” handover occurs by the Pre-hospital medical officer to the Trauma/General Surgeon with other personnel silent
- “Time Out” occurs including a briefing from the Surgeon regarding planned procedure and required resources.
- The Anaesthetics team is responsible for co-ordination of damage control resuscitation including intravenous access, collection of blood etc.
- Pre-hospital personnel may continue to assist the Anaesthetics and Surgical teams in the operating theatre until such time that sufficient staff have arrived.

5.9.2 In the ED

- On notification by the ED Medical Team Leader that a Code Crimson patient has bypassed ED, the Nursing Team Leader/Scribe is responsible for alerting Blood Bank of the patient destination.
- The ED Medical Team Leader may, in discussion with the ED NUM, allocate medical and nursing staff to assist with the coordination and management of the patient in OT/IR until sufficient surgical, anaesthetics and nursing personnel have arrived.
- While awaiting the arrival of the Code Crimson patient:
 - ED Nursing Team Leader/Scribe/ /OT NUM should arrange for ED Clerk to register an *Unknown* patient
 - Patient labels will need to be sent to printer in OT or IR

5.10 PATIENT IDENTIFICATION

5.10.1 ED and OT

- The patients’ identity should remain as Unknown whilst in ED and in OT/IR
- If the identity is confirmed the old notes should be requested and the resuscitation team made aware of the patient’s previous MRN by the clerical officer
- If the patient has had previous admissions within SESLHD, a note should be made in the *Unknown* MRN, identifying the patients original MRN and any known clinically significant information and past medical history

5.10.2 Post Acute Resuscitation Phase

- Once identity is confirmed, the patient’s details should not be changed until the patient is no longer receiving ongoing blood product resuscitation, has no pending pathology results, has no pending imaging requests and does not have an imminent procedure scheduled. This decision should be co-ordinated by the admitting team
- When the patient’s details are updated, the iPM change of details should be sent as a screen shot to the Blood Bank staff
- A Group & Screen should be collected and sent to the Blood Bank ASAP for processing along with the screenshot of the iPM details change
- The merging of MRN’s will only occur after discharge



SGH CLIN548 Clinical Business Rule

6. Cross References	SGH CLIN217 Massive Transfusion Protocol (MTP) - ADULT – SGH SGH CLIN300 Helicopter Operating Procedure SGH WPI229 Unknown patients - Process for Registering in iPM
7. Keywords	Code Crimson, Trauma, Emergency
8. Document Location	SGH Trauma Page, SGH ED Page under C
9. External References	
10. Consumer Advisory Group (CAG) approval	Not applicable
11. Implementation and Evaluation Plan	Implementation: The document will be published on the SGH-TSH business rule webpage and distributed via the monthly SGH-TSH CGD report. Evaluation: All patients who are deemed to meet Code Crimson Criteria to be reviewed by the Trauma QA process.
12. Knowledge Evaluation	Q1: What does Code Crimson mean? <i>A: Notification prior to a patient’s arrival that they are persistently haemodynamically unstable despite standard trauma care, assessed as being secondary to ongoing haemorrhage in blunt or penetrating trauma, which is unresponsive to intravenous fluids and/or blood transfusion</i> Q2: Who is responsible for notifying the on-call Trauma Consultant regarding the notification of a Code Crimson patient? <i>A: Switchboard call the Trauma Hotline when informed of a Trauma Required/Code Crimson by the ED NUM/In Charge.</i> Q3: When would a patient by-pass the Emergency Department? <i>A: In rare, exceptional circumstances when the patient is in extremis, the patient may bypass the ED and be taken to the Operating Theatre or Interventional Radiology at the discretion of the <u>on-call Trauma Consultant</u> in consultation with the Surgical Fellow/Consultant.</i>
13. Who is Responsible	Trauma Director Emergency Department Senior Medical staff



SGH CLIN548 Clinical Business Rule

Approval for: CODE CRIMSON – ST GEORGE HOSPITAL	
Specialty/Department Committee	Trauma Committee Chairperson: Mary Langcake, Trauma Director Date: 16.11.2021
Nurse Manager (SGH)	Andrew Bridgeman, A/Nurse Manager Critical Care Services Date: 17.11.2021
Nurse Manager (SGH)	Andrew Bridgeman, Nurse Manager Surgery Date: 17.11.2021
Medical Head of Department (SGH)	Dr Mary Langcake, Trauma Director Date: 16.11.2021
Executive Sponsor	Andrewina Piazza-Davies, A/Operations Manager Surgery, Critical care and W&CH Date: 16.11.2021
Contributors to CIBR	<p>Contribution:</p> <p>Consultation: Dr Mary Langcake – Director of Trauma, SGH Dr Christine Bowles, Trauma Consultant, SGH Dr Trevor Chan, ED Director, SGH Dr Peter Grant, Emergency Department SS, SGH Dr Alex Tzannes, Emergency Department SS, SGH Dr Donovan Dwyer, Emergency Department SS, SGH Dr Rob Scott, Anaesthetist SGH Dr Richard Morris, Director Anaesthetics, SGH Jessica Keady, CNC SGH Rochelle Cummins CNC, SGH Peter Loizou, Blood Bank, SGH Mark Goddard, Radiology Department, SGH Vivienne Rowlands, Clinical Information/Administration Services, SGH Lesley Prosser, Clerical Supervisor, SGH Samantha Sainsbury, Telecommunications Manager, SGH</p>



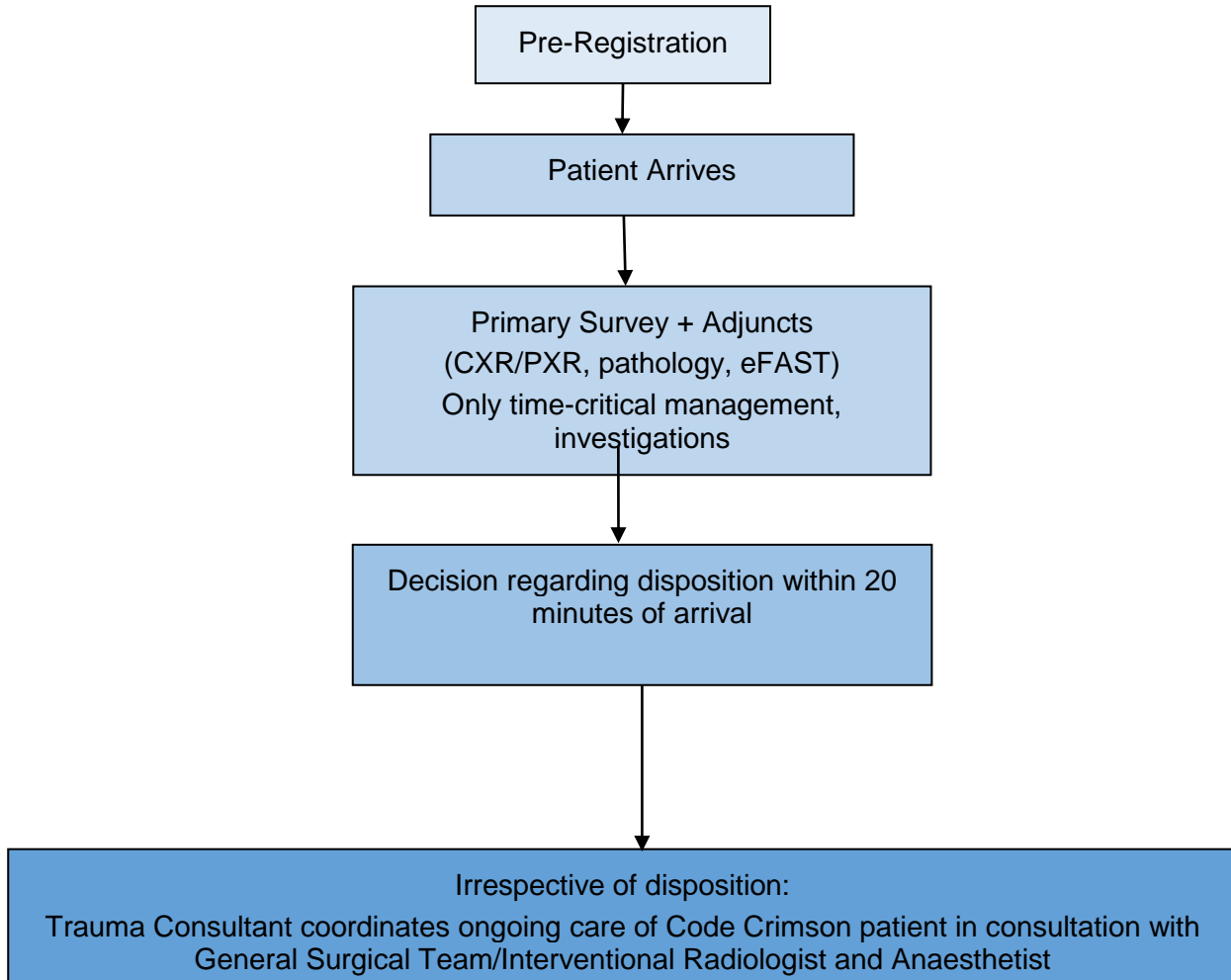
SGH CLIN548 Clinical Business Rule

Revision and Approval History				
Revision Date	Revision number	Reason	Coordinator/Author (Position)	Revision Due
Jul 2019	0		Mary Langcake (Director of Trauma)	Oct 2019
Sep 2019	1		Mary Langcake (Director of Trauma)	Sep 2022
Nov 2019	2		Mary Langcake (Director of Trauma)	Sept 2022
Nov 2021	3	Review (INTERIM) CIBR to state that MTP is automatically activated during a code crimson	Mary Langcake (Director of Trauma)	Mar 2022
Jan 2022	4	CGDC Approved	Mary Langcake (Director of Trauma)	Jan 2025

General Manager's Ratification	
Name: Paul Darcy (SGH)	Date: 25.02.2022

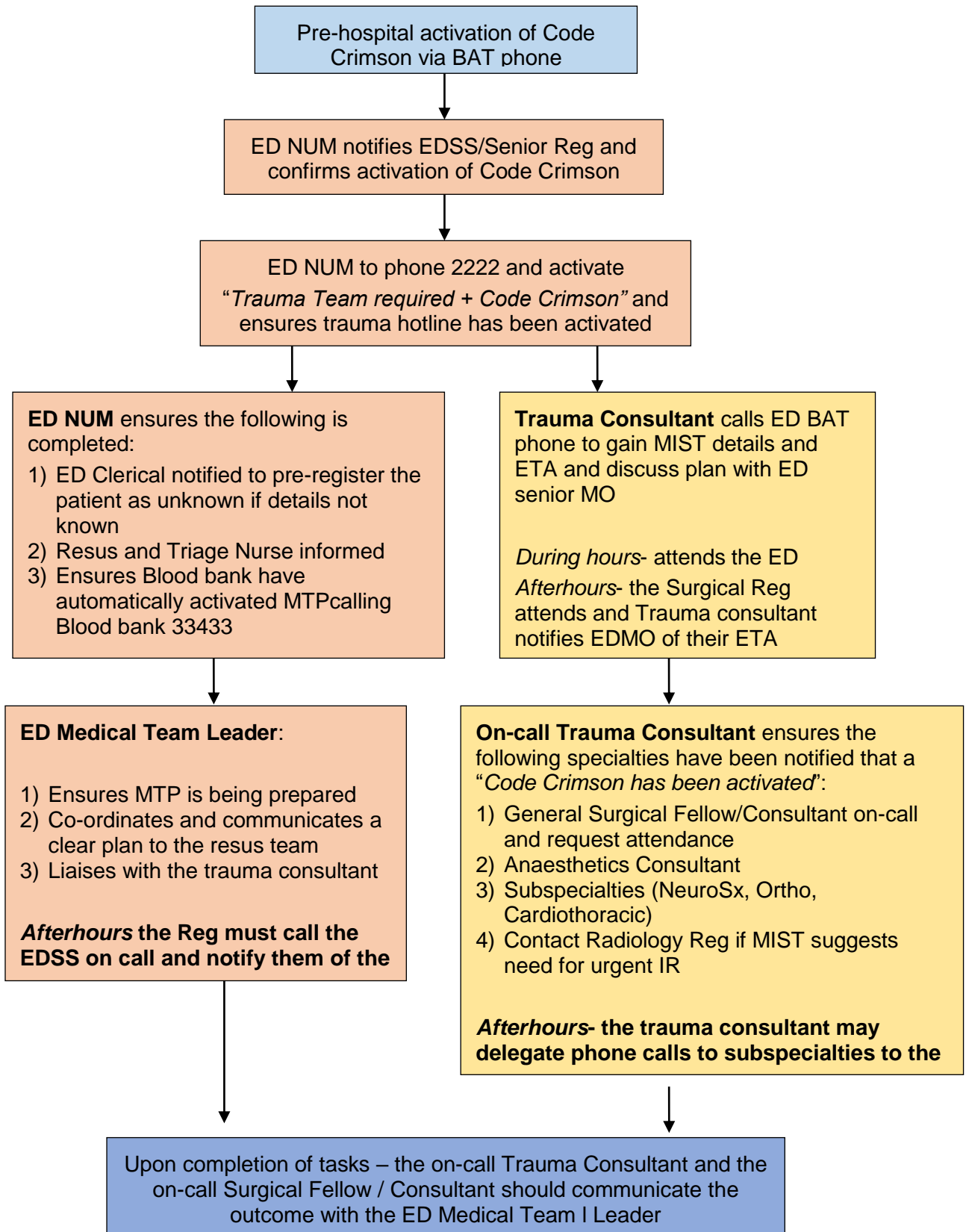


Appendix 1 - SUMMARY OF CODE CRIMSON PATHWAY





Appendix 2 - ACTIVATION OF CODE CRIMSON





Appendix 3 - REGISTRATION OF AN UNKNOWN PATIENT FOR CODE

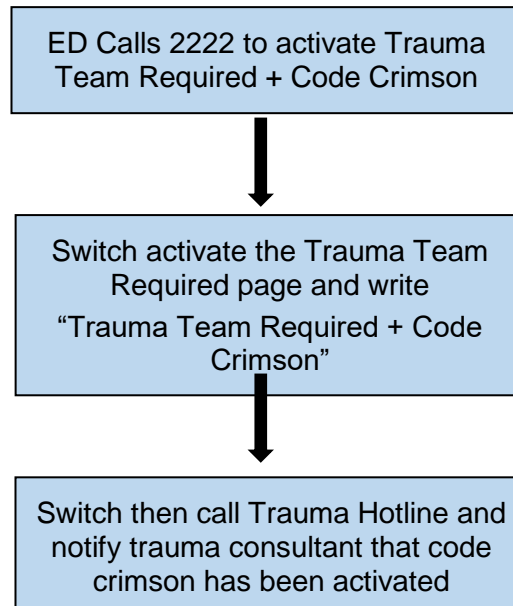
Refer to [SGH WPI229 Unknown patients - Process for Registering in iPM](#)

- The clerical officer is to access the “**x hr Pt List /Clinical reviews SGH**”. Use the filter “**presented in last 7 days**” on eMR.
- Place the list of names in alphabetical order by clicking on the name tab.
- Type “Unknown” in the patient tab and locate the Unknown patients in the name list.
- Follow the sequence of the next unique number for the Unknown patients who have presented in the last 5 days.
- If it is past the last 5 days (i.e. 6th day), the sequence is to re-commence again as Unknown, Unknown for the next occurring 5 days.
- Print 5 pages of stickers.
- The clerical staff must ensure they change the arrival time on eMR to reflect the actual patient arrival time, once the patient has arrived.

Details are not to be changed whilst in ED or OT even if patient’s identify is confirmed – see 4.10)



Appendix 4 - Activation of Code Crimson from ED to Switch



Please note: If you are unable to get through to the doctor on the Trauma Hotline you must notify the ED by calling the ED BAT Phone (95886087) and requesting to speak to the NUM/Senior MO regarding the code crimson.

The helicopter activation pathway will still occur independently of this Trauma Code Crimson process, as per the [Helicopter Operating Procedures](#).