Guidance Notes For the Doctors in Emergency Department

(Emergency Department – Induction Booklet)
Edition 2020

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Introduction

Welcome to Darent Valley Hospital, Accident & Emergency Medicine Dept.

I am sure for some of you; this might not be the 1st time working in a busy Emergency department while for others this might be the 1st experience of dealing with real medical emergencies regularly every day right after your F1 training.

I am sure you will find yourself at home here with fabulous support from staff, an interactive teaching program and I dare say, consultants who are definitely among the friendliest in the UK and last but not the least, registrars who are always eager to help.

This department is one of many across the country and it sees around 100,000 new patients every year. You are now part of it and it is hoped that with the guidance you will find it an interesting and rewarding experience.

The notes contained within this booklet are meant to be guidelines only. They are not intended to replace the standard text and books. They give information which is particular to this hospital and short bullet points in managing the many varied conditions which present in the A&E department.

Free WiFi is available at Darent Valley Hospital.

- To connect: Select 'NHS Wi-Fi' from the list of available wireless network connections.
- Once selected, you will be taken to a landing page where you will be prompted to read and accept the NHS Wi-Fi
- Use Policy. Once terms and conditions accepted you can access NHS Wi-Fi via your device.

NOTE: Darent Valley Hospital is a SMOKE / VAPE FREE site. Smoking & Vaping is not permitted anywhere on the hospital grounds.

Clinical Areas

The Emergency Department at Darent Valley is divided into:

- Majors-A & Majors-A Extension
- ESAT / Rapid Assessment Area in Majors-A
- Resuscitation Area
- Majors-B
- ENPs / GP / Triage Rooms
- Paediatrics A&E
- Cypress (observation ward)

WorkForce

The workforce comprises of Clinical Director, Clinical Lead, Consultants, Specialty registrars, Nurses, ACP's, Nurse Consultant, HCA, ENP's and ANP's.

The Consultant and the managerial body include:

Clinical Director:

Dr. Rashid Suleman

Divisonal Director of Operations:

David Horne

Interim Operations Manager:

Renuka Oojageer

Interim Matrons:

Polly Hird

Dan Babos

Assistant Operational Manager:

Sarah Gunnar

Divisional Director of nursing:

Caroline Bates

Nurse Consultant:

Siobhan Corbett

Consultants:

- Dr. Kamran Khan (Clinical lead for operations)
- Dr. Asghar Ali Wain
- Dr. Aref Rastegar (Lead for Governance, Audit & QIP)
- Dr. Vincent Kika (Lead for Legal Issues)
- Dr. Diwakar Sharma (CESR Programme Lead for ED)
- Dr. Mahmood Bashir (Lead for Teaching & Training Programme)
- Dr. Sameer Hijazi (Lead for Observation Ward / Cypress)
- Dr. Haseeb Hasan
- Dr. Muhammad Nazar

Rota Manager:

Ellie Gibbs

Performance & ED secretaries:

Hazel Winter

Kerry Cox

Getting things done

DVH operates a bleep system. The easiest way to be in contact with another specialty team is to call (78), followed by the bleep number and then the number, you want them to call back. Some of the commonly used bleep numbers are:

Medical: 240 (Registrar)

Surgeons: 561(SHO), 232(Registrar)

Urology: 185

GYN: 342 (SHO), 926 (Registrar)

Ortho: 592

ITU: 230

Paeds: 319 (SHO), 316 (Registrar)

IDT: 179

Outreach: 476

In case of emergency / Acute Stroke call: 2222

In Case of Emergency

In case of a cardiac arrest, trauma call, major event or acute stroke call, I would recommend calling one of the senior staff for help before putting the call out yourself, however, if you are in a position where you need to make the decision, don't hesitate to call 2222.

Handover and Ward Round

The emergency department at Darent Valley has a shop floor consultant cover from 08.00 am till 22.00 pm. After that, the on-call consultant is available via switchboard.

The emergency department operates a formal handover every morning between 08.00am and 08.30 am but may run longer based on clinical needs. All the patients are taken over from the night shift i.e Majors, Resuscitation, Minors and Cypress.

Another handover takes place at 22.00 pm before the late consultant finishes his shift.

After 22.00 pm a senior registrar takes the responsibility of EPIC (Emergency Physician In-charge)

There are rigorous board rounds every 2 hours in both majors and minors by the consultant on the shop floor and all the doctors working in the department are expected to attend the board round unless one is dealing with an actual emergency.

Role of EPIC in ED

Role of EPIC (Emergency Physician Incharge)

1. Senior Speciality Doctor level
2. Emergency Physician Incharge with Nurse Coordinator
3. Timing from 22:00pm-08:00am
4. Look after Resus/Majors A/Majors B/Paeds
5. Handover 22:00pm and 08:00am
6. Board Rounds 4 hourly with ED team and 2 hourly with nurse incharge
7. Help juniors in decision making
8. Gate keeper to SSA / Cypress
9. Administration
10. EPIC to speak to consultant if department unsafe.

Moving Patient to Observation Ward

All the patients that are moved to the observation ward (Cypress) should have an agreed plan of management with the shop floor consultant or EPIC and the observation ward transfer Proforma should be signed by the shop floor consultant or EPIC (out of hours). A drug chart must be completed before moving or soon after.

Blood & Phlebotomy services

The blood and phlebotomy services in the emergency department are usually run by a robust team of nurses and HCAs and occasionally by doctors themselves (good grief). There are phlebotomy trollies in all sections of the department and some specially made for paediatrics as well. There is a dedicated phlebotomy room in minors and should you wish to explore further don't hesitate to do so.

In case of departmental pressures and excessive patient load, you will be expected to bleed patients yourselves and once you are done, don't forget to label your samples and send them to the lab in the pods which are the fastest way to send them up. The pods are available in the majors nursing area and resuscitation room. However, if you need your results back quicker than others, don't forget to label it URGENT and these labels can be found in majors. If you still have doubts, don't forget to ask.

Blood and Blood Products

- Blood and other blood products need to be taken in a pink bottle and sent on a blood transfusion (red) form. You need to make sure the details match up (with the patient and their armband) otherwise they will be rejected.
- Any other blood products such as FFP or platelets first need to be authorised by the Haematology Consultant on call who can be contacted through the switchboard.

Radiology

All X Rays, CTs, US, and MRI forms go onto different FORMS.

- Vascular scans, Nuclear Medicine also has it's own form.
- For CT scans with contrast you need to make sure creatinine is on the form and MRIs need a safety questionnaire attached. Drop off point is in the Radiology Department.
- For CT scans not meeting NICE guidelines, you have to discuss with either the on-call radiologist on-site or for out of hours scan, with Tele-medicine services via switchboard.

Serious Incident Reporting

- This can be done via the intranet at Serious Incident reporting & complete the online form using your network login and password.
- This can also be reached through ADAGIO on the right-hand side of the opening screen followed by an Online Incident reporting form.

Communication-SBAR

Situation	Background	Assessment	Recommendation
Hi, I am Dr. XYZ calling from A&E regarding patient ABC. I am concerned about this patient who has a NEWS score of ___ after a diagnosis of 123.	Patients admitted with ABCD Obs and current Obs are DEFG and treatment of 9876 was given.	I think the problem is X and I have done Y for this patient and I think he needs further Z to improve.	I would like for you to come and see this patient immediately/ within the next hour. Is there anything else I should do?

Accident and Emergency Notes

The A&E notes should be completed accurately and fully. Make sure that they clearly contain your name, signature and the time that you saw the patient. Any additional entries should also be timed and dated accordingly.
Make sure that your notes contain history, examination, investigations, diagnosis/ differential diagnosis, treatment and discharge planning for the patient.
All sorts of treatment (oxygen, medications, IVF) should be mentioned in the medication order area of the notes with time and date.
It is essential that you should be precise in your descriptions of the injuries, especially if the court order is likely, as in an alleged assault and very often a quickly drawn diagram can illustrate very clearly what would take a lot longer to write in person.
Always remember to fill the Coroner form from every deceased patient who died in the emergency department.

Roles & Responsibilities

- You are responsible for the primary care of every patient who presents to the emergency department.
- You must remain in the department at all times when you are on duty.
- When your shift changes you should handover all your patients to your colleague and make sure that all the documentation including the handover Proforma has been completed.
- You should be punctual for your shift and try to arrive 5 minutes early.
- A&E work is unremitting and stressful. You must take breaks during your shift and keep yourself well hydrated during the shift.
- When you take your break, make sure the nurse in-charge or the shop floor consultant is aware of that.

Golden Rule of Emergency Department

1. **Arrival:** Arrive five minutes before the start of your shift in the emergency department.
2. **Absence:** Please give us ample time if possible in case of an emergency. Absence from duty due to avoidable reasons puts an extra burden on your colleagues.
3. **Performance:** There is an expectation of a minimum number to be seen in minors (roughly around 15) and majors (roughly around 8). The performance of each doctor is monitored for training.
4. **Consultant Sign Off;** Please add consultant name to the consultant sign off space once the patient has been discussed with EPIC (Emergency physician in-charge).
5. **Handover:** Document diagnosis, management plan, and name of the colleague being handover when you finish your shift. Change on the I-Soft.
6. **IDT:** Make sure the patient is medically cleared, documented in the notes before referral to IDT (integrated discharge team).
7. **Command & Control:** There is a named consultant/ EPIC leading the department in majors and minors on the rota. Where this is not feasible, a nominated middle grade should take command and control role in the specified area.
8. **Breaks:** Report to NIC (nurse in-charge) and consultant leaving the department for breaks.
9. **Referral:** When referring to the specialties click on “Decision to Refer under ED” on track while waiting for the referral to be made.
10. **Plan:** Keep the Nurse in-charge informed of any updated plans for patients. Don’t assume the patient can be moved to MSS/ Cypress while waiting for decisions.
11. **Prescription:** If treatment is prescribed please inform the nurse looking after the patient. Don’t hesitate to consult BNF if necessary.
12. **Internet and mobile phone:** Be discreet when using in the working area. Use only if relevant to work.
13. **Escalation:** Any non-clinical escalation as x-ray delay, CT scan/ blood results, patient flow then speak with NIC or EPIC and they will contact ED Silver (0800-1800) or contact clinical site manager (1800-0800) to find a solution.

Support & Supervision

The Emergency Department at Darent Valley Hospital is very supportive of all its staff members. It is a busy district general hospital and most of the time you will find yourself very busy but will always get the required support and supervision.
Every doctor will have a designated Educational and Clinical supervisor, (mentor in case of specialty doctor) and will have free access to his/her supervisor. The doctor will also have access to the department of medical education to raise their concerns.
The consultants and registrars in the department have been emphasized that clinical supervision and support to junior doctors is the part of their job plan.
Dr. Kamran Khan, college tutor & clinical lead and **Dr. Mahmood Bashir**, Training Lead of the department would be more than happy to address any concerns related to teaching, training, and supervision in the department.

NOTE:

- ✓ A suggestion/complaint box has been placed in the department.
- ✓ Any concerns related to bullying or harassment towards a trainee will be dealt with by the CD directly.
- ✓ The directorate has made every effort that junior doctors' teaching will not be compromised.

Teaching & Training

Junior Doctor Teaching:

- All junior doctors in the Emergency Department will have protected 1 hr of teaching every Thursday from 12.00 pm till 13.00 pm in the ED seminar room. The schedule for the whole teaching will be handed over in advance.

The doctors will be completely off the shop floor during the teaching session and the shop floor will be covered by registrars and consultants for the continuity of service delivery. The doctor is required to hand over his/her patient to the registrar or the shop floor consultant before going for the teaching.

NOTE: The consultant/lecturer delivering the teaching sessions or the juniors/participants are supposed to keep the record of the weekly teaching attendance. You can get the notebook/register from Hazel's office (Title: Weekly Junior doctors Teaching). After that session, please return it to Hazel's office as it needs to be sent to the medical education department for the record.

- After the handover/morning round, Consultant on Cypress/X-rays shift takes a short teaching session of trainees (Junior doctors, Trainee ACPs, Medical students, work experience student). This session is usually for 10 to 20 minutes of duration only.

Any junior/participant is supposed to get the notebook/Register from Hazel's office (Title: Morning Handover and Junior Doctors Teaching). He is supposed to write down the session details so that we can send it to the medical education department as per their recommendations.

NOTE: We keep the record of morning handover sessions with the names of all participants (including Consultants, NIC, MG/Reg, GPs, Juniors / Trainees doctor, Medical/work experience students) and also the topics/issues discussed / concerns raised during that sessions.

- To increase paediatric & minor injuries exposure, the 1200hrs trainee is posted for 02hrs in the ENP stream and 1600hrs trainee is posted in the paediatric ED. They work under the supervision of paediatric and trained ENPs & ACPs.
- Open forums have been started in the department.

Specialty Doctor Teaching:

The Middle-Grade teaching happens on every second Thursday of every alternative month from 09.00 am till 17.00 pm. Certificates of attendance with 05 inter CPD points are awarded which the doctor can use towards his/her annual appraisal.
Any doctor wishing to attend the teaching should apply for study leave (06 weeks in advance) if he/she is working on that day.

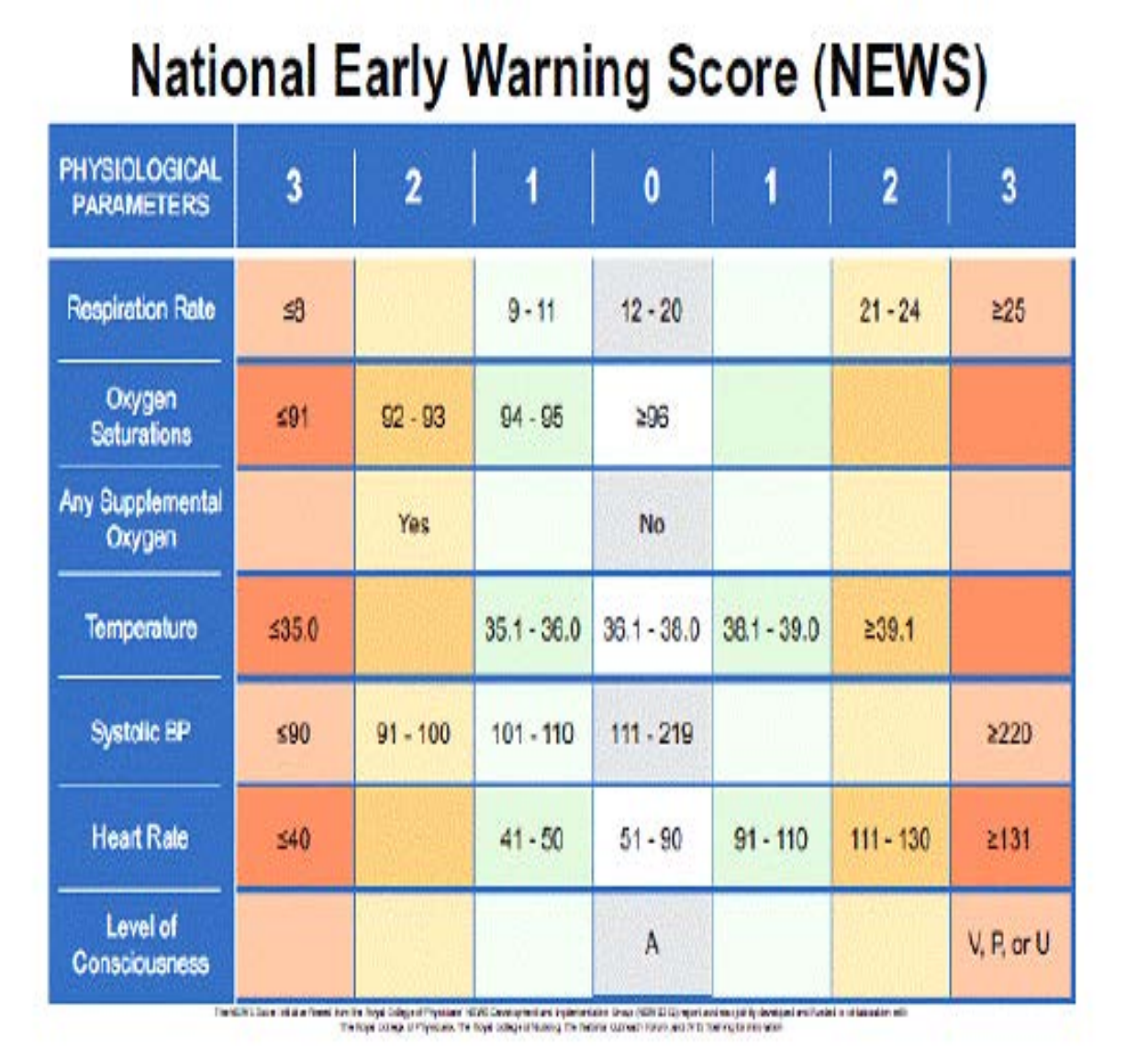
NOTE: Regular formal and informal meetings have been organised between the Clinical Director **Dr. Rashid Suleman,** Clinical lead **Dr. Kamran Khan**, Training Lead **Dr. Mahmood Bashir** & CESR lead and **Dr. Diwakar Sharma** to highlight the concerns of the junior doctors.

Mandatory Training

This learning deemed essential for safe and efficient service delivery and personal safety. It reduces organisational risks and complies with local trust and national policies and guidelines. Everyone should be fully compliant with his/her mandatory training.

Early Warning Scores

This is a simple composite score of basic physiological observations. It is used as part of a "Track and Trigger" system designed to ***track*** a patient's (physiological) condition over time and ***trigger*** prompt treatment of any acutely unwell patient. Not all life-threatening conditions lead to an immediate change in observations (e.g. hyperkalemia, ST-elevation MI) but many do and thus a derangement in observations is a valuable predictor of mortality. The Modified Early Warning Score (MEWS) is used at BHR at the time of writing. This relies on respiratory rate, oxygen saturation, pulse, systolic BP, temperature, AVPU, and urine output.



National Early Warning Score (NEWS)

PHYSIOLOGICAL PARAMETERS	3	2	1	0	1	2	3
Respiration Rate	≤8		9 - 11	12 - 20		21 - 24	≥25
Oxygen Saturations	≤91	92 - 93	94 - 95	≥96			
Any Supplemental Oxygen		Yes		No			
Temperature	≤35.0		35.1 - 36.0	36.1 - 38.0	38.1 - 39.0	≥39.1	
Systolic BP	≤90	91 - 100	101 - 110	111 - 219			≥220
Heart Rate	≤40		41 - 50	51 - 90	91 - 110	111 - 130	≥131
Level of Consciousness				A			V, P, or U

Emergency Department Scoring System

SCORING SYSTEM

CHAD2DS2VASC Score for stroke risk in AF		
C	Congestive Heart failure/LV dysfunction	1
H	Hypertension	1
A2	Age ≥75	2
D	Diabetes	1
S2	Previous stroke/TIA	2
V	Vascular disease	1
A	Age 65-74	1
Sc	Sex Category (i.e. female sex)	1
Total score /9		
0 Low risk 1 Intermediate ≥2 High		Aspirin or no therapy Aspirin or warfarin Warfarin

Well's score for PE risk	
Signs/symptoms of DVT	3
PE most likely diagnosis	3
Previous DVT/PE	1.5
Heart rate >100 bpm	1.5
Surgery/bedridden >3 days in the last 4 weeks	1.5
Haemoptysis	1
Active Cancer (tx within 6 months/palliative care)	1
Total	
>6 = high, 6-4.5 = moderate, <4 = low pre-test probability	

CURB 65 score for Pneumonia	
New onset confusion	1
Urea >7.0	1
Respiratory rate >30	1
BP <90 Systolic	1
Age >65	1
Total score Please note if patient is septic refer to the sepsis pathway	/5

Blatchford score for UGIB			
Score	Risk Marker	Score	Risk Marker
Blood urea		Haemoglobin (g/L) men	
≥6.5 -<8	2	≥12-<13	1
≥8 -<10	3	≥10 -<12	3
≥10 -<25	4	<10	6
≥25	6	Haemoglobin (g/L) women	
Other markers		>10-<12	1
Pulse≥100/min	1	<10	6
Melaena	1	Systolic Blood Pressure	
Syncope	2	100-109	1
Hepatic disease	2	90-99	2
Cardiac failure	2	<90	3
Score of 0 = low risk Score >6 = 50% risk of needing an intervention			

AMTS	
Age	
D.O.B	
Time	
Remember 42 West street	
Year	
Place	
Recognition of 2 persons	
Year of 1st World War	
20 to 1	
42 West street recall	
Total	/10

Departmental Policies and Protocols

Acute Admissions Guidance 18/19

This guidance outlines the operating and clinical principles for admission of emergency patients to the correct clinical team after referral from the Emergency Department (ED). **The following rules have been agreed by our Medical Director, Clinical Directors of ED, Medicine, Surgery, O & G, Urology, Paediatric and Radiology.** Junior members of the team are expected to follow these and in areas of dispute, arbitration must happen swiftly at Consultant level. In ED the consultant EPIC (Emergency Physician In-Charge) will adjudicate (0800 – 2200) and senior Middle-Grade EPIC (2200 – 0800);

This list is not exhaustive, clinical judgment, common sense approach and non-adversarial discussion is paramount:

1. **One way flow:** Once referred by ED, provided the appropriate basic tests (e.g. blood and urine for most medical & surgical patients, ß-HCG for O & G, CT for head injury) had already been performed, the specialty team is expected to review patient at the earliest, generally less than 30 minutes. It is then the specialty team's responsibility to organise onward referral or discharge if either are appropriate. Where there is a dispute the A & E EPIC and the specialty consultant will adjudicate in conjunction after discussion.
2. **Retrograde flow:** Referral and transfer to ED from other clinical areas is to be discouraged unless dictated by patient's clinical status, e.g. NEWS > 5. The attending doctor or nurse should speak to respective specialty SpR and Clinical Site Manager (CSM) and move patient accordingly;
3. **Investigation:** The ED team will aim to complete all necessary investigations (based on individual clinical needs) for immediate management of the patient by 120 minutes of arrival;
4. **Any further investigations** (CT/MRI) are requested by specialty post attendance to the patient; unless laparotomy code is initiated, CT KUB requested by Urologist for renal colic, and CTPA requested by Medics for suspected PE;
5. **Handover:** During specialty handover and MET Call activation when Medical SpR is unavailable, the ED consultant will be permitted to handover to another member of on call team or escalate to consultant physician on call if deemed necessary;
6. **Patients** with acute medical conditions requiring admission for treatment such as DKA, acute arrhythmia causing haemodynamic instability, renal failure or other primary medical aetiology are referred directly to the Medics;
7. **Refer** vascular trauma to Kings College Hospital and discussion with vascular SpR at GSTH (as per guidelines on Adagio). Patient with subacute vascular problems such as infected leg ulcer who cannot be managed as an outpatient or acute problem who needs end of life care will be admitted under adult medicine;
8. **New** fractures, septic arthritis, back pain with neurology (cauda equina)/ligament injuries requiring admission whether or not operative treatment is required are referred to orthopaedics. (Unless point 6 is fulfilled). The exception is patients with rib fracture who will be admitted under general surgery;
9. **Acute** head injury patients assessed by ED doctor, scans consulted with neurosurgeons, will be admitted for 48hrs observation under surgeons after which time they go to the Medics;
10. **Abdominal** pain of unknown cause such as bowel obstruction/biliary sepsis and pancreatitis are admitted to General Surgery, whether they are fit for theatre or surgery. Medics will only be involved as joint care if patient has significant medical co-morbidities;
11. **Post-operative complications** (pain, infection, post-operative haematuria, etc.) related to a recent procedure (defined as less than 7 days) is admitted under the specialty team who performed original operation.
12. **Post-operative** DVT, chest infection, or MI is referred to the Medics and the specialty team informed by the Adult Medicine SpR. The specialty team will aim for review within 12 hours of arrival / follow-up on ACU if clinically appropriate;
13. **Upper** GI bleeding will be admitted to Adult Medicine and **Lower GI bleed**ing to General Surgery;

14. **Patients** with surgical sequelae of cancer and who are under the surgical team at DVH are admitted under the parent surgical team;
15. **Patients** undergoing oncology treatment or chemotherapy will be clerked in ED by the Medics and transferred to Rosewood;
16. **O & G:** ED will have direct referral to EPU between 0900-1700 for protocol positive patients. Otherwise refer to O & G SpR who will respond within 30 minutes;
17. **Patients** with urological conditions requiring admission are admitted under urology who share junior staff with surgery out of hours;
18. **Patients** who meet the criteria for Level 1 or 2 care in ED will be clerked by a Specialty SpR within 30 minutes (or when physically possible) of referral in the ED and an appropriate definitive destination provided by the CSM within 240 minutes. Until the Medical SpR is able to see the patient, the patient remains under the care and supervision of the A & E SpR for early initiation of appropriate treatment and performing requisite monitoring;
19. **Cypress ward** (Clinical Decision Unit) will only accept patients under the care of an Emergency Department Consultant once screened for safe transfer. Specialty patients meeting Cypress criterion should be transferred to AMU or ACU where appropriate;
20. **Paediatric** ED will assess & refer to a tertiary centre any child less than the age of 5 presenting with abdominal pain and not to Surgeons at DVH.
21. **Patients with cellulitis,** not needing urgent surgery, e.g. fasciotomy for compartment syndrome, to be admitted under the Medics.
22. Opthalmology, ENT, Maxillofacial patients, without other medical or surgical co-morbidities should be admitted to Cypress whilst waiting for forward transferral.

Steve Fenlon Farid Moftah Jonathan Kwan Jacek Adamek Abhishek Gupta Alok Gupta
AA Wain Bikram B S Sriparasad

Medical Director T & O Adult Medicine Gen Surgery O & G
Children. Emerg Med Radiology Urology

Referring the patient to Ambulatory Care Unit (ACU)

Ambulatory Emergency Care (AEC) Referral Process from ED

Care with compassion | Respect and dignity | Striving to excel | Professional standards | Working together

Patient meets standard medical pathway criteria (listed overleaf)

Patient presents at ED triage or Ambulance Queue → Triaged by ENP with full News Score → Meets AEC pathway →

Band 6 / 7 nurse or doctor calls AEC Single Point of Contact 07925 173747. Simple SBAR handover / News Score / patient number. Patient streamed to AEC with copy of ED paperwork. AEC will complete all diagnostic tests. All Chest pain patients to have ECG at ED Triage.

For all surgical referrals please contact Brenda Stacey on bleep 225 or the Surgical on-call SHO

Every effort is made to ensure good patient flow through ED to AEC.
Please do not send patients without calling the Single Point of Contact to ensure capacity is available as this may result in patients being redirected by us.

Non-pathway patients can be discussed and assessed by the AEC Consultant or Senior Nurse. Contact 07925 173747

Chest pain patients must have a normal ECG with no cardiac history

See overleaf for pathways and exclusions.

Overnight referrals to be completed on PAS Order Comm.

Doctors must order radiology requests at time of overnight referral for DVT and PE Pathway. July2017

AEC Standard Pathways:

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- **Deep Vein Thrombosis**
  Overnight referrals: Send patient home following fragmin and with fragmin pack. PAS referral to AEC. ED referring Physician to order ultrasound doppler.
  Please do not tell the patient to attend AEC next morning, AEC will call patient with appt. time.
- **Haemodynamically stable Pulmonary Embolism**
  Overnight referrals: Send patient home following fragmin and with fragmin pack. PAS referral to AEC. ED referring Physician to order CTPA.
  Please do not tell the patient to attend AEC next morning, AEC will call patient with appt. time.
- **Haemodynamically stable Atrial Fibrillation**
- **Abdominal Paracentesis (Ascites) for patients with established chronic liver disease and known to a gastroenterologist.**
  Malignant disease to be referred to Acute Oncology Nurses, not AEC
- **Headache with GCS 15/15 and no focal neurology / Red Flags**
  Refer all trauma to Surgeons, not AEC. AEC do not accept cases requiring lumbar puncture.
- **Cellulitis working in conjunction with OPAT**
- **Syncope**
- **Exacerbation COPD**
- **Hyperglycaemia. BM<25mmols and Ketones <3**
- **UTI or Pyelonephritis - Non-shocked**
- **Electrolyte imbalance – normal GCS**

If you are unsure regarding referral overnight, seek advice from the Medical Registrar (Bleep 240) July2017

Referring the patient to Ambulatory Care Unit (ACU)

AEC Non-Standard Pathways:

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These are non-pathway conditions that can be discussed with AEC Consultant or Senior Nurse.
Contact: 07925 173747. 0800 – 1800 Mon - Fri

- Pneumonia with CURB<2
- Lower Respiratory Tract Infection
- Low Risk Chest pain with normal ECG and no cardiac history
- Low Risk GI bleed with Blatchford score <2
- First Seizure with GCS 15/15

If you are unsure regarding referral overnight, seek advice from the Medical Registrar (Bleep 240)

July2017

Patient Exclusion Criteria for AEC:

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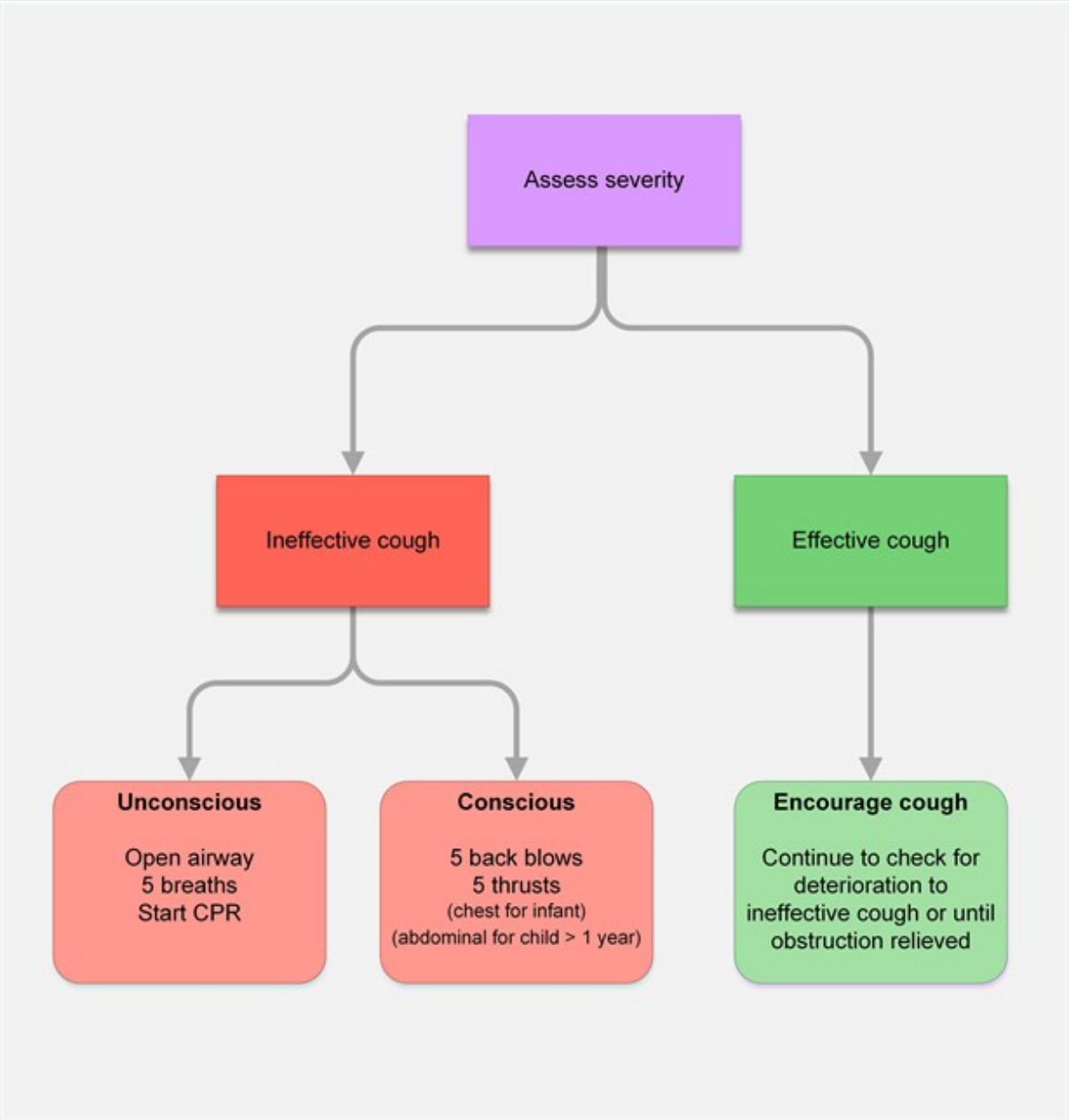
The following patients will not be accepted by AEC and referrals (including overnight PAS order comms) will be redirected back to the ED Consultant and referee:

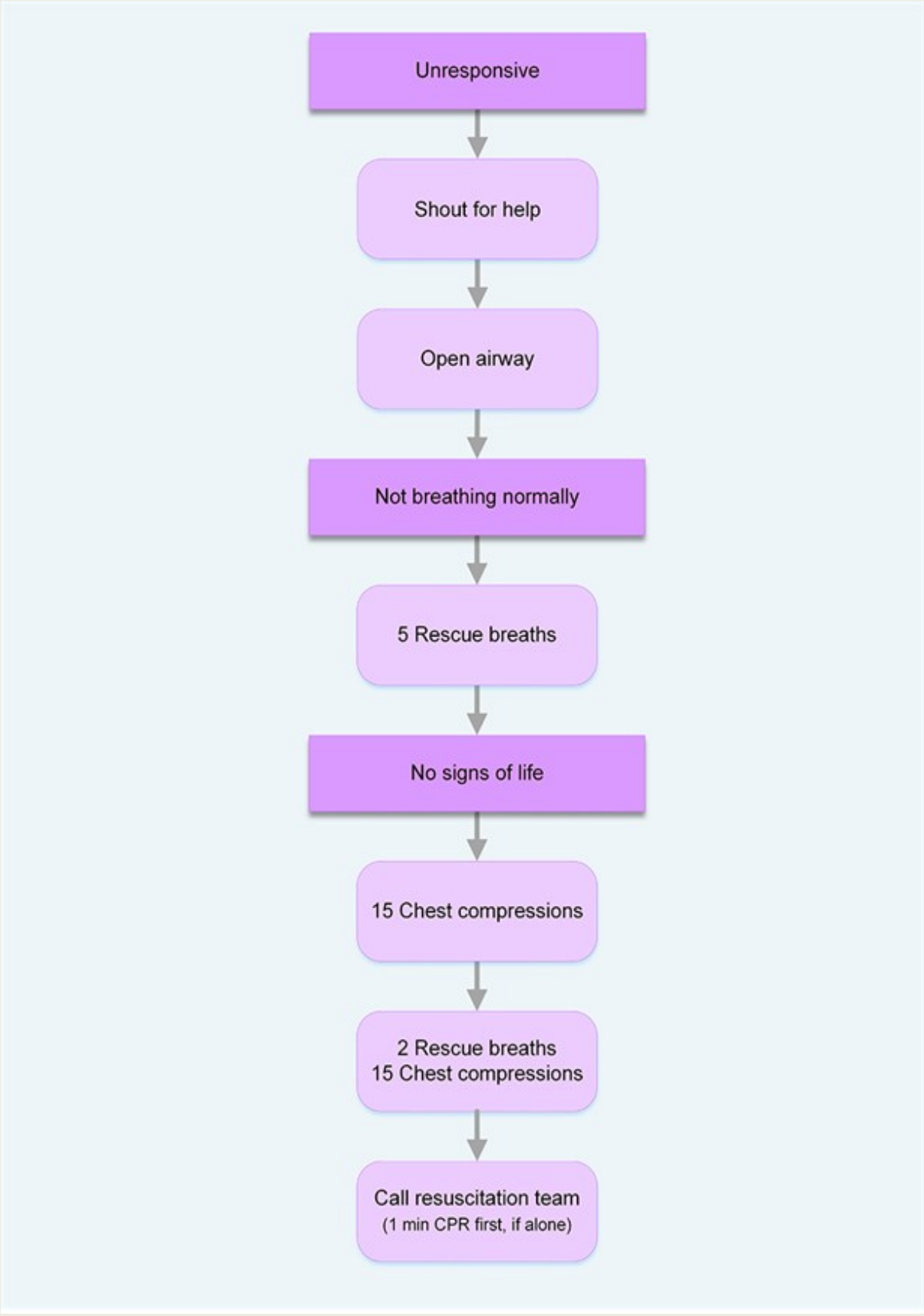
- Patients with diarrhoea and vomiting (no isolation room available)
- Patients with acute or acute-on-chronic confusion
- Patients with Malignant Ascites – refer to Acute Oncology Nurses
- Patients with new onset Ascites, not diagnosed chronic liver disease or not under the care of a Gastroenterologist
- High cardiovascular risk / Acute cardiac chest pain with abnormal ECG
- Active UGI bleed (melaena, coffee-ground)
- Haemoptysis (risk of TB, no isolation room)
- Pulse >150 bpm or <40bpm
- Systolic BP <90 mmHg
- Respiratory rate >30 bpm
- GCS <15
- BM <2 mmol/l
- BM >25mmol Ketones>3
- Patients on haemodialysis or Acute renal failure with Cr> 3 x patient's baseline
- Pregnant patients
- Anuria
- Multiple Seizures
- All Psychiatric Conditions

July2017

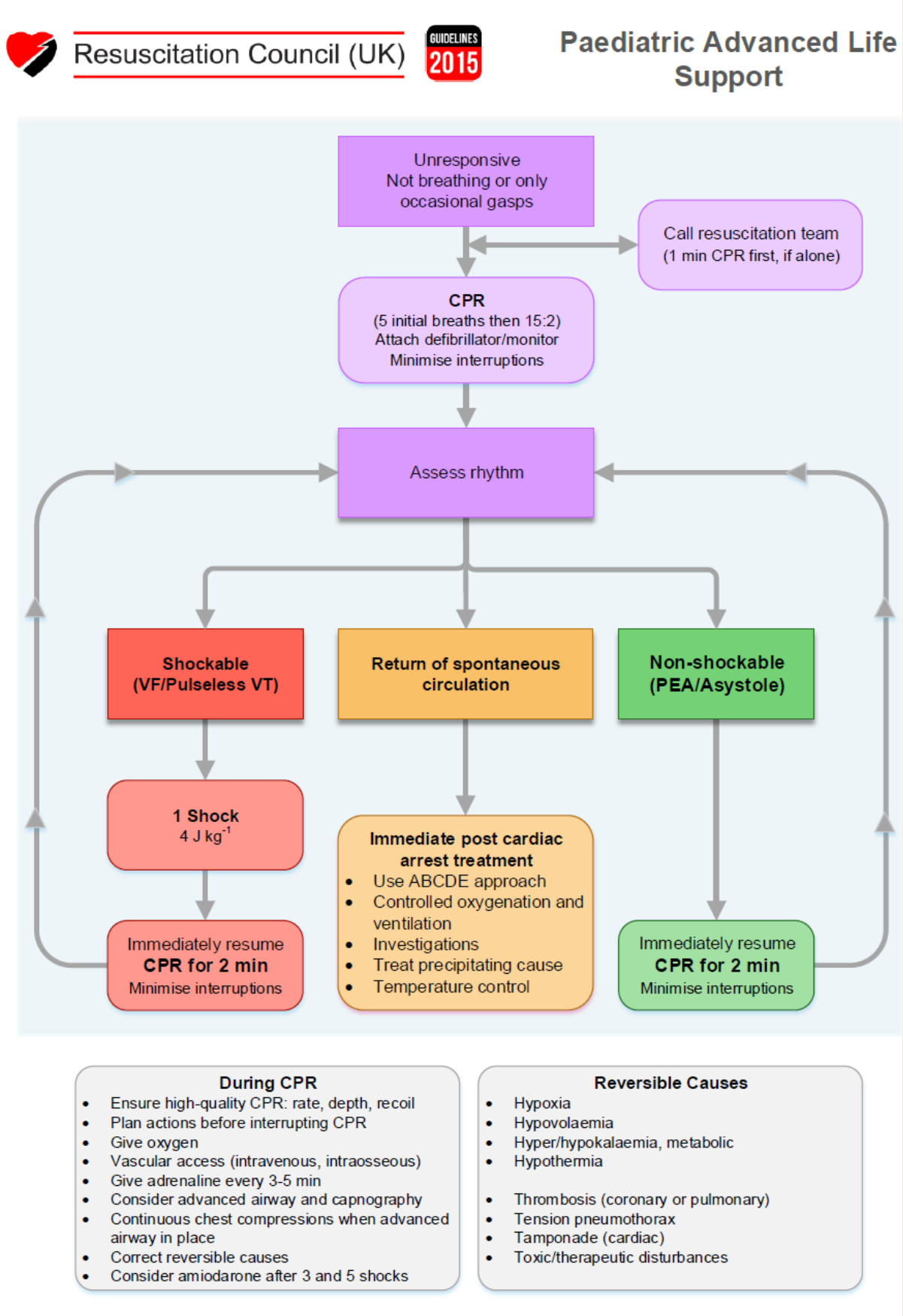
Child with Choking



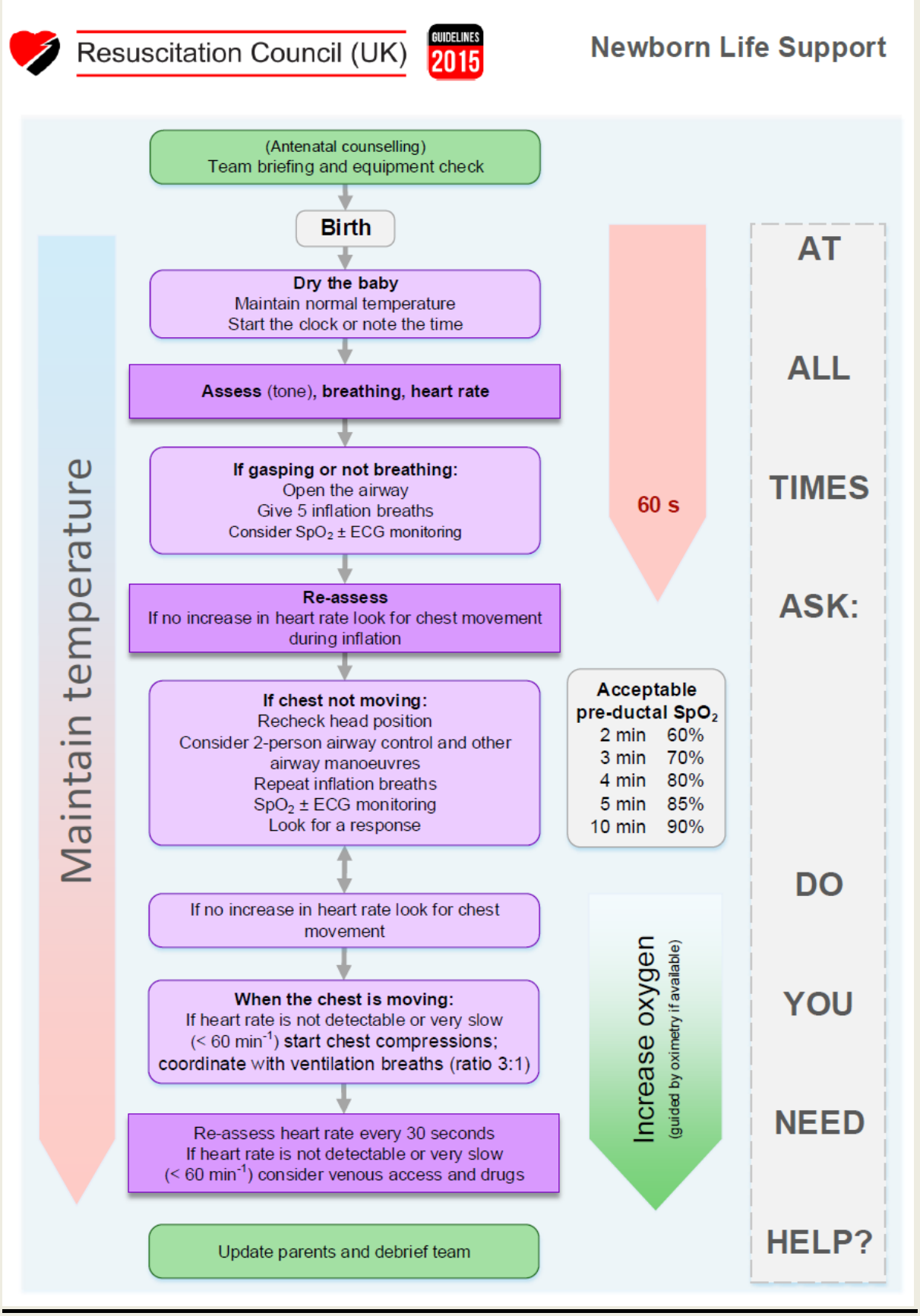
Basic Life Support (Paediatrics)



Paediatrics Advanced Life Support



New Born Life Support



Buckle Fracture in Children

Torus or Buckle fracture of Radius or Ulna in children.

Torus fractures, or 'buckle fractures', are incomplete fractures of the shaft of a long bone characterised by bulging of the cortex. They result from trabecular compression from an axial loading force along the long axis of the bone. On x-ray distinct fracture lines are not seen however there may be subtle deformity or buckle of the cortex. In some cases, angulation is the only diagnostic clue.

Clinical presentation:

- History of injury is usually there. Child is not moving arm or reluctant to move arm. Pa and sometimes swelling of affected arm is present .

Examination:

- Deformity
- Skin condition e.g open or closed injury.
- Tenderness (Distal radius / distal ulna)
- Child's use of affected arm
- Range of movements (Active / Passive)
- Neurovascular status
- Elbow and Hand examination
- Consider safeguarding, history consistent with findings / child's developmental stage / appropriate level supervision / other injuries (new and old)

Investigations:

- X-ray

MANAGEMENT:

- Futura splint
- Analgaesia / Elevation and cold pack

Buckle Fracture in Children

DISPOSITION.

If NO safeguarding concerns:

- Discharge home with written advice leaflet, and fracture clinic appointment.
- Children should avoid sports / rough play / strenuous activities for a further three weeks following removal of the splint.

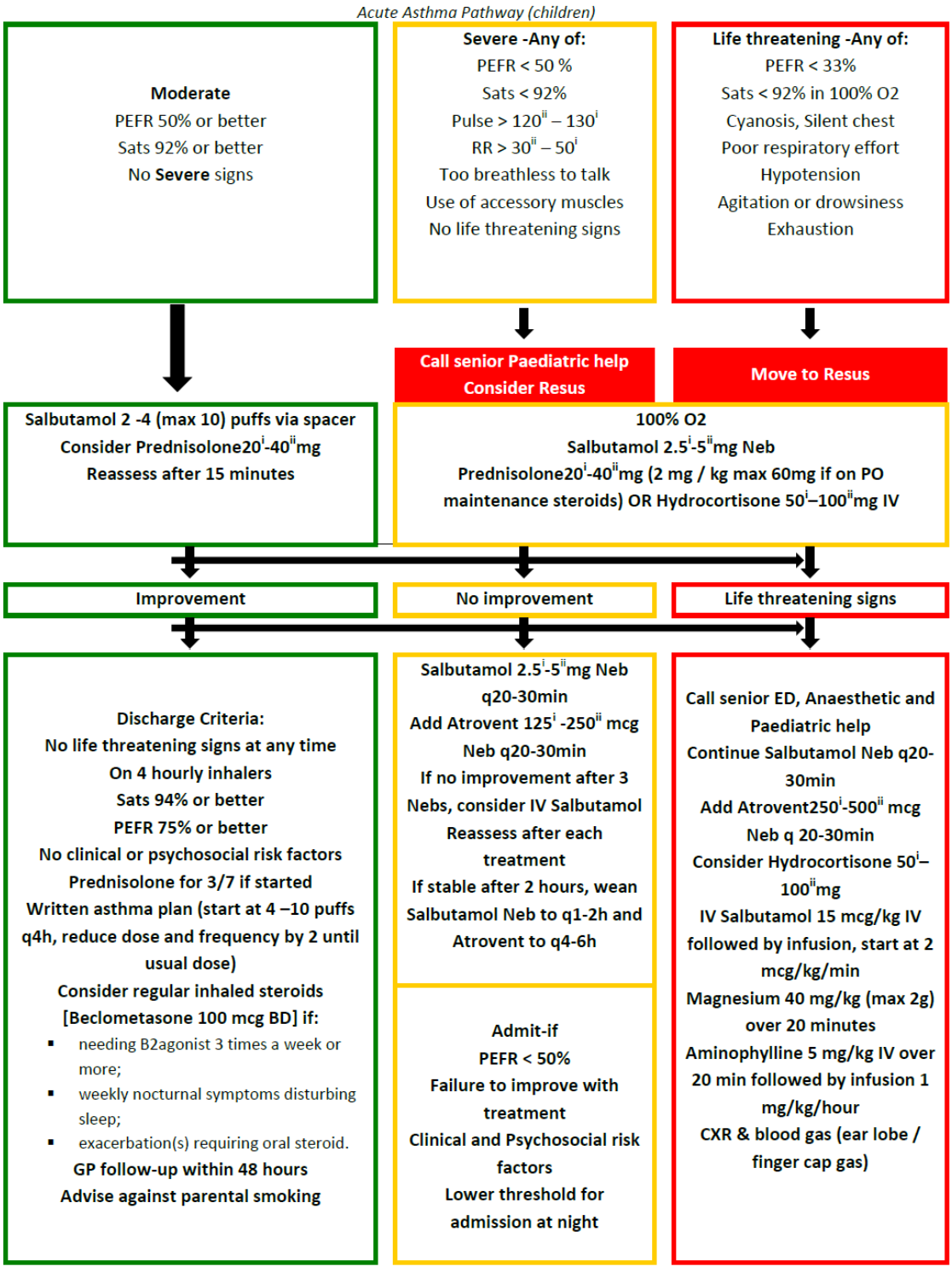
- Return ED if neurovascular deficit / pain not controlled with regular over the counter analgaesia

- **If safeguarding concerns**:

- Document concerns

- Follow local procedures / discuss with Senior Doctor in ED / discuss with orthopaedic on-call / discuss with Paediatric Registrar / complete appropriate safeguarding paperwork (information sharing form or social services referral as appropriate)

A child with Bronchial Asthma



A child with Bronchial Asthma

Acute Asthma Pathway (children)

Diagnosis of Asthma

This is based purely on clinical assessment in young children

Likely asthma:

- 2 or more symptoms: wheeze, cough, DIB, chest tightness (especially if frequent, recurrent, worse at night or early morning, occur with triggers e.g. pets, cold air).
- Personal or family history of atopy.
- Widespread wheeze on auscultation.
- Symptoms improve with bronchodilator therapy.

When using trial of therapy, carefully assess obs and auscultate chest before and after therapy to gauge effect – consider longer trial of therapy with careful GP follow-up only if asthma likely.

Unlikely asthma:

- Isolated cough, moist cough, dizzy, light-headed, peripheral tingling.
- Symptoms only with viral URTI.
- Symptoms present from birth.
- Repeatedly normal chest exam / PEFR when symptomatic.
- No response to trial of therapy.
- Age less than 2.
- Clinical signs of alternative diagnosis e.g. CF, reflux, immunocompromise, bronchiectasis, TB, pneumothorax, inhaled foreign body, pneumonia, upper airway disease, mediastinal obstruction.

If severe asthma or signs alternate diagnosis, consider CXR.

Risk factors for fatal asthma

Clinical= previous PICU, admission in last year or repeated ED attendances, 3 or more classes of asthma meds, evidence of poor control eg heavy use of B2agonist, exercise induced or nocturnal symptoms **PLUS**

Psychosocial= poor compliance with medication or follow-up, psychiatric illness, alcohol or drug problems, learning difficulties, obesity, NAI, severe domestic stress.

The complete Trust policy is on ADAGIO

References

British Guideline on the Management of Asthma, SIGN / BTS, June 2009.
STRS Asthma Clinical Guideline, 2013. http://www.strs.nhs.uk/resources/pdf/guidelines/asthma.pdf
Barts Health Clinical Guidelines.
British National Formulary for Children.

Child with Croup

Clinical Symptoms: Barking cough, inspiratory stridor, hoarse voice. May have preceding coryzal symptoms. Commonest 6 months – 3 years

DO NOT: insert tongue depressors, attempt IV access / bloods, request x-rays, force O_2 mask over face
Keep child as comfortable as possible (e.g. on parent's lap)

Mild

Alert
Barking cough

Inspiratory Stridor when upset
Sats 95% or better (in air)
Minimal Recession

Dexamethasone 150 mcg/kg PO
Observe for at least 2 hours after its administration

Child well / improved

Home
Child well / improved
No adverse signs
Advise to keep child well hydrated & look for signs of respiratory distress (cough alone is not an indication for re-attendance)
Usually resolves within 1 week

No improvement

Moderate

Alert/Miserable
Barking cough, hoarse voice

Inspiratory & Expiratory Stridor
Sats > 93%
Moderate recession
Mild tachycardia
Tracheal tug

Dexamethasone 150 mcg/kg PO
or
Budesonide 2 mg neb if PO not possible

Admit under the paediatricians
Humidified O_2 as tolerated
Ensure adequate hydration
Review at 1 hour
Consider discharge after 4 hours if improved
Dexamethasone may be repeated at 12 hours if still unwell

Severe

Quiet/Tiring
Minimal cough
Quiet voice

Inspiratory & Expiratory Stridor OR Quiet
Sats < 92%
Severe recession
Tracheal tug

Move to Resus

Nebulised adrenaline 0.5 mL/kg 1:1000 (max 5 mL)
+
Nebulised budesonide 2 mg

Call Senior ED, Anaesthetic and Paediatric help

100% O_2 as tolerated

No blood tests or cannula until senior help arrives

Keep child comfortable – sit on mum's knee

Dexamethasone 150 mcg/kg PO/IV/IM and further nebulised adrenaline on **senior advice**

Indications for Ventilation:

Suspected epiglottitis or inhalation injury
Exhaustion
Unable to maintain Sats > 92% with O_2 / rising pCO_2
Severe respiratory effort not responding to medical therapy

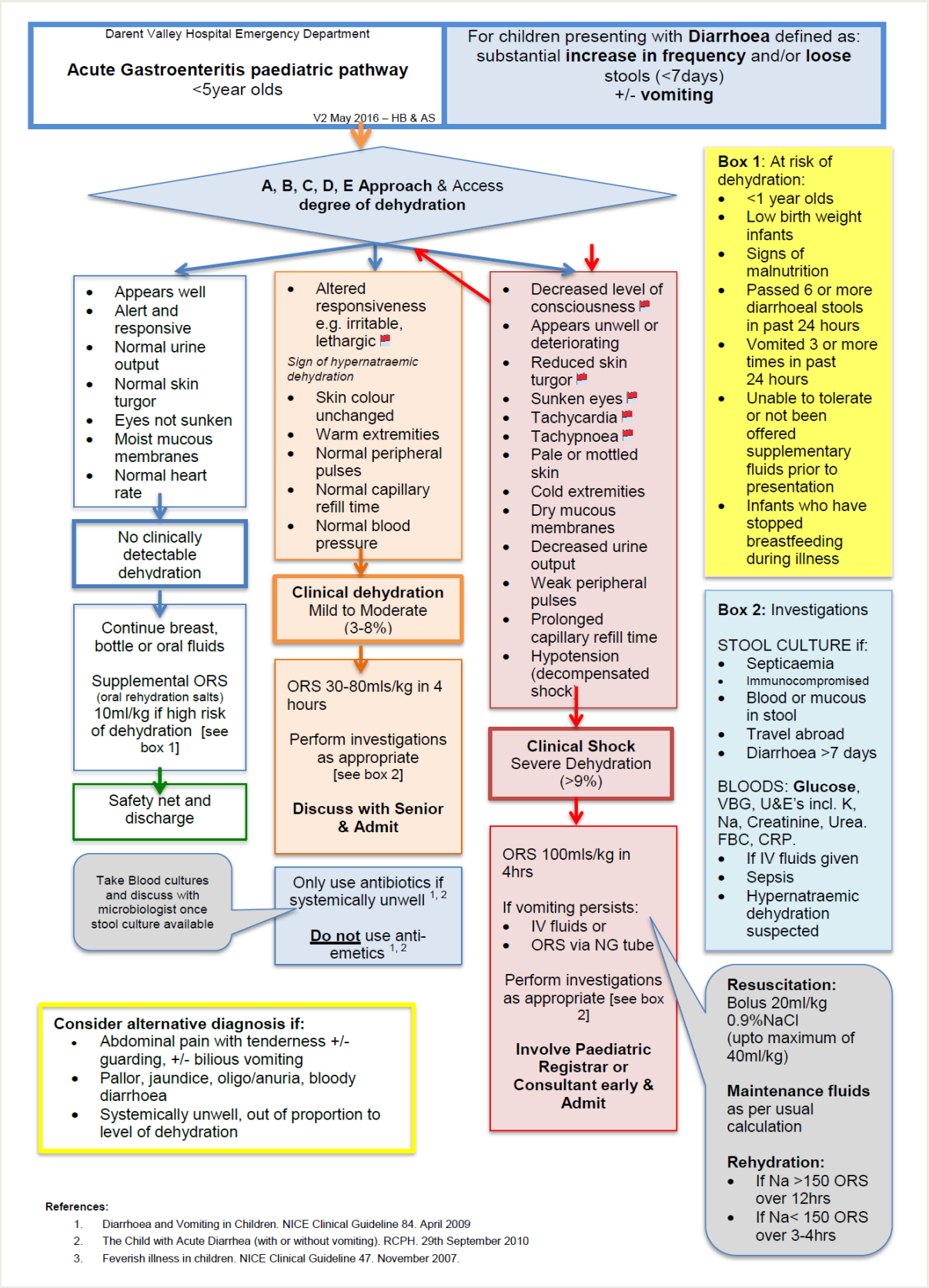
Differential Diagnosis

Consider alternative diagnosis, especially if child drooling or severely unwell

Epiglottitis / tracheitis:	Toxic, temp > 38.5° C, rapid onset, soft cough
Retropharyngeal abscess:	Drooling, open mouth, trismus, toxic
Angio-oedema/anaphylaxis:	Urticaria, lip swelling, wheeze, shock, allergy history
Inhaled foreign body:	Sudden onset, previously well, afebrile
Laryngomalacia:	Under 1 year, afebrile, chronic, well child

Nebulised Budesonide 2 mg may be used if better tolerated; no evidence it is better treatment; slower to deliver (15 minutes)

A child with Acute GE



References:

1. Diarrhoea and Vomiting in Children. NICE Clinical Guideline 84. April 2009
2. The Child with Acute Diarrhea (with or without vomiting). RCPH. 29th September 2010
3. Feverish illness in children. NICE Clinical Guideline 47. November 2007.

Child with Stridor

Paediatric Clinical Pathway: Stridor in children aged 3 months to 6 years

USE this pathway IF the child has ANY of the following:

- Stridor at rest
- Barking cough

DO NOT use this pathway if the child has any of the following:

- Looks toxic
- Is drooling

Section 1: Criteria for Disease

Age	Heart rate	Respiratory rate	Saturations in air	Central cap refill time
1 - 4 years	90-140	20-30	Above 92%	<2 secs
5 - 6 years	90-130	15-30	Above 92%	<2 secs

Tick to indicate severity of disease

MILD disease		MODERATE disease		SEVERE disease	
Occasional barking cough		Frequent barking cough		Frequent barking cough	
No Stridor at rest		Easily audible stridor at rest		Prominent inspiratory stridor at rest	
Child is happy		Suprasternal retraction at rest		Marked suprasternal retraction	
Eating and drinking as usual		No or little distress or agitation		Significant distress and agitation, or lethargy or restlessness	
Normal GCS		Child can be placated		Tachycardia	
		Normal GCS		Reduced GCS	
				Pallor, dusky appearance	
Proceed to section 2a		**Proceed to section 2b**		**Proceed to section 2c**	

Do NOT examine the child's throat for risk of obstruction

Section 2a: Management of MILD disease

Action	
No investigations are required at this point	
DO NOT take an x-ray	
DO NOT take bloods	
Give one single dose of dexamethasone 150 mcg/kg	
Consider second dose of dexamethasone after 12 hours if symptoms persist	

Child with Stridor

Section 2b: Management of MODERATE disease

Action	
No investigations are required	
DO NOT take an x-ray	
DO NOT take bloods	
Give one single dose of dexamethasone 150 mcg/kg	
If oral not tolerated, give nebulised budesonide 2 mg	
Consider second dose of dexamethasone after 12 hours if symptoms persist	
Review hourly for improvement or deterioration	
If concerned about the child escalate to paediatric team	

Section 2c: Management of SEVERE disease

Action	
Call for urgent review by paediatric registrar /anaesthetic support	
Consider to move to resus and stay with child	
Give high flow oxygen via non-rebreathe face mask at 10-15 litres	
Deliver nebulised adrenaline via face mask 400 mcg/kg of 1:1000 adrenaline	
Give dexamethasone 150 mcg/kg, if not tolerated give nebulised budesonide 2 mg	
Continue treatment until a member of the paediatric team arrives	
Consider the need for transfer to critical care (discuss with South Thames Retrieval Service) 0207 188 5000	
Inform paediatric consultant on call Bleep 128	

Section 3: Criteria for referral to paediatric team

Severe distress	
Signs of moderate respiratory distress, despite therapy given	
Inadequate fluid intake, or is refusing liquids	
Is immunocompromised	
Or if there is significant parental anxiety, late evening or night-time presentation, the child's home is a long way from the hospital, or the parents have no transport	

Section 4: Criteria for discharge

All observations are in the normal range	
Minimal stridor at rest	
Caregivers understand the indications for return to care and would be able to return if necessary	

Reference: NICE CKS September 2012

Review date for this pathway June 2019

A child with Febrile Convulsion

Paediatric Clinical Pathway: Febrile convulsion for children aged 1 to 6 years

USE this pathway IF the child has ANY of the following:

- History of tonic-clonic convulsion with temperature above 38ºC
- If seizure is ongoing, follow APLS pathway for management of convulsions

Section 1: Criteria for Disease

Age	Heart rate	Respiratory rate	Saturations in air	Central cap refill time
1 - 4 years	90-140	20-30	Above 92%	<2 secs
5 - 6 years	90-130	15-30	Above 92%	<2 secs

Tick to indicate severity of disease

SIMPLE febrile seizure		**COMPLEX febrile seizure**	
Generalised tonic-clonic seizure lasting less than 15 minutes		Focal seizure at onset or during convulsion	
Does NOT recur within 24 hours		Duration for longer than 15 minutes	
Does NOT recur within the same illness		Recurs within the same illness	
Proceed to section 2a		**Proceed to section 2b**	

Section 2a: Management of SIMPLE seizure

Action	
Consider and tailor investigations with suspected underlying disease/diagnosis	
Common underlying diagnosis • Tonsillitis • Otitis media • Viral URTI • Intercurrent viral illness • Urinary tract infection	
Consider antimicrobial/antiviral medication	
Neuro-obs every 15 minutes for 2 hrs then every 30 minutes thereafter for 4 hrs post seizure	

Section 2b: Management of COMPLEX febrile seizure

Action	
Consider and tailor investigations with suspected underlying disease/diagnosis	
Blood tests: FBC, ESR, glucose, U&E's, CRP, coagulation, blood culture	
Urgent urine dipstick and send for microscopy/culture if positive	
Document vital signs on PEWS chart	
Neuro-obs every 15 minutes for 2 hrs then every 30 minutes thereafter for 4 hrs post seizure	
Refer to paediatric registrar for PAU/Willow admission	
Neuro-imaging (CT Brain) should be considered if focal seizures present and patient is clinically safe to have the scan, after discussion with paediatric team	
Review frequently for improvement or deterioration	
Consider IV antibiotics and/or acyclovir if:	
Clinical assessment suggestive of encephalopathic / meningitic process	
Child is severely unwell	
Focal seizure is dominant	

A child with Febrile Convulsion

Section 3: Criteria for referral to paediatric team	
If yes to any of the below, refer to paediatric team	
Persistence of neurological symptoms	
Incomplete motor and GCS recovery	
Diagnosis unclear	
Previous diagnosis of epilepsy	
ONLY request follow up at first seizure clinic for complex seizure or status epilepticus	

Section 4: Criteria for discharge	
All observations are within normal range	
No persisting neurological sequelae	
Caregiver understands natural course of disease	

Reference: NICE CKS October 2013

Review date for this pathway June 2019

Child with Wheeze

Paediatric Clinical Pathway: Wheezy children aged 1 to 4 years

USE this pathway IF the child has ANY of the following:

- Coryzal symptoms, a cough, audible wheeze
- Respiratory distress (tachypnoea, and/or use of accessory muscles, and/or increased work of breathing and/or nasal flaring and/ or tracheal tug, head bobbing)
- Wheeze/prolonged expiration
- No fever, or less than 39°C

Section 1: Criteria for Disease

Age	Heart rate	Respiratory rate	Saturations in air	Central cap refill time
1 - 4 years	90-140	20-30	Above 92%	<2secs

Tick to indicate severity of disease

MILD disease		**MODERATE** disease		**SEVERE** disease	
Saturations in air > 92 %		Saturations in air > 92 %		Saturations in air < 92%	
No or minimal use of salbutamol inhalers prior to arrival to hospital		4 hourly use of inhalers prior to arrival in hospital or single nebuliser prior to arrival		Heavy use of salbutamol inhaler or nebulisers in ambulance	
Mild signs of distress		Moderate signs of distress		Severe distress	
Able to talk in sentences		Able to talk in sentences		Unable to talk in sentences	
Normal GCS		Normal GCS		Reduced GCS	
Mild increased work of breathing		Moderate increased work of breathing		Severe work of breathing	
Proceed to section 2a		**Proceed to section 2b**		**Proceed to section 2c**	

Section 2a: Management of MILD disease

Action	
No investigations are required at this point	
Give 10 puffs of salbutamol, nebulised therapy is NOT required unless the child needs oxygen therapy	
Reassess after 15 minutes and document on ED chart	
Child might require 10 puffs 3 times within the hour	
Reassess every 15 minutes between the 10 puffs within the hour and document	
If no improvement switch to MODERATE treatment plan	
If improved, review hourly for 2-3 hours, child can be discharged with safety net and action plan, if no further salbutamol was needed	
If the child required more salbutamol, refer to paediatric registrar	
Do NOT give prednisolone unless the child has a formal diagnosis of asthma	

Child with Wheeze

Section 2b: Management of MODERATE disease

Action	
No investigations are required	
Give salbutamol inhaler, nebulisers are NOT required unless the child needs oxygen	
Reassess every 15 minutes after therapy	
Child might require 10 puffs of salbutamol x 3 within the hour	
Document on ED or PEWS chart	
Refer to paediatric registrar for PAU/Willow admission	
If NO improvement switch to severe disease treatment	
If improvement continue with hourly inhalers, pending PAU transfer	
Review hourly for improvement or deterioration	
Consider prednisolone 2 mg/kg for 3 days	
If concerned about the child escalate to paediatric team	

Section 2c: Management of SEVERE disease

Action	
Call for urgent review by paediatric registrar/anaesthetic support	
Consider to move to resus and stay with child	
Give high flow oxygen via non-rebreathe face mask at 10-15 litres	
Give continuous salbutamol nebulisers 2.5 mg	
Add atrovent nebuliser 250 mcg	
Continue treatment until a member of the paediatric team arrives	
Consider magnesium sulphate 40 mg/kg IV (max. 2 g)	
Consider salbutamol infusion (Start at 0.5-1 mcg/kg/min; max 2 mcg/kg/min)	
Give prednisolone 2 mg/kg or hydrocortisone 4 mg/kg IV for 3 days	
Consider the need for transfer to critical care (discuss with South Thames Retrieval Service) 0207 188 5000	
Inform paediatric consultant on call Bleep 128	

Section 3: Criteria for admission

If yes to any of the below, refer to paediatric team	
Severe distress	
Still signs of moderate respiratory distress, despite therapy given, might get tired	
Treated for moderate or severe disease	
Required nebulisers/oxygen	

Section 4: Criteria for discharge

All observations are within the normal range	
Requires salbutamol inhalers every 4 hours only	
Parents are confident in the use of the inhaler and spacer	
Advice has been given that the parents need to seek medical attention if the child requires salbutamol more often than 4 hourly	

Reference: SIGN guidelines 2016

Review date for this pathway May 2019

Paediatric Sepsis Risk Stratification Tool: Children aged under 5 years in ED

NAME		DOB	
A&E NUMBER		HOSPITAL NO	
NHS NUMBER		NO PREV	

NURSE: _____ SIGNATURE: _____ TIME: _____

RED FLAG CRITERIA?	Tick
Behaviour	
- Unresponsive to social cues / difficult to rouse	☐
Respiration	
- Grunting respiration or apnoeic episodes	☐
- SpO2 <92% in air / increased need over baseline	☐
- Severe tachypnoea (see table)	☐
Heart Rate	
- Severe tachycardia (see table)	☐
- Bradycardia <60 in any age	☐
Perfusion	
- Non-blanching rash / mottled / ashen appearance	☐
- Temperature <36˚C in any child	☐
- Temperature >38˚C in under 3 months	☐

N → AMBER FLAG CRITERIA?

Y ↓

AMBER FLAG CRITERIA?	Tick
Behaviour	
- Altered behaviour or response to social cues	☐
Respiration	
- Moderate tachypnoea (see table)	☐
Heart Rate	
- Moderate tachycardia (see table)	☐
Perfusion	
- CRT ≥ 3 seconds	☐
- Reduced urine output	☐
- Pale or flushed	☐
- Leg pain	☐
- Cold extremities	☐
- Temperature >39˚C for child aged 3-6 months	☐

☐ **2 x RED FLAG – ACT NOW with SEPSIS SIX:** ED Registrar to assess immediately, start sepsis six & escalate to Paediatric Registrar to review within 1 hr (or urgently if requested). Urgent admission to PAU / Willow will be arranged by Paediatrics

☐ **1 x RED FLAG:** ED Registrar to assess immediately and do blood tests & gas. **IF SEPSIS SUSPECTED**, start sepsis six within 1hr & escalate to Paediatric Registrar. Admit urgently to PAU / Willow within 1 hr. **If delay in transfer** → contact Paediatric Registrar to review in ED within 1 hr (or urgently if requested).

If diagnosis uncertain → review again and escalate.

If decision to discharge → MUST provide verbal advice & safety advice leaflet.

☐ **2 x AMBER FLAG:** ED Registrar to assess immediately and do blood tests & gas. Clinical review by ED Registrar with results within 1 hr

If diagnosis uncertain → review again and escalate.

If decision to discharge → MUST provide verbal advice & safety advice leaflet.

☐ **1 x AMBER FLAG:** ED Registrar to assess and consider blood tests within 1hr.

If diagnosis uncertain → review again & escalate.

If decision to discharge → MUST provide verbal advice & safety advice leaflet.

All children UNDER1 MUST be assessed by Paeds

ED / Paediatric consultant to be contacted if child is not being assessed as per pathway.

If a child is to be discharged, serious consideration should be given to parental / carer concerns.

A PEWS score should be done immediately on arrival to PAU / Willow.

N ↓

Complete within 1 Hour

SEPSIS 6

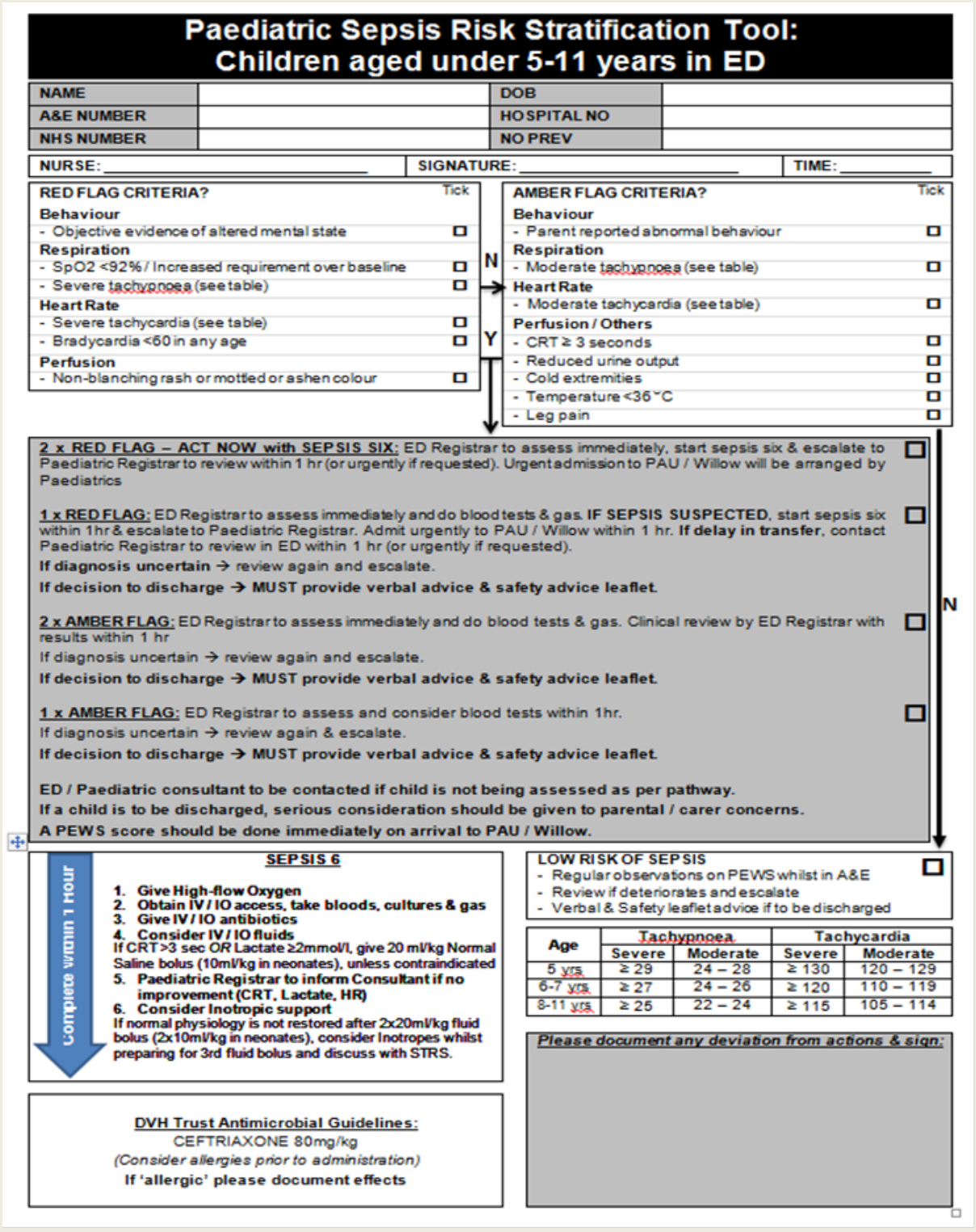
1. **Give High-flow Oxygen**
2. **Obtain IV / IO access, take bloods, cultures & gas**
3. **Give IV / IO antibiotics**
4. **Consider IV / IO fluids**
   If CRT >3 sec *OR* Lactate ≥2mmol/l, give 20 ml/kg Normal Saline bolus (10ml/kg in neonates), unless contraindicated
5. **Paediatric Registrar to inform Consultant if no improvement (CRT, Lactate, HR)**
6. **Consider Inotropic support**
   If normal physiology is not restored after 2x20ml/kg fluid bolus (2x10ml/kg in neonates), consider Inotropes whilst preparing for 3rd fluid bolus and discuss with STRS.

DVH Trust Antimicrobial Guidelines:
>1 month: CEFTRIAXONE 80mg/kg
<1 month: BENZYLPENICILLIN 50mg/kg & GENTAMICIN 5mg/kg
(Consider allergies and effects prior to administration)

☐ **LOW RISK OF SEPSIS**
- Regular observations on PEWS whilst in A&E
- Review if deteriorates and escalate
- Verbal & Safety leaflet advice if to be discharged

Age	Tachypnoea		Tachycardia	
	Severe	Moderate	Severe	Moderate
<1 year	≥ 60	≥ 50-59	≥ 160	≥ 150-159
1-2 yrs	≥ 50	≥ 40-49	≥ 150	≥ 140-149
3-4 yrs	≥ 40	≥ 35-39	≥ 140	≥ 130-139

Please document any deviation from actions & sign:



Paediatric Sepsis Risk Stratification Tool: Children aged under 5-11 years in ED

NAME		DOB	
A&E NUMBER		HOSPITAL NO	
NHS NUMBER		NO PREV	

NURSE: _____ SIGNATURE: _____ TIME: _____

RED FLAG CRITERIA? Tick

Behaviour
- Objective evidence of altered mental state ☐

Respiration
- SpO2 <92% / Increased requirement over baseline ☐
- Severe tachypnoea (see table) ☐

Heart Rate
- Severe tachycardia (see table) ☐
- Bradycardia <60 in any age ☐

Perfusion
- Non-blanching rash or mottled or ashen colour ☐

N → **AMBER FLAG CRITERIA?** Tick

Behaviour
- Parent reported abnormal behaviour ☐

Respiration
- Moderate tachypnoea (see table) ☐

Heart Rate
- Moderate tachycardia (see table) ☐

Perfusion / Others
- CRT ≥ 3 seconds ☐
- Reduced urine output ☐
- Cold extremities ☐
- Temperature <36 °C ☐
- Leg pain ☐

Y ↓

2 x RED FLAG – ACT NOW with SEPSIS SIX: ED Registrar to assess immediately, start sepsis six & escalate to Paediatric Registrar to review within 1 hr (or urgently if requested). Urgent admission to PAU / Willow will be arranged by Paediatrics ☐

1 x RED FLAG: ED Registrar to assess immediately and do blood tests & gas. **IF SEPSIS SUSPECTED**, start sepsis six within 1hr & escalate to Paediatric Registrar. Admit urgently to PAU / Willow within 1 hr. **If delay in transfer**, contact Paediatric Registrar to review in ED within 1 hr (or urgently if requested). ☐

If diagnosis uncertain → review again and escalate.

If decision to discharge → MUST provide verbal advice & safety advice leaflet.

2 x AMBER FLAG: ED Registrar to assess immediately and do blood tests & gas. Clinical review by ED Registrar with results within 1 hr ☐

If diagnosis uncertain → review again and escalate.

If decision to discharge → MUST provide verbal advice & safety advice leaflet.

1 x AMBER FLAG: ED Registrar to assess and consider blood tests within 1hr. ☐

If diagnosis uncertain → review again & escalate.

If decision to discharge → MUST provide verbal advice & safety advice leaflet.

ED / Paediatric consultant to be contacted if child is not being assessed as per pathway.

If a child is to be discharged, serious consideration should be given to parental / carer concerns.

A PEWS score should be done immediately on arrival to PAU / Willow.

N ↓

Complete within 1 Hour

SEPSIS 6

1. **Give High-flow Oxygen**
2. **Obtain IV / IO access, take bloods, cultures & gas**
3. **Give IV / IO antibiotics**
4. **Consider IV / IO fluids**

If CRT >3 sec *OR* Lactate ≥2mmol/l, give 20 ml/kg Normal Saline bolus (10ml/kg in neonates), unless contraindicated

5. **Paediatric Registrar to inform Consultant if no improvement (CRT, Lactate, HR)**
6. **Consider Inotropic support**

If normal physiology is not restored after 2x20ml/kg fluid bolus (2x10ml/kg in neonates), consider Inotropes whilst preparing for 3rd fluid bolus and discuss with STRS.

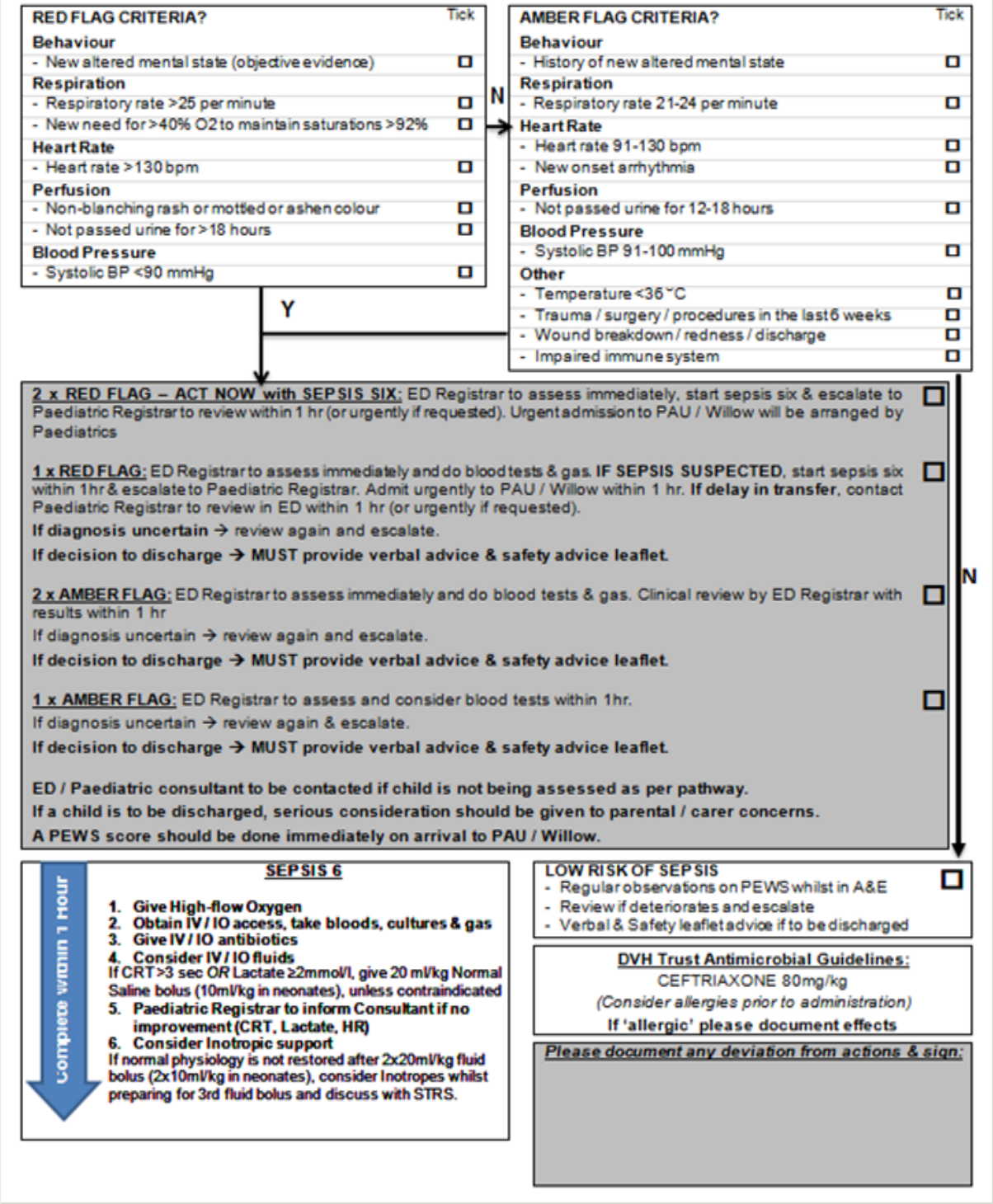
LOW RISK OF SEPSIS ☐
- Regular observations on PEWS whilst in A&E
- Review if deteriorates and escalate
- Verbal & Safety leaflet advice if to be discharged

Age	Tachypnoea		Tachycardia	
	Severe	Moderate	Severe	Moderate
5 yrs	≥ 29	24 – 28	≥ 130	120 – 129
6-7 yrs	≥ 27	24 – 26	≥ 120	110 – 119
8-11 yrs	≥ 25	22 – 24	≥ 115	105 – 114

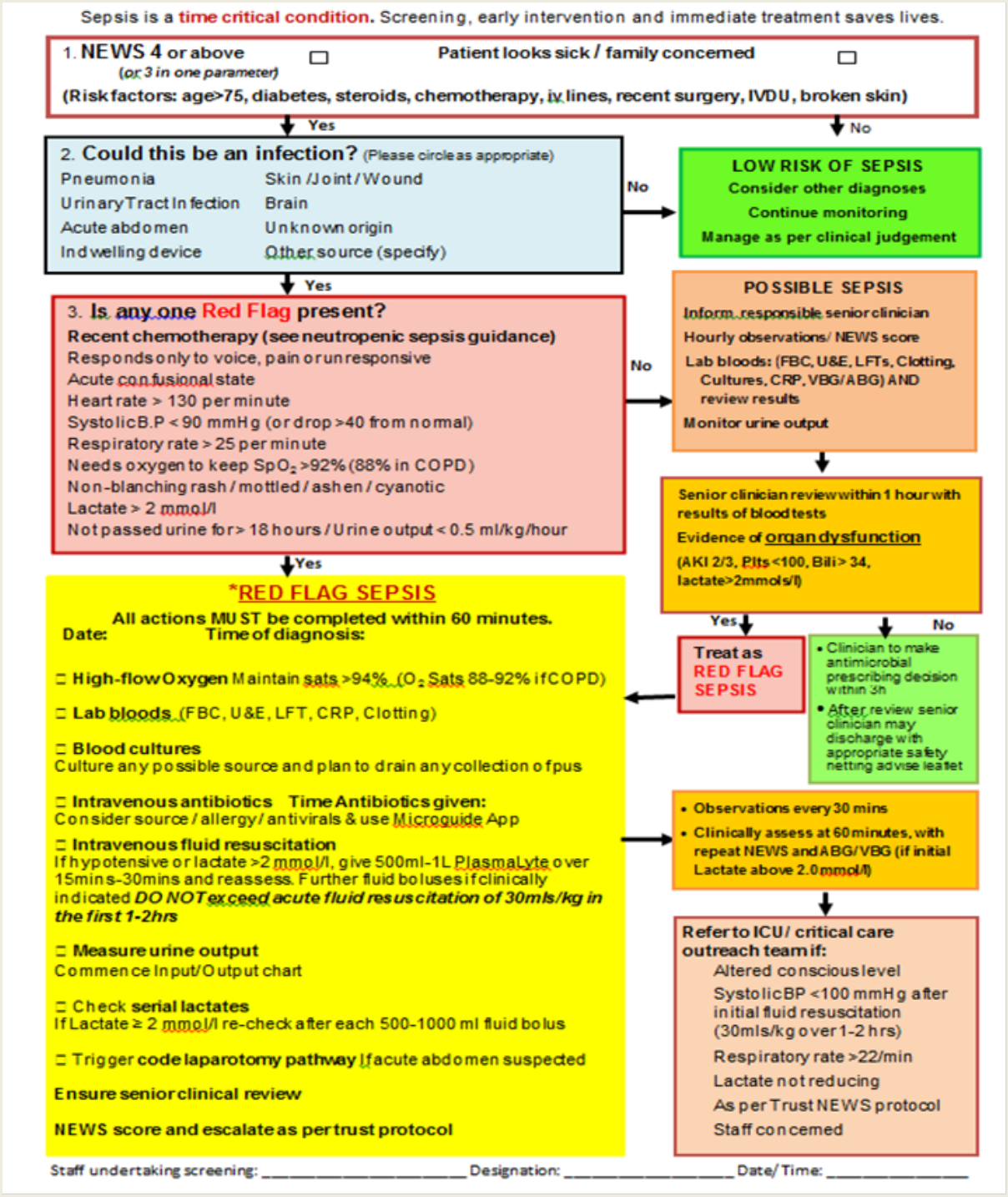
Please document any deviation from actions & sign:

DVH Trust Antimicrobial Guidelines:
CEFTRIAXONE 80mg/kg
(Consider allergies prior to administration)
If 'allergic' please document effects

Paediatric Sepsis Risk Stratification Tool: Children aged 12-16 years in hospital



Paediatric Sepsis Risk Stratification Tool: Children aged 17+ years in hospital



(SMaRT) Safeguarding & Managing Risk Tool

Dartford and Gravesham NHS Trust

Tick the boxes of factors present – manage as per the highest level of risk identified
AND document in care plan overleaf
Always consult your matron/Site Clinical Manager if you are unsure or concerned about an individual's level of risk

Current Symptoms		Observed Behaviour		Risk	Category/management (complete management plan overleaf)	
n/a		Violent behaviour		Imminent danger to life (self or others)	• Call Police (999) • **Urgently inform senior staff and senior DVH doctor** • Follow evacuation procedures if necessary • Rapid tranquillisation if indicated and possible **Referral to Liaison Psychiatry Service via pager 07699 784876 ASAP**	RED
		Possession of a weapon				
		Destruction in department to self/others/property				
Current attempt at self harm		Extreme agitation / restlessness		Probable risk of danger to self or others	• Patient to be nursed in an observable area • Keep patient **within eyesight** at all times • Escort to bathroom and remain in verbal contact with patient • If amber "symptoms" and "behaviour" may need to be nursed within arms length (1:1) • Any items that could be used to harm self or others must be removed • **If amber "behaviour" DVH doctor to review urgently** **Referral to Liaison Psychiatry Service via pager 07699 784876 ASAP**	AMBER
Threat to self harm		Physically / verbally aggressive				
		Severe confusion / unable to co-operate				
Threat to harm others		Requires restraint				
Suicidal ideation		Agitated / restless / wandering		Possible danger to self or others	• Patient to be nursed in an observable area • **Intermittent observations** – patient whereabouts and safety to be checked every 15-30 mins Exact time period to be agreed and documented in management plan overleaf • If patient moves away from the observable area then level of risk needs to be reassessed • Any items that could be used to harm self or others must be removed • **If yellow "behaviour" DVH doctor to review ASAP** **If in ED or CDU refer to Liaison Psychiatry Service via pager 07699 784876** **If on another ward then refer to Liaison Psychiatry Service via telephone ext 8963**	YELLOW
Psychotic symptoms; hallucinations; delusions; paranoid ideas		Intrusive; bizarre / disorientated behaviour				
Mood disturbance; Severe symptoms of depression +/- anxiety. Elated mood		Confused and withdrawn / uncommunicative				
		Denies need for treatment				
Anxiety or depression without suicidal ideas		No agitation / restlessness		No danger to self or others with minimal distress	• The location of patients must be known to staff and checked 1-2 hourly, but not all patients need to be kept within eyesight • **DVH doctor review as per routine care** **If in ED or CDU refer to Liaison Psychiatry Service via pager 07699 784876** **If on another ward then refer to Liaison Psychiatry Service via telephone ext 8963** **It may be that after further screening there are no risks identified and as such referral to Liaison psychiatry is NOT required**	GREEN
Chronic psychotic symptoms		Irritable without aggression				
Chronic unexplained physical symptoms		Co-operative; communicative; compliant with instructions				
Requesting medication						
Financial / social / accommodation / relationship problems						

Adapted from Mental Health Triage Scale for use with NICE guideline on self harm (NICE CG16 July 2004)

Kent and Medway NHS
NHS and Social Care Partnership Trust

Bell's Palsy

Bell's Palsy

Clinical presentation:

Bell's palsy is a lower motor neuron facial nerve palsy. It presents with Sudden onset unilateral facial drop due to lower motor neuron paresis. (Patient cannot raise eyebrow or close the affected eye.) Please differentiate between upper motor neuron facial N palsy (forehead sparing) and lower motor neuron facial N palsy (affects whole unilateral face)

Systemic examination

CNS :Peripheral and central nervous system examination including cranial nerves (hearing, salivation, taste)
CVS: Central and peripheral vascular examination . ECG : check for AF. If in AF, re-consider the diagnosis(stroke ?)

Investigations.

- Bloods (check for signs of acute infection)
- CXR (check signs of sarcoidosis)
- Check the cornea for abrasions, ulceration (with fluorescein)

MANAGEMENT:

- Reassure the patient that Bell's palsy has a good prognosis. More than 85% of patients has a full recovery within 2-3 months
- If presentation within 72 hours, start Prednisolone tab 25 mg BD for 10 days
- Give eye lubricant drop to use during the daytime and advice to pad the eye (closed by a microporous tape) during the night. Consider Ophthalmology OP Clinic follow up (within 48 hrs)

Evidence suggests that Acyclovir has no benefit either as mono therapy or in combination with prednisolone compared to the treatment with prednisolone alone. Therefore Acyclovir is not recommended.

DISPOSITION:

- Discharge home with GP follow up
- Consider Ophthalmology OP follow up

Asif Mushtaq.
Mr Asghar Ali Wain.

Patient with Anticoagulant associated Intracranial Bleed

Dartford & Gravesham NHS Trust

Management of Suspected Anticoagulant Associated Intracerebral Haemorrhage in the Emergency department.

Patient on anticoagulant presenting with:
Headache, Seizures
Acute confusion, reduced consciousness or
Stroke or TIA symptoms

The alarm bells should start ringing at Triage if not already flagged up by paramedics

↓

Assume intracerebral haemorrhage until you prove otherwise

↓

Urgent Bloods including INR/APTT/TT; FBC and renal function including eGFR (Phone haematology Lab & ask for URGENT results)

Immediate CT head scan

↓

CT: haemorrhage

CT no haemorrhage: continue as per Ischaemic stroke protocol if clinically indicated

↓

If patient is on Warfarin:

1. GIVE Beriplex 1000 IU stat- contact blood bank directly for issue then contact consultant Haematologist.

2. If INR ≥ 1.4 or raised APPTT/TT and MORE Beriplex needed Contact Consultant Haematologist for further advice.

3. Check INR after 15 minutes.

4. Aim for INR<1.4

If Patient is on newer oral anticoagulants like Dabigatran/ Rivaroxaban/ Apixaban:

CONTACT CONSULTANT HAEMATOLGIST
1. Beriplex 30U/kg may be used.
Charcoal ingestion is **not** an option in these patients

2. Haemodialysis **may** be an option for patients on Dabigatran

3. And for Dabigatran antidote Idarucizumab (trade name Pradaxa/Praxbind) - please contact Consultant Haematologist

Once a bleed is confirmed the reversal process should start as soon as possible. The maximum time frame should be not more than 3 hours from the time of arrival in A&E. Please complete treatment in A&E before patient is moved to ward to avoid delays in treatment.

DVH Stroke Team: June 2016

Acute Stroke Protocol

Pathway for thrombolysis of acute INPATIENT strokes:

1. These numbers are likely to be small.
2. Of these, the numbers who will meet the criteria for thrombolysis will be very small due to co morbidities and or contraindications.
3. **In- patient** stroke requiring thrombolysis will be transferred to the stroke Unit for thrombolysis in- hours.

4. **Out of hours**:
   - 4a. If stroke nurse available, in patient strokes requiring thrombolysis **will be transferred to stroke unit**
   - **4b.** If stroke nurse **NOT** available, patient to be transferred ED Resus for thrombolysis and NOT to the stroke unit.

Site Managers/ Bed Managers:

- Site managers will be responsible for bed management; they will expedite an acute stroke bed immediately. If any delay, patient should be transferred to ED Resus for thrombolysis.
- They will also have an overview of staffing issues on the stroke unit and will ensure this is considered before moving a patient to the stroke unit.

In hours: Monday – Friday (08.00am- 18:00pm):

Stroke specialist nurse on bleep 182 will be the main contact and responsible for responding to all priority calls via bleep 182.

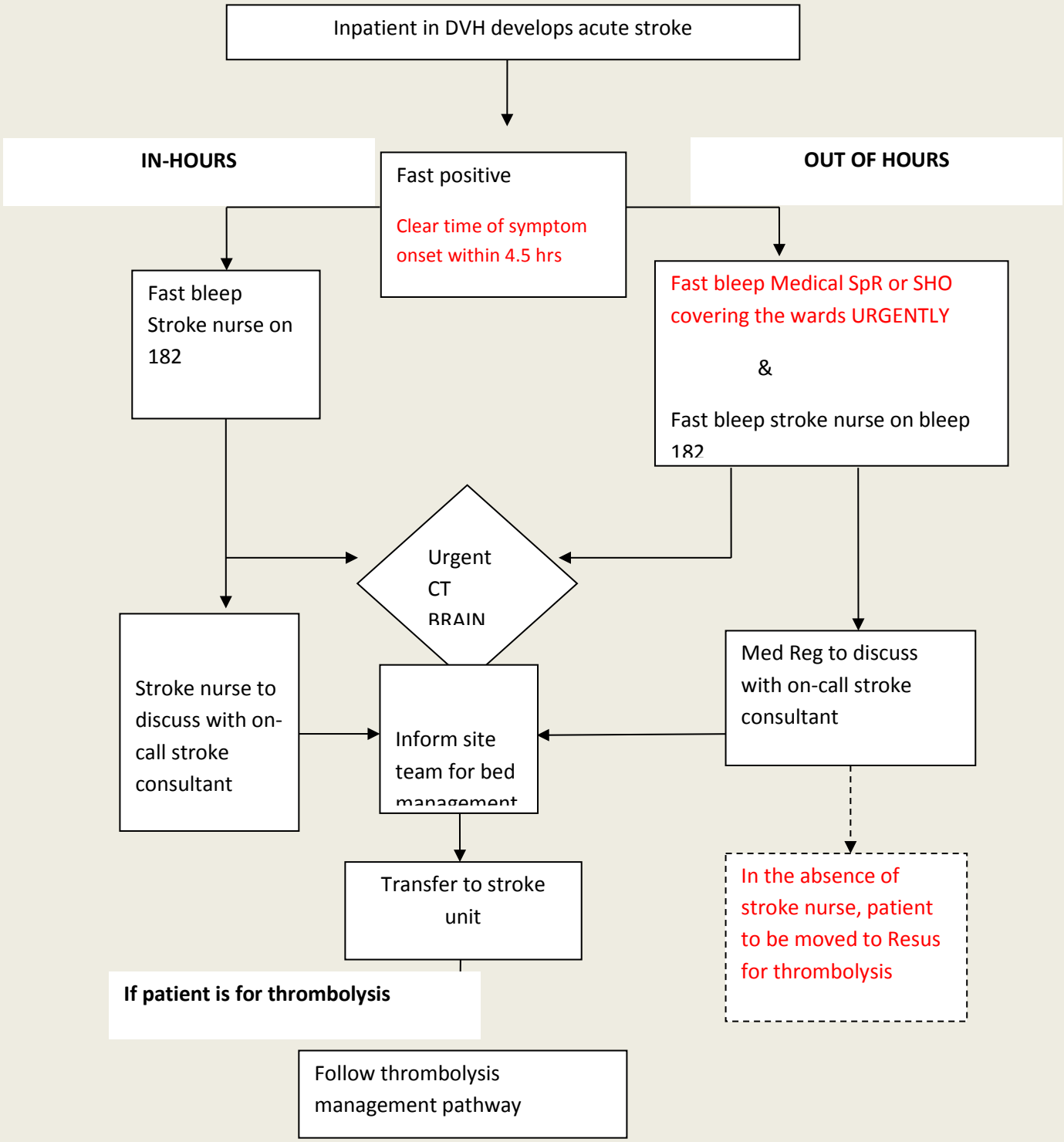
Out of hours: Medical Registrar and stroke nurse bleep holder:

- **Medical Registrar** will be responsible for the stroke priority in the absence of Stroke nurse for the acute assessment and treatment including thrombolysis.
- **In the absence of stroke nurse, the SHO is responsible for responding promptly and initiate stroke thrombolysis pathway.**
- Ensure that patients are on the post take (Medicus) list and delegate to the SHO to clerk.
- Ensure that out of hours stroke patients are clerked within 4 hours of arrival to stroke unit

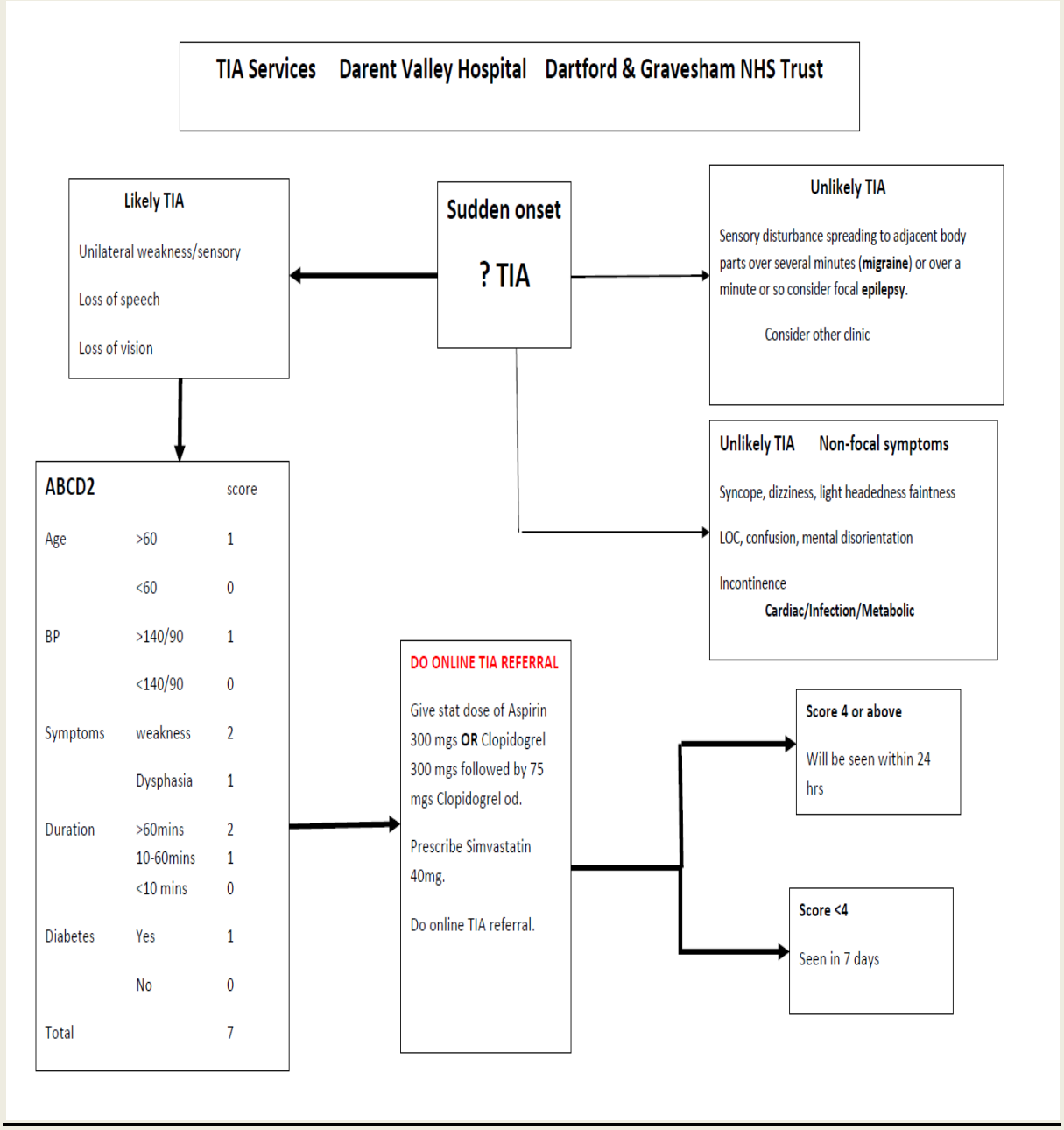
SHO (Senior House Officer):

- Responsible for bleep (456) and supporting the Stroke nurse, Stroke Registrar and Medical registrar and will prioritise clerking of stroke patient.
- In the absence of stroke nurse, the SHO is responsible for responding promptly and initiate stroke thrombolysis pathway.

Acute Stroke in Inpatients Pathway for thrombolysis



Management of TIA



Stroke Priority Alert Call Policy

Policy Procedure Guideline (please delete as appropriate)	
Reference Number	number already assigned or new number both allocated by e-communications manager
Status	
Version	1
Implementation Date	November 2019
Publication date	
Current/Last Review Dates	
Next Formal Review	3
Sponsor	Caroline Bates(Associate Director of Nursing for Medicine, Cancer and Emergency Care)
Sponsor Signature	
Author	Tari Shanganya(Stroke Specialist Nurse)
Where available	ADAGIO
Target audience	Trust clinical staff

Ratification Record	Date

Approval Record		
Committee Name	**Chairperson**	**Date**
• Directorate Stroke meeting	Dr P Aghoram	February 2019

Consultation	Date
• Radiology team	January 2019
• Emergency Department team	February 2019
• Stroke team	January 2019
• Serco	January 2019
• Emergency Planning Officer	March 2019

Regulators Requirements	

Document Control / History	
Version No	**Reason for change**
1	

Contents:

Document Summary

This document outlines what is required when paramedics and in-hospital teams alert the stroke team of an incoming potential stroke patient or potential new inpatient stroke that meets the Stroke Priority criteria.

1. Introduction

Patients, who present with or develop the primary or major clinical signs of stroke, will be identified as "stroke priority" patients and acknowledged at those that have a greater potential for significant damage and can benefit from early intervention from the stroke team (Thrombolysis or thrombectomcy treatment).

A consistent approach is needed to notify and activate the stroke priority alert process in a timely manner by implementing a standardised process for patients that meet the stroke priority criteria.

2. Purpose

To improve patient outcomes and quality of service delivery by implementing a standardised process to patient care management for patients who meet the "Stroke Priority" criteria.

This will allow the stroke team to respond to stroke priority calls promptly to allow assessments and treatment of acute stroke to start immediately.

The stroke priority alert process will promote a high sense of urgency in delivering hyper- acute and acute stroke care and targets.

3. Definitions

The Royal College of stroke Physician (RCP) identifies the following signs and symptoms and therefore meets the stroke priority criteria. FAST positive (Fast tve) or ROSIER tve

- Sudden onset of weakness or numbness of face, arm or leg (unilateral weakness)
- Sudden onset of trouble speaking or understanding speech
- Sudden onset of trouble seeing in one or both eyes
- Sudden onset of trouble walking or loss of balance or coordination

Fast (face, arm, speech, time) - A stroke that recovers within 24 hours from the onset of symptoms

Rosier- A tool used to establish the diagnosis of stroke or TIA

Stroke- The damaging or killing of brain cells starved of oxygen as a result of the blood supply to part of the brain being cut off. Types of stroke include:
Ischaemic stroke caused by blood clots to the brain, or
Haemorrhagic stroke caused by bleeding into the brain.
Stroke Priority- Refers to a patient that meet the stroke criteria (Fast or rosier tve with focal neurological deficit within the thrombolysis window)
Transient Ischaemic attack (TIA) - A stroke that recovers within 24 hours from the onset of symptoms.
Thrombectomy- The excision of a blood clot from a blood vessel.
Thrombolysis- The use of drugs to break up a blood clot. An example of a thrombolysis drug is alteplase, also sometimes called t-PA

4. Duties (Roles and Responsibilities)

Executive Directors and Non-Executive Directors
Executive Directors are responsible and accountable for ensuring that all staff in their Directorates are compliant with this policy. Both Executive and Non-Executive Directors are responsible for ensuring a safe working environment and that adequate arrangements and resources both financial and non-financial are provided to implement the requirements of this policy.

Head of Nursing/ Associate Director of Nursing/General Managers / Senior Manager
All managers will be responsible for ensuring that staff have read and understood this policy and its requirements.

Stroke consultants
Will coordinate the treatment for all patients with an acute stroke and have overall clinical responsibility for the stroke pathway.

Stroke assessors/ stroke thrombolysis nurse

- Responsible for bleep 182 and responding to the stroke bleep promptly initiate (within 10 minutes) coordinate and implement the stroke pathway.
- Will be responsible for carrying out the required nursing assessment (NIHSS, dysphagia screen, continence assessment.)

Stroke Specialist Nurse

- Act as clinical lead nurse overseeing changes to the policy, training and education and responsible for keeping up to date with NICE guidance and any changes to the recommended practice .To take advise from the stroke governance forum in regards to stroke care and implement changes where necessary.

- Investigate incidents where the Stroke Priority call is not activated for patients that meet the criteria call and ensure correct Datix reporting procedures are carried out and provide relevant feedback.

Emergency Department (ED).

- All stroke priority patients presenting in ED will remain under the responsibility and care of ED and the stroke team will take over care once diagnosis of stroke confirmed.
- ED doctors will be responsible for assessing the patient (Joint assessment), refer to Medical team for clerking, will initiate the stroke pathway in the absence of stroke nurse.

- ED nurses will be responsible for bloods, cannulation, ECG and immediate triage of patient.
- ED will be responsible for initiating the stroke priority alert call for patients self-presenting and escalating to senior doctor and nurse on duty.

Site Managers

- Will be responsible for making a bed available for acute stroke patient on the stroke ward within an hour if no ring fenced bed available.
- Ensure that site team will provide nursing cover to the stroke unit to allow stroke bleep holder to assess patients in ED in 24/7 within recommended time (within 30 minutes).

Registered Nurse (Staff Nurse)

To be aware of the stroke Priority alert Policy and how to raise an alert and ensure that patients who meet the stroke criteria are reviewed by Stroke team and Medical Reg in a timely manner as per the stroke pathway.

CT Radiographer

Responsible for holding bleep 301 and making sure that patients coming as stroke priority have their CT brain as per NICE (2016) guidance.

SHO (Senior House Officer)

Responsible for bleep (456) and supporting the Stroke nurse, Stroke Registrar and Medical registrar and will prioritise clerking of stroke patient.

Medical Registrar (Med Registar)

- Will be responsible for the stroke priority in the absence of Stroke nurse and Stroke Registrar and coordinate acute patient care and management.
- Ensure that patients are on the post take (Medicus) list and delegate to the SHO to clerk.
- Ensure that in out of hours stroke patients are clerked within 4 hours of arrival to stroke unit

Ward/ Departmental Managers and Matrons

- Responsible for making sure staff are aware of the Stroke Priority alert Policy and how to raise a Stroke Priority call.
- Investigate incidents where the Stroke Priority call is not activated for patients that meet the criteria call and ensure correct Datix reporting procedures are carried out and provide relevant feedback.

Serco (Switchboard)

- Will be responsible for maintenance of bleep (182, 301, 302) used in the stroke priority Alert system(battery replacement and repairs)
- Keeping accurate records of on-call information provided by the Trust
- Carrying out daily tests of emergency bleeps
- Carrying out quarterly tests of pagers
- Provide instructions on how to use equipment

<u>Bleep</u>

- Ensuring equipment is in good working order, ie reporting any faults and failures to Serco (Switchboard) immediately.
- Carry bleep and/or pager at all times when on duty.
- Ensure batteries are changed when required.
- Responding to tests to confirm equipment is working
- Will prioritise portering of stroke patients from ED to Stroke (Spruce) ward.

5. Stroke alert criteria

Where a stroke is suspected *the Stroke team must be summoned to attend to a stroke priority call via the emergency number 2222.*
For all other Fast positive patient that do not meet the criteria below must be referred to the stroke nurse on triage via bleep 182 on promptly.

i. **Stroke Priority alert criteria for patients brought to Emergency department (ED) by ambulance.**

a. A&E will dial the **2222** to initiate a Stroke Priority Alert call for all Pre-alert ambulance calls to Stroke nurse (bleep 182), CT radiographer (bleep 301), SHO(456), Stroke Registrar (bleep 302) and Med Registar(bleep 240) will be paged with a "**Stroke Priority"** alert with an estimated time of arrival (ETA).
b. Switchboard will bleep twice (back to back) and the stroke team must respond to ED within 10minutes.
c. Switchboard will put the "*Stroke priority call ……. ETA……."*

ii. **Stroke Priority Alert for patient self-presenting to Emergency Department**

a. Patient is triaged by triage nurse who puts out a "**Stroke Priority**" alert call by dialling **2222** if they meet the criteria (FAST or ROSIER positive, time of symptoms-time last seen well, symptoms within 4.5 hours of onset and vital signs; GCS, HR, T, BM, RR, SATS).
b. Switchboard will bleep twice (back to back) and the stroke team must respond to ED within 10minutes.
c. Switchboard will put the "*Stroke priority call ……."*

iii. **Stroke Priority Alert for in-patient stroke**

The responsible nurse or doctor must determine if the patient meets the criteria (FAST or ROSIER positive, time of symptoms-time last seen well, symptoms within 4.5 hours of onset and vital signs; GCS, HR, T, BM, RR, SATS) for thrombolysis and put out a "**Stroke Priority**" Alert call **2222.**

Switchboard will bleep twice (back to back) and the stroke team must respond within 10 minutes

Switchboard will put the "*Stroke priority call on…… (name of ward)…."*

For all other FAST and ROSIER positive patient that do not meet the criteria below must be referred to the stroke nurse on triage via bleep 182 on promptly.

6. Implementation of Policy

This policy will be made available on Adagio alongside all other relevant documentation pertaining to TIA and Stroke and no training requirements are appropriate to access this unit of policy.

7. Equality Impact Assessment

The Trust aims to design and implement services, policies and measures that meet the diverse needs of our service, population and workforce, ensuring that none are placed at a disadvantage over others.

In order to meet these requirements, a single equality impact assessment is used to assess all its policies/guidelines and practices. This policy was found to be compliant with this philosophy.

8. Monitoring Compliance with this Procedural document

Dartford and Gravesham NHS Trust takes part in the Sentinel Stroke National Audit Programme and the reports, overall assurance and action plans are communicated and put in practice accordingly.

What will be monitored	**How/Method**	**Frequency**	**Lead**	**Reporting to**	**Deficiencies / gaps recommendations and actions**	**Implementation of any required change**
Compliance and adherence to the stroke priority alert system	SSNAP Performance KPI	Every 3 months	Lead: Stroke Consultant	Director of Operation	6 month secondment vacancy for stroke SSNAP coordinator	Stroke priority alert process via bleep system
Response time to stroke calls	Internal audit	monthly	Lead stroke consultant/ Stroke cns/	Quality and Safety Committee	Out of hours stroke nurse bleep cover	Review and Implementation of out of hours contingency plans

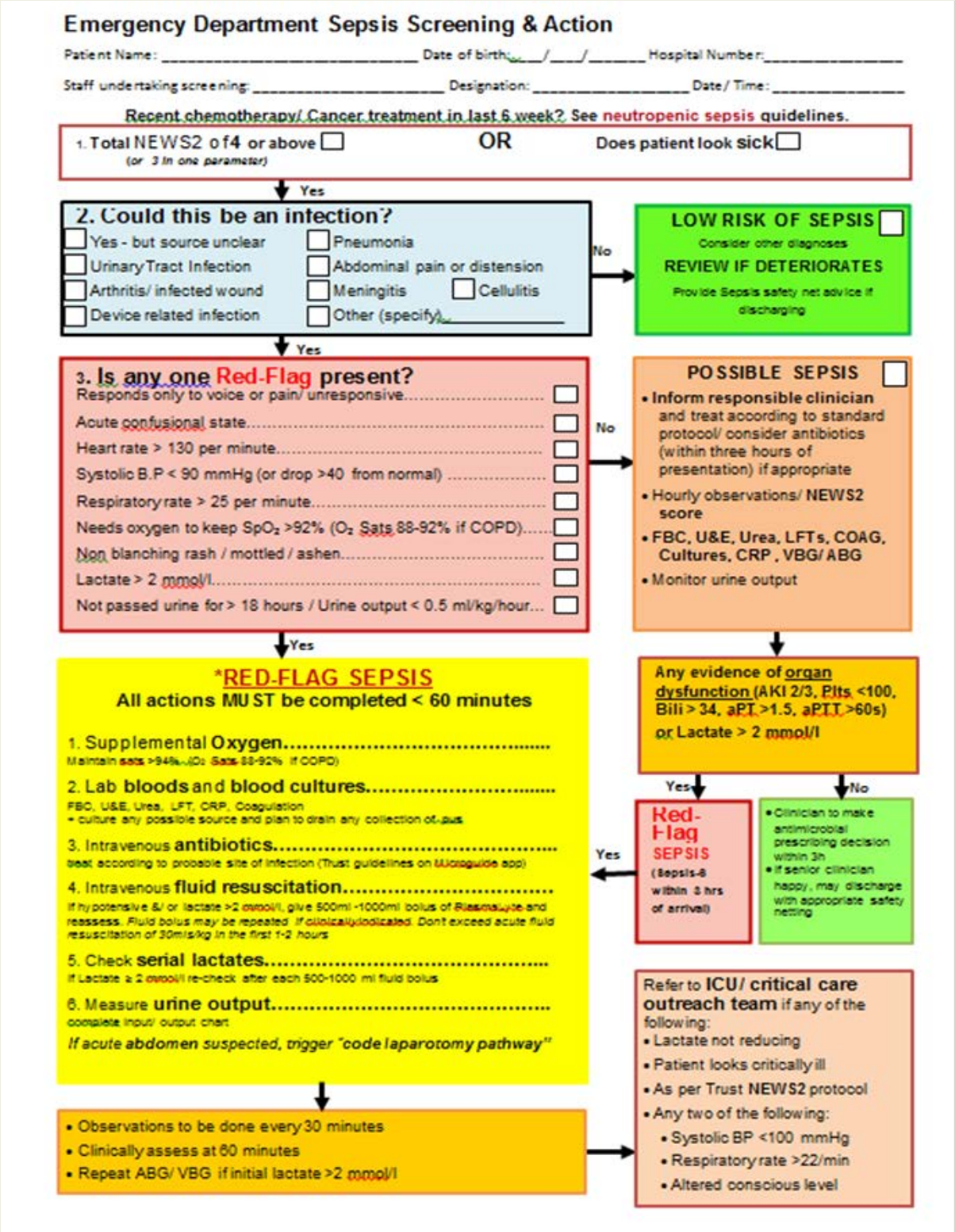
9. Associated Documents/Further Reading

Bleeps and Pagers Management and Uses at Darent Valley Hospital (2014)

x. References

Intercollegiate Stroke Working Party (2016). National Clinical Guidance for Stroke.5th edition. Publisher Royal College of Physicians (RCP)

Adult Emergency Department Sepsis Screening & Actions



Neutropenic Sepsis

Date and Arrival Time_____ Location_____ Triage Time _____

PATIENT ATTENDING HAD CANCER TREATMENT WITHIN LAST 6 WEEKS PRESENTS AS FEELING GENERALLY UNWELL AND:

WITH* one of the following *(tick relevant)

- ☐ NEWS 3 or above
- ☐ A Temperature of ≥ 38°c or ≤ 36°C
- ☐ Pulse > 100 beats per minute
- ☐ Respiration rate > 22 per minute
- ☐ BP systolic ≤ 100mmHg
- ☐ Oxygen Saturations < 92% (88% COPD)
- ☐ Not passed urine for > 18 hours
- ☐ Lethargic / Restless / anxious / confused / shivery / cold / clammy

YES → **RED FLAG SEPSIS!** **Contact Doctor**

IMMEDIATE ACTIONS *(tick completed actions)*

- ☐ FBC, U&Es, LFT, CRP, LACTATE (or blood gas)
- ☐ Group & Save, Coagulation
- ☐ Blood Cultures: Peripheral & via all lumens of indwelling line
- ☐ Blood sugar (if blood gas not taken)
- ☐ Urinalysis and send MC&S
- ☐ Swabs/cultures from obvious sites
- ☐ Administer O2 to maintain sats >94% (88-92% if COPD)
- ☐ Give 500ml IV Plasmolyte bolus (FLUID BALANCE CHART)
- ☐ Refer to Outreach/ITU as per policy

DO NOT WAIT FOR BLOOD RESULTS
Administer antibiotics as per protocol

TIME GIVEN _____ Initials:_____

ANTIBIOTICS MUST BE GIVEN WITHIN 1 HOUR FROM TRIAGE!

NO

Take bloods FBC, U&Es, LFT, CRP, LACTATE, COAG, group & save Hourly observations, monitor urine output

AWAIT BLOOD RESULTS

Is lactate ≥2 mmols?

YES → **NO**

If neutrophil count <0.5 x 10^9/l Administer antibiotics as per protocol; if count 0.5-1.0 x 10^9/l patient remains at risk so consult/refer to Acute Oncology, needs MASCC (If not neutropenic but septic refer to sepsis policy)

TIME GIVEN _____ Initials: _____

SEE Microguide (on ADAGIO) for antibiotic regimen, dosing information and monitoring required:
http://cms.horizonsp.co.uk/viewer/dvh/dvh

NEUTROPENIC SEPSIS CONFIRMED?

YES

Admit, consult neutropenic sepsis guidelines and refer to Acute Oncology Team – ext 6796 / bleep 988

NO

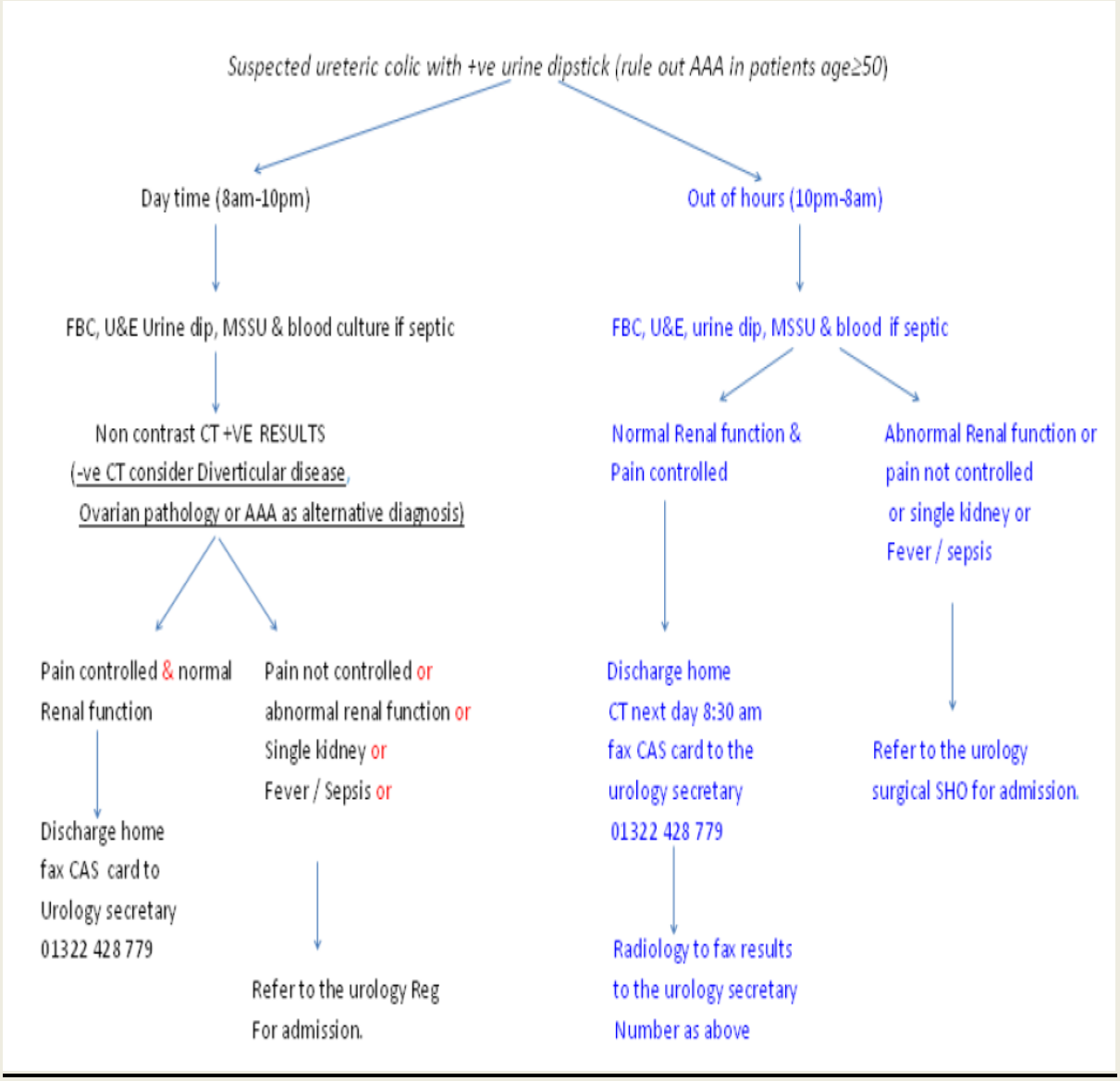
Clinical management of patient as indicated. Refer to Acute Oncology via PAS if follow-up required.

Staff name:_____

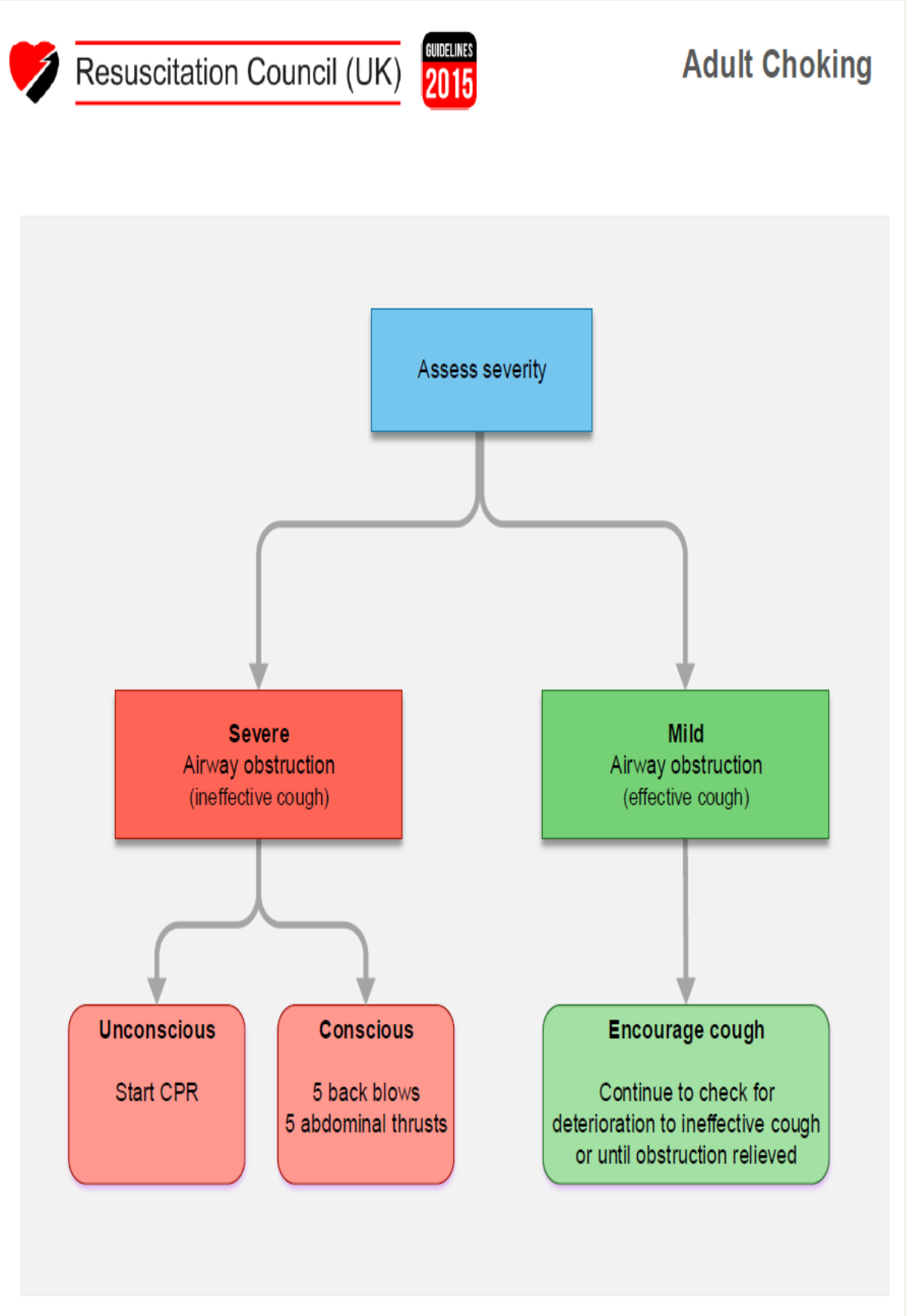
Designation:_____ Time completed:_____

Version March 2018

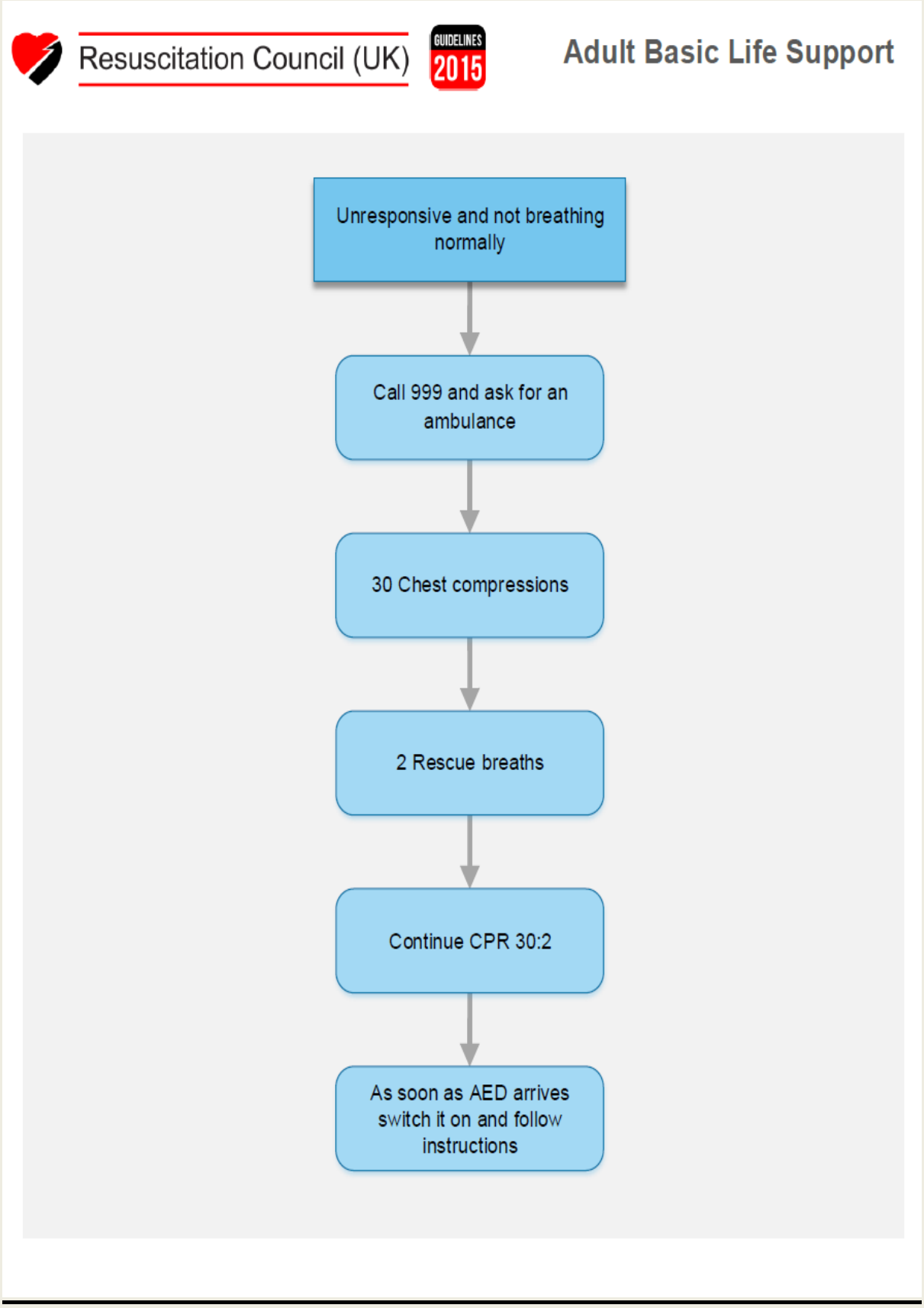
Renal Colic


Suspected ureteric colic with +ve urine dipstick (rule out AAA in patients age≥50)
Day time (8am-10pm)
Out of hours (10pm-8am)
FBC, U&E Urine dip, MSSU & blood culture if septic
FBC, U&E, urine dip, MSSU & blood if septic
Non contrast CT +VE RESULTS
(-ve CT consider Diverticular disease,
Ovarian pathology or AAA as alternative diagnosis)
Normal Renal function &
Pain controlled
Abnormal Renal function or
pain not controlled
or single kidney or
Fever / sepsis
Pain controlled & normal
Renal function
Pain not controlled or
abnormal renal function or
Single kidney or
Fever / Sepsis or
Discharge home
CT next day 8:30 am
fax CAS card to the
urology secretary
01322 428 779
Refer to the urology
surgical SHO for admission.
Discharge home
fax CAS card to
Urology secretary
01322 428 779
Refer to the urology Reg
For admission.
Radiology to fax results
to the urology secretary
Number as above

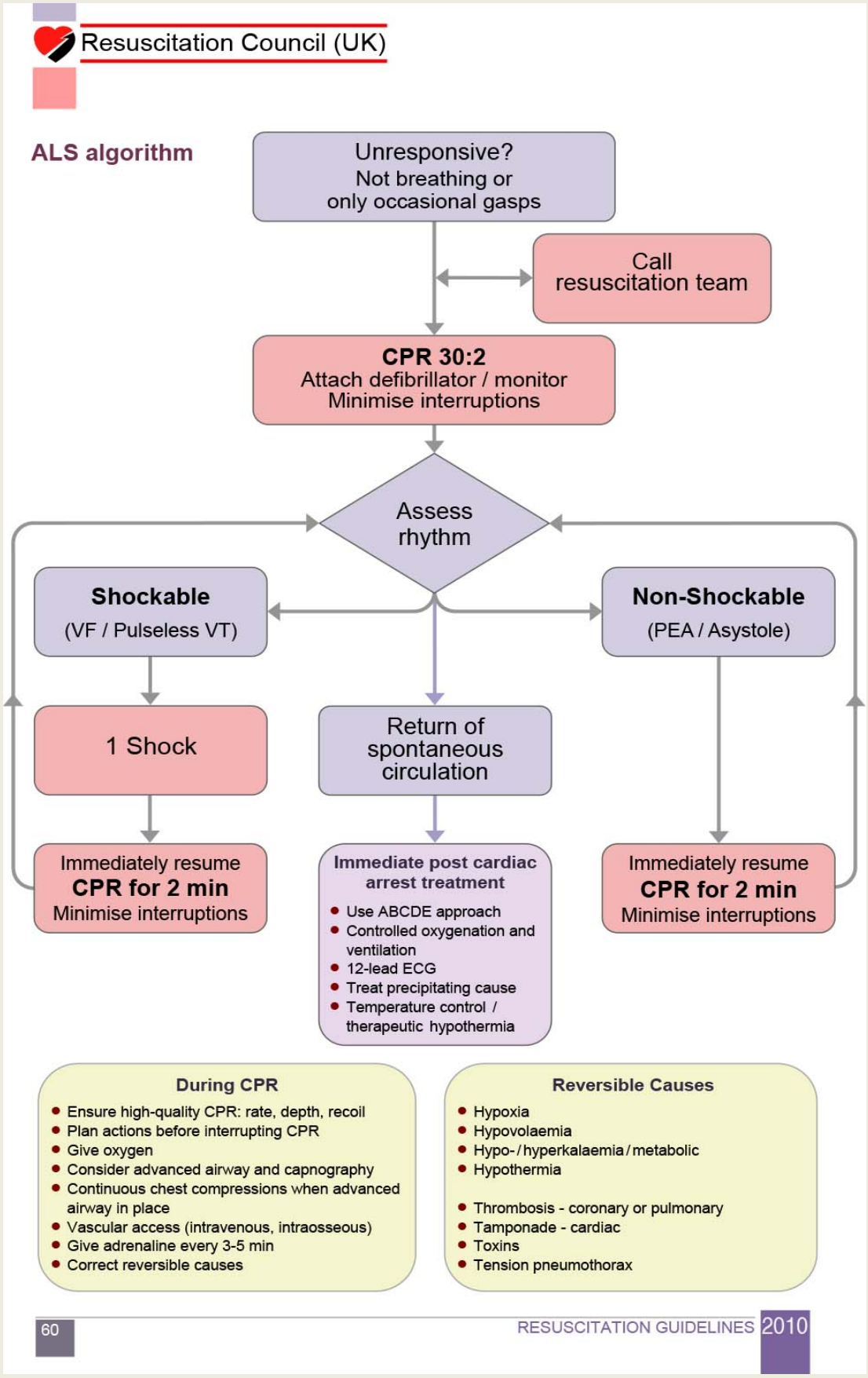
Patient with Choking (Adult)



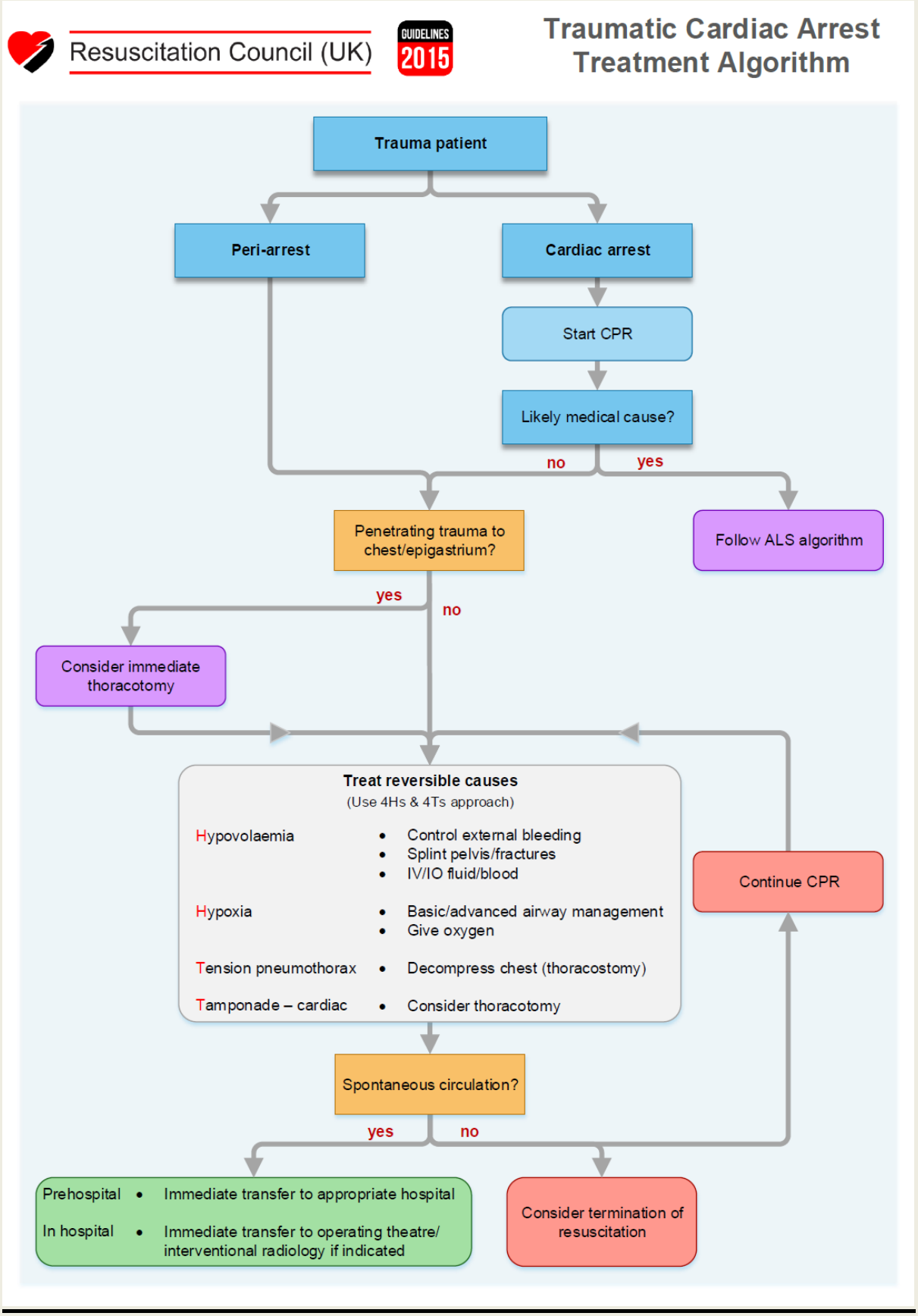
Basic Life Support (Adults)



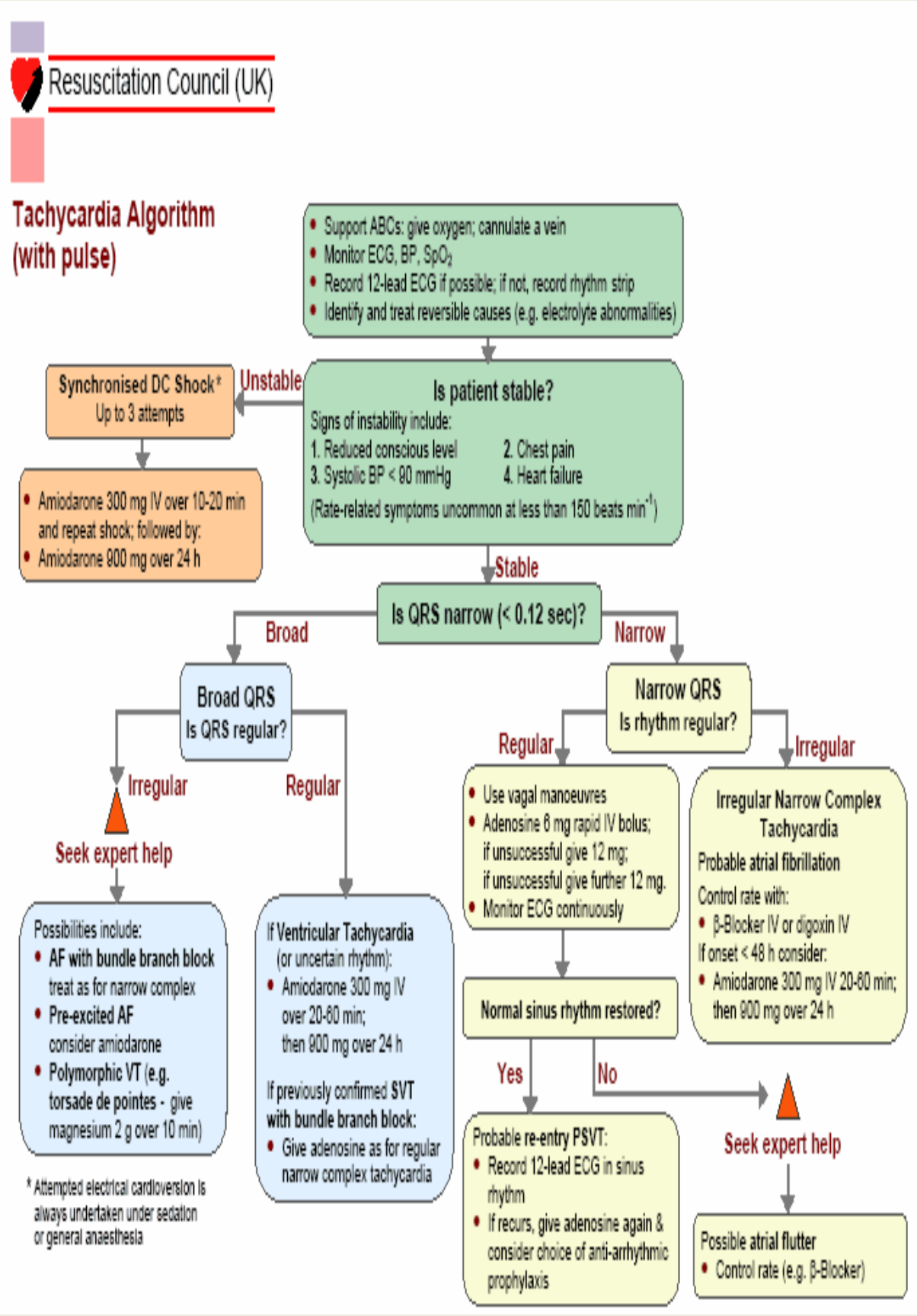
Cardiac Arrest (Adult)



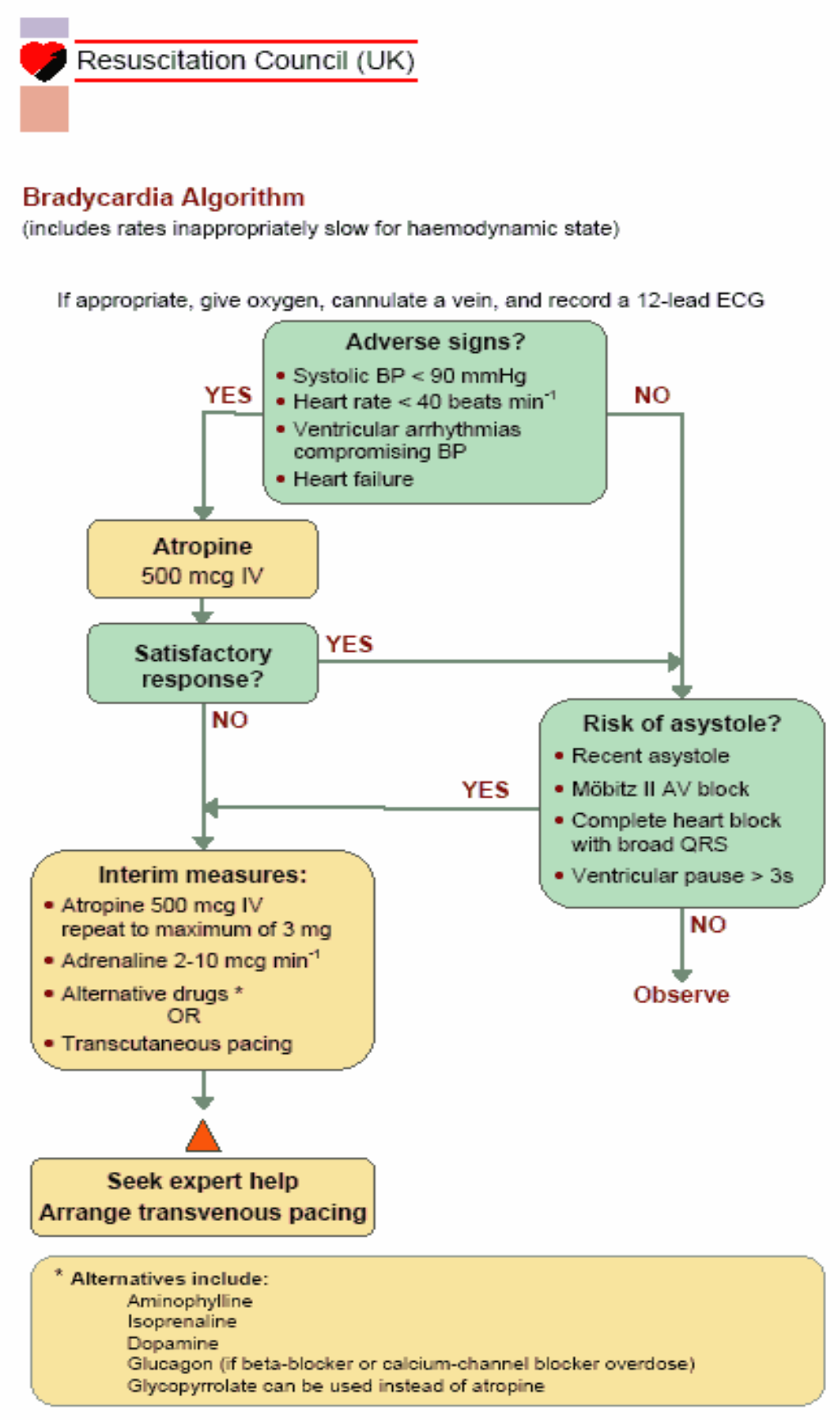
Post Resuscitation Cardiac Arrest



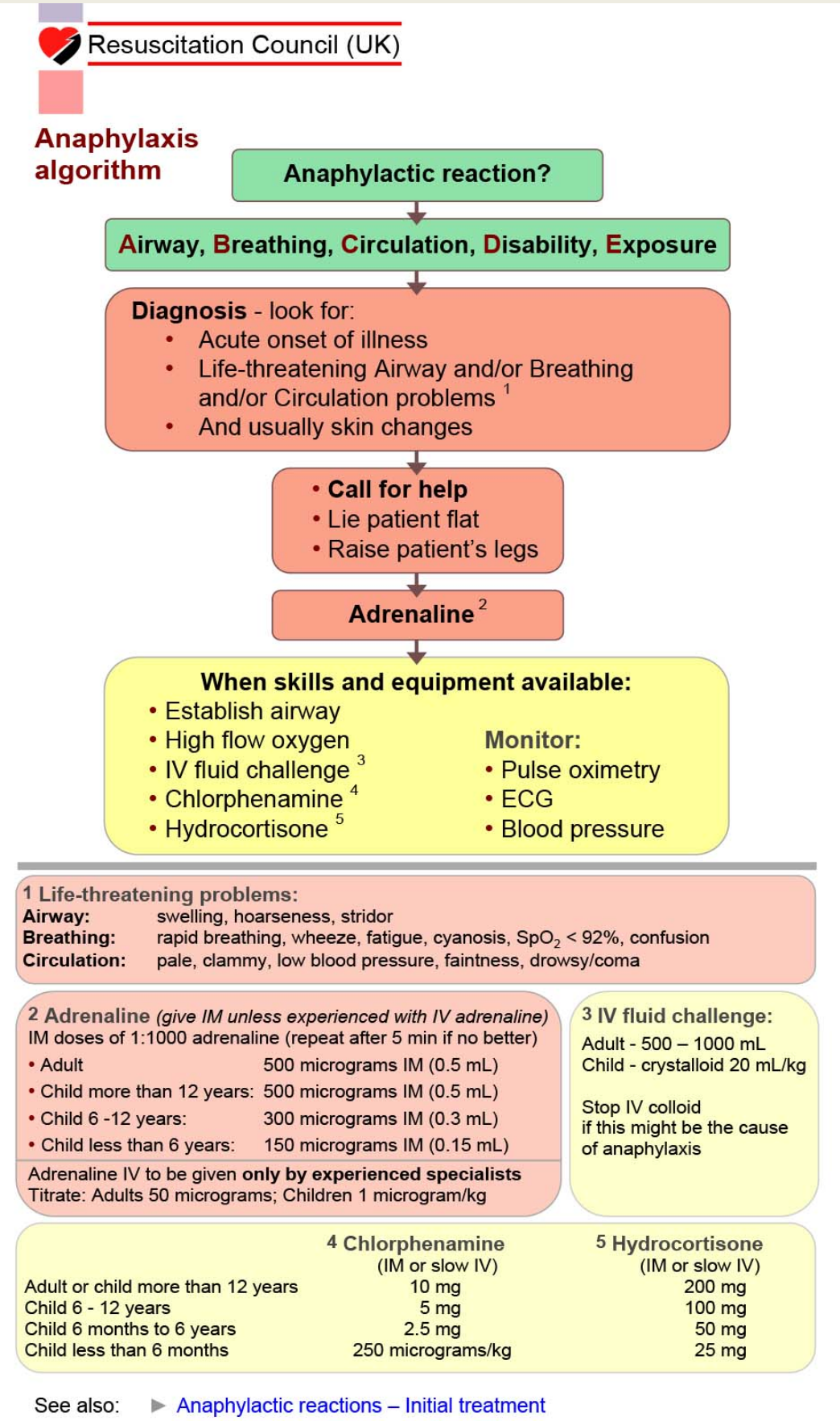
Patient with Tachycardia (Adult)



Patient with Bradycardia (Adult)



Patient with Anaphylaxis (Adult)



Adult Burn Referral Guidelines

ADULT BURN REFERRAL GUIDELINES

LONDON & SOUTH EAST OF ENGLAND BURN NETWORK (LSEBN) – Version 1 (November 2010)

REFERRAL CRITERIA FOR SPECIALISED BURN SERVICE

- Consider if >3% Total Body Surface Area (TBSA) Partial Thickness (PT) burn
- All deep dermal and full thickness (FT) burns
- All burns associated with electrical shock
- All burns associated with chemical burn
- All burns associated with non accidental injury
- All burns to face, hands, perineum, feet
- All burns circumferential to limbs or trunk or neck
- All burns with inhalation injury
- All burns not healed within two weeks

Discuss with local burn service

- All burns with other injury
- All burns with significant co-morbidity or pregnancy
- All infected burns
- Any other case that causes concern

MEETS CRITERIA FOR REFERRAL TO SPECIALISED BURN SERVICE

CALL LOCAL BURN SERVICE

St Andrews Centre, Broomfield Hospital (Chelmsford)	01245 516037
Chelsea & Westminster Hospital (London)	0203 3152500
Queen Victoria Hospital (East Grinstead)	01342 414440
Stoke Mandeville Hospital (Aylesbury)	01296 315040
National Burn Bed Bureau	01384 215576

For cases that do not meet the criteria for referral:

Continue local care

Discharge when wound healed with advice to moisturise and protect from sun until skin loses pink colour

GENERAL INFORMATION

IV Access

All adults with Burns ≥ 10% ensure secure IV access

Consider Central Access and an Arterial Line if Patient Unstable

IV Resuscitation Fluids

All adults with Burns ≥ 15% TBSA should receive fluid according to the Parkland Formula:-
4 ml/Kg/% burn Hartmann's over 24 hrs from the time of injury giving ½ in the 1st 8 hrs & ½ in the 2nd 16 hrs.

Discuss with burn service all patients where fluid overload is a concern, e.g. elderly or cardiac patient

Catheterisation

All adults with burns ≥ 20% TBSA or intubated, should have an appropriate size catheter.
Consider catheter if burn 15-19% TBSA
Consider for all perineal burns

Fluid Balance

All adults receiving IV Fluids should have fluid balance documented on the LSEBN Transfer Document
(located on the LSEBN Website)

Suspected Smoke Inhalation or Airway Compromise

Give oxygen and seek anaesthetic review

Antibiotics

If transferring to a burn service, do not give antibiotics unless the burn is infected.

Dressings

If transferring to a burn service, do not apply creams or ointments.

Apply a single layer of cling-film.

Fasting Requirements

If transferring patient to a burn service, discuss the need to keep "nil by mouth" (NBM)

Temperature Control

Ensure patient is kept warm at all times, particularly during transfer

LSEBN Published November 2010
www.lsebn.nhs.uk

Children's Burn Referral Guidelines

CHILDREN'S BURN REFERRAL GUIDELINES

LONDON & SOUTH EAST OF ENGLAND BURN NETWORK (LSEBN) – Version 2 (November 2010)

REFERRAL CRITERIA FOR SPECIALISED BURN SERVICE

- Consider if >1% Total Body Surface Area (TBSA) Partial Thickness (PT) burn
- All deep dermal and full thickness (FT), circumferential burns and burns involving the face, hands, soles of feet, perineum
- All burns associated with smoke inhalation, electrical shock or trauma
- Severe metabolic disturbance
- Children with burn wound infection
- All children 'unwell' with a burn (see below)
- Unhealed burns after 2 weeks
- Neonatal burns of any size
- All children with burns and child protection concerns
- Progressive non burn skin loss condition (TENS, SSSS)
- Any other case that causes concern

MEETS CRITERIA FOR REFERRAL TO SPECIALISED BURN SERVICE

CALL LOCAL BURN SERVICE

St Andrews Centre, Broomfield Hospital (Chelmsford)	01245 516037
Chelsea & Westminster Hospital (London)	0203 3152500
Queen Victoria Hospital (East Grinstead)	01342 414469
Stoke Mandeville Hospital (Aylesbury)	01296 315040
National Burn Bed Bureau	01384 215576
Children's Acute Transport Service (CATS)	0800 0850003

GIVE FLUID / FAST AS BELOW

AGE	BURN SIZE (TBSA)	FLUID
LESS THAN (<) 3/12 OLD	< 10% TBSA FT or PT BURNS	• Feed as Normal
	≥ 10% TBSA BUT < 20% TBSA FT or PT BURNS	• Feed as Normal • IV fluid resuscitation according to Parkland Formula only • Do not give IV Maintenance Fluid
	≥ 20% TBSA FT or PT BURNS	• Keep NBM • IV fluid resuscitation according to Parkland Formula • Give IV Maintenance Fluids
OLDER THAN (>) 3/12 OLD	< 10% TBSA FT or PT BURNS	• Keep NBM • Consider giving IV Maintenance Fluids
	≥ 10% TBSA FT or PT BURNS	• Keep NBM • IV fluid resuscitation according to Parkland Formula only • Do not give IV Maintenance Fluid

UNWELL: Toxic Shock Syndrome / Burns Sepsis Syndrome – ANY OF:

- Temperature > 38°C
- Rash
- Diarrhoea and vomiting
- General malaise
- Not eating or drinking
- Tachycardia/tachypnoea
- Hypotension

Seek advice from local Burn Service and consider treating with fluid resuscitation, IV antibiotics +/- FFP

GENERAL INFORMATION

IV Access
All children with Burns ≥ 10% but <30% Total Body Suface Area (TBSA) should have one well secured IV cannula
All children with burns ≥ 30% TBSA should have 2 well secured IV cannulae
Consider Central Access if Patient Unstable

IV Resuscitation Fluids
All children with Burns ≥ 10% TBSA will receive fluid according to the Parkland Formula:-
4 ml/Kg/% burn over 24 hrs from the time of injury given ½ in the 1st 8 hrs & ½ in the 2nd 16 hrs given as Hartmann's fluid

IV Maintenance Fluids
100 ml/Kg over 24 hrs for 1st 10 Kg.
Plus 50 ml/Kg over 24 hrs for 2nd 10 Kg
Plus 20 ml/Kg over 24 hrs for each additional Kg
Give as 0.45% Sodium Chloride and 5% Glucose solution

Fluid Balance
All children receiving IV Fluids should have fluid balance documented on the LSEBN Transfer Document (located on the LSEBN Website)

Catheterisation
All children with burns ≥ 20% TBSA should have an appropriate size catheter.
Consider catheter if burn 10-19% TBSA
Consider for all perineal burns

Suspected Smoke Inhalation or Airway Compromise
Give oxygen and seek anaesthetic review

NOTE: Referral Criteria for Specialised Burn Centre
Burn ≥ 30% TBSA
(Consider CATS Transfer)
Burn ≥ 20% TBSA Full Thickness (FT)
Burn ≥ 15% TBSA in ≤ 1 year old
Burn + inhalation injury or need to ventilate
Burn + Major Trauma
Burn + requirement for inotropic support
Burn + requirement for renal support
Burn + base deficit >6 and deteriorating
Burn + O_2 Requirement > FIO_2 of 50%

For cases that do not meet the criteria for referral:
Continue local care + give advice to observe for signs of Toxic Shock Syndrome (Refer to "Unwell")
Discharge when wound healed with advice to moisturise and protect from sun until skin loses pink colour

LSEBN Published November 2010
www.lsebn.nhs.uk

Chemical Eye Injury

Chemical Eye injury.

Presenting Complain:

- Possible reduction of vision
- Possible Burn to skin around the eye
- Painful eye, burning sensation, blurred vision

Please consult TOXBASE for specific chemical induced eye injury management.

Following are the general principles for managing chemical injury to Eye. If patient has multi trauma then follow trauma guidelines.

Systemic Examination
Look for injuries else where

Eye Examination :
- Visual inspection of the eye lid and eye ball
- Verbal history ascertaining & documenting the chemical involved, time of incident, first aid given and the severity of risk
- Obtain brief eye history (floaters, flashing lights, surgery)
- Ensure no contact lenses are in place

Investigations:
Check vital signs
-Bilateral eye pH tests (normal 7.3) – if dry, apply saline drops and test after 5-10 minutes
- Visual Acuity test using eye chart after irrigation
- Slit lamp examination / fluorescein staining post irrigation (as per PGD)

Management:

- Introduction and gain consent
- Place patient on a trolley for comfort
- Explain importance of rapid irrigation to obtain normal pH
- Demonstrate to patient the Morgan Lens and advise how it works
- Set up equipment:
  - 500ml or 1000ml normal saline or Ringer's Lactate
  - Giving set (keep the wrapper)
  - Morgan Lens
  - Fluid receptacle

Asif Mushtaq
Mr AA Wain.

Chemical Eye Injury

Treatment:

- Tape giving set wrapper to patient's face so that it drains fluid into receptacle
- Attach giving set to fluid bag and prime through tubing
- Instill proxymetacaine into the affected eye(s)
- Attach Morgan Lens to giving set
- Slowly run fluid through the lens
- Ask patient to look down, and insert lens under upper eyelid
- Ask patient to look up, and insert lens under Lower eyelid
- Fully open Giving Set
- Reassure patient they can lay still with eyelids closed for comfort
- Ensure the giving set does not run dry. 500ml bag of fluid takes approximately 8-10 minutes to run through, and 1 litre 15-18 minutes. Once irrigation is complete, slow the flow and remove

Retest pH after ten minutes post irrigation

Once normal pH obtained, apply fluorescein and examine using slit lamp for corneal abrasion

- Administer chloramphenicol 1% ointment
- Cover with eye pad if necessary
- Discuss analgesia if required

Disposal:

- Discuss with eye clinic / ophthalmologist on call for referral
- Discharge home (if returning to eye clinic) with chloramphenicol and advise lubricant eye drops at night once resolve

Asif Mushtaq
Mr AA Wain.

Patient with Abdominal Pain in ED

MANAGEMENT OF ABDOMINAL PAIN

General Concepts

Take and document a detailed history:

- **S**ite of the pain and where has it started.
- **O**ccurrence sudden vs gradual onset.
- **C**haracter colicky, burning, stabbing etc.
- **R**adiation/ **R**eferred.
- **A**ssociated symptoms cough, SOB, Chest pain, vomiting, anorexia, eating, bowel movement, posture.
- **T**ime when did the pain start, for how long it hurts.
- **A**ggravating and alleviating and factors
- **S**everity on the scale of 1-10

AMPLE History:

- Allergy, Medication, Past medical history (previous surgery, LMP, pregnancy, IUD), Last Ate

Physical Examination:

- Note vital signs, Abdomen including the back, rectal and hernia sites. Don't forget Systemic Ex.

Initial Workup:

- Bloods (FBC, U&E, CRP, Creatinine, LFT, Glucose, Amylase, VBG)
- Urine (Dip and Serum b-HCG in child bearing age group)
- X-Match if surgical abdomen is likely
- 12 lead ECG
- Erect chest X-Ray if perforation is suspected from history or if signs of acute peritonitis is detected
- Abdominal X-Ray is only useful when obstruction is suspected.
- CT Abdomen/ CT Angio if AAA/ Dissection suspected.

Diagnosis cannot afford to miss.

- AAA, Aortic Dissection, Mesenteric Infarction, Testicular torsion, ectopic, Rectus haematoma (patients on Warfarin), Femoral/ Spigelian Hernia.

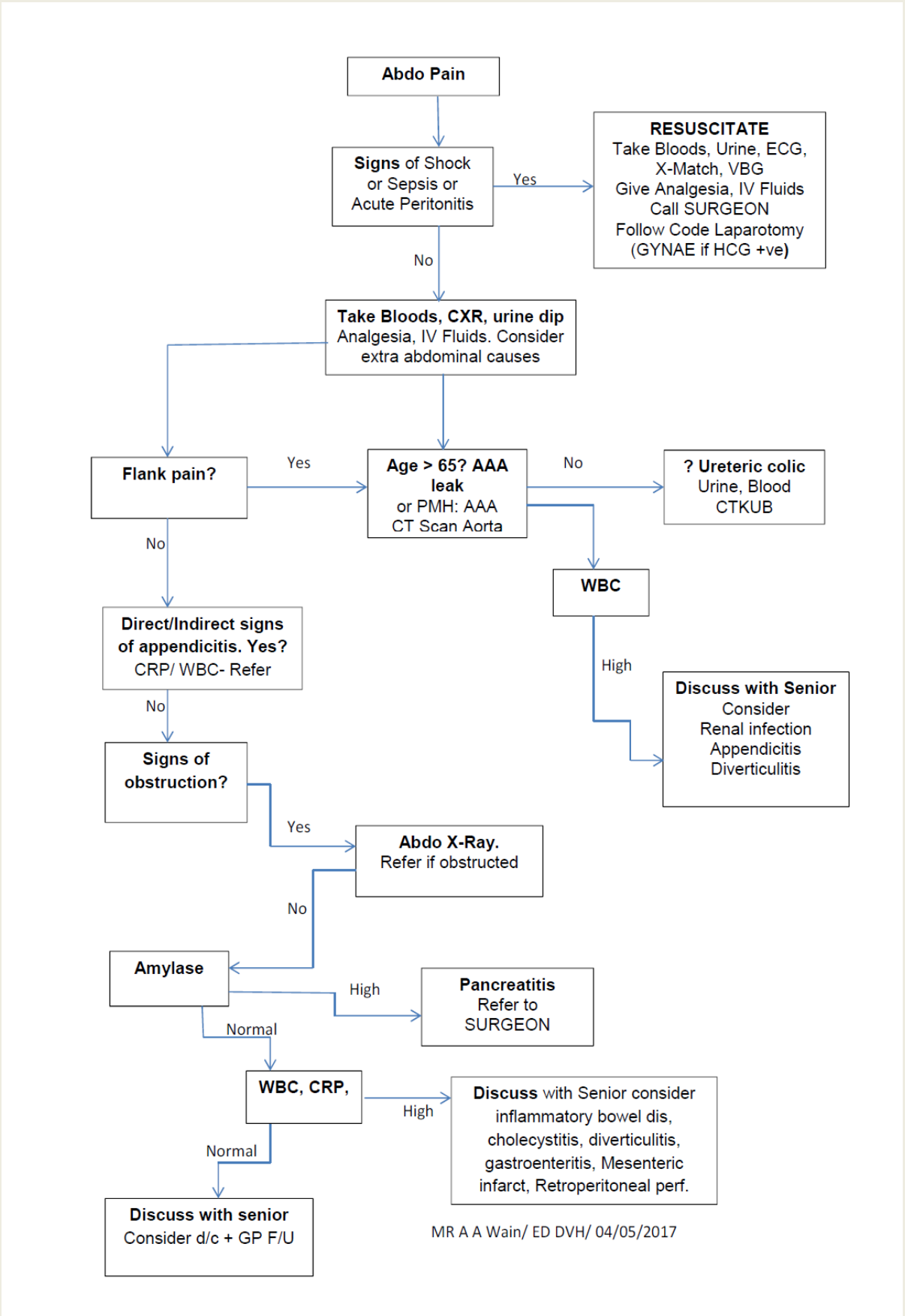
Always consider extra-abdominal causes as well:

- ACS (MI or Angina), Pneumonia
- Diabetes, DKA, Sickle cell disease, Shingles
- Porphyria, Vasculitis
- Tonsillitis (children), Toxins (methanol, heavy metal)

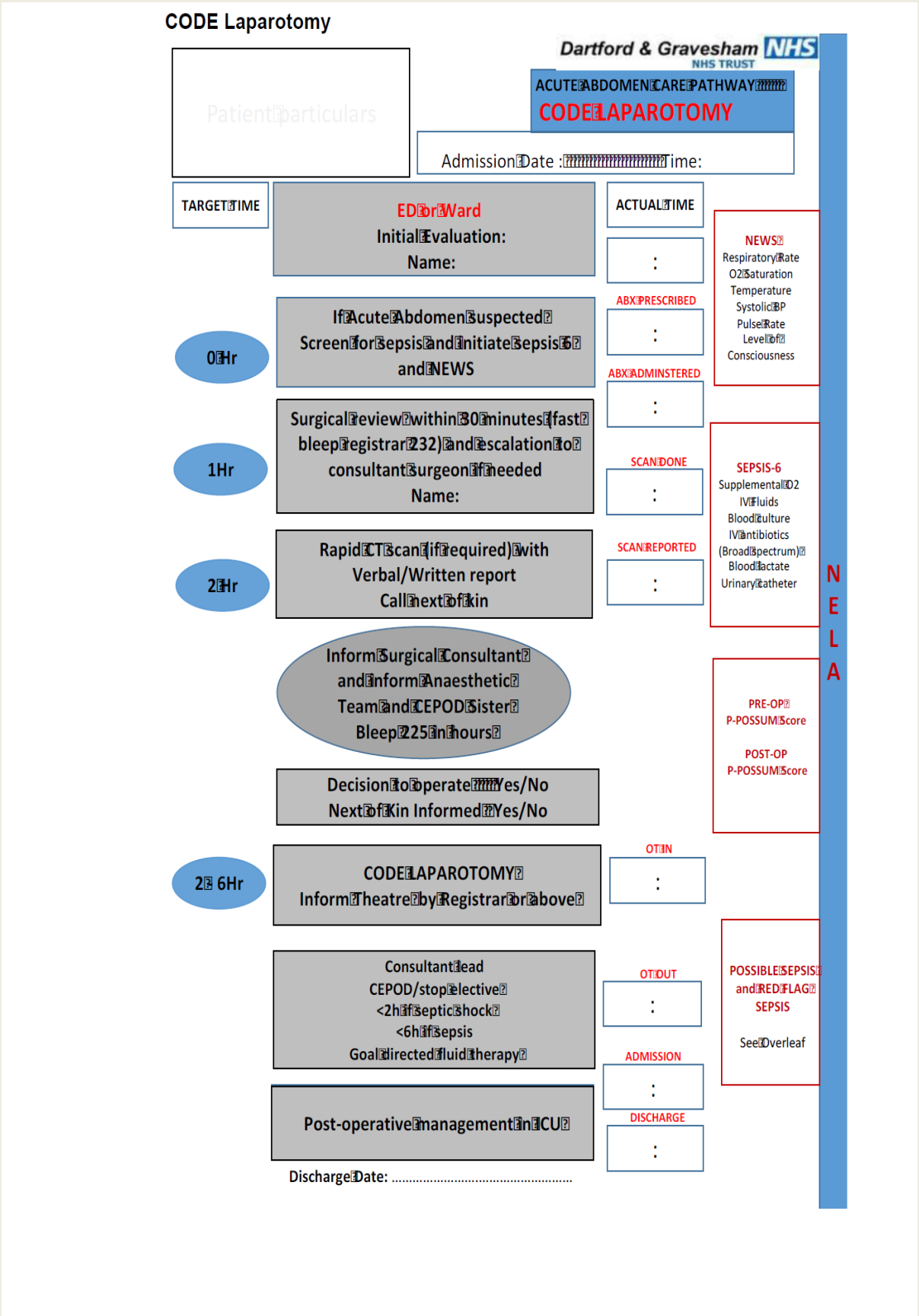
Pitfalls:

Normal WBC would not rule out appendicitis, if the history and clinical examination suggest appendicitis.
Bradycardia may be present due to pain rather than tachycardia
Do NOT withhold analgesia! In acute cases, IV morphine is appropriate
Before discharging any patient with abdominal pain, **always discuss with senior!**
Abdo pain flowchart as a guidance only:

Patient with Abdominal Pain in ED



Code Laparotomy



Patient with Chest Pain in ED

Dartford and Gravesham NHS
NHS Trust

Accident & Emergency Department
Clinical Director: Mr Wain **General Manager**: Kevin Cairney **Matron**: Will Fleetney **Operations**: Fawez Molotoo
Consultants: Mr V Kika, Dr R Suleman, Mr A Soliman, Dr K Khan, Dr P Varasteanu
Adult Card Chest Pain DIS 01/09/2017 15:46

CP1: ?Acute Coronary Syndrome

Guide to assessment & management

Date & time of assessment:.....
Name/status of assessor in CAPITALS:

Name.....
DOB.....
Unit No.....

Are the presenting symptoms or signs consistent with myocardial ischaemia?
Consider the following:

- Ongoing or recent heavy, constrictive chest, arm, neck, jaw, back or epigastric pain/discomfort lasting longer than 15 mins within the last 12 hrs?
- **Sweating, belching, nausea, vomiting or breathlessness? Be mindful of atypical presentations in the elderly, women & pts with diabetes.**
- **Presence of haemodynamic instability? Heart rate <60 or >100, systolic BP<105 mmHg**
- **Deterioration in previously stable angina, with recurrent chest pain occurring frequently at rest**

ECG within 10 minutes of arrival
Is there ECG evidence of acute myocardial infarction warranting PRIMARY PCI ?

Do not ignore ECG machine automated interpretation unless discussed with a cardiologist!
Do not dismiss any ST elevation in the context of RBBB!
Treat LBBB as 'new onset' unless previously documented!

YES → **STEMI PROTOCOL**

ASSESS HEART ISCHAEMIA RISK – USE "HEART SCORE"

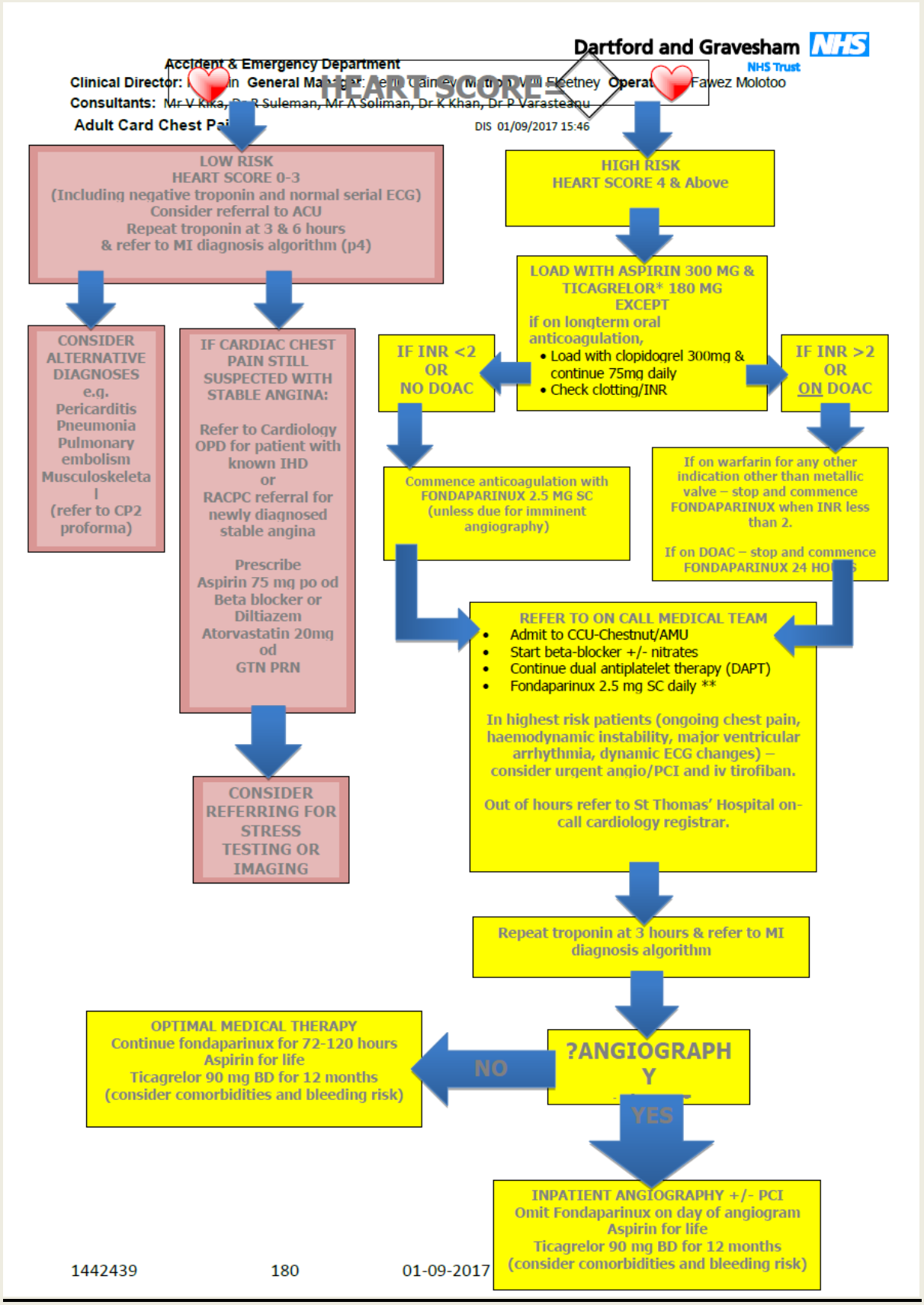
HEART

HEART score for chest pain patients			
History	Highly suspicious	2	
	Moderately suspicious	1	
	Slightly suspicious	0	
ECG	Significant ST-deviation	2	
	Non specific repolarisation disturbance / LBTB / PM	1	
	Normal	0	
Age	≥ 65 years	2	
	> 45 and < 65 years	1	
	≤ 45 years	0	
Risk factors	≥ 3 risk factors or history of atherosclerotic disease*	2	
Baseline Trop I (Normal limit 40ng/L)	1 or 2 risk factors	1	
	No risk factors known	0	
	TOTAL SCORE=		
	> 1 and < 3x normal limit	1	
	≤ 1x normal limit	0	
		Total	

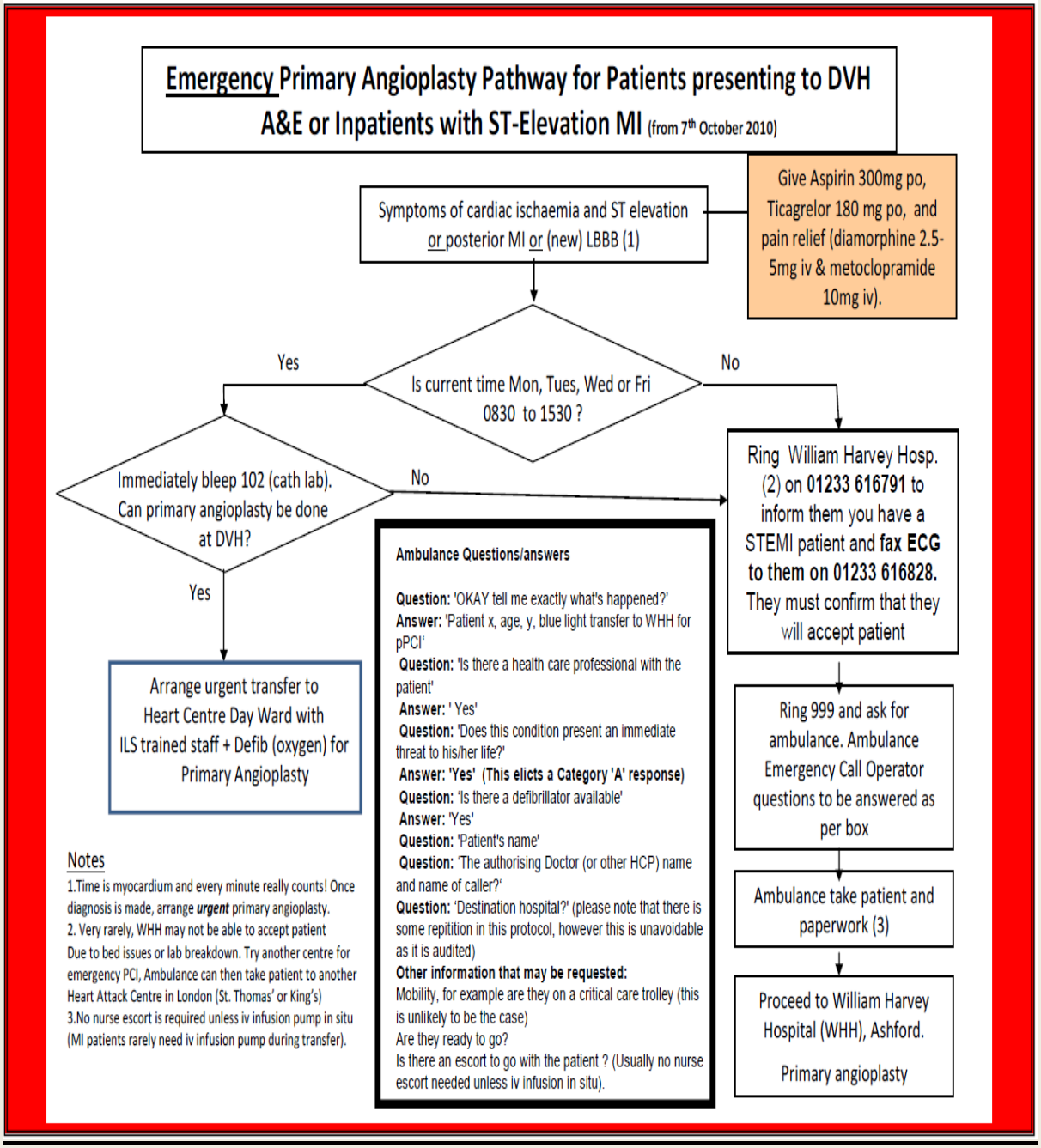
*Risk factors for atherosclerotic disease:

Hypercholesterolemia	Cigarette smoking
Hypertension	Positive family history
Diabetes Mellitus	Obesity

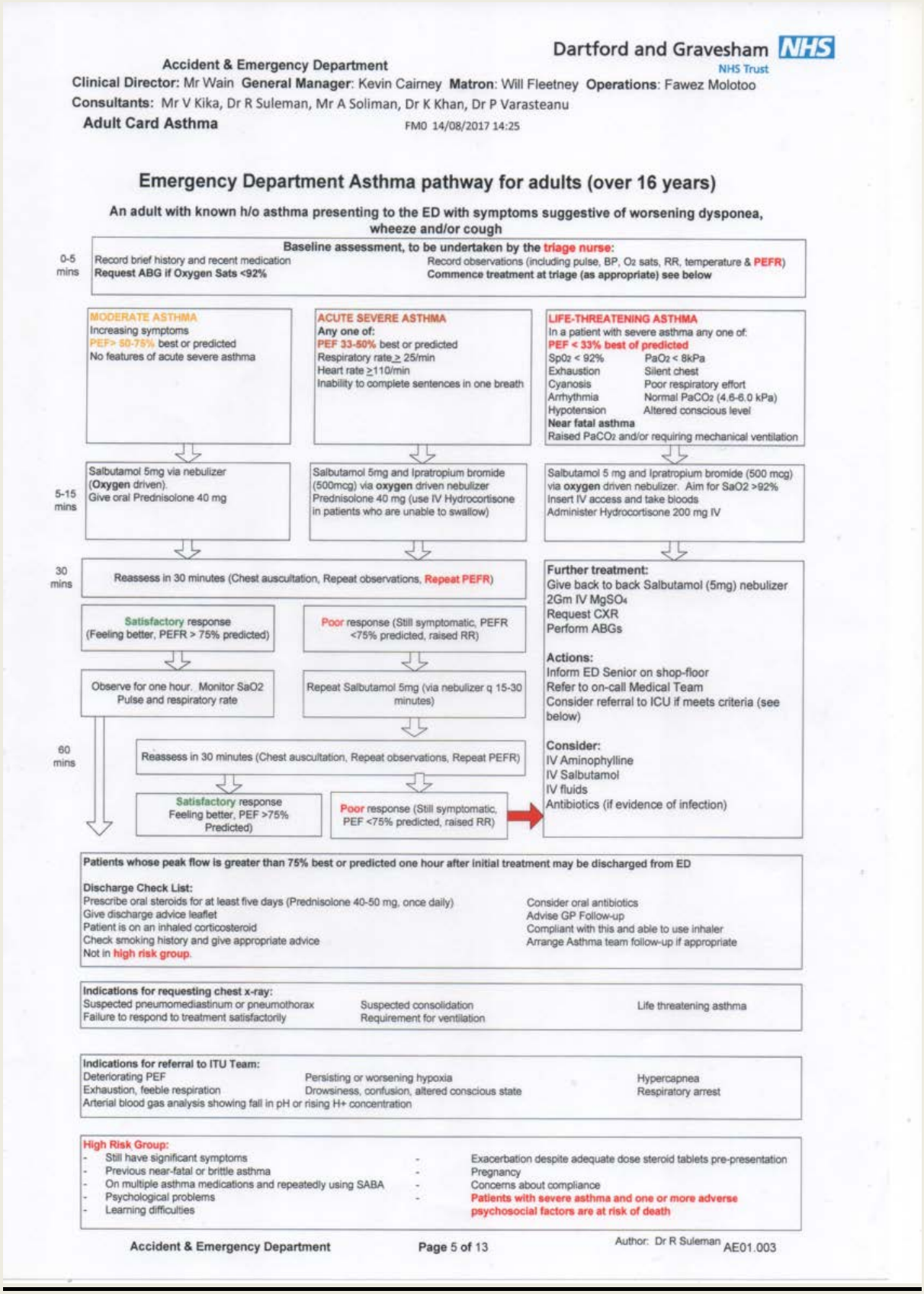
Patient with Chest Pain in ED



Patient with ST-Elevation MI



Management of Bronchial Asthma in Adults



Dartford and Gravesham NHS Trust

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Adult Card Asthma FM0 14/08/2017 14:25

Emergency Department Asthma pathway for adults (over 16 years)

An adult with known h/o asthma presenting to the ED with symptoms suggestive of worsening dysponea, wheeze and/or cough

Baseline assessment, to be undertaken by the triage nurse:

0-5 mins

Record brief history and recent medication
Request ABG if Oxygen Sats <92%
Record observations (including pulse, BP, O_2 sats, RR, temperature & **PEFR**)
Commence treatment at triage (as appropriate) see below

MODERATE ASTHMA
Increasing symptoms
PEF> 50-75% best or predicted
No features of acute severe asthma

ACUTE SEVERE ASTHMA
Any one of:
PEF 33-50% best or predicted
Respiratory rate ≥ 25/min
Heart rate ≥110/min
Inability to complete sentences in one breath

LIFE-THREATENING ASTHMA
In a patient with severe asthma any one of:
PEF < 33% best of predicted
$Sp0_2$ < 92%
PaO_2 < 8kPa
Exhaustion
Silent chest
Cyanosis
Poor respiratory effort
Arrhythmia
Normal $PaCO_2$ (4.6-6.0 kPa)
Hypotension
Altered conscious level
Near fatal asthma
Raised $PaCO_2$ and/or requiring mechanical ventilation

5-15 mins

Salbutamol 5mg via nebulizer (**Oxygen** driven).
Give oral Prednisolone 40 mg

Salbutamol 5mg and Ipratropium bromide (500mcg) via **oxygen** driven nebulizer
Prednisolone 40 mg (use IV Hydrocortisone in patients who are unable to swallow)

Salbutamol 5 mg and Ipratropium bromide (500 mcg) via **oxygen** driven nebulizer. Aim for SaO2 >92%
Insert IV access and take bloods
Administer Hydrocortisone 200 mg IV

30 mins

Reassess in 30 minutes (Chest auscultation, Repeat observations, **Repeat PEFR**)

Satisfactory response
(Feeling better, PEFR > 75% predicted)

Poor response (Still symptomatic, PEFR <75% predicted, raised RR)

Observe for one hour. Monitor SaO2 Pulse and respiratory rate

Repeat Salbutamol 5mg (via nebulizer q 15-30 minutes)

60 mins

Reassess in 30 minutes (Chest auscultation, Repeat observations, Repeat PEFR)

Satisfactory response
Feeling better, PEF >75% Predicted)

Poor response (Still symptomatic, PEF <75% predicted, raised RR)

Further treatment:
Give back to back Salbutamol (5mg) nebulizer
2Gm IV $MgSO_4$
Request CXR
Perform ABGs

Actions:
Inform ED Senior on shop-floor
Refer to on-call Medical Team
Consider referral to ICU if meets criteria (see below)

Consider:
IV Aminophylline
IV Salbutamol
IV fluids
Antibiotics (if evidence of infection)

Patients whose peak flow is greater than 75% best or predicted one hour after initial treatment may be discharged from ED

Discharge Check List:
Prescribe oral steroids for at least five days (Prednisolone 40-50 mg, once daily)
Give discharge advice leaflet
Patient is on an inhaled corticosteroid
Check smoking history and give appropriate advice
Not in **high risk group**.
Consider oral antibiotics
Advise GP Follow-up
Compliant with this and able to use inhaler
Arrange Asthma team follow-up if appropriate

Indications for requesting chest x-ray:
Suspected pneumomediastinum or pneumothorax
Failure to respond to treatment satisfactorily
Suspected consolidation
Requirement for ventilation
Life threatening asthma

Indications for referral to ITU Team:
Deteriorating PEF
Exhaustion, feeble respiration
Persisting or worsening hypoxia
Drowsiness, confusion, altered conscious state
Hypercapnea
Respiratory arrest
Arterial blood gas analysis showing fall in pH or rising H+ concentration

High Risk Group:
- Still have significant symptoms
- Previous near-fatal or brittle asthma
- On multiple asthma medications and repeatedly using SABA
- Psychological problems
- Learning difficulties
- Exacerbation despite adequate dose steroid tablets pre-presentation
- Pregnancy
- Concerns about compliance
- **Patients with severe asthma and one or more adverse psychosocial factors are at risk of death**

Accident & Emergency Department **Page** 5 of 13 Author: Dr R Suleman AE01.003

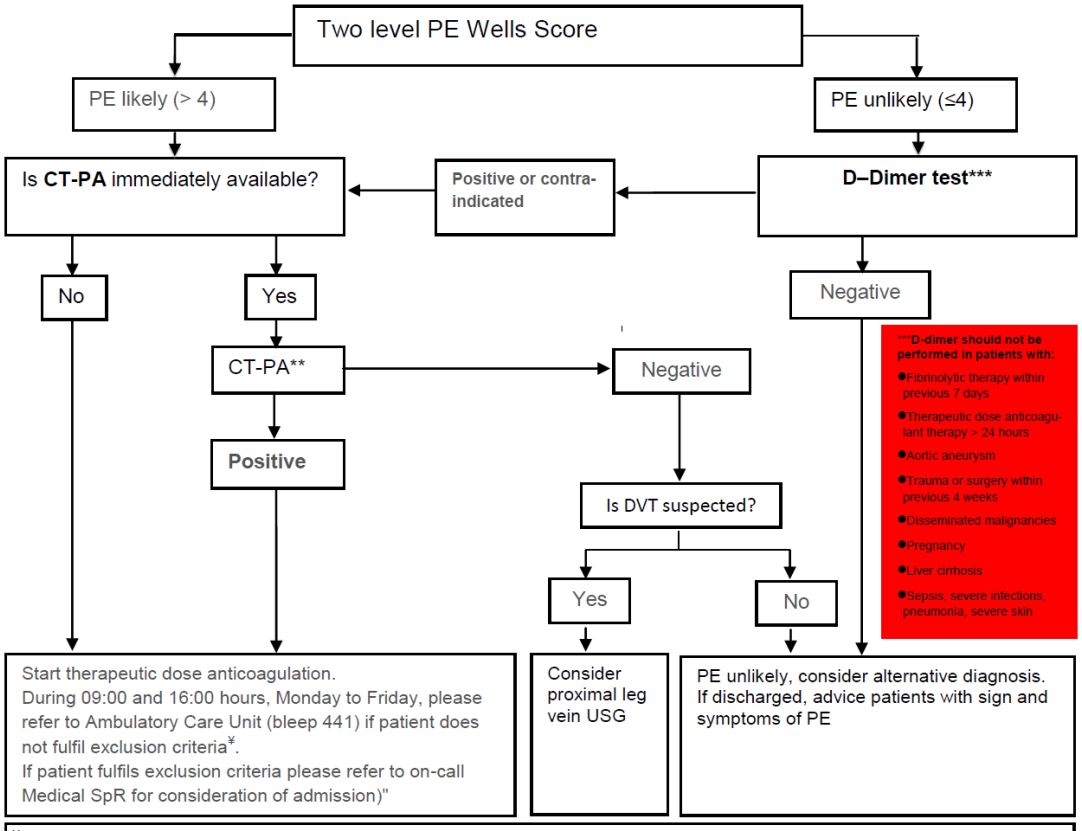
Pulmonary Embolism

Dartford and Gravesham NHS Trust

Emergency Department PE pathway

Patient with signs &/or symptoms of PE* (other causes excluded by examination & CXR)

Clinical features		Points
Clinical signs and symptoms of DVT (minimum of leg swelling and pain with palpation of the deep veins)	3	
An alternative diagnosis is less likely than PE	3	
Heart rate > 100 beats per minute	1.5	
Immobilisation for more than 3 days or surgery in the previous 4 weeks	1.5	
Previous DVT/PE	1.5	
Haemoptysis	1	
Malignancy (on treatment, treated in the last 6 months, or palliative)	1	
Total points		



¥Exclusion criteria for Ambulatory Care Unit :

Pregnant patient	AMB score 4 or less	PaO2 on air <10kPa
Pulse rate >110bpm	systolic BP<100mmHg	history of syncope
chest pain requiring opiates	Confused patient	Co-existing major DVT (high segment femoral or above)
massive or sub-massive PE on CTPA		Less than 1 month post-partum or post-surgery or current active bleeding

*SOB, pleuritic chest pain, palpitations, unexplained low blood oxygen saturation, cyanosis, tachypnoe, tachycardia, collapse, unexplained hypotension
**Consider V/Q scan as alternative to CTPA for patients who have an allergy to contrast media, or who have renal impairment, or whose risk from irradiation is high (e.g. pregnancy)

R Suleman v Jun2017
Review date: 2019

ED Chest Drain Insertion Check List

Chest Drain Safety Checklist & Report

Dartford & Gravesham NHS NHS TRUST

(Please complete in all cases a chest drain is inserted)

Indication: Pneumothorax / Pleural Effusion / Other_____

Name

DoB

Hosp No

Ward

(please affix patient label)

Check before you start

Please go through checklist below with nurse

Does the procedure need to done ASAP?
☐ Yes

Confirm no further imaging e.g. ultrasound or CT is required?
☐ Yes

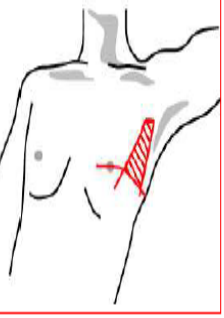
Confirm written consent?
☐ Yes

Confirm side of abnormality clinically?
☐ Right
☐ Left

Correlate clinical signs with CXRay?
☐ Yes Side: Rt [ ] Lt [ ]

Patient's coagulation & medicines checked?
☐ Yes

Site of drain insertion localised?
☐ Yes



The 'triangle of safety'. The triangle is bordered anteriorly by the lateral edge of pectoralis major, laterally by the lateral edge of latissimus dorsi, inferiorly by the line of the fifth intercostal space and superiorly by the base of the axilla.

Procedure & Report

Don sterile gown and gloves
☐ Yes

Apply two applications of Chlorprep
☐ Yes

Cover area with sterile fenestrated drape
☐ Yes

STOP if unable to aspirate any air or fluid with green needle when infiltrating local anaesthetic

Side: Rt [ ] Lt [ ]

Site: _____

Subcut Lignocaine: 1% ___mls

Appearance of fluid: _____

Amount drained: _____mls

Chest drain type: _____

Complications: _____

Samples sent for

Biochemistry [ ]
Cytology [ ]
MC&S [ ]

Specific instructions:

_____

Designed by Dr Burhan Khan, Consultant Respiratory Physician, Darent Valley Hospital, Kent UK

Post Procedure

Please go through checklist below with nurse

Check the sutures, tubing and connections are secure? (please ensure 3-way tap is attached and open)
☐ Yes

Informed patient not to tug on the drain or elevate drainage bottle above the level of insertion?
☐ Yes

Prescribe adequate analgesia
☐ Yes

Confirm that in cases of pleural effusions no more than 500mls should be drained in the first hour, or 1500mls in first 24 hrs?
☐ Yes

Start "Chest Drain Chart"
☐ Yes

Request transfer to Respiratory ward
☐ Yes

Post procedure Chest X-Ray

_____

_____

Doctor inserting drain: _____ Grade: _____

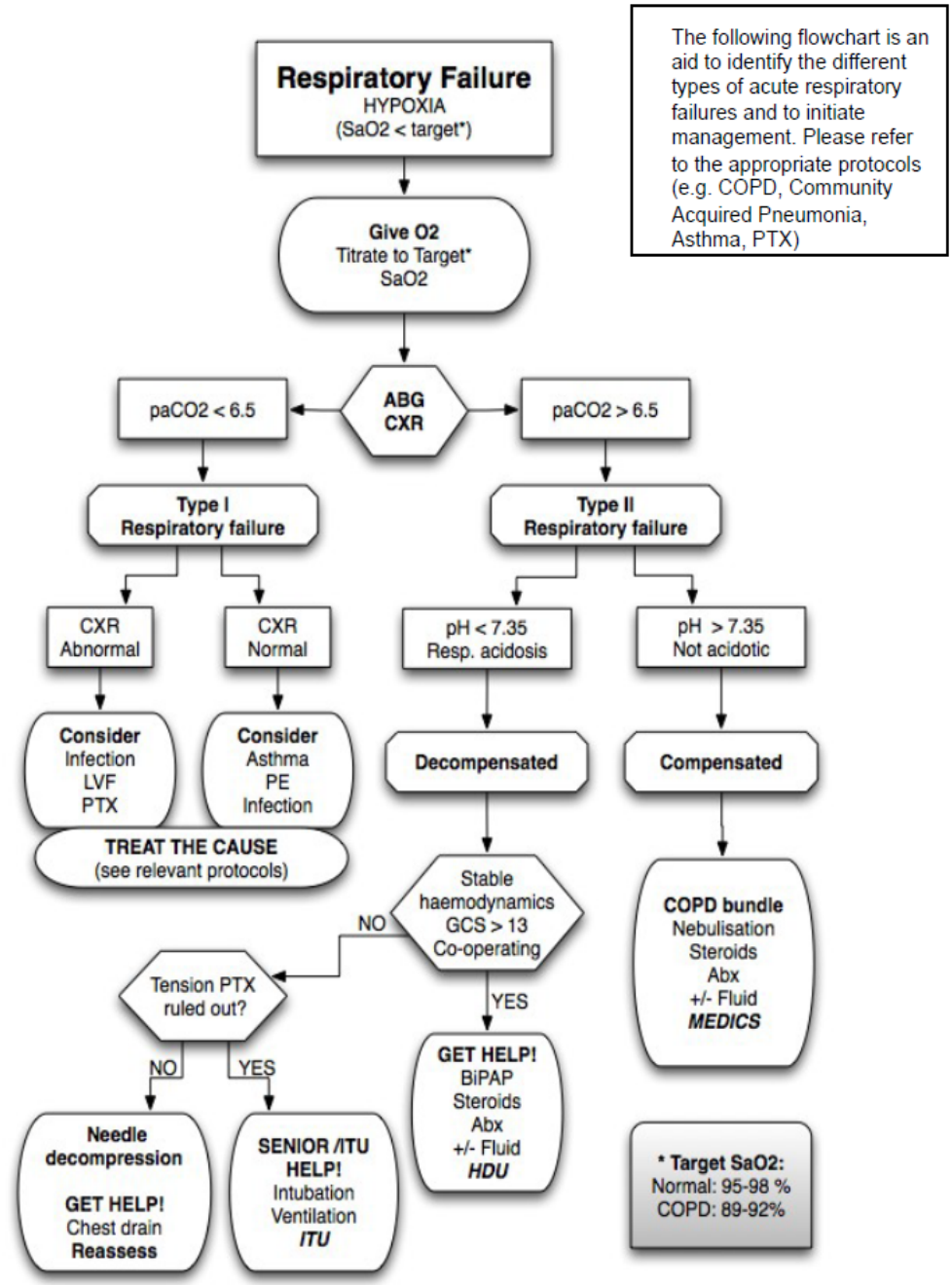
Sign: _____ Date: ___/___/____

Supervised [Yes] [No] Grade: _____

Supervised by: _____ Sign: _____

Respiratory Failure

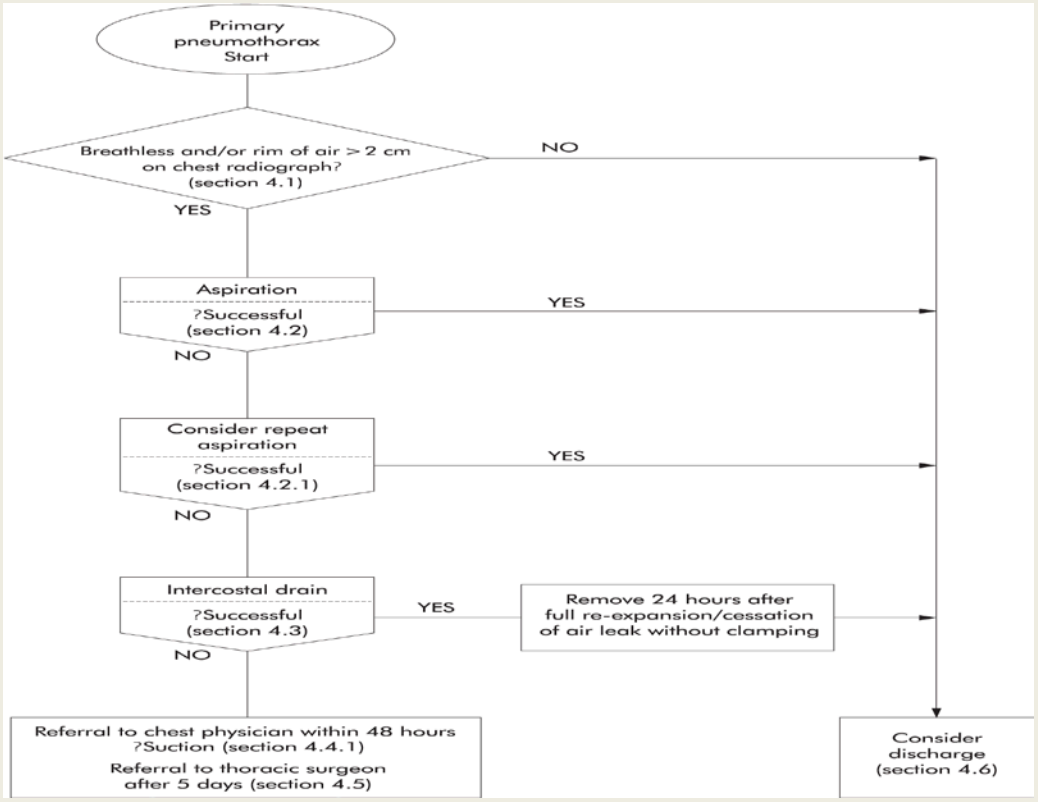
Emergency Department Guideline

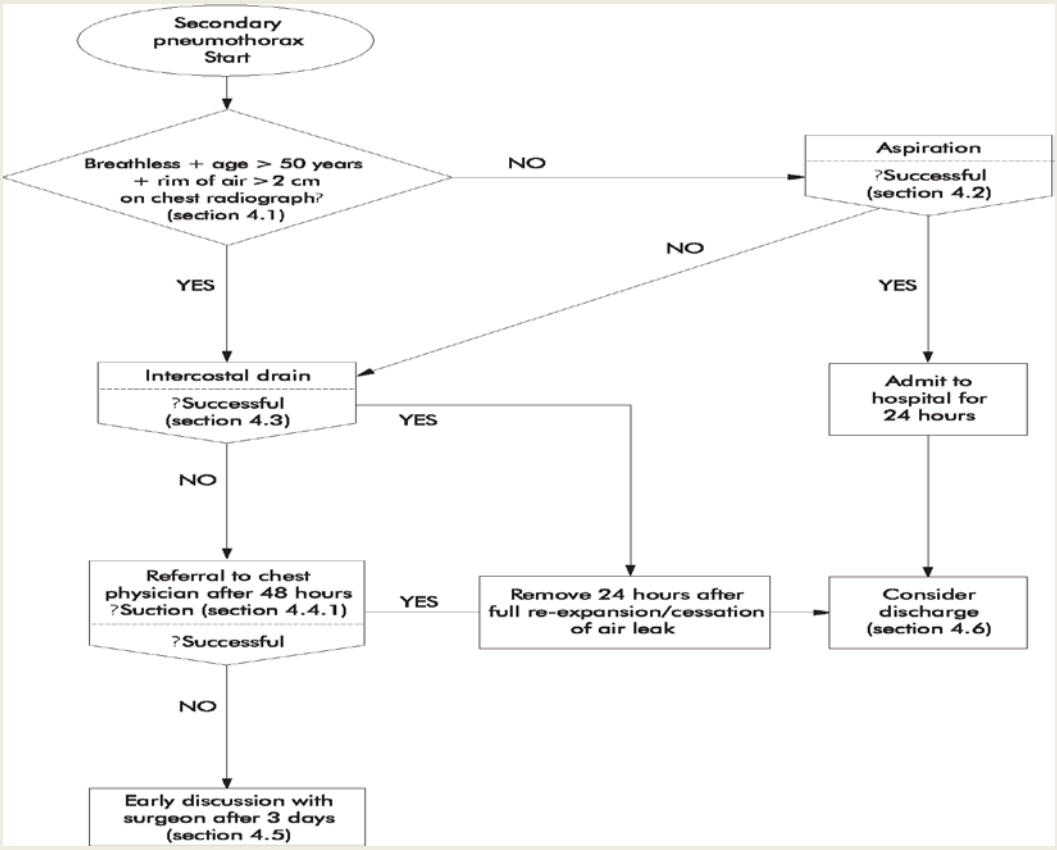


Asif Mushtaq
Mr AA Wain.

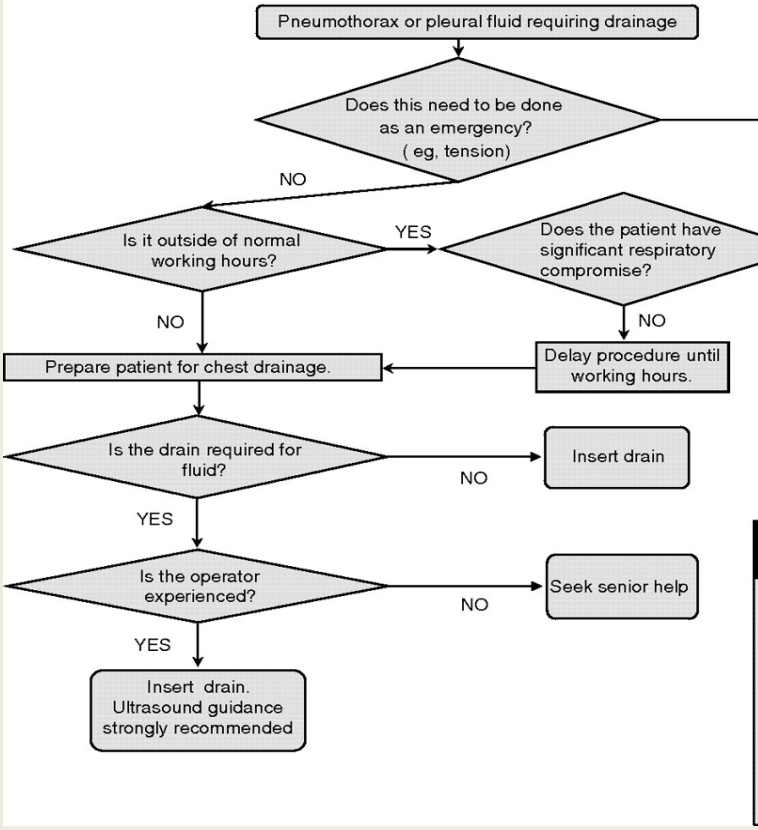
Non-traumatic Pneumothorax

BTS guidelines for the management of spontaneous pneumothorax





Insertion of Chest Drain



Requirements for Insertion of Chest Drain

- Written consent
- Clean area to perform procedure
- Competent operator or supervisor
- Nursing staff familiar with drain management

Equipment Required for chest drain insertion

- 1% lignocaine
- Alcohol based skin cleanser x2 coats
- Sterile drapes, gown, gloves
- Needles, syringes, gauze swabs
- Scalpel, suture (0 or 1-0 silk)
- Chest tube kit
- Closed system drain (including water) and tubing
- Dressing
- Clamp

Pneumothorax

Spontaneous

Primary – no clinical lung disease

- Subpleural bullae
- More common in tall, thin men
- More common in smokers
- Consider chest CT to screen for diffuse cystic lung disease, especially in young, non-smoking women (LAM)
- Lymphangioleiomyomatosis (LAM)
- Birt-Hogg-Dube Syndrome
- Pulmonary Langerhans
- Lymphocytic interstitial pneumonitis (LIP)

Secondary – underlying lung disease

- Airways disease
- COPD
- Cystic fibrosis
- Asthma
- Infection
- ILD
- Sarcoid
- IPF
- Connective tissue disease
- Scleroderma
- Marfan's / Ehlers-Danlos
- Poly / Dermatomyositis
- Malignancy

Traumatic

- Penetrating chest wall injury
- Blunt force trauma +/- rib fracture

Iatrogenic

- Thoracentesis
- Transbronchial biopsy
- CT guided lung biopsy
- Central line placement
- Barotrauma from mechanical ventilation

ED Adult Sedation Protocol

EMERGENCY DEPARTMENT ADULT SEDATION RECORD

Procedural sedation only carried out if two doctors and an ED nurse available

Patient details: Name:_____ Hospital no: _____DOB:_ _/ _ _/ _ _ _ _

Details of procedure & Reason for Sedation: _____

_____

Personnel present *(please print surnames)*:

Sedationist (Substantive ED MG doctor or anaesthetist only):_____

Doctor performing procedure: _____Nurse:_____

Assessment: *ASA status: (check status)*

ASA 1: Normal healthy patient ☐
ASA 2: Mild systemic disease ☐

→ ED procedural sedation can be considered

ASA3: Severe systemic disease ☐
ASA 4: Severe systemic disease- constant threat to life ☐
ASA 5: Moribund patient, not expected to survive without operation ☐

→ ED procedural sedation is **contraindicated**

PMHx:_____

DH: _____

Allergies: _____

Airway assessment (LEMON), see Appendix 2 of procedural sedation guidelines:

Look: _____

Evaluate 3-3-2: _____

Mallampati score: _____

Obstruction: _____

Neck mobility: _____

Other: _____

Fasting status:

Last solids/Juice/Milk (even in tea) _____hrs

Last clear fluids _____hrs

If fasting rules not met, assess the risk of aspiration in relation to proposed procedure based on urgency of procedure (like or limb threaten emergency), proposed depth/ duration of sedation and patient factors.

Proceed only if benefits of sedation outweigh risk of aspiration.

Fasting: *Fasting is not needed for* ***minimal sedation****,* ***sedation with nitrous oxide*** *(in oxygen) alone, or moderate sedation where verbal contact is maintained.*

Intended Depth of sedation (see Appendix 1 of procedural sedation guidelines: _____

Capacity: Does patient have capacity — Yes/ No (delete as appropriate)

Procedure explained: — Yes/ No (delete as appropriate)

Fill standard Trust consent form as appropriate: — Yes/ No (delete as appropriate)

Monitoring: Cardiac monitor ☐ NIBP ☐ SaO_2 ☐ $EtCO_2$ ☐

Observations (including level of sedation) must be recorded (in standard observation chart) every 5 minutes during procedure and every 15 minutes after procedural sedation, till patient is fully awake

Medication: All Drugs must be prescribed in drug chart
The sedation must be recorded in the sedation logbook

Procedural sedation discharge checklist (check box once completed):

- ☐ Return to baseline level of consciousness
- ☐ Vital signs within normal limits for the patient
- ☐ Absence of respiratory compromise
- ☐ Absence of significant pain and discomfort
- ☐ Written advice on discharge for all patients (see appendix 6 of procedural sedation guidelines)
- ☐ A reliable person who can provide support and supervision should be present at the patient's home for at least a few hours.

R Suleman version Oct 16

Hyperkalaemia

Clinical Manifestation of Hyperkalaemia

- Mild (K^+ 5.5-5.9mmol/L): usually asymptomatic and well tolerated
- Moderate (K^+ 6.0-6.4mmol/L): non-specific, generalised lethargy and muscle weakness.
- Severe ($K^+ \geq$ 6.5mmol/L): Ascending muscle weakness or paralysis, cardiac conduction abnormalities and cardiac arrhythmias

Causes

Renal cause	Acute kidney injury or chronic kidney disease Hyperkalaemia renal tubular acidosis (type IV) Mineralocorticoid deficiency (hypoaldosteronism) Drugs that inhibit potassium excretion (e.g. amiloride, eplerenone, spironolactone) Drugs that interfere with the renin-angiotensin system: ACE inhibitors (ACEi), angiotensin II receptor blocker (ARBs), NSAIDs, heparin.
Transcellular shift	Acidosis (e.g. diabetic ketoacidosis) Drugs (e.g. digoxin poisoning, beta-blockers)
Increase circulating potassium	Exogenous (e.g. potassium supplementation) Endogenous (e.g. tumour lysis syndrome, rhabdomyolysis, trauma, burns)
Pseudo-hyperkalaemia	Prolonged tourniquet time Test tube haemolysis Marked leucocytosis and thrombocytosis (measure plasma not serum concentration in these disease states) Sample taken from a limb infused with IV fluids containing potassium

Hyperkalaemia

4. Treatment of hyperkalaemia

The aim of treatment is to prevent or treat life-threatening complications, such as arrhythmias, ascending paralysis, cardiac arrests, etc. The urgency of therapy depends upon the clinical manifestations, severity of hyperkalaemia and the rate of serum potassium rise. It should also be noted that older patients, patients who have ischaemic heart disease and patients with history of arrhythmia and in heart failure; are particularly susceptible to complications and severe clinical manifestations.

Stabilise the myocardium:

- ✓ Give 30 ml of 10% Calcium Gluconate or 10ml of 10% Calcium Chloride IV over 5-10 minutes, if ECG changes are present. If no ECG improvement noted a further 10 ml of 10% Calcium Gluconate *can* be given IV every 10 minutes until the ECG normalises.
- ✓ Note: In patients taking digoxin, Calcium Gluconate should be given slowly over 20 minutes mixed in 100ml of Sodium Chloride 0.9%; as rapid calcium administration may precipitate myocardial digoxin toxicity

Shift Potassium from the extracellular into intracellular compartment

a. Shift potassium into cells (use of insulin and glucose)

- ✓ 10 units of Actrapid insulin in 50 ml of 50% Dextrose administered by slow IV injection over 15 minutes.
- ✓ If the serum glucose is ≥15 mmol/L then administration of additional glucose with insulin is not required. Give Actrapid in Sodium chloride 0.9% 50mL
- ✓ Check U&Es in 30 minutes, 1, 2, 3 and 6 hours after each administration of insulin/glucose.
- ✓ Check blood glucose 15 and 30 minutes after starting the infusion and then hourly up to 6 hours after completion of the infusion, as delayed hypoglycaemia is common.
- ✓ In circulatory shock, diabetic ketoacidosis capillary glucose testing may not provide an accurate or reliable measure of blood glucose. Thus a venous blood sample should be sent to the laboratory for analysis.

Hyperkalaemia

Shift the potassium from the blood into the cell (use of salbutamol)

- ✓ This will lower the potassium by 0.5 to 1.0 mmol/L in 15-30 minutes with the effect lasting at least 2 hours
- ✓ Nebulised salbutamol 5mg (back to back dose, maximum daily dose of 20 mg) can be used as adjuvant therapy for moderate hyperkalaemia and/or in severe hyperkalaemia (K+≥6.5mmol/L). Normally, salbutamol

Remove potassium from the body

- ✓ Calcium Resonium: 15gs QDS oral or 30g BD rectal *may* be considered as an adjunct in mild hyperkalaemia (K^+ 5.5-5.9mmol/L). Its aim is to remove 4-6 mmol K^+ per day. It should not play a routine part in the treatment of severe hyperkalaemia where more rapid measures are required. There is a risk of constipation and reports of bowel obstruction and perforation with it use, thus *caution* is advised.
- ✓ Diuretics: In volume overload and hyperkalaemic patients loop diuretics are useful in aiding K^+ loss but may contribute to overall metabolic derangement. *Avoid* if patient is volume depleted.
- ✓ Haemodialysis: If non-invasive treatments measures fail and K^+ remains ≥ 6.5 mmol/L and/or pathological ECG changes/symptoms persist, contact renal team and discuss if urgent dialysis is appropriate. Haemodialysis is the most effective and definitive method in treating hyperkalaemia. It is important to liaise with renal team at an early stage.
- ✓ Bicarbonate 1.26%: Only to be considered in severe acidosis. Consult senior medical/renal team prior to prescribing.

Hyperkalaemia	Treatment	Monitoring
Mild K^+ 5.5 - 5.9 mmol/L	• Review drug charts for potential causes and discontinue contributing drugs as appropriate • Consider low salt diet + dietician review • Consider treatment if symptomatic and/or ECG changes • Treat if renal impairment present. • Consider Calcium Resonium 15g PO QDS or 30g BD PR	• ECG • Repeat U&E in 12-24 hours or sooner if symptomatic • Caution: Calcium Resonium may cause constipation and/or bowel perforation, thus close monitoring required.
Moderate K^+ 6.0 – 6.4 mmol/L	• If symptomatic, ECG changes present and/or rapid rate of potassium rise, treat as severe hyperkalaemia • If no symptoms or no ECG changes and slow rise K^+, then manage as mild hypokalaemia. • Review drugs and diet.	• ECG • U&E within 4-6 hours or sooner if treated as severe • BM monitoring if treated with Insulin/ dextrose
Severe K^+ ≥ 6.5 mmol/L	• Stabilise the myocardium using calcium gluconate or calcium chloride • Shift potassium into cells (use of insulin and glucose) • Shift the potassium from the blood into the cell (use of salbutamol). • Stop contributing drugs (e.g. ACEI) as appropriate. ❖ *Follow the "Acute hyperkalaemia management algorithm"*	• ECG immediately as well as after initiating treatment • Monitor BM at 15, 30, 60, 90 and 120 minutes and consider further monitoring thereafter • Monitor urine output closely • Escalate early. Patients with resistant and/or severe hyperkalaemia may need dialysis.

Hypokalaemia

Clinical Manifestation of Hypokalaemia[1]

- Mild to moderate hypokalaemia may be asymptomatic
- Anorexia, nausea, and vomiting
- Progressive muscle weakness, cramps, reduced tendon reflexes
- Hypoventilation, respiratory distress and respiratory failure
- Premature atrial and ventricular beats, bradycardia, paroxysmal atrial or junctional tachycardia, atrioventricular block, ventricular tachycardia and cardiac arrest.
- ECG changes (U waves, T wave flattening, ST segment changes) may be noted.
- In severe hypokalaemia, Rhabdomyolysis and Ascending Paralysis can occur

Increased Potassium Loss in urine, GI tract or sweat	Drugs: Diuretics (thiazides, loop diuretics), Laxatives, glucocorticoids, fludrocortisone, Carbonic anhydrase inhibitor Renal Tubular Acidosis (type 1 and 2) GI losses: Diarrhoea, vomiting, ileostomy, intestinal fistula Renal dialysis Endocrine disorders: Hyperaldosteronism (Conn's syndrome), Cushing's syndrome, Uncontrolled Diabetes Rare genetic causes: Bartter's or Gitlemann's Syndrome
Transcellular shift	Drugs: Salbutamol and other beta-agonists, Theophylline, Insulin/glucose therapy Metabolic alkalosis Increased blood cell production • B12, Folate, or G-CSF therapy Hypokalaemic periodic paralysis • Rare neuromuscular disorder • Fatal episodes of muscle weakness (incl. Respiratory muscles) • Precipitated by rest after exercise, stress or heavy carbohydrate meal
Reduced Dietary Intake	Anorexia, malnutrition, bulimia High dietary sodium intake
Magnesium	Hypomagnesaemia

Hypokalaemia

Hypokalaemia	Treatment	Monitoring
Mild K^+: 3.0-3.4mmol/L	Oral replacement – Sando-K (12mmol/tablet), 2 Effervescent Tablets TDS If not tolerated: Kay-Cee-L (5mmol of K+ / 5mL syrup) 25ml TDS Slow K: Discuss with ward pharmacist for availability and guidance before prescribing. Consider IV route if patient cannot tolerate oral or NBM Contraindications: Severe renal impairment, inadequately treated Addison's disease, crush injuries and acute dehydration.	Daily U&E until potassium is corrected Close monitoring if taking ACE-inhibitors, potassium sparing diuretics and potassium-containing fluids (e.g. plasmalyte, TPN) DO NOT prescribe for more than three days without reviewing. Adverse effects of Sando-K: Abdominal discomfort, diarrhoea, nausea, vomiting and gastric irritancy. Adverse effects of Kay-Cee-L: Rarely, GI upset. Oesophageal or small bowel obstruction/ulceration; discontinue if occurs.
Moderate K^+: 2.5-2.9mmol/L	Oral replacement – Sando-K (12mmol/tablet), 2 Effervescent Tablets QDS If not tolerated: Kay-Cee-L (5mmol of K+ / 5mL syrup) 25ml QDS	Daily U&Es until potassium is corrected Close monitoring if taking ACE-inhibitors, potassium sparing diuretics and potassium-containing fluids (e.g. plasmalyte, TPN) DO NOT prescribe for more than three days without reviewing. Monitor for ECG changes.
	Consider IV route in symptomatic patients and/or if K^+ <2.5mmol/L.	Monitor for adverse effects and contraindications as above.
Severe K^+: 2.4mmol/L or less and/or symptomatic	Intravenous replacement Give ready to use 40mmol potassium chloride (KCl) in 1L saline intravenous infusion bags and repeat as required. Standard infusion rate 10mmol/hr; DO NOT exceed maximum infusion rate 20mmol/hr. Recommended not to exceed 2-3 mmol of potassium per kg body weight in 24 hours. Higher concentration of potassium (e.g. 40mmol KCl in 500ml) can be used in fluid overloaded, severe heart failure. Caution: in fluid overloaded/heart failure patients Discuss with ITU team early in severe symptomatic cases.	Note: Severe hypokalaemia and/or symptomatic cases require ECG. Monitor Potassium level after every 40mmol – 80mmol or at least daily. Daily U&Es including magnesium until potassium is corrected A ready-made bag of 40mmol per litre can be given via a peripheral venous catheter. Concentrations greater than 40mmol per litre must always be given via a central venous access device, using a suitable infusion pump.

Hypomagnesemia

Dartford and Gravesham NHS Trust

Magnesium replacement in hypomagnesaemia

0.4-0.69 mmol/L and symptomatic	Mild-Moderate	**Oral replacement** preferred. Give IV replacement if any of the following apply: • Symptomatic • Unable to take oral medications • Insufficient response after 5 days of oral replacement
<0.4 mmol/L	Severe	Escalation to seniors/ITU and **IV replacement** required.

Caution

Seek specialist advice if treating patients with:

- **Severe renal impairment** → magnesium is renally excreted so may accumulate
- **Hepatic impairment** → increased risk of renal failure
- **Heart Block**

Oral replacement

Magnaspartate® 243mg Sachet *(1 sachet = 10mmol Mg^{2+})*

Dose – 1-2 sachets (10 – 20mmols) daily for 3 days and then review

Monitoring – daily magnesium, electrolytes/creatinine, bone profile

Adverse effects – diarrhoea, GI upset; usually dose-related (may be reduced by dividing doses), fatigue, dental carries (long-term use)

Magnaspartate can be dissolved in 50-200mL water, tea or orange juice. If necessary, Magnaspartate in 200ml water can be administered via a gastric, duodenal, and nasal feeding tube. This should be administered immediately after preparation.

Intravenous magnesium replacement

Magnesium Sulfate 50% injection

Dose

- 8-20mmol (2g-5g) of magnesium sulphate in 100-250mls of 0.9% sodium chloride or glucose 5% infused over 1-3 hours. Rate can be increased to 4-8mmol/hr if required.
- Longer infusion periods may be more suitable for non-emergency situations.
- Acceptable repletion may require prolonged treatment (up to 160mmol over 5 days may be needed).

Monitoring – BP, respiratory rate, urinary output, daily bloods, ECG (at higher doses)

Caution – heart block, impaired renal function, hepatic coma (see full guideline)

Adverse effects – usually hypermagnesaemia-related; hypotension, arrhythmias, drowsiness, respiratory depression, coma, confusion, loss of tendon reflexes, nausea

Remember to treat underlying cause!

See full guideline for more information and references.

July 2016

Hypocalcaemia

Dartford and Gravesham NHS Trust

Calcium replacement in hypocalcaemia

2.00-2.19 mmol/L	Mild	Ca^{2+} replacement not immediately indicated. Investigate cause of deficiency
1.80-2.00mmol/L	Moderate	**Oral replacement** preferred
<1.80mmol/L	Severe	**IV replacement** required/ Escalate to seniors

Hazards of IV calcium administration

Uncommon but include:

- Local thrombophlebitis
- Cardiotoxicity
- Hypotension
- Nausea and vomiting

Patients with cardiac arrhythmias or on digoxin therapy need continuous cardiac monitoring during IV calcium replacement.

Oral replacement

Calcichew 500 mg (Ca^{2+} : 12.5 mmol) 2-6 tablets daily or

Sandocal® 1000 (Ca^{2+}: 25mmol) 1000mg -2000mg daily

Monitoring – calcium, magnesium, daily electrolytes

Intravenous calcium replacement

Slow Intravenous injection: Calcium gluconate 10% (Ca^{2+} 2.25mmol in 10mls) 10-20 mls & slow IV injection over at least 10 minutes. Start oral Sandocal 1000 Two tablets TDS afterwards.

Continuous intravenous infusion: If further IV correction is required, start a continuous infusion- Dilute 100ml (10x10ml ampoules) of calcium gluconate in 1L sodium chloride 0.9% and give at an initial rate of 50ml/hour (1.1mmol/hr).

Caution: Cardiac failure, impaired renal function, hyper/hypocalcaemia (see full guidelines).

Adverse effects: Electrolyte derangements, acute renal failure, local reaction at infusion site.

Monitoring: Check calcium, magnesium, U&Es daily. ECG monitoring throughout the intravenous administration and afterwards.

Remember to treat underlying cause!

See full guideline for more information and references

July 2016

DKA

1

Dartford and Gravesham NHS Trust

Diabetic Ketoacidosis Pathway

Use Patient Sticker or complete details Name Pas **Dob** NHS number			
Allergies:			
DKA Pathway	**When to use this pathway**	**Yes:** Patients with DKA	
		No: Patients with HHS (use HHS pathway)	
Important DKA Pathway Start time:		**Date:**	**Weight:**

Take arterial Blood gas 1st then VBG for subsequent samples	
Diagnosis	**Result**
Blood ketones > 3.0mmol/L	
Blood Glucose > 11mmo/L	
Bicarb < 15mmol/L	
ph < 7.3	

If one or more consider discussion with or ITU	**Checklist**
pH < 7.1	
HCO3 < 5 mmol/L	
Blood Ketones >6.0mmol/L	
GCS < 12 or abnormal AVPU	
18-25 year old	
Pregnant	
Heart Failure	
Kidney Failure	
Other serious co-morbidity	
O2 sats <92% on air if previously normal	
SYSTOLIC BLOOD PRESSURE <90 mmol/Hg, HR > 100 or <60	
Anion Gap >16	
0-60 minutes	
Insert large bore cannula	
Take bloods for FBC, Clotting screening , U & E's, Creatinine, CRP, Amylase, Glucose	
Prescribe fluids (on page 4&5)	
Give 500 mls normal saline over 10-15 mins	
Weigh Patient or estimate weight if unable	
Prescribe and commence fixed rate insulin based on weight (on page 2)	
Commence Pump Check chart	
Check capillary blood glucose and ketones **hourly** and record in usual monitoring chart	
Consider catheter and commence strict fluid balance chart	

DKA

Circle Weight In Kilograms	1st scale Insulin Dose per hour FIXED RATE Recommended
50-59	5
60-69	6
70-79	7
80-89	8
90-99	9
100-109	10
110-119	11
120-130	12
130-139	13
140-149	14
>150	15 Any dose higher than 15 should be with discussion of the Diabetes Team

Pre-filled Use syringe of 50 Units Actrapid in 49.5mls Normal Saline 0.9%(Available From Pharmacy)

	Dr Signature	1st Nurse signature	2nd nurse check	Date	Start Time	Stop Time
Start Scale 1 rate of …… mls per hour	 Bleep Time					
Start Scale 2 Fixed rate of …… …. mls per hour	 Bleep Time					
Start scale 3 Fixed rate of …… …… mls per hour	 Bleep Time					

Metabolic treatment targets

The recommended targets are

- Reduction of the blood ketone concentration by 0.5mmol/L/hour
- Reduce capillary blood glucose by 3.0mmol/L/hour
- Maintain potassium between 4.0 and 5.5mmol/L

Sodium Chloride 0.9% is based on guidelines, patient may need faster/slower / different regime depending on senior assessment)										
Date	Route	Infusion Fluid	Volume (mls)	Potassium Content	Infusion rate/ duration	Signature / Bleep	Set up by	Checked by	Date/time started	Date/Time Stopped
	IV	Sodium Chloride 0.9%	1000mls		1000mls/ hr (over 1 hour)					
	IV	Sodium Chloride 0.9%	1000mls		500mls/hr (2 hours)					
	IV	Sodium Chloride 0.9%	1000mls		500mls/hr (2 hours)					
	IV	Sodium Chloride 0.9%	1000mls		250mls/hr (4 hours)					
	IV	Sodium Chloride 0.9%	1000mls		250mls/hr (4 hours)					
	IV	Sodium Chloride 0.9%	1000mls		166mls/hr (over 6 hours)					

DKA

Potassium Replacement	
Potassium Level in first 24 hours	Potassium replacement in mmol/L of infusion solution
Over 5.5	nil
3.5-5.5	40
Below 3.5	**Urgent SENIOR review as additional potassium needs to be given**

Hypokalaemia and hyperkalaemia are potentially life-threatening conditions during the management of DKA. There is a risk of acute pre-renal failure associated with severe dehydration and it is therefore recommended that no potassium be prescribed with the initial fluid resuscitation or if the serum potassium level remains above 5.5 mmol/L. However, potassium will almost always fall as the DKA is treated with insulin.

In most cases Bicarbonate is **NOT** helpful and is potentially dangerous
If bicarbonate is being considered, the patient should be in HDU/ITU environment
Only Consider after discussion with Consultant in charge of the patient's care.

Hyperosmolar Hyperglycaemic State

4. Definition of HHS

Hyperosmolar hyperglycaemic state (formerly known as HONK) is characterised by:

1. Hyperglycaemia (laboratory blood glucose ≥ 30 mmol/L)
2. High plasma osmolality (≥ 320 mosmol/kg)
3. Absence of evidence of significant ketosis (pH >7.3, bicarbonate >15 mmol/L, blood ketones <3 mmol/L)
4. Severe dehydration

7. Complications of HHS

- Rhabdomyolysis
- Venous thromboembolism
- ARDS
- DIC and multi-organ failure
- Lactic acidosis
- Renal failure
- Stroke
- Cerebral oedema
- MI

Treatment goals

The goals of treatment are to treat the underlying precipitating factor and to gradually and safely:

1. Normalise serum osmolality
2. Replace fluid and electrolytes
3. Normalise blood glucose
4. Prevention and treatment of HHS complications

Initial investigations

- Plasma glucose
- Serum osmolality
- Blood ketones
- Urea and electrolytes, FBC & LFTs
- Venous blood gases
- Serum amylase, CK & CRP
- CXR and ECG

Hyperosmolar Hyperglycaemic State

Indications for high dependency/ level 2 care

Patients with HHS often have multiple co-morbidities and require intensive monitoring. The presence of one or more of the following criteria may indicate the need for admission to HDU/ level 2 care:

1. Serum osmolality > 350 mosmol/kg
2. Glasgow coma scale score < 12
3. Oxygen saturation < 92% on air (assuming normal baseline respiratory function)
4. Systolic BP < 90 mmHg
5. Pulse rate > 100 bpm
6. Urine flow < 0.5 ml/kg/hr
7. Hypothermia
8. Serum sodium > 160 mmol/L
9. Venous pH < 7.1
10. Serum creatinine > 200 µmol/L
11. Hypokalaemia <3.5 mmol/L or hyperkalaemia >6 mmol/L

Fluid replacement

In HHS severe hyperglycaemia results in an osmotic diuresis and renal loss of water in excess of sodium and potassium. The first step in the management of HHS should be to correct volume depletion. A typical fluid loss in HHS is estimated to be between 100-220 ml/kg. The following table describes typical fluid and electrolytes losses in HHS.

	Estimated loss /kg
Water	100-220 ml/kg
Sodium	5-13 mmol/kg
Chloride	5-15 mmol/kg
Potassium	4-6 mmol/kg

Hyperosmolar Hyperglycaemic State

- Use intravenous 0.9% sodium chloride as the principle fluid to restore circulating volume
- Aim to replace 50% of the estimated fluid deficit in the first 12 hours of treatment
- Reduce the fluid rate in the elderly, people with heart failure, people with renal disease and in patients with severe HHS
- Measure osmolality or calculate osmolarity hourly and adjust the rate of fluid replacement to achieve steady slow drop (2-5 mosmol/kg/ hour) until serum osmolality/ osmolarity <300 mosmol/kg
  - Avoid rapid changes in osmolality / osmolarity which may be harmful
- Fluid replacement alone (without insulin) will lower serum glucose which will reduce osmolality. This inevitably results in an increase in serum sodium (sodium rises by 2.4 mmol/L for each 5.5 mmol/L fall in glucose)

- Change the type of fluid to 0.45% sodium chloride if:
  - osmolality/ osmolarity is no longer declining despite adequate fluid replacement with 0.9% sodium chloride
  - Failure to achieve an adequate rate of fall in plasma glucose (4-6 mmol/L/hour)
  - Rising serum sodium without decline in osmolality and glucose provided adequate fluid balance

- If blood glucose falls below 14 mmol/L commence 5% or 10% glucose at 125 ml/hr AND CONTINUE 0.9% (or 0.45%) sodium chloride solution
  - Aim to keep blood glucose 10-15 mmol/L in the first 24 hours and avoid hypoglycaemia

Insulin therapy

- Insulin therapy prior to adequate fluid replacement may result in cardiovascular collapse because of the water shift to the extracellular space
- Aim to keep blood glucose between 10 and 15 mmol/L in the first 24 hours and avoid hypoglycaemia
- Timing to start the insulin infusion:
  - Start insulin at zero time if blood ketones > 1 mmol/L
  - Start insulin only once serum glucose ceases to drop by < 4 mmol/L per hour despite adequate fluid replacement if blood ketones < 1mmol/L
- If the patient normally uses insulin Lantus® or Levemir® continue this at the usual dose & usual time subcutaneously

- Intravenous insulin dose:
  - Use fixed dose of 0.05 units/kg/hour (for example in an 80 kg man 4 units/hour)
  - If the blood glucose is falling by less than 4 mmol/L per hour, increase the rate to 0.1 units/kg/hour
  - Adjust the insulin infusion rate hourly by 1 unit/hour increments or decrements to maintain blood glucose between 10 and 15 mmol/L
  - 50 units Actrapid® (measured using an insulin syringe) made up to 50 ml with 0.9% NaCl solution should be used to make up the IV insulin infusion and should be given via an infusion pump.
    - After mixing, the IV line must be primed by flushing with 5 mL of the insulin solution prior to attachment to the patient (as the plastic tubing adsorbs insulin). Therefore the final volume will be 45 mL.
  - Aim to drop serum glucose by 4-6 mmol/L per hour
  - The patient will need to be transferred to subcutaneous insulin once the patient is eating and drinking (with a 30 minute crossover before the intravenous insulin is stopped)

Hyperosmolar Hyperglycaemic State

Potassium replacement in HHS

- Potassium shift is less pronounced than in DKA
- Profound hypokalemia can be present in patients previously taking diuretics
- Hyperkalemia can be present in patients with acute kidney injury
- Serum potassium must be checked hourly for the first 6 hours and then 2 hourly thereafter until the patient is stable

The following table gives guidance on potassium replacement in patients with HHS.

Serum Potassium (mmol/L)	Potassium chloride to be added to infusion fluid
>5.5	Nil
3.5-5.5	40 mmol per litre
<3.5	Senior review as additional potassium needs to be given

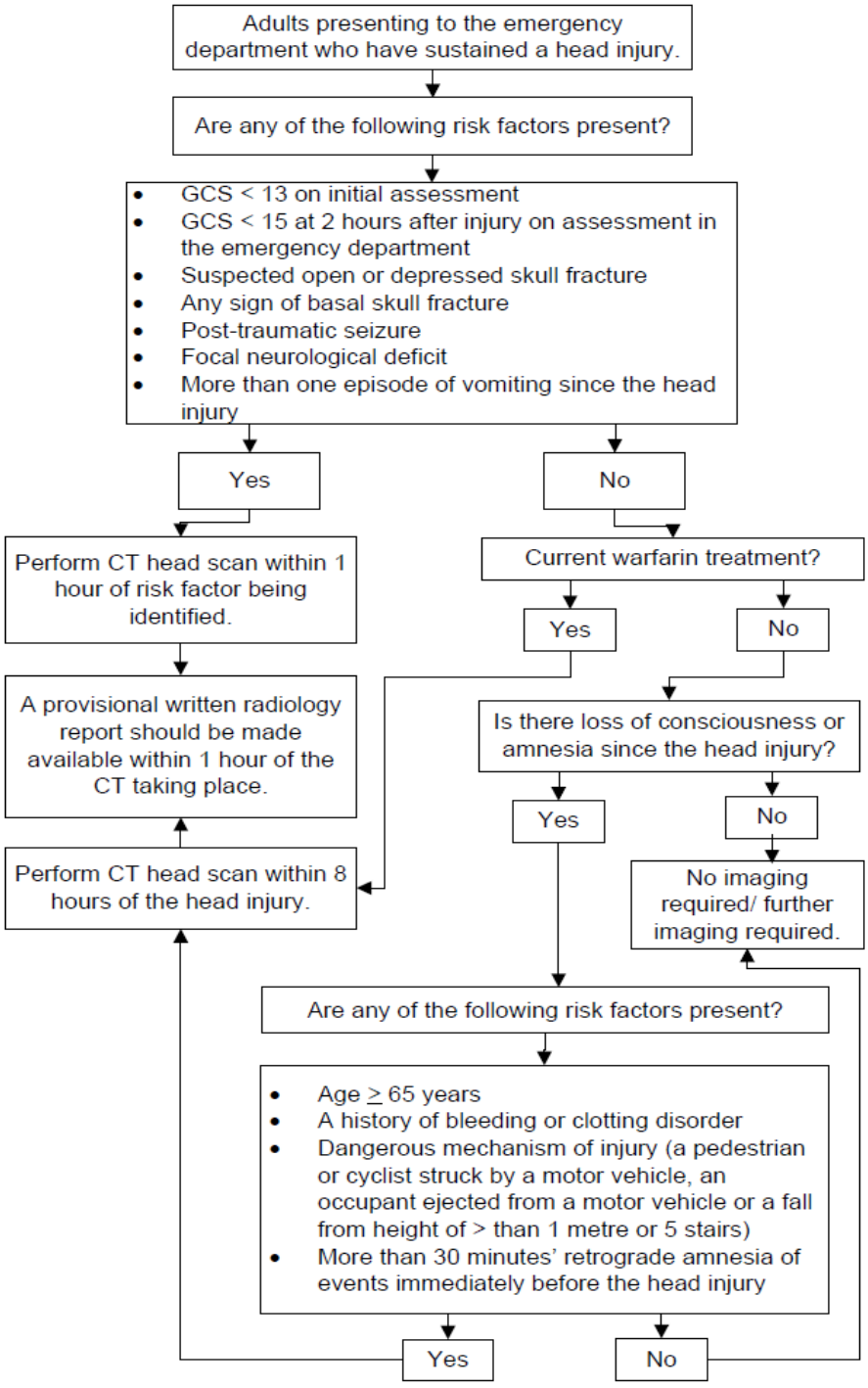
VTE prophylaxis

- Patients with HHS has increased risk of arterial and venous thromboembolism
- All patient should receive VTE prophylaxis unless contra-indicated
- Consideration should be given to extending prophylaxis beyond the duration of admission in patients deemed to be at high risk
-

CT Head (Adults)

NICE National Institute for Health and Care Excellence

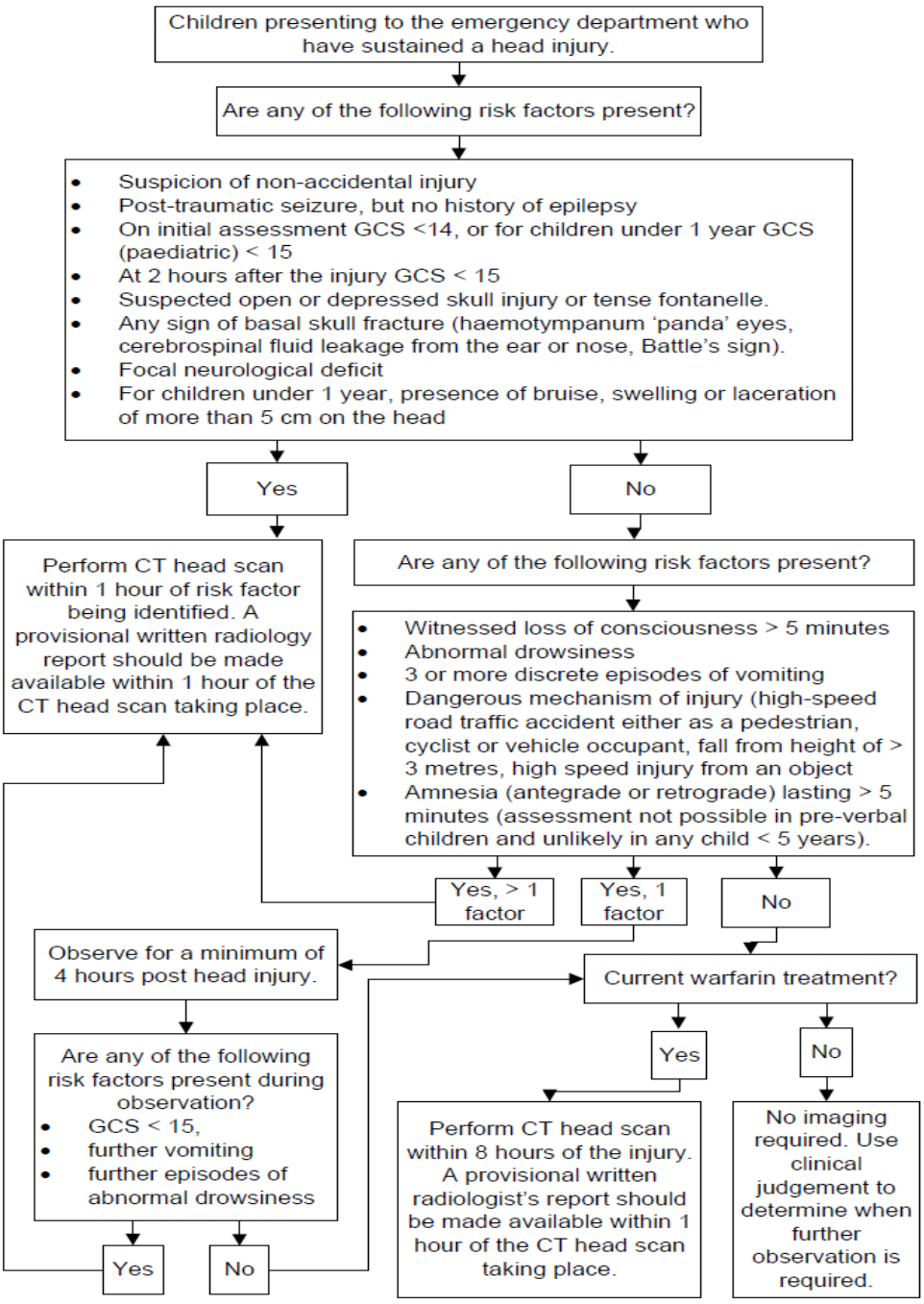
Algorithm 1: Selection of adults for CT head scan



CT Head (Paediatrics)

NICE National Institute for Health and Care Excellence

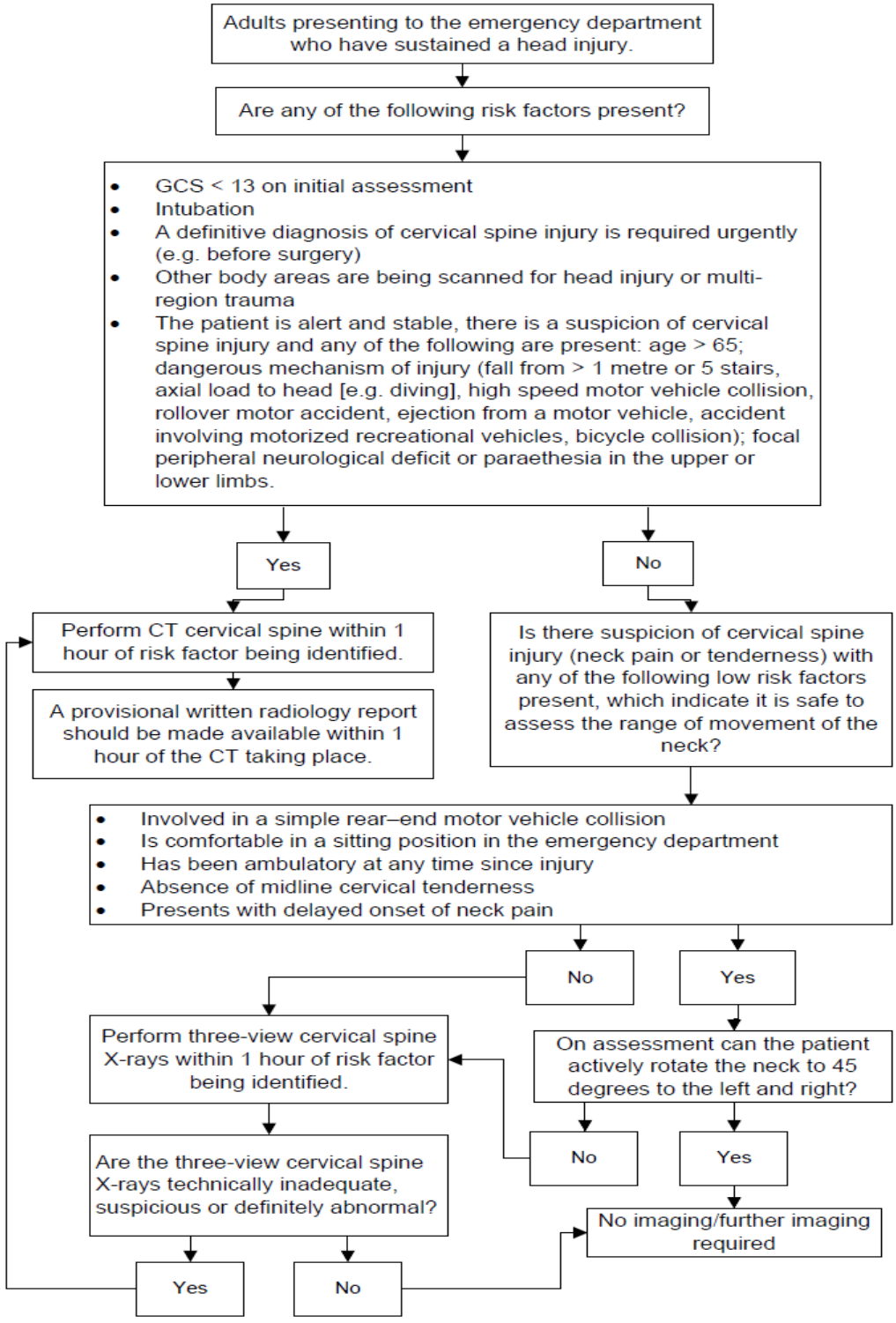
Algorithm 2: Selection of children for CT head scan



CT C-Spine (Adults)

NICE National Institute for Health and Care Excellence

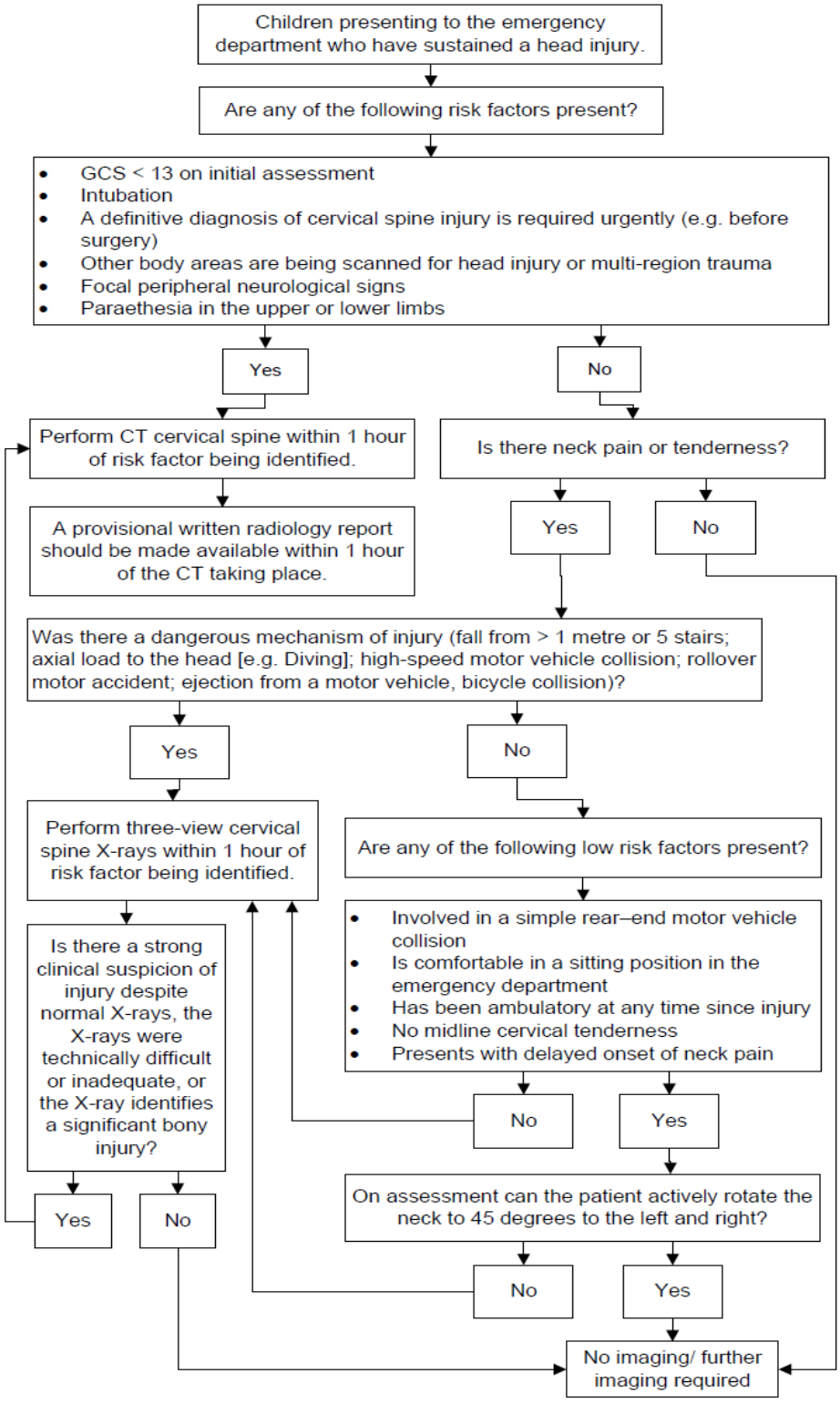
Algorithm 3: Selection of adults for imaging of the cervical spine



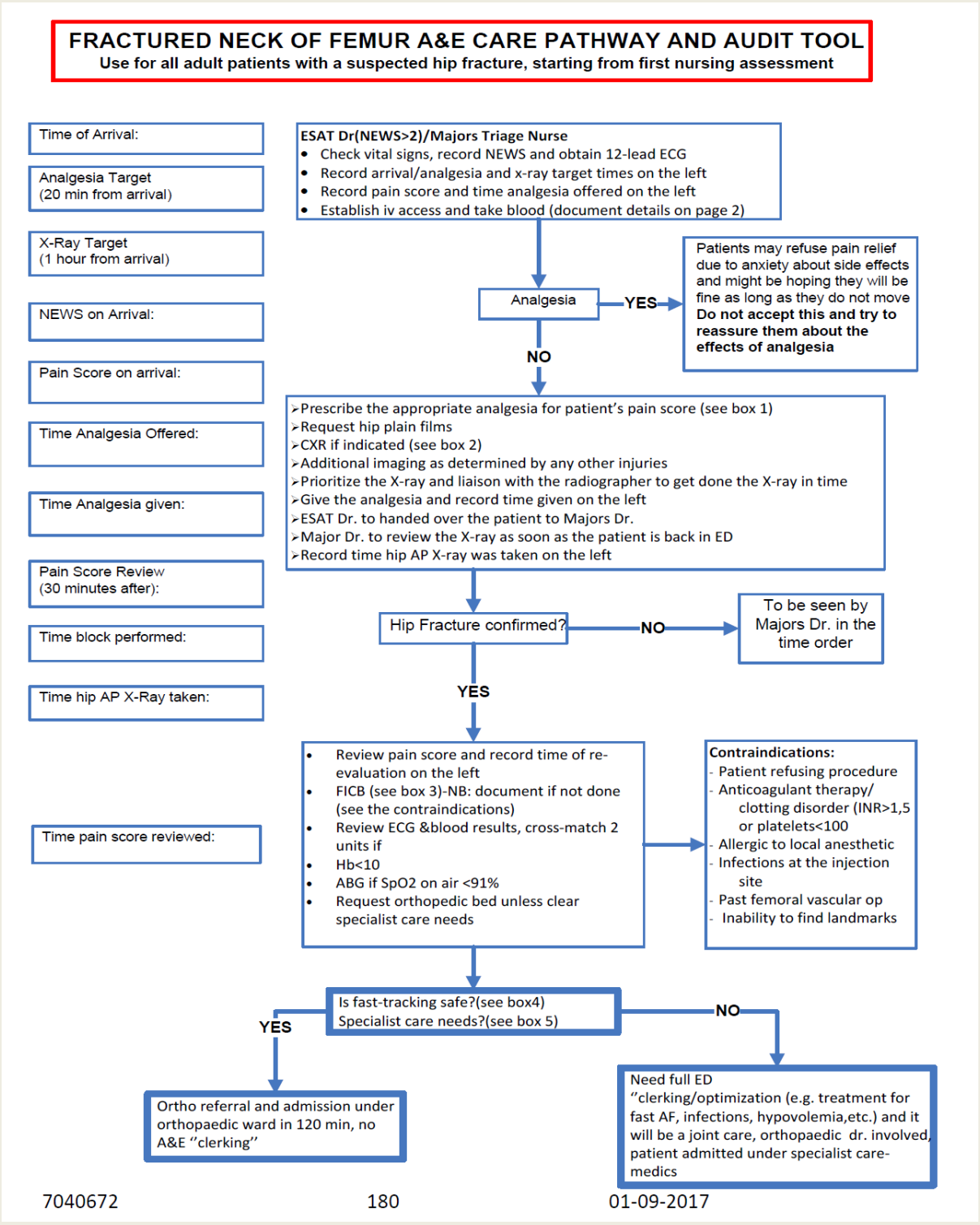
CT C-Spine (Paediatrics)

NICE National Institute for Health and Care Excellence

Algorithm 4: Selection of children for imaging of the cervical spine



Fracture Neck of Femur (NOF)



Documentation for Fascia Illiaca Compartment Block for confirmed #NoF

STOP before you block

Caution for clinicians:

A STOP moment must take place immediately before inserting the block needle

Clinician and the assistant must double-check the: Fracture side, marking Site and side of the block

---

Side: Left Right Site Marked

Indication: Fracture Neck of femur other……

Approach: Two POP/Blind USG guided FICB USG guided Femoral Nerve Block

Pain score: Prior to procedure ……/10

Date: ……/……./…… Time: ..... No. of attempts:……

Patient condition: HR…… BP……../……. RR…… O2 sats……% RA/…… l/min O2

Preparation: Chloraprep Povidone Iodine Chlorhexidine

Needle: Blunt 18G Sonoplex/Tuohy

The drug used: Lignocaine 1% for superficial infiltration ……..…mls

Levobupivacaine 2.5mg/ml : 30 mls/75 mgs for weight < 60 kgs 40 mls/100 mgs for weight > 60 kgs

Narrative: Injection was made incrementally with constant monitoring and aspiration every…….mls

Blood Aspirated: No Yes Action taken……

Pain/paraesthesia on injection noted: No Yes Action taken……..

Resistance on injection: Normal High Action taken……..

Events: None, easy and well-tolerated difficult

Success: Complete Partial Failed Aborted

Patient condition: HR…….. BP…../…… RR…… O2 sats…..% RA/…… l/min O2 Pain score: ……/10

Procedure performed by: …… Supervised by: ……

Patient with Back Pain in ED

A&E Back Pain Pathway

A discussion took place between Mr Asghar Ali Wain and Mr Farid Moftah on Wednesday 25.01.2017 due to ongoing issues related to management of back pain patients.

The following was agreed:

1. Patient presenting with Red Flags such as Saddle anaesthesia, urinary retention, reduced anal tone and Bilateral lower leg weakness should undergo urgent MRI/referred online to Kings and admitted under Orthopaedics.

2. Patient presenting with Radicular Pain with positive neurology muscle weakness involvement of Reflexes, PSLR to be treated with pain control, MRI requested and referred to fracture clinic for further follow up.

3. No neurological deficit pain control back to GP.

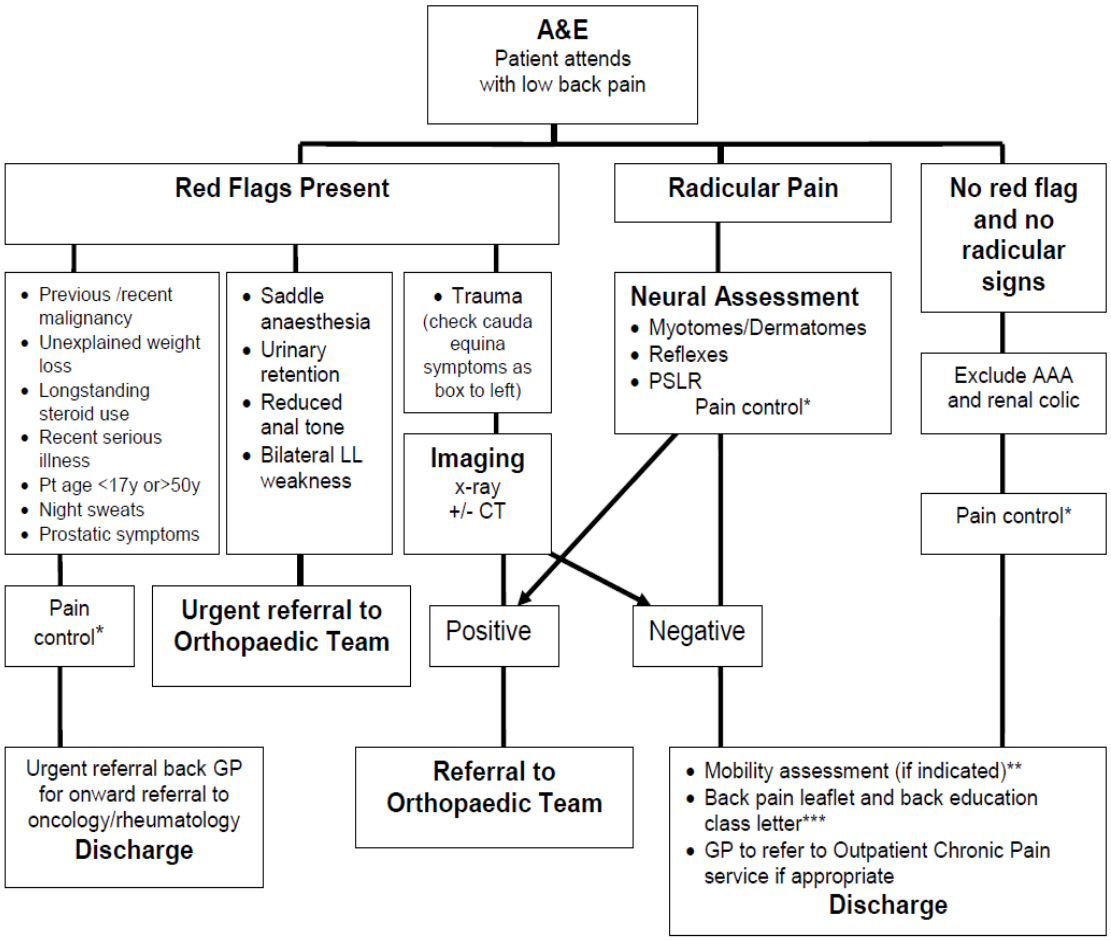
This document should be read in conjunction with Back Pain pathway.

Mr A A Wain, FCEM, FRCS, MFSEM
Clinical Director for Emergency Department
Consultant Emergency Department

Mr F Moftah
Clinical Director for Orthopaedic Department

Patient with Back Pain in ED

A&E Back Pain Pathway



Pain Control Suggestion*

Oral analgesics at regular intervals, following WHO pain ladder

Step 1
- Paracetamol 1G QDS
- +/- NSAID +/- GI protector/PPI

Step 2
- Codeine 30 - 60mgs qds prn & Paracetamol
- +/- NSAID +/- GI protector/ PPI

Step 3
- Tramadol 50-100mg qds prn (caution in elderly & epileptic patients) +/- Paracetamol
  - Consider stronger opioids eg. morphine if tramadol ineffective
- +/- NSAID +/- GI protector/PPI

Consider commencing adjuvant analgesia if neuropathic/nerve root symptoms

1st line
- Amitriptylline 10-20mg nocte (for non -specific LBP as well) Nortriptyline 10 mg nocte

2nd line
- Gabapentin ref to BNF for dosage

3rd line
- Pregabalin ref to BNF for dosage

Consider a short course of muscle relaxant – Diazepam

To see GP for further titration of analgesia asap

Mobility Assessment**

To be carried out if the patient…

- Is unsafe/unable to mobilise independently or with nursing staff

or

- Is admitted following a fall

and

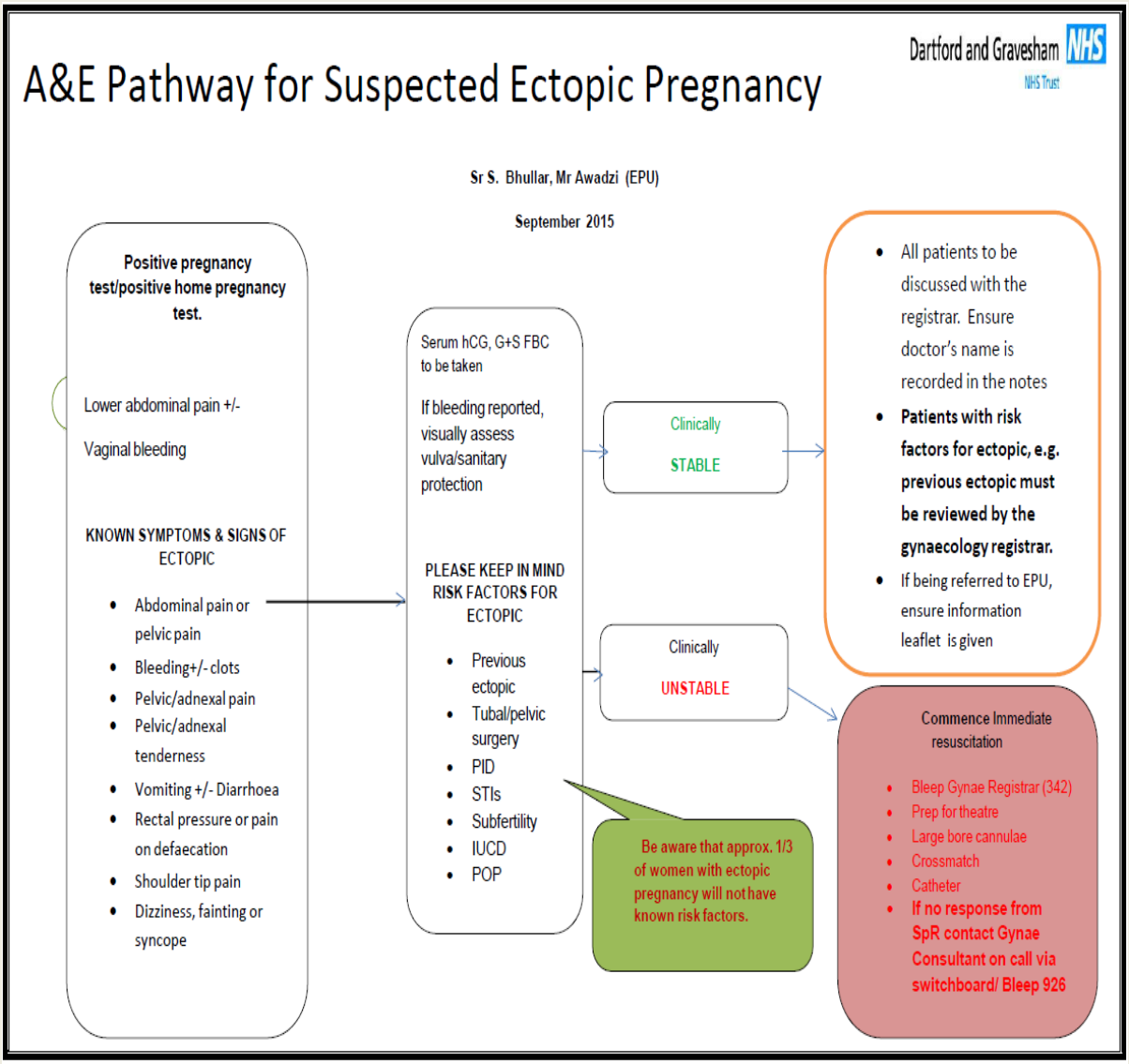
- Is otherwise ready for discharge

Back Pain Leaflet***

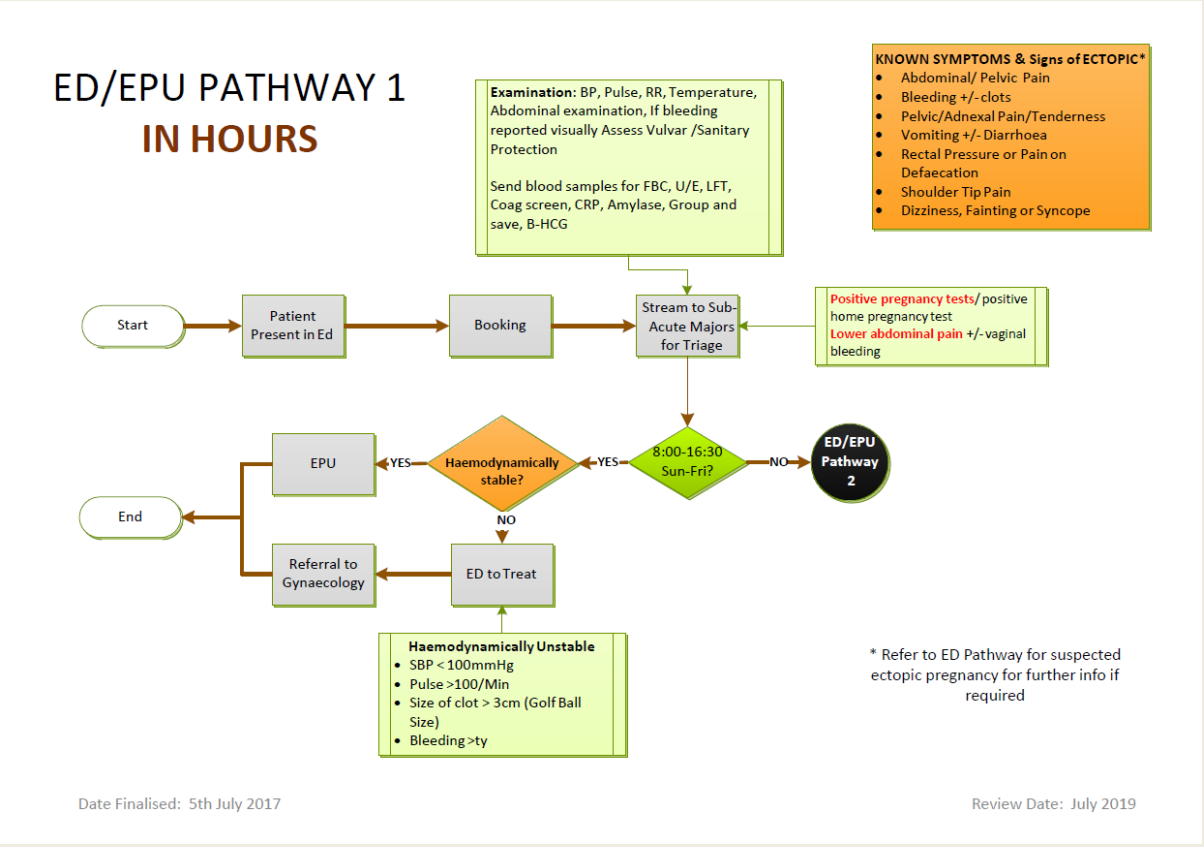
Back pain leaflet and education letter can be found on A&E PC in "back pain" folder.

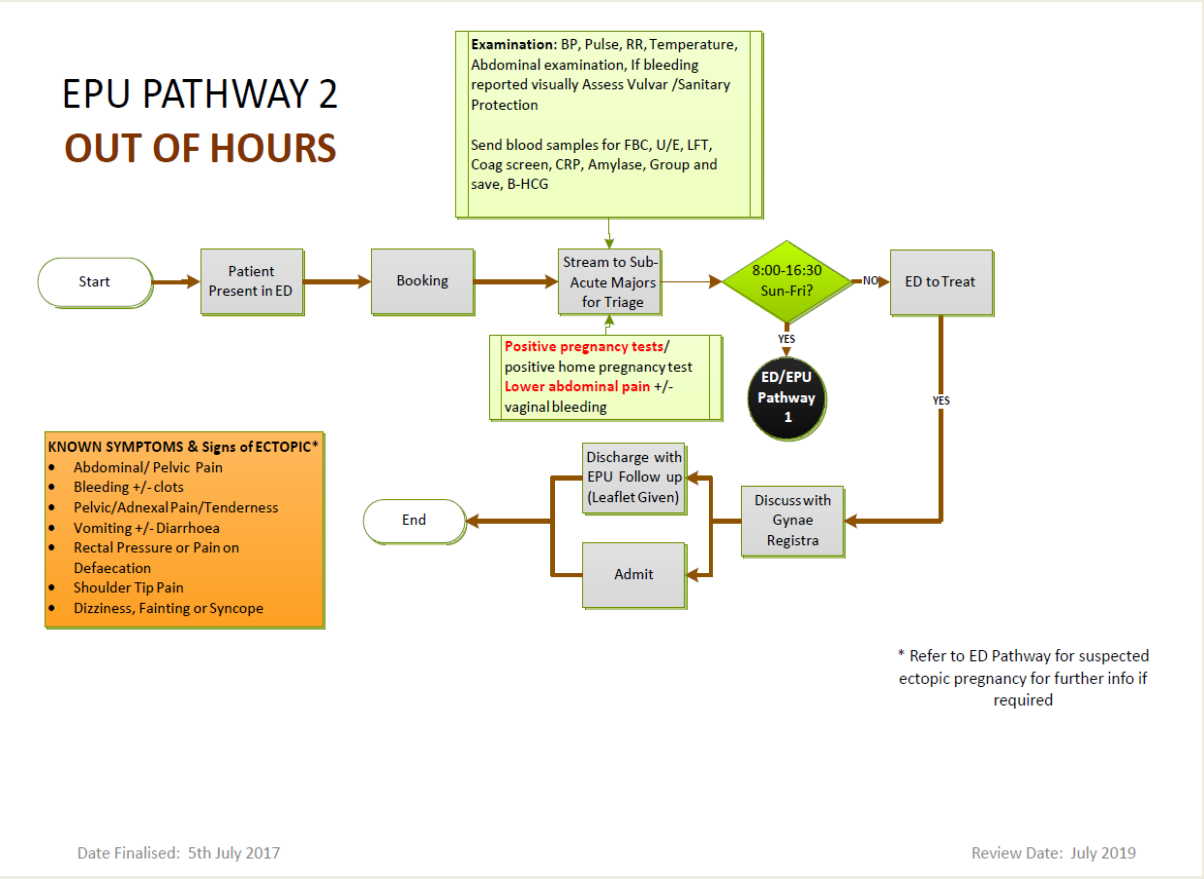
It is an optional but strongly recommended education session held once a month.

Ectopic Pregnancy

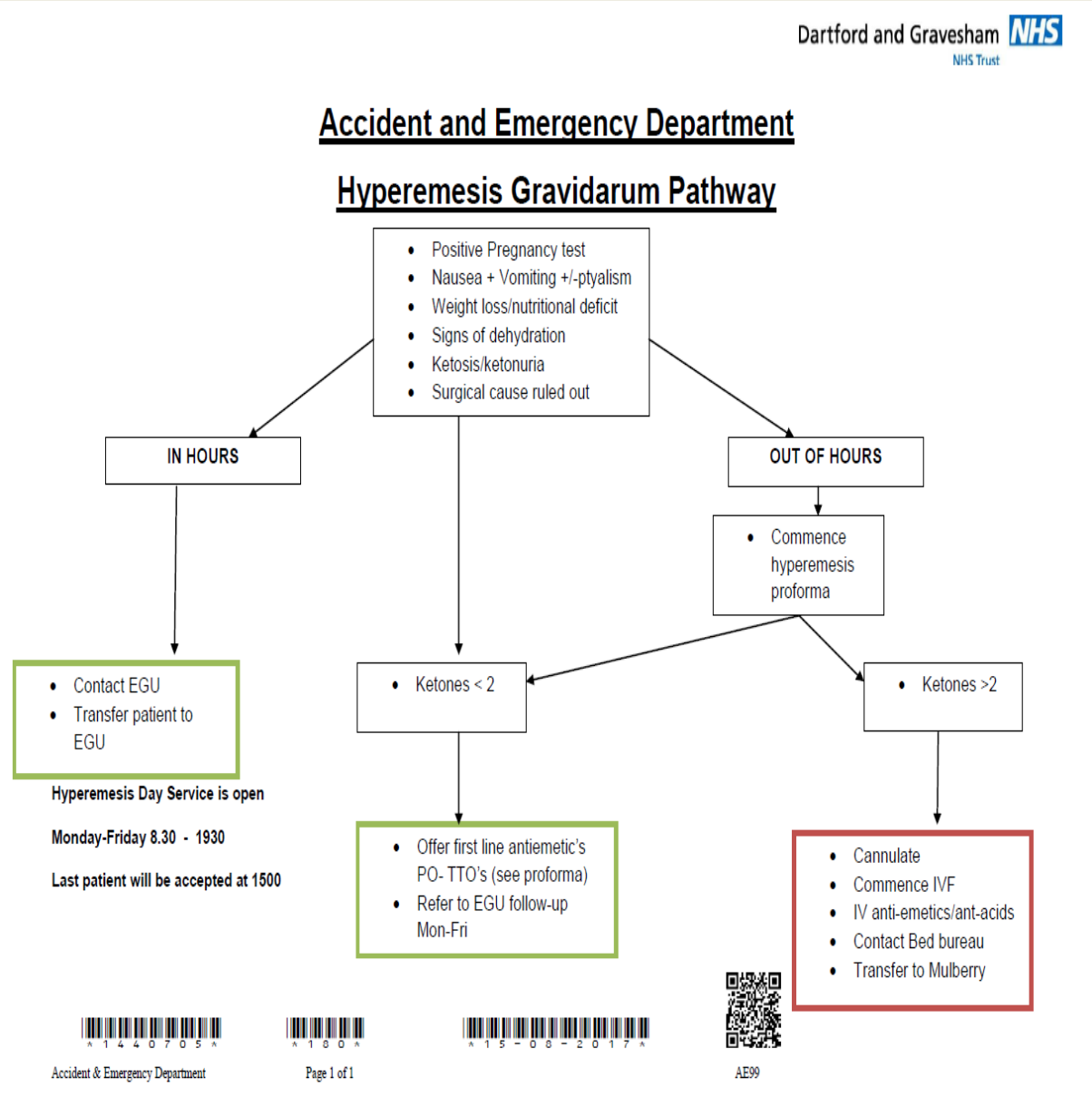


Early Pregnancy Unit (EPU)





Hyperemesis Gravidarum



Vascular Emergencies Protocol

Dartford and Gravesham NHS Trust | Guy's and St Thomas' NHS Foundation Trust

Vascular Emergency Protocol

Condition	Action
Arterial Haemorrhage: ▪ Ruptured Aortic aneurysm. (Haemodynamically unstable). ▪ Aorto-Intestinal fistulae	Permissive hypotension (BP high enough to maintain consciousness is high enough). Inform the on call team at STH. Arrange CTA if sufficiently stable. IEP Images to STH. Blue-light patient transfer to STH. Ideally with blood.
▪ In-theatre haemorrhage	Pack. Set up and use cell-salvage. Correct clotting. Request on-site vascular assistance. If timely vascular presence is not possible, pack and transfer with an anaesthetist and 6-10 units of blood
▪ Haemorrhage from a limb (usually IVDU)	Apply direct pressure. CTA (+ IEP). Discuss with on-call team at STH. Blue-light patient transfer to STH
▪ **All Trauma cases should be diverted to KCH**	
Aortic Aneurysms • Suspected rupture • Symptomatic back/abdominal pain Haemodynamically stable	Permissive hypotension (BP high enough to maintain consciousness is high enough). CTA + IEP Images. Discuss with on–call team at STH. Blue light patient transfer
• Non Symptomatic > 8.5cm diameter	CTA + IEP Images. Discuss with STH on-call team. Likely transfer and admission if larger than 9cm
• Non symptomatic < 8.5cm diameter	Arrange urgent vascular clinic appointment at DVH via secretary.
Acute non-haemorrhagic Stroke/TIA/Amourosis Fugax	Medical assessment + treatment (Aspirin, BP control, statin etc.) CT/MRI brain Carotid duplex High risk – Patient transfer to KCH HASU Standard risk + 70% stenosis ipsilateral to symptomatic hemisphere/eye – IEP Images. Discuss with STH on-call team. Transfer aiming for carotid endarterectomy within 48 hours of symptom onset (14 days max). Doubtful cases – refer to next DVH vascular clinic.
Limb Ischaemia: **Acute** ▪ Embolus ▪ Occluded graft ▪ Thrombosed popliteal aneurysms	If non critical– next working day vascular review DVH (CNS or Consultant clinic). If critical (Pain/Pallor/cold/numb/loss of movement/compartment tenderness) – CTA + IEP Images.

Vascular Emergencies Protocol

Dartford and Gravesham NHS Trust | Guy's and St Thomas' NHS Foundation Trust

	Discuss with STH on-call vascular team. Patient transfer to STH.
Chronic ▪ Chronic ischemia (claudication/longstanding ulcers without sudden symptom change, viable limb)	Book appointment in next elective DVH vascular/CNS clinic.
▪ Acute-on-Chronic Ischemia with critical presentation (Pain/Pallor/cold/numb/loss of movement)	If critical (Pain/Pallor/cold/numb/loss of movement/compartment tenderness) – CTA + IEP Images. Discuss with STH on-call vascular team. Patient transfer to STH.
Diabetic Foot Sepsis ▪ Longstanding foot ulcers without critical ischaemia or sepsis ▪ New foot ulcers without critical ischaemia or sepsis	Book appointment in next elective DVH vascular/CNS clinic
▪ Foot ulcers with evidence of sepsis (especially abscess)	Discuss with STH on-call vascular team. Patient transfer to STH.

Contact Numbers:-

STH on call "hotline" **(07717751334 8)**

Vascular CNS (**07771387973)**

DVH Vascular secretaries **(01322428635)**

Reviewed by Mr Michael Dialynas and Mr Mark Tyrrell

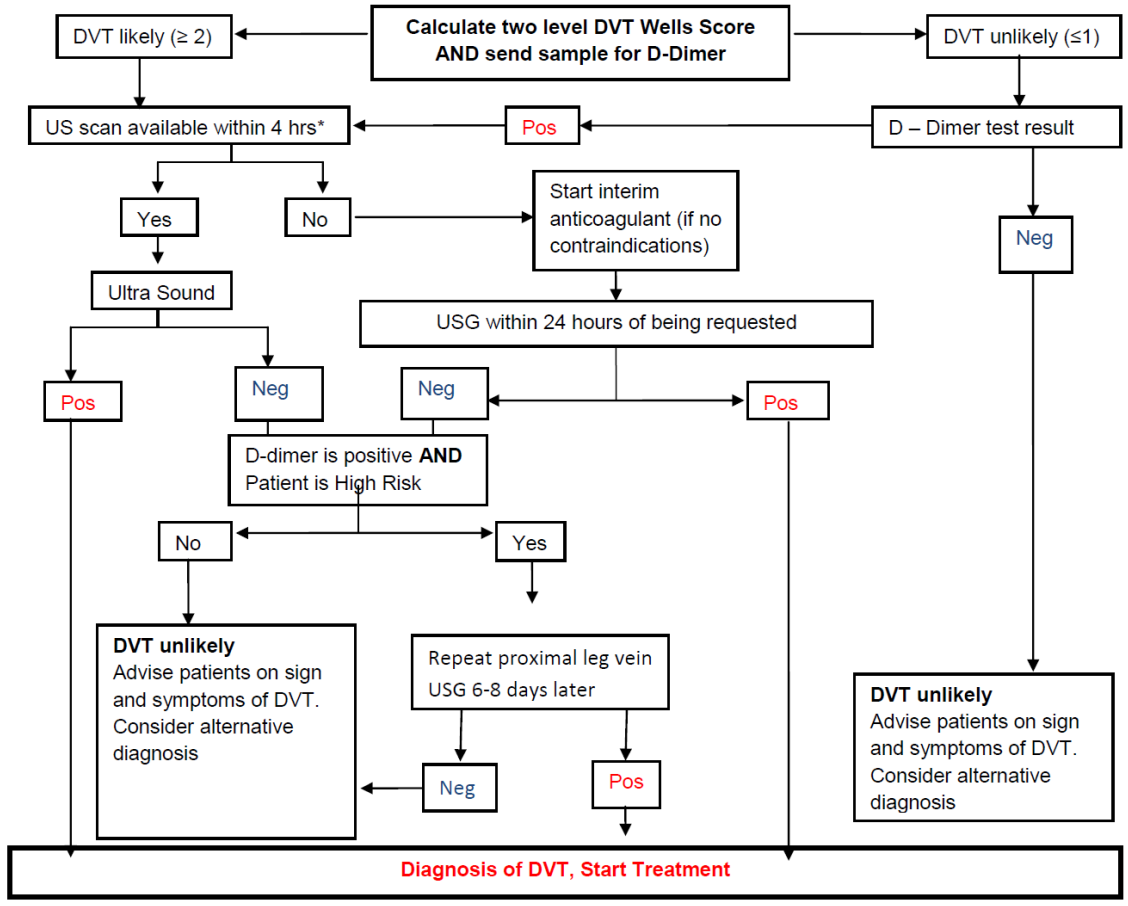
8th March 2017

DVT Pathway

Patient name: Patient date of birth: Hospital number:

Patient with signs &/or symptoms of DVT

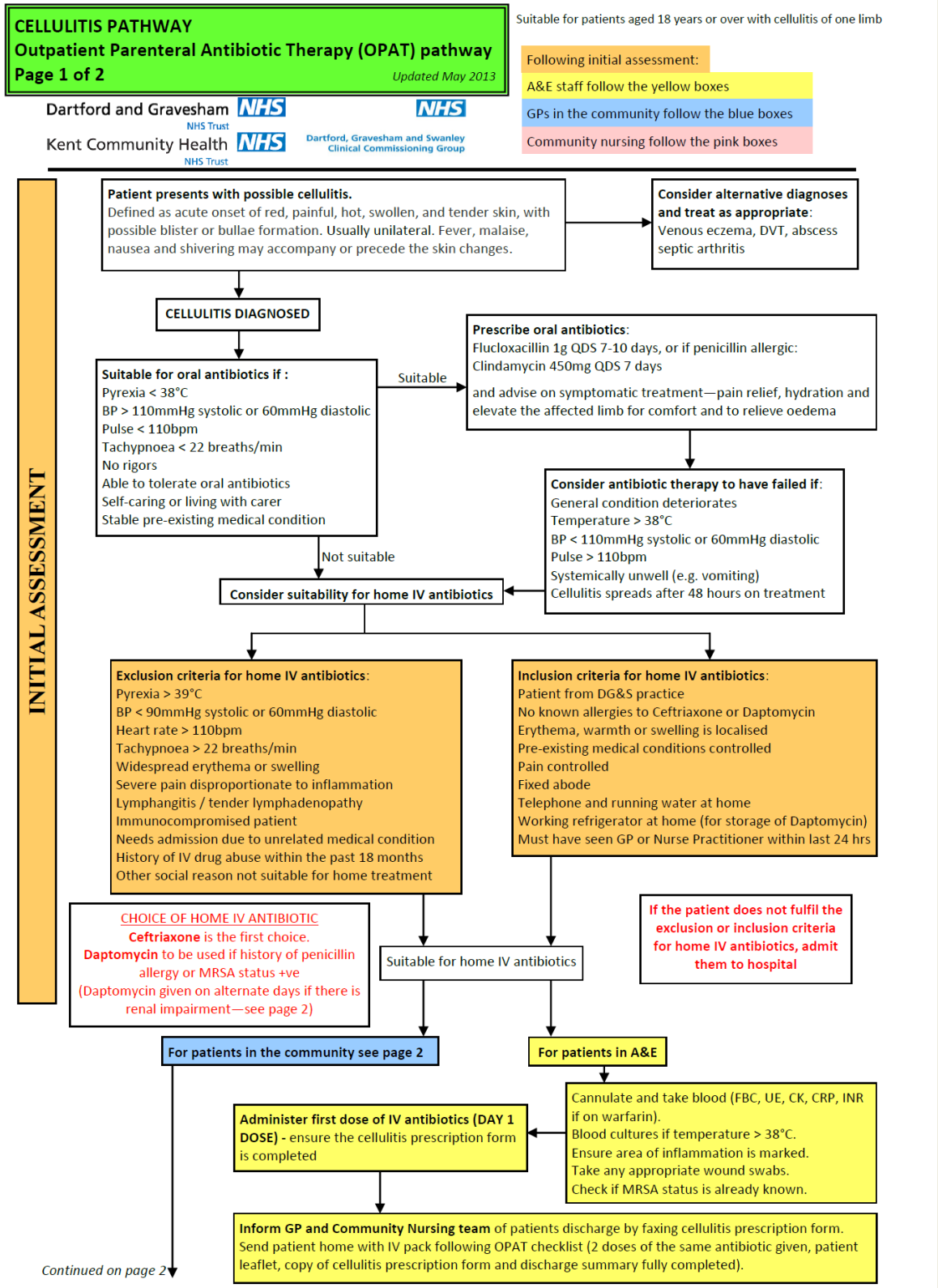
Clinical features	Points	
Active Cancer (treatment ongoing, Within 6 Months or Palliative)	1	
Paralysis, paresis or recent plaster immobilisation of the lower extremities	1	
Recently bedridden for 3 days or more or major surgery within 12 weeks requiring general or regional anaesthesia	1	
Localised tenderness along the distribution of the deep venous system	1	
Entire leg swollen	1	
Calf swelling at least 3 cm larger than asymptomatic side	1	
Pitting oedema confined to the symptomatic leg	1	
Collateral superficial veins (non-varicose)	1	
Previously documented DVT	1	
An alternative diagnosis is at least as likely as DVT	-2	
Total points		



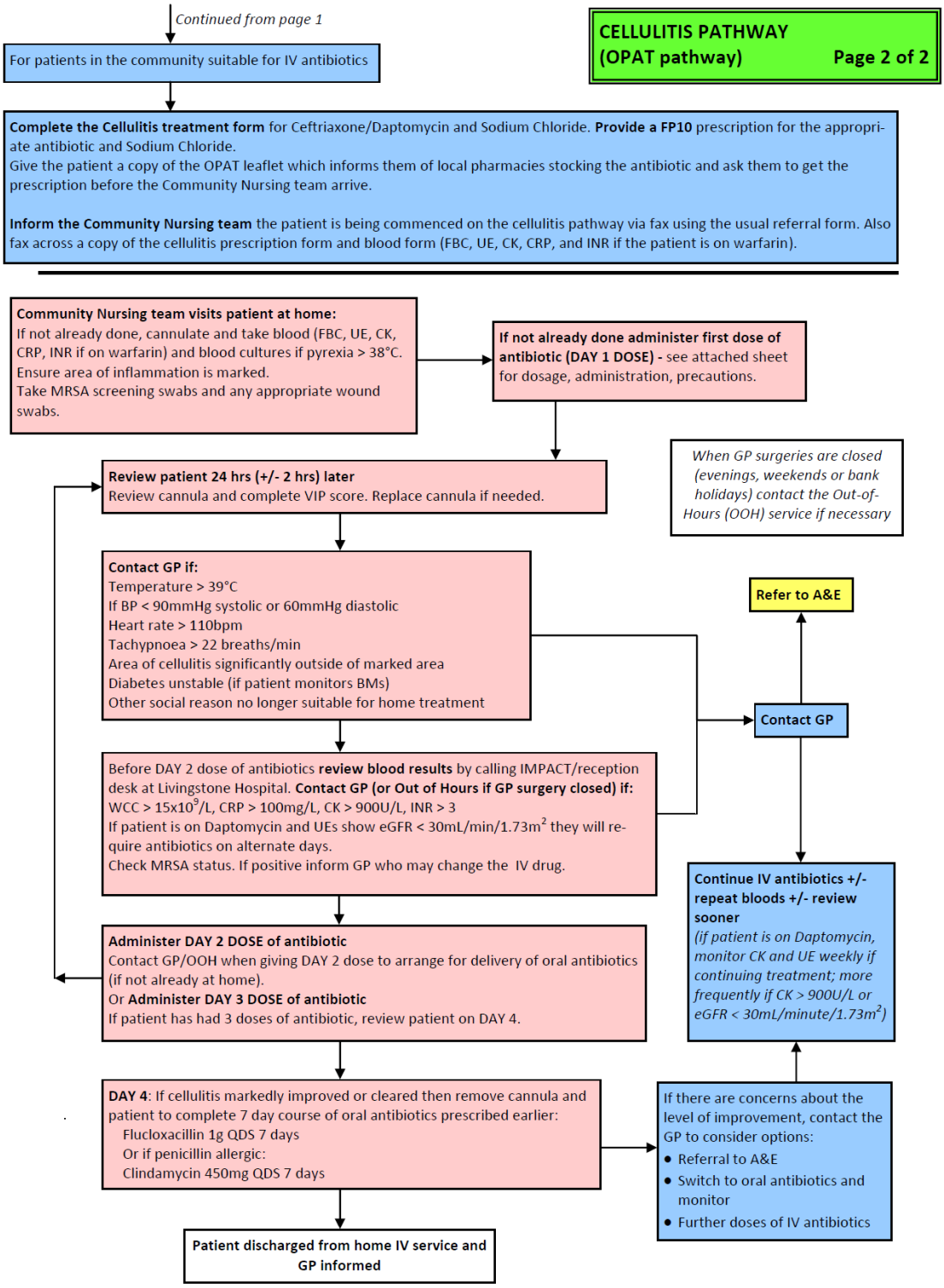
* If the patient's GP is in Dartford, Gravesend, Farningham or Swanley, please fill and send direct access doppler U/S request to Fwkm Manor hospital. Please request Doppler USG at DVH for patients whose their GP is in Bexley, Bexleyheath, Crayford, Erith, Welling or London area.

Authors: Dr R Suleman, Dr Y Deylamipour

Cellulitis

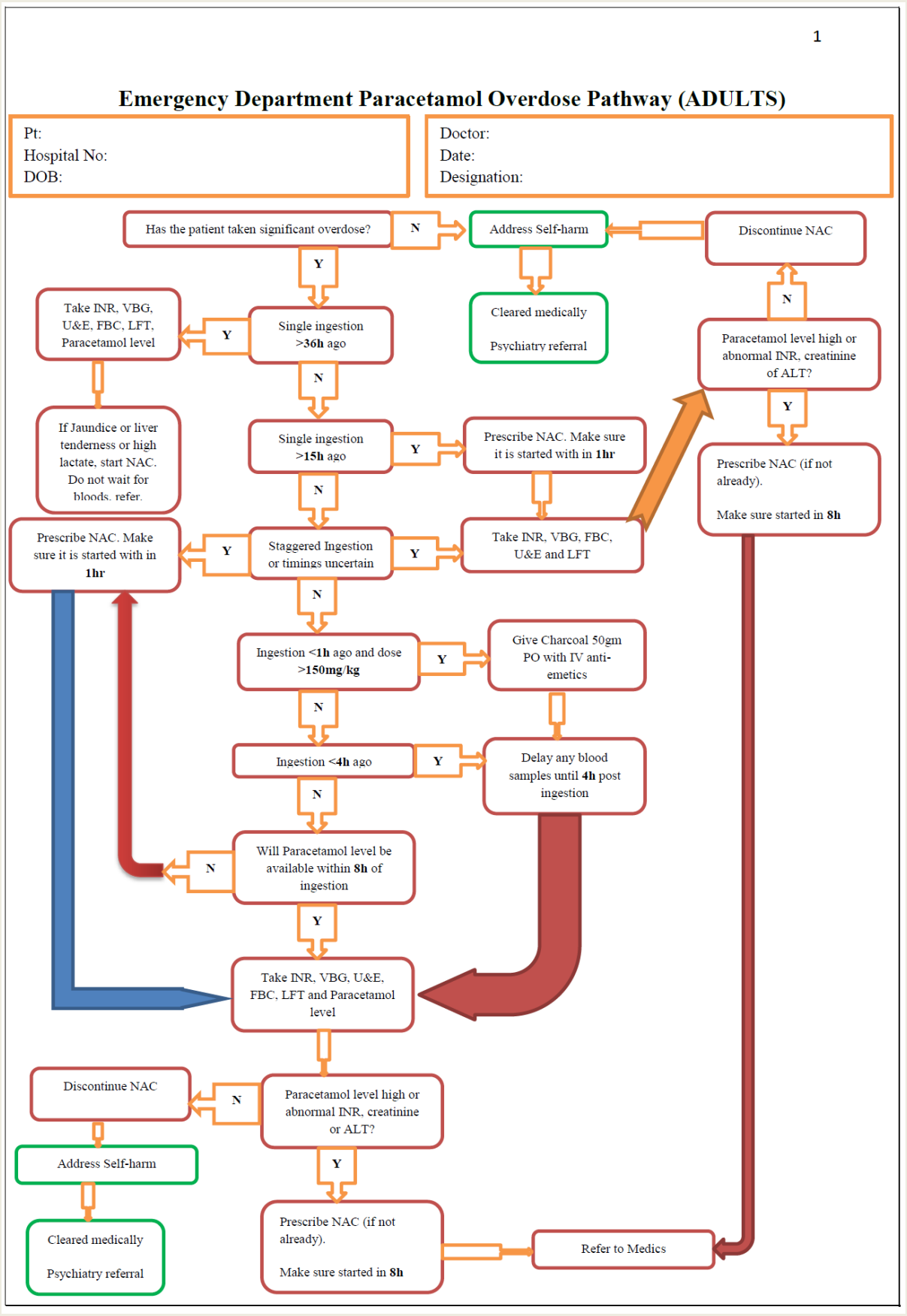

CELLULITIS PATHWAY
Outpatient Parenteral Antibiotic Therapy (OPAT) pathway
Page 1 of 2
Updated May 2013
Dartford and Gravesham NHS Trust
Kent Community Health NHS Trust
Dartford, Gravesham and Swanley Clinical Commissioning Group
Suitable for patients aged 18 years or over with cellulitis of one limb
Following initial assessment:
A&E staff follow the yellow boxes
GPs in the community follow the blue boxes
Community nursing follow the pink boxes
INITIAL ASSESSMENT
Patient presents with possible cellulitis.
Defined as acute onset of red, painful, hot, swollen, and tender skin, with possible blister or bullae formation. Usually unilateral. Fever, malaise, nausea and shivering may accompany or precede the skin changes.
Consider alternative diagnoses and treat as appropriate:
Venous eczema, DVT, abscess septic arthritis
CELLULITIS DIAGNOSED
Suitable for oral antibiotics if :
Pyrexia < 38°C
BP > 110mmHg systolic or 60mmHg diastolic
Pulse < 110bpm
Tachypnoea < 22 breaths/min
No rigors
Able to tolerate oral antibiotics
Self-caring or living with carer
Stable pre-existing medical condition
Suitable
Prescribe oral antibiotics:
Flucloxacillin 1g QDS 7-10 days, or if penicillin allergic:
Clindamycin 450mg QDS 7 days
and advise on symptomatic treatment—pain relief, hydration and elevate the affected limb for comfort and to relieve oedema
Consider antibiotic therapy to have failed if:
General condition deteriorates
Temperature > 38°C
BP < 110mmHg systolic or 60mmHg diastolic
Pulse > 110bpm
Systemically unwell (e.g. vomiting)
Cellulitis spreads after 48 hours on treatment
Not suitable
Consider suitability for home IV antibiotics
Exclusion criteria for home IV antibiotics:
Pyrexia > 39°C
BP < 90mmHg systolic or 60mmHg diastolic
Heart rate > 110bpm
Tachypnoea > 22 breaths/min
Widespread erythema or swelling
Severe pain disproportionate to inflammation
Lymphangitis / tender lymphadenopathy
Immunocompromised patient
Needs admission due to unrelated medical condition
History of IV drug abuse within the past 18 months
Other social reason not suitable for home treatment
Inclusion criteria for home IV antibiotics:
Patient from DG&S practice
No known allergies to Ceftriaxone or Daptomycin
Erythema, warmth or swelling is localised
Pre-existing medical conditions controlled
Pain controlled
Fixed abode
Telephone and running water at home
Working refrigerator at home (for storage of Daptomycin)
Must have seen GP or Nurse Practitioner within last 24 hrs
CHOICE OF HOME IV ANTIBIOTIC
Ceftriaxone is the first choice.
Daptomycin to be used if history of penicillin allergy or MRSA status +ve
(Daptomycin given on alternate days if there is renal impairment—see page 2)
Suitable for home IV antibiotics
If the patient does not fulfil the exclusion or inclusion criteria for home IV antibiotics, admit them to hospital
For patients in the community see page 2
For patients in A&E
Cannulate and take blood (FBC, UE, CK, CRP, INR if on warfarin).
Blood cultures if temperature > 38°C.
Ensure area of inflammation is marked.
Take any appropriate wound swabs.
Check if MRSA status is already known.
Administer first dose of IV antibiotics (DAY 1 DOSE) - ensure the cellulitis prescription form is completed
Inform GP and Community Nursing team of patients discharge by faxing cellulitis prescription form.
Send patient home with IV pack following OPAT checklist (2 doses of the same antibiotic given, patient leaflet, copy of cellulitis prescription form and discharge summary fully completed).
Continued on page 2

Cellulitis



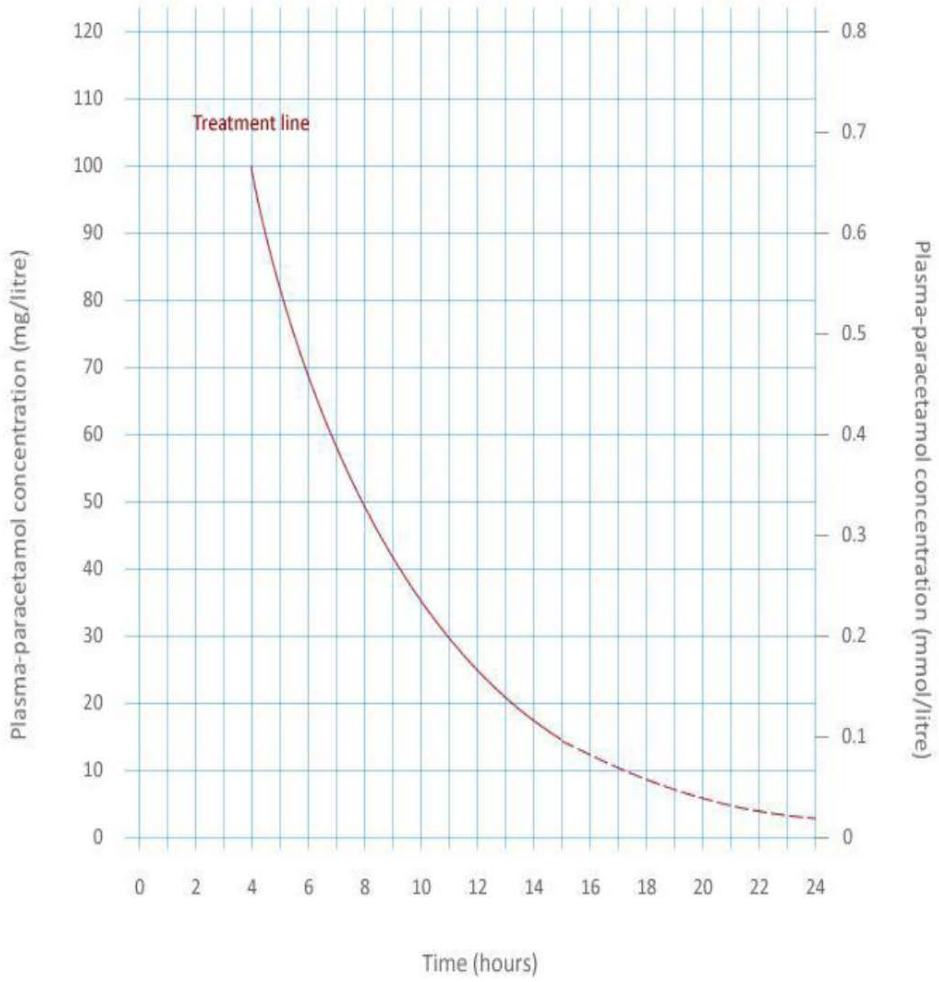
Useful numbers:
Rapid response: 07786 390010 (24 hour mobile number)
Out of Hours: 111
Local Referral Unit (Community Nurses): 0300 1234 449

Paracetamol Overdose



Paracetamol Overdose

REVISED PARACETAMOL OVERDOSE NOMOGRAM



Important Notes

Single Ingestion: All in one go or within 1hr

Staggered Ingestion: Any ingestion longer than 1hr

Any ingestion **>6gm or 75mg/kg** is considered significant overdose

Use the **updated Nomogram** attached

The effectiveness of NAC decreases after **8hrs**

The 1st bag is now given over **1hr** (previously 15min)

Approved: August 2017

Authors: Kamran Khan/ Zafar Nazar

Review Date: 2019