Simulation Scenario

Title	Fluid overload & Congestive Cardiac Failure	**Version**	2.2
Target Audience	FY doctors & student nurses	**Run time**	10 -15 mins
Authors	James Foxlee, Udesh Naidoo, Mark Loughrey, Paul Wilder	**Last review**	4/7/18
Faculty comments	Normal faculty requirements	**Necessity**	n/a

Brief Summary

An elderly man admitted with a lower urinary tract infection and pyelonephritis to the urology ward. The patient was septic on admission and had received multiple fluid boluses overnight for borderline hypotension and poor urine output. As a result he becomes acutely short of breath and confused due to CCF (secondary to AF & fluid overload).

Educational Rationale

This scenario assesses rapid patient assessment, initial resuscitation and differential diagnosis. The candidate is expected to make a rapid assessment from the notes as well as the patient/manikin. The candidate should identify the root cause of the CCF (fast AF due to sepsis plus the multiple fluid boluses) and treat both this and the shortness of breath.

Learning Objectives: Nurse

- ABCDE assessment of a patient with acute breathlessness
- Initial management of breathlessness
- Communication with the patient and SBAR handover with colleagues

Learning Objectives: Doctor

- ABCDE assessment and initial management of patients with acute shortness of breath
- Formulate a differential diagnosis for a breathless patient
- Investigations and treatments in accordance with local and national guidelines
- Appropriate escalation
- Facilitation of communication, delegation, task prioritisation and team-working

No	CURRICULUM MAPPING	This scenario
1	Acts professionally	✓
2	Delivers patient-centred care and maintains trust	✓
3	Behaves in accordance with ethical and legal requirements	✓
4	Keeps practice up to date through learning and teaching	✓
5	Demonstrates engagement in career planning	
6	Communicates clearly in a variety of settings	✓
7	Works effectively as a team member	✓
8	Demonstrates leadership skills	✓
9	Recognises, assesses and initiates management of the acutely ill patient	✓
10	Recognises, assesses and manages patients with long term conditions	✓
11	Obtains history, performs clinical examination, formulates differential diagnosis and management plan	✓
12	Request relevant investigations and acts upon results	✓
13	Prescribes safely	✓
14	Performs procedures safely	✓
15	Is trained and manages cardiac and respiratory arrest	
16	Demonstrates understanding of the principles of health promotion and illness prevention	✓
17	Manages palliative and end of life care	
18	Recognises and works within limits of personal competence	✓
19	Makes patient safety a priority in clinical practice	✓
20	Contributes to quality improvement	

Candidate Briefing: Nurse

Setting	Urology ward

You are a nurse working on the F7 Urology ward. Mr Smith is a 74 year old gentleman who was admitted with a lower UTI +/- pyelonephritis and confusion.

He is normally independent and lives with his wife.

He was initially confused on admission, which appeared to be slowly improving until this morning, when he has become more muddled and short of breath.

The team reviewed him this morning and requested a chest X-ray which was performed about an hour ago. The patient has just pulled his call bell and complained that he couldn't breathe.

Please take a set of observations.

Candidate Briefing: Doctor

Setting	Urology ward

You are the Foundation Doctor on-call for Urology in the evening.

You have been asked to attend the urology ward to assess a 74 year old man who has become acutely short of breath and confused.

Your handover sheet states that he has a history of hypertension, Ca prostate, and osteoarthritis. The patient was admitted with lower UTI +/- pyelonephritis.

He has been an inpatient for 48 hours.

Technical set-up

Setting	Urology ward		
Simulator	High fidelity manikin / actor		
Gender	Male	Age	74

Initial monitor parameters

RR	O2 sats	Pulse (HR)	BP	ECG rhythm
24	**89% on air**	**109**	**115/60**	**Irregularly irregular**
Cap Refill Time	**Blood glucose**	**Temp.**		
4s	**5.5**	**37.5**		

Initial patient set-up

Airway	**Obstruction**	**Airway adjunct**
	No	None

Breathing	**Chest sounds**	**O2 supply**
	Diffuse crackles	air

Circulation	**Heart sounds**	**Cannula**	**BP cuff**	**Peripheral pulses**
	Irregular	Yes	Attached	Weak throughout

Disability	**Eyelids**	**Pupils**	**AVPU/GCS**
	Open	PEARL	A / 14

Exposure	**Posture**	**Moulage**	**Bowel sounds**
	Sitting at 45 degrees	None	Normal

Specific equipment / prop requirements

- Monitoring: non-invasive BP (cuff) + pulse oximeter + ECG
- Nasal specs and selection of oxygen masks
- Crash trolley: available outside the room
- Set of notes – for this admission only
- Fluid balance chart showing gross +ve fluid balance due to fluid boluses
- Patient name-band, allergy band
- ABG syringe and report
- Chest x-ray
- Cannula
- Blood bottles, culture bottles
- Urine dipstick
- Catheter and bag

Facilitator Briefing

Telephone Advice

TELEPHONE ADVICE (Urology Registrar)
Your bleep is answered for you - you are scrubbed in theatre. Advise discussing with Med SpR on-call

TELEPHONE ADVICE (Medical Registrar)
If the candidate is struggling with the diagnosis/management, give some "clues"
Ask for brief history of admission
Ask for current state and examination
Ask for cardiovascular status - pulse volume, capillary refill time, whether hands warm/cold, any signs of sepsis?
Ask about fluid balance for last 24 - 48 hours
Ask for ECG findings* - if AF correctly diagnosed, recommend rate control with digoxin iv
Ask for ABG, U&Es, CRP, FBC result*
Ask for CXR result* - ask for the candidates opinion on findings
You will come to review the patient
* if any investigations have not been performed, ask the candidate to call you back once they are available

TELEPHONE ADVICE (ITU)
Ask about ABCDE status
Ascertain that patient airway not at risk, breathing not an issue
Ask about the ABG - if not done, request it
Suggest that candidate increases oxygen, and calls Medical Registrar in first instance; you will review if needed

CONDUCT

- You will be sitting in the control room for the duration
- Answer all calls as "switchboard" in the first instance to allow for realistic delay. Call back after 1 - 2 minutes
- The Medical Registrar should sound busy and state they are tied up with another patient
- They should be helpful but press the candidate hard about what assessment has been performed e.g. nature of pain, findings of physical examination
- If the candidate is not armed with the information, tell them to get the required info and call you back

How to run with candidates from only one discipline

An additional member of faculty can play the role of the nurse in this scenario if needed.

Sim Nurse briefing:

You are a nurse working on the urology ward. Mr Smith is a 74 year old gentleman who was admitted with confusion. He is being treated for urosepsis.

He is normally independent and lives with his wife.

He was initially confused on admission, which appeared to be slowly improving until this morning, when he has become more muddled and short of breath. The team reviewed him this morning and requested a chest X-ray which was performed about an hour ago. The patient has just pulled his call bell and complained that he couldn't breathe. You have assessed him - he seems confused.

CONDUCT

Throughout the scenario you should act as a "competent robot" i.e. you should perform all tasks requested to the best of your ability, but should not initiate any treatment on your own. If you are not being effectively instructed by the candidate, you may be prompted via your ear piece by the lead facilitator as to what your next action should be.

If you strongly disagree with management then you are free to question them, stating your reasons.

If asked to give drugs, you should request that they are prescribed on the drug chart. If they are unsure of the dosage please refer them to the BNF or Hospital Guidelines App or via Intranet.

Patient Briefing

Setting	Urology ward
Name	Sam Smith
Age	74
Gender	Male

What has happened to you?

You were admitted 48 hours ago and treated for lower UTI +/- pyelonephritis with iv antibiotics and fluids. You have been feeling short of breath since this morning.

Doctors saw you this morning. You have become more short of breath and muddled since then.

You have just returned to the ward from x-ray.

How you should role-play

You are confused / muddled but not abusive.

You state that you feel “unwell”, and are short of breath. If asked about orthopnoea specifically, you admit to becoming more breathless on lying flat. You have no chest pain or other pains.

Your background

PAST MEDICAL HISTORY

- Ca prostate - previous TURP
- Hypertension - on Rx
- Osteoarthritis
- Previous TKRs x2

SOCIAL HISTORY

- Alcohol 5 units+ / week
- Ex-smoker (stopped 20 years ago, smoked 14 - 54, 40 pack years)
- Lives alone in London (visiting mother in Frimley)
- Retired engineer

MEDICATION

- Zoladex (goserelin)
- Bendroflumethiazide
- Co-codamol
- No known allergies

Scenario flowchart

INITIAL SETTINGS

A: Patent
B: RR 24, sats 89% on air, diffuse crackles
C: HR 109 irregular, BP 115/60, CRT 4 sec
D: Confused, BM 5.5
E: Temp 37.5, sweaty, cool peripheries

EXPECTED ACTIONS

- A-E assessment
- Sit patient up
- Oxygen as needed
- Nurse to call for support
- SBAR handover

DETERIORATION

A: Patent
B: RR 30, sats 92% on 15L / 85% on 2L O2
C: HR 120, irregular, BP 90/60
D: Confused
E: Temp 37.5, sweaty, cool peripheries

RESULTS

INITIAL ABG (on room air)

pH	7.24
pO2	7.9
pCO2	5.1
BE	3.4
Lact	4.5

CXR: pulmonary oedema

ECG: Fast AF

Blood cultures: Gram -ve rods

MSU: +ve dipstick for UTI

Urine culture: E. coli

EXPECTED ACTIONS

- A-E assessment
- Notes review
- Identify fluid balance
- Diuretic +/- GTN
- CXR
- Perform and review ABG
- Rate control for AF
- Review antibiotics

FURTHER DETERIORATION

A: Patent
B: RR 40, sats 92% on 15L, laboured breathing
C: HR 130, BP 90/60
D: GCS remains stable
E: Temp 37.5, sweaty, cool peripheries

EXPECTED OUTCOME

- Oxygen saturations, BP and HR should improve if management of CCF is started.

LOW DIFFICULTY

- Registrar arrives early
- Patient stabilises with iv diuretics, GTN infusion (or sublingual) and prn morphine

NORMAL DIFFICULTY

- Patient remains short of breath and confused
- Observations do not deteriorate if appropriate management is started

HIGH DIFFICULTY

- Patient continues to deteriorate despite correct management.
- ITU team review

RESOLUTION

Appropriate treatment prescribed, investigations ordered, events discussed with patient, contemporaneous notes, decisions re: ongoing care

References

- NICE Clinical Guideline 187: Acute heart failure: diagnosis and management. Found at: https://www.nice.org.uk/guidance/cg187/chapter/1-recommendations

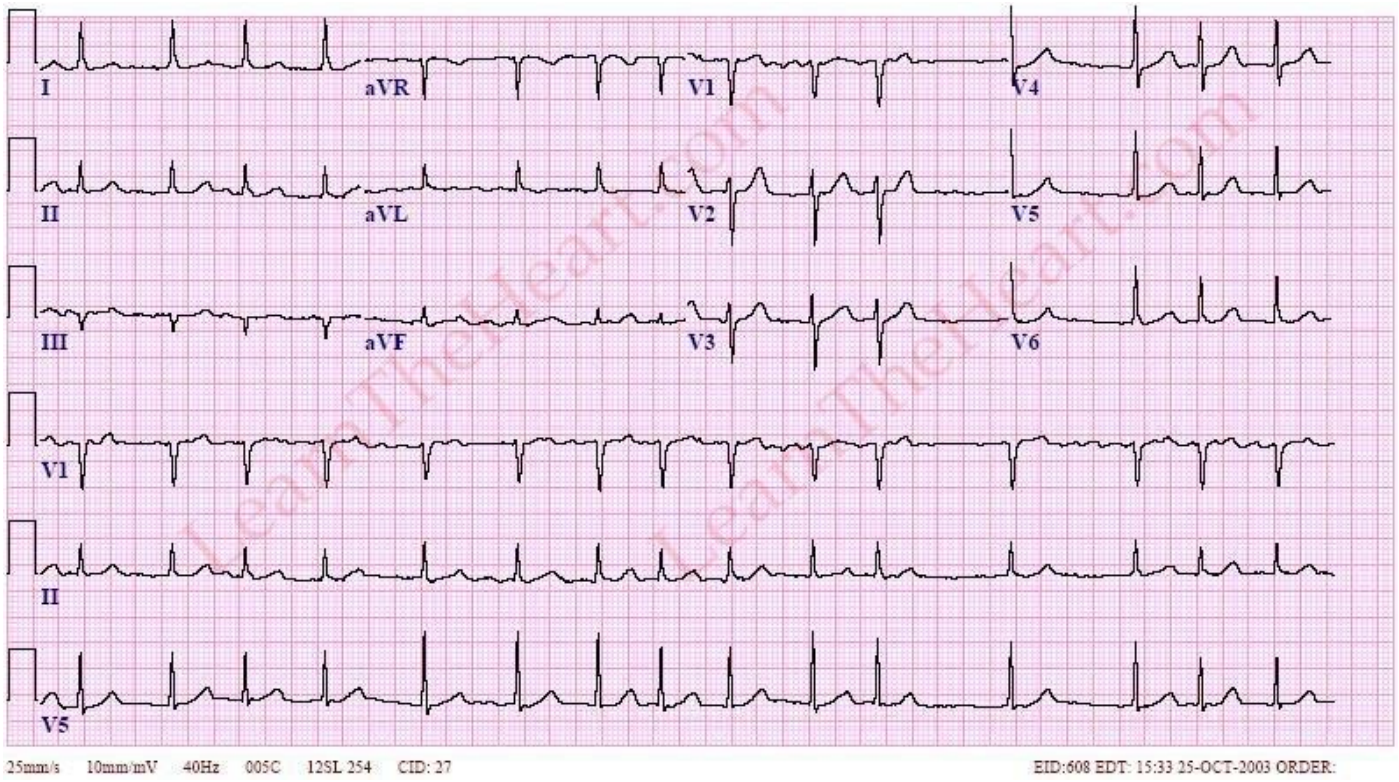
Clinical props

RADIOMETER ABL800 FLEX

Identifications			
Patient ID	789987		
Patient Last Name	Smith		
Patient First Name	Sam		
Sex	M		
Date of birth			
$FO_2(I)$	24.0	%	
T	37.5	C	
Sample type	Arterial		
Operator	TEMP PPH 1		

Blood Gas Values				
↓	pH	7.240		[7.350 - 7.450]
	pCO_2	5.10	kPa	[4.70 - 6.00]
↓	pO_2	7.9	kPa	[11.1 - 14.4]
	Hct_c		%	
Oximetry Values				
	ctHb	14.6	g/L	
	FO_2Hb	89.0	%	[94.0 - 98.0]
	sO_2	90.0	%	
	FCOHb	1.4	%	[0.5 - 1.5]
	FHHb	4.0	%	[0.0 - 5.0]
	FMetHb	0.1	%	[0.0 - 1.5]
Calculated Values				
	$cBase(Ecf)_c$	3.4	mmol/L	
	$cHCO_3^-(P)_c$	31.0	mmol/L	
Electrolyte Values				
	cNa^+	136	mmol/L	[136 - 146]
	cK^+	4.0	mmol/L	[3.4 - 4.5]
	cCl^-	106	mmol/L	[98 - 106]
	cCa^{++}	2.40	mmol/L	[2.2 - 2.45]
	Anion Gap_c		mmol/L	
Metabolite Values				
	cGlu	5.5	mmol/L	[3.9 - 5.8]
↑	cLac	4.5	mmol/L	[0.5 - 1.6]
↑	cCrea	130	µmol/L	[44 - 97]

Notes	
↑	Value(s) above reference range
↓	Value(s) below reference range
c	Calculated value(s)


I
aVR
V1
V4
II
aVL
V2
V5
III
aVF
V3
V6
V1
II
V5
25mm/s 10mm/mV 40Hz 005C 12SL 254 CID: 27
EID:608 EDT: 15:33 25-OCT-2003 ORDER:

24 Hour Fluid Balance Chart

Frimley Health NHS
NHS Foundation Trust

Patient Name: SAM SMITH
Date: TODAY
Hospital No: 789987
NHS No:
WEIGHT= 80kg .....URINE OUTPUT SHOULD 0.5mls/KG/HR= .....mls/hr .....
INDICATION FOR USE

	INTAKE							OUTPUT							
Hour ending at:	IVI / BLOOD			IVABS	ORAL INTAKE		HOURLY INTAKE	URINE	VOMIT ASP / NG	DRAIN				HOURLY OUTPUT	HOURLY BALANCE
01:00															
02:00					100			40							
03:00	500							40							
04:00					150			40							
05:00	250							35							
06:00					30			30							
Running total:	750				280		1030	185							
07:00	250							15							
08:00								20							
09:00	500							25							
10:00	250							10							
11:00	250							5							
12:00	250							5							
Running total:	1500						2530	265						+ 2265	
13:00															
14:00															
15:00															
16:00															
17:00															
18:00															
Running total:															
19:00															
20:00															
21:00															
22:00															
23:00															
24:00															
Running total:															

Running Fluid balance Total:	06:00	12:00	18:00	24:00
Accountable Registered Nurse Signature:				

Product Code: FH1009

NEWS - OBSERVATION CHART

NHS Frimley Health NHS Foundation Trust

Surname: Smith		First name: Sam	
Hospital number: 12345	D.O.B: 1.1.1945	Date of admission: 2 days ago	

Parameter	Range	Observation	Score	Range
	DATE			DATE
	TIME			TIME
A+B Respirations Breaths/min	≥25	24	3	≥25
	21–24	•	2	21–24
	18–20			18–20
	15–17			15–17
	12–14			12–14
	9–11		1	9–11
	≤8		3	≤8
A+B SpO2 Scale 1 Oxygen saturation (%)	≥96	98		≥96
	94–95		1	94–95
	92–93		2	92–93
	≤91		3	≤91
SpO2 Scale 2† Oxygen saturation (%) Use Scale 2 if target range is 88–92%, eg in hypercapnic respiratory failure	≥97 on O_2		3	≥97 on O_2
	95–96 on O_2		2	95–96 on O_2
	93–94 on O_2		1	93–94 on O_2
	≥93 on air			≥93 on air
	88–92			88–92
† ONLY use Scale 2 under the direction of a qualified clinician	86–87		1	86–87
	84–85		2	84–85
	≤83%		3	≤83%
Air or oxygen?	A=Air	A		A=Air
	O2 L/min		2	O2 L/min
	Device			Device
C Blood pressure mmHg Score uses systolic BP only	≥220		3	≥220
	201–219			201–219
	181–200			181–200
	161–180			161–180
	141–160			141–160
	121–140	115		121–140
	111–120	^		111–120
	101–110	|	1	101–110
	91–100	|	2	91–100
	81–90	|	3	81–90
	71–80	|	3	71–80
	61–70	v	3	61–70
	51–60	60	3	51–60
	≤50		3	≤50
C Pulse Beats/min	≥131		3	≥131
	121–130		2	121–130
	111–120	109	2	111–120
	101–110	•	1	101–110
	91–100		1	91–100
	81–90			81–90
	71–80			71–80
	61–70			61–70
	51–60			51–60
	41–50		1	41–50
	31–40		3	31–40
	≤30		3	≤30
D Consciousness Score for NEW onset of confusion (no score if chronic)	Alert			Alert
	Confusion	C	3	Confusion
	V		3	V
	P		3	P
	U		3	U
E Temperature °C	≥39.1°		2	≥39.1°
	38.1–39.0°	37.5	1	38.1–39.0°
	37.1–38.0°	•		37.1–38.0°
	36.1–37.0°			36.1–37.0°
	35.1–36.0°		1	35.1–36.0°
	≤35.0°		3	≤35.0°
NEWS TOTAL		6		TOTAL
	Monitoring frequency			Monitoring
	Pain score			Pain score
	Initials			Initials

National Early Warning Score 2 (NEWS2) © Royal College of Physicians 2017 Version: 201807_004 Product Code:

Frimley Park Hospital NHS
NHS Foundation Trust

First Name(s): Sam.	Ward F7.	Date chart started	Chart number of
Surname: Smith.			
Hospital Number: 789917	Consultant	Doctor bleep number	Date of admission
NHS Number:			
Date of Birth:			

Date weighed	Weight (kg)	Height (M)	Surface area (M^2)	Ideal Body Weight (IBW)	Body Mass Index (BMI)	Diet
	80kg					

Allergies (write 'none known' and sign if none known)

Drug/substance	Details of reaction
NKDA	

This patient also has the following additional charts (complete and tick relevant box (es))

IV heparin infusion chart		Chemotherapy chart		Medicines reconciliation	
PCA		Epidural			

Communication for doctors

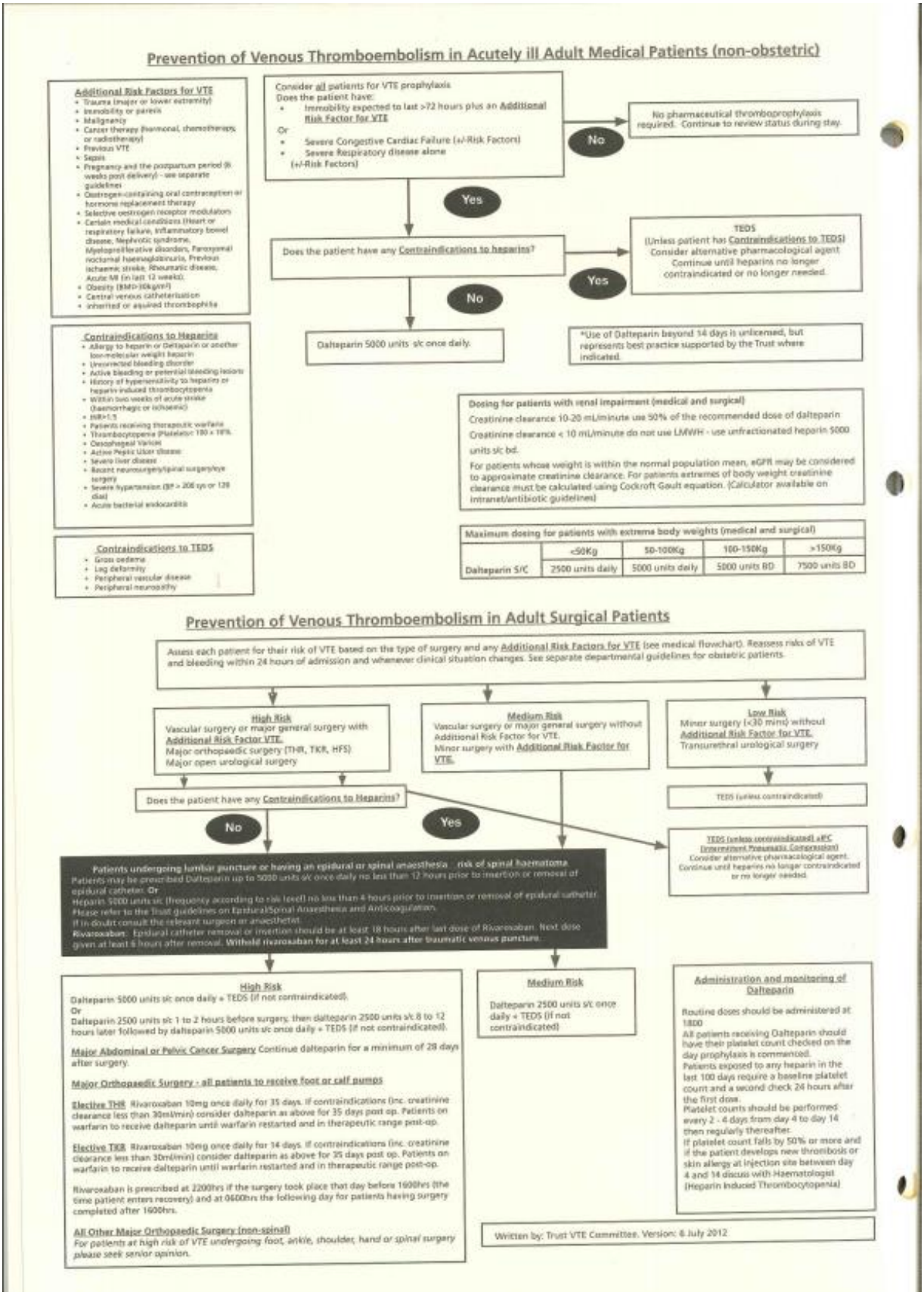
Date		Sign and Bleep No.	Actioned sign and date

Does this patient smoke: Yes / No

Is patient self medicating: Yes / No

Date of referral to smoking cessation nurse:

FPH40 CSP 03/11


Prevention of Venous Thromboembolism in Acutely ill Adult Medical Patients (non-obstetric)
Additional Risk Factors for VTE
Trauma (major or lower extremity)
Immobility or paresis
Malignancy
Cancer therapy (hormonal, chemotherapy, or radiotherapy)
Previous VTE
Sepsis
Pregnancy and the postpartum period (6 weeks post delivery) - see separate guidelines
Oestrogen-containing oral contraception or hormone replacement therapy
Selective oestrogen receptor modulators
Certain medical conditions (Heart or respiratory failure, inflammatory bowel disease, Nephrotic syndrome, Myeloproliferative disorders, Paroxysmal nocturnal haemoglobinuria, Previous ischaemic stroke, Rheumatic disease, Acute MI (in last 12 weeks))
Obesity (BMI>30kg/m²)
Central venous catheterisation
Inherited or aquired thrombophilia
Consider all patients for VTE prophylaxis
Does the patient have:
Immobility expected to last >72 hours plus an Additional Risk Factor for VTE
Or
Severe Congestive Cardiac Failure (+/-Risk Factors)
Severe Respiratory disease alone (+/-Risk Factors)
No
No pharmaceutical thromboprophylaxis required. Continue to review status during stay.
Yes
Does the patient have any Contraindications to heparins?
Yes
TEDS
(Unless patient has Contraindications to TEDS)
Consider alternative pharmacological agent
Continue until heparins no longer contraindicated or no longer needed.
No
Dalteparin 5000 units s/c once daily.
*Use of Dalteparin beyond 14 days is unlicensed, but represents best practice supported by the Trust where indicated.
Contraindications to Heparins
Allergy to heparin or Dalteparin or another low-molecular weight heparin
Uncorrected bleeding disorder
Active bleeding or potential bleeding lesions
History of hypersensitivity to heparin or heparin-induced thrombocytopenia
Within two weeks of acute stroke (haemorrhagic or ischaemic)
INR>1.5
Patients receiving therapeutic warfarin
Thrombocytopenia (Platelets< 100 x 10⁹/L
Oesophageal Varices
Active Peptic Ulcer disease
Severe liver disease
Recent neurosurgery/spinal surgery/eye surgery
Severe hypertension (BP > 200 sys or 120 dias)
Acute bacterial endocarditis
Contraindications to TEDS
Gross oedema
Leg deformity
Peripheral vascular disease
Peripheral neuropathy
Dosing for patients with renal impairment (medical and surgical)
Creatinine clearance 10-20 mL/minute use 50% of the recommended dose of dalteparin
Creatinine clearance < 10 mL/minute do not use LMWH - use unfractionated heparin 5000 units s/c bd.
For patients whose weight is within the normal population mean, eGFR may be considered to approximate creatinine clearance. For patients extremes of body weight creatinine clearance must be calculated using Cockroft Gault equation. (Calculator available on intranet/antibiotic guidelines)
Maximum dosing for patients with extreme body weights (medical and surgical)
<50Kg
50-100Kg
100-150Kg
>150Kg
Dalteparin S/C
2500 units daily
5000 units daily
5000 units BD
7500 units BD
Prevention of Venous Thromboembolism in Adult Surgical Patients
Assess each patient for their risk of VTE based on the type of surgery and any Additional Risk Factors for VTE (see medical flowchart). Reassess risks of VTE and bleeding within 24 hours of admission and whenever clinical situation changes. See separate departmental guidelines for obstetric patients
High Risk
Vascular surgery or major general surgery with Additional Risk Factor VTE.
Major orthopaedic surgery (THR, TKR, HFS)
Major open urological surgery
Medium Risk
Vascular surgery or major general surgery without Additional Risk Factor for VTE.
Minor surgery with Additional Risk Factor for VTE.
Low Risk
Minor surgery (<30 mins) without Additional Risk Factor for VTE.
Transurethral urological surgery
TEDS (unless contraindicated)
Does the patient have any Contraindications to Heparins?
No
Yes
TEDS (unless contraindicated) +IPC (Intermittent Pneumatic Compression)
Consider alternative pharmacological agent.
Continue until heparins no longer contraindicated or no longer needed.
Patients undergoing lumbar puncture or having an epidural or spinal anaesthesia - risk of spinal haematoma
Patients may be prescribed Dalteparin up to 5000 units s/c once daily no less than 12 hours prior to insertion or removal of epidural catheter. Or
Heparin 5000 units s/c (frequency according to risk level) no less than 4 hours prior to insertion or removal of epidural catheter.
Please refer to the Trust guidelines on Epidural/Spinal Anaesthesia and Anticoagulation.
If in doubt consult the relevant surgeon or anaesthetist.
Rivaroxaban: Epidural catheter removal or insertion should be at least 18 hours after last dose of Rivaroxaban. Next dose given at least 6 hours after removal. Withold rivaroxaban for at least 24 hours after traumatic venous puncture.
High Risk
Dalteparin 5000 units s/c once daily + TEDS (if not contraindicated).
Or
Dalteparin 2500 units s/c 1 to 2 hours before surgery, then dalteparin 2500 units s/c 8 to 12 hours later followed by dalteparin 5000 units s/c once daily + TEDS (if not contraindicated).
Major Abdominal or Pelvic Cancer Surgery Continue dalteparin for a minimum of 28 days after surgery.
Major Orthopaedic Surgery - all patients to receive foot or calf pumps
Elective THR Rivaroxaban 10mg once daily for 35 days. If contraindications (inc. creatinine clearance less than 30ml/min) consider dalteparin as above for 35 days post op. Patients on warfarin to receive dalteparin until warfarin restarted and in therapeutic range post-op.
Elective TKR Rivaroxaban 10mg once daily for 14 days. If contraindications (inc. creatinine clearance less than 30ml/min) consider dalteparin as above for 35 days post op. Patients on warfarin to receive dalteparin until warfarin restarted and in therapeutic range post-op.
Rivaroxaban is prescribed at 2200hrs if the surgery took place that day before 1600hrs (the time patient enters recovery) and at 0600hrs the following day for patients having surgery completed after 1600hrs.
All Other Major Orthopaedic Surgery (non-spinal)
For patients at high risk of VTE undergoing foot, ankle, shoulder, hand or spinal surgery please seek senior opinion.
Medium Risk
Dalteparin 2500 units s/c once daily + TEDS (if not contraindicated)
Administration and monitoring of Dalteparin
Routine doses should be administered at 1800
All patients receiving Dalteparin should have their platelet count checked on the day prophylaxis is commenced.
Patients exposed to any heparin in the last 100 days require a baseline platelet count and a second check 24 hours after the first dose.
Platelet counts should be performed every 2 - 4 days from day 4 to day 14 then regularly thereafter.
If platelet count falls by 50% or more and if the patient develops new thrombosis or skin allergy at injection site between day 4 and 14 discuss with Haematologist (Heparin Induced Thrombocytopenia)
Written by: Trust VTE Committee. Version: 6 July 2012

RISK ASSESSMENT RECORD SHEET FOR VENOUS THROMBOEMBOLISM (VTE)

- Please use in conjunction with Trust guidelines overleaf
- Please see separate Trust guidelines for obstetric patients

Thrombosis Risk	Patient Related	Procedure Related	Initial Assessment __/__/__	Assessment at 24 hours __/__/__	Assessment on __/__/__	Assessment on __/__/__
High	Previous VTE					
	Immobility expected to last >72 hours					
	Malignancy					
	Acute or chronic lung disease					
	Acute or chronic inflammatory disease					
	Chronic heart failure					
	Lower limb paralysis (excluding acute stroke)					
	Acute infectious disease, e.g. pneumonia					
	BMI >30kg/m2					
	Inherited or acquired thrombophilia					
	Pregnancy or less than 6 weeks post partum					
		Hip or Knee replacement				
		Hip fracture				
		Other major orthopaedic surgery				
		Surgical procedure lasting >30mins with additional VTE risk factor(s)				
Medium	Oestrogen containing oral contraception or HRT					
	Selective oestrogen receptor modulators					
	Age > 60					
	Dehydration					
	Varicose veins with phlebitis					
		Minor surgical procedure with additional VTE risk factor(s)				
		Surgical procedure lasting >30mins with no additional VTE risk factors				
		Plaster cast immobilisation of lower limb				
Low	None of above	None of above				
Bleeding Risk/ Contraindications	**Patient Related**	**Procedure Related**				
	Haemophilia or other known bleeding disorder					
	Thrombocytopenia (Platelets < 100 x 10^9/L)					
	Within two weeks of acute stroke (haemorrhagic or ischaemic)					
	Severe hypertension (BP > 200 systolic or 120 diastolic)					
	Severe liver disease					
	Oesophageal Varices					
	Active Peptic Ulcer disease					
	Active bleeding or potential bleeding lesions					
	Major bleeding risk, existing anticoagulant therapy					
	Severe renal disease					
		Neurosurgery, spinal surgery or eye surgery				
		Other procedure with high bleeding risk				
		Lumbar puncture/spinal/epidural in previous 4 hours or anticipated in next 12 hours				
Risk assessment performed by						
Signature						
Copy of Patient Information Leaflet given to patient			Yes / No			

ONCE ONLY DRUGS AND PREMEDICATION.

Date	Time	Drug	Dose	Route	Prescriber Sig. GMC no.	Batch number (vaccines only)	Time given	Sig.	Pharm.

DRUGS ADMINISTERED UNDER MIDWIFERY EXEMPTION AND PATIENT GROUP DIRECTIONS.

Date	Time	Drug	Dose	Route	Batch number (vaccines and blood products only)	Print name	Sig.

REASONS FOR DRUGS NOT ADMINISTERED AND ACTIONS TAKEN.

Date	Time	Drug (s)	Nurses signature	Reason(s) for non administration and action(s) taken

FOR DRUGS NOT ADMINISTERED ENTER THE APPROPRIATE CODE IN THE ADMINISTRATION BOX AND SIGN

1 NIL BY MOUTH
2 REFUSED
3 UNABLE (NEEDS

REGULAR PRESCRIPTIONS

MONTH/YEAR
↓ DATE

↓ TIMES

OXYGEN	Circle target saturation Adjust flow rate to maintain specified oxygen saturation		Target oxygen saturation 88 to 92% 94 to 98%	0800	
				1200	
PRESCRIBERS SIGNATURE		DATE		1800	
Home Oxygen Indicated: YES / NO Referral to Respiratory Nurse for HOOF Date:			Other: ____________	2200	
Nurse to intial against time to confirm oxygen is being administered and meeting specified target. Flow rate is to be documented to the left of the column, i.e.			2L Sign	Device	

PHARMACOLOGICAL VTE PROPHYLAXIS/TREATMENT INCLUDING NOACS		DOSE	ROUTE	
PRESCRIBERS SIGNATURE	GMC No.	START	REVIEW	STOP
INDICATION AND SPECIAL INSTRUCTIONS			Please tick appropriate status ☐ NEW ☐ PRE AD ☐ CHANGE	
PHARMACY POD H POD W			TO CONTINUE ON DISCHARGE ☐ YES ☐ NO	

MECHANICAL VTE PROPHYLAXIS		DOSE	ROUTE	
PRESCRIBERS SIGNATURE	GMC No.	START	REVIEW	STOP
INDICATION AND SPECIAL INSTRUCTIONS			Please tick appropriate status ☐ NEW ☐ PRE AD ☐ CHANGE	
PHARMACY POD H POD W			TO CONTINUE ON DISCHARGE ☐ YES ☐ NO	

WARFARIN AND OTHER COUMARIN ANTICOAGULANTS				TIME	INR
PRESCRIBERS SIGNATURE	GMC No.			DATE STARTED	DOSE (mg)
INDICATION	DURATION	TARGET INR	PLEASE TICK APPROPRIATE STATUS ☐ NEW ☐ PREADMISSION		PRESCRIBERS SIGNATURE
PHARMACY POD H POD W	BOOK PROVIDED ON: BY:	DATE COUNSELLED: BY:	TO CONTINUE ON DISCHARGE ☐ YES ☐ NO		GIVEN BY

DRUG (Approved Name)		DOSE	ROUTE	
PRESCRIBERS SIGNATURE	GMC No.	START	REVIEW	STOP
INDICATION AND SPECIAL INSTRUCTIONS			Please tick appropriate status ☐ NEW ☐ PRE AD ☐ CHANGE	
PHARMACY POD H POD W			TO CONTINUE ON DISCHARGE ☐ YES ☐ NO	

DRUG (Approved Name)		DOSE	ROUTE	
PRESCRIBERS SIGNATURE	GMC No.	START	REVIEW	STOP
INDICATION AND SPECIAL INSTRUCTIONS			Please tick appropriate status ☐ NEW ☐ PRE AD ☐ CHANGE	
PHARMACY POD H POD W			TO CONTINUE ON DISCHARGE ☐ YES ☐ NO	

DRUG (Approved Name)		DOSE	ROUTE	
PRESCRIBERS SIGNATURE	GMC No.	START	REVIEW	STOP
INDICATION AND SPECIAL INSTRUCTIONS			Please tick appropriate status ☐ NEW ☐ PRE AD ☐ CHANGE	
PHARMACY POD H POD W			TO CONTINUE ON DISCHARGE ☐ YES ☐ NO	

DRUG (Approved Name)		DOSE	ROUTE	
PRESCRIBERS SIGNATURE	GMC No.	START	REVIEW	STOP
INDICATION AND SPECIAL INSTRUCTIONS			Please tick appropriate status ☐ NEW ☐ PRE AD ☐ CHANGE	
PHARMACY POD H POD W			TO CONTINUE ON DISCHARGE ☐ YES ☐ NO	

WHEN REQUIRED MEDICATION

OXYGEN			Date								
CIRCLE TARGET OXYGEN SATURATION 88–92% 94–98% Other			Time Started								
			Flow rate								
DEVICE	MAX FLOW RATE (Litres/min)		Device								
PRESCRIBERS SIGNATURE GMC No.	DATE		Given by								
DRUG (Approved name)			Date								
DOSE	ROUTE	FREQUENCY	Time								
PRESCRIBERS SIGNATURE GMC No.	DATE		Dose								
INDICATION AND SPECIAL INSTRUCTIONS	☐ NEW ☐ PRE AD		Route								
PHARMACY POD H POD W	TO CONTINUE ON DISCHARGE ☐ YES ☐ NO		Given by								
DRUG (Approved name)			Date								
DOSE	ROUTE	FREQUENCY	Time								
PRESCRIBERS SIGNATURE GMC No.	DATE		Dose								
INDICATION AND SPECIAL INSTRUCTIONS	☐ NEW ☐ PRE AD		Route								
PHARMACY POD H POD W	TO CONTINUE ON DISCHARGE ☐ YES ☐ NO		Given by								
DRUG (Approved name)			Date								
DOSE	ROUTE	FREQUENCY	Time								
PRESCRIBERS SIGNATURE GMC No.	DATE		Dose								
INDICATION AND SPECIAL INSTRUCTIONS	☐ NEW ☐ PRE AD		Route								
PHARMACY POD H POD W	TO CONTINUE ON DISCHARGE ☐ YES ☐ NO		Given by								
DRUG (Approved name)			Date								
DOSE	ROUTE	FREQUENCY	Time								
PRESCRIBERS SIGNATURE GMC No.	DATE		Dose								
INDICATION AND SPECIAL INSTRUCTIONS	☐ NEW ☐ PRE AD		Route								
PHARMACY POD H POD W	TO CONTINUE ON DISCHARGE ☐ YES ☐ NO		Given by								
DRUG (Approved name)			Date								
DOSE	ROUTE	FREQUENCY	Time								
PRESCRIBERS SIGNATURE GMC No.	DATE		Dose								
INDICATION AND SPECIAL INSTRUCTIONS	☐ NEW ☐ PRE AD		Route								
PHARMACY POD H POD W	TO CONTINUE ON DISCHARGE ☐ YES ☐ NO		Given by								
DRUG (Approved name)			Date								
DOSE	ROUTE	FREQUENCY	Time								
PRESCRIBERS SIGNATURE GMC No.	DATE		Dose								
INDICATION AND SPECIAL INSTRUCTIONS	☐ NEW ☐ PRE AD		Route								
PHARMACY POD H POD W	TO CONTINUE ON DISCHARGE ☐ YES ☐ NO		Given by								

Reminder: Prescribe on regular prescription and state "see variable prescription"

Insulins - variable dosing

			MONTH/YEAR ⇨ ⇩ DATE	
		SIG ⇨		
		⇩ TIMES	Units / Sig	Units / Sig
DRUG (Approved name)	ROUTE S/C			
PRESCRIBERS SIGNATURE / GMC No.	START / STOP	Breakfast		
DEVICE	Please tick appropriate status ☐ NEW ☐ PRE AD	Lunch		
PHARMACY POD H POD W	TO CONTINUE ON DISCHARGE ☐ YES ☐ NO	Dinner		
		Night		
DRUG (Approved name)	ROUTE S/C			
PRESCRIBERS SIGNATURE / GMC No.	START / STOP	Breakfast		
DEVICE	Please tick appropriate status ☐ NEW ☐ PRE AD	Lunch		
PHARMACY POD H POD W	TO CONTINUE ON DISCHARGE ☐ YES ☐ NO	Dinner		
		Night		
DRUG (Approved name)	ROUTE S/C			
PRESCRIBERS SIGNATURE / GMC No.	START / STOP	Breakfast		
DEVICE	Please tick appropriate status ☐ NEW ☐ PRE AD	Lunch		
PHARMACY POD H POD W	TO CONTINUE ON DISCHARGE ☐ YES ☐ NO	Dinner		
		Night		

WHEN REQUIRED INSULINS

DRUG (Approved name)			Date							
DOSE (UNITS)	ROUTE S/C	FREQUENCY	Time							
PRESCRIBERS SIGNATURE / GMC No.		DATE	DOSE (in Units)							
INDICATION AND SPECIAL INSTRUCTIONS			Route							
PHARMACY			Given by							
DRUG (Approved name)			Date							
DOSE (UNITS)	ROUTE S/C	FREQUENCY	Time							
PRESCRIBERS SIGNATURE / GMC No.		DATE	DOSE (in Units)							
INDICATION AND SPECIAL INSTRUCTIONS			Route							
PHARMACY			Given by							
DRUG (Approved name)			Date							
DOSE (UNITS)	ROUTE S/C	FREQUENCY	Time							
PRESCRIBERS SIGNATURE / GMC No.		DATE	DOSE (in Units)							
INDICATION AND SPECIAL INSTRUCTIONS			Route							
PHARMACY			Given by							

ANTIMICROBIAL PRESCRIPTIONS ONLY

DRUG (Approved name)		DOSE		ROUTE
PRESCRIBER'S SIGNATURE	GMC No.	INDICATION (MANDATORY)		
START	48 HOUR REVIEW	2ND REVIEW DATE / TIME	3RD REVIEW DATE / TIME	STOP
REVIEWED BY ⇨				
PHARMACY POD H POD W				

DATE ⇨
TIMES ⇩

DRUG (Approved name)		DOSE		ROUTE
PRESCRIBER'S SIGNATURE	GMC No.	INDICATION (MANDATORY)		
START	48 HOUR REVIEW	2ND REVIEW DATE / TIME	3RD REVIEW DATE / TIME	STOP
REVIEWED BY ⇨				
PHARMACY POD H POD W				

DATE ⇨
TIMES ⇩

DRUG (Approved name)		DOSE		ROUTE
PRESCRIBER'S SIGNATURE	GMC No.	INDICATION (MANDATORY)		
START	48 HOUR REVIEW	2ND REVIEW DATE / TIME	3RD REVIEW DATE / TIME	STOP
REVIEWED BY ⇨				
PHARMACY POD H POD W				

DATE ⇨
TIMES ⇩

DRUG (Approved name)		DOSE		ROUTE
PRESCRIBER'S SIGNATURE	GMC No.	INDICATION (MANDATORY)		
START	48 HOUR REVIEW	2ND REVIEW DATE / TIME	3RD REVIEW DATE / TIME	STOP
REVIEWED BY ⇨				
PHARMACY POD H POD W				

DATE ⇨
TIMES ⇩

DRUG (Approved name)		DOSE		ROUTE
PRESCRIBER'S SIGNATURE	GMC No.	INDICATION (MANDATORY)		
START	48 HOUR REVIEW	2ND REVIEW DATE / TIME	3RD REVIEW DATE / TIME	STOP
REVIEWED BY ⇨				
PHARMACY POD H POD W				

DATE ⇨
TIMES ⇩

DRUG (Approved name)		DOSE		ROUTE
PRESCRIBER'S SIGNATURE	GMC No.	INDICATION (MANDATORY)		
START	48 HOUR REVIEW	2ND REVIEW DATE / TIME	3RD REVIEW DATE / TIME	STOP
REVIEWED BY ⇨				
PHARMACY POD H POD W				

DATE ⇨
TIMES ⇩

MRSA Status	New	Previous Admission

C. Diff Status	New	Previous Admission

ONCE DAILY GENTAMICIN PRESCRIPTION
Use gentamicin calculator or intranet to calculate dose.
Level must be taken 6 to 14 hours after the first dose has been given.

Specify Dosing Regime 5mg/kg 3mg/kg Other

Indication:_____

Date to be given	Time to be given	Dose (mg)	Prescribers signature GMC No.	Date of sig.	Start time of infusion	Given by: (sign)	Date and Time blood level taken	sign:	Gentamicin Levels mg/l

General Guidance

- All antimicrobial prescriptions MUST follow the Trust's Antimicrobial Policies or MUST have been agreed by Microbiology. See full up to date policy on intranet.
- **INDICATION, STOP AND REVIEW DATES MUST BE RECORDED ON THE CHART.**
- CURB 65 score **MUST** be recorded for all community acquired pneumonia.
- Check previous relevant microbiology results before prescribing antibiotics and check new microbiology results daily. If a patient is not responding to treatment seek advice from a consultant microbiologist.
- Doses need to be adjusted to suit patient's age, size and renal function. To calculate creatinine clearance use calculator on intranet and see dose adjustments for antibiotics.
- All IV regimes MUST be reviewed at 48 hours and switched to oral if appropriate.

IV SWITCH GUIDELINES

If YES to all, consider change to ORAL	If YES to any, remain on IV
Patient able to swallow and tolerate oral fluids?	Oral route compromised?
Temperature settling and < 38°C for at least 48hrs?	Continuing serious sepsis?
Heart rate <100bpm for last 12hrs? (no unexplained tachycardia)	Febrile with neutropenia?
WCC between 4-12x10^9/L?	Specific indication / deep seated infection. (Meningitis, endocarditis, encephalitis, osteomylitis, neutropenia, cystic fibrosis, septicaemia, haematology/ immunocompromised pts, continuing sepsis, other severe infections as discussed with microbiology.) Seek microbiology advice if unsure.
Oral formulation available?	
Others markers: BP stable Respiratory rate <20 breaths/min CRP returning to normal and less than 100 (adult)	
Absence of mental confusion (when representing symptoms of infection)	No oral formulation available (seek microbiology advice on alternative)

DRUGS TO BE ADMINISTERED BY INTRAVENOUS / SUBCUTANEOUS INFUSION

STEP 1 FLUID BUNDLE

Consider for each prescription

Patient assessment	Daily
Fluid balance (FB)	Daily
Electrolytes (U&E)	24–48hrly
Weight (Wt)	Twice weekly
24hr fluid plan documented in notes	

General considerations

Day time prescription
Optimise enteral fluids

STEP 2 GUIDANCE FOR ADULT IV FLUIDS

Prescribe maintenance fluids for 24hr period.
Refer to separate Trust guidelines for insulin sliding scale or treatment sepsis/DKA/Liver patients or hyponatraemia.

Assess patient	Hypovolaemic (reassess regularly)		Euvolaemic/expected fasting >8hrs	Hypervolaemic
Why give fluid?	Resuscitation (Resus)	Replacement (Replace)	Maintenance (Maint)	Restriction
How much? Look at history, weight, U&E, other fluid intake	Fluid challenge 250–500mls	Estimate losses in past 24 hr. Replacement is in addition to maintenance	25–30ml/kg/24hrs Subtract other intake	Fluid restrict Consider diuresis
Which fluid? See separate guidance as listed above	Plasmalyte 148	Plasmalyte 148 If additional potassium needed use sodium chloride 0.9% with 20 or 40mmol/l potassium	Glucose 4% / sodium chloride 0.18% (with 20mmol/l potassium unless K⁺>5). Use Plasmalyte 148 if Na⁺ <132mmol/l	Consult senior

STEP 3 MAINTENANCE FLUIDS

Take into account other enteral/IV fluids and losses

Wt kg	Maintenance Requirement/24hr (30ml/kg/24hr)	Rate ml/hr
35–44	1200	50
45–54	1500	65
55–64	1800	75
65–74	2100	85
≥75	2400	100(max)

If elderly/frail/renal or cardiac impairment 20-25ml/kg/24hr

For IV fluids circle indication Tick to confirm if fluid bundle aspects checked	Date	Time	Infusion solution	Drugs to be added	Total volume	Route	Complete either or		Signature GMC No.	Start time/stop time	Given by /checked by	Pharm.
							Rate ml/hr	Duration of infusion				
Resus Replace Maint U&E☐ Wt☐ FB☐	5/7		N Saline	—	500ml	IV		STAT		3pm		
Resus Replace Maint U&E☐ Wt☐ FB☐	5/7		N Saline	—	500ml	IV		STAT		5-00		
Resus Replace Maint U&E☐ Wt☐ FB☐	5/7		Plasmalyte		1L	IV		4°		9-00		
Resus Replace Maint U&E☐ Wt☐ FB☐												
Resus Replace Maint U&E☐ Wt☐ FB☐												
Resus Replace Maint U&E☐ Wt☐ FB☐												
Resus Replace Maint U&E☐ Wt☐ FB☐												
Resus Replace Maint U&E☐ Wt☐ FB☐												
Resus Replace Maint U&E☐ Wt☐ FB☐												