UNIVERSITY OF ABERDEEN

YEAR 5 MBChB

Professional Practice Block

Prescribing Case Studies

2015/16

Prescribing Tutorial

This workbook contains a variety of prescribing scenarios. There will not be time during the tutorial to cover all the cases but students should attempt to complete the workbook in private study time. Separate workbook has blank prescription and medicine reconciliation sheets.

Online BNF resource http://www.evidence.nhs.uk/formulary/bnf/current
NHS Grampian Protocols:

- Reversal of anticoagulation with warfarin http://www.nhsgrampian.com/grampianfoi/files/WOA_560_0113.pdf
- Peri-op guide: http://www.nhsgrampian.com/grampianfoi/files/PeriOp_697_0714.pdf
- Tranquillisation Policy NHS Grampian http://www.nhsgrampian.com/grampianfoi/files/NHSGRapTranq.pdf
- Diabetes Guidance www.nhsgrampian.org/guidelines/diabetes
-

NICE Guidelines on IV Fluids https://www.nice.org.uk/guidance/cg174
NICE pathway ACS http://pathways.nice.org.uk/pathways/acute-coronary-syndromes

ADMISSION CASE 1

It's Saturday afternoon. Mr Tom Smith is a 76 year old man being admitted to a medical ward with a raised INR. His GP checked it yesterday after Mr Smith noticed some bruising and the laboratory called GMEDs today as the INR was 8.2. The warfarin is prescribed for atrial fibrillation and previous TIAs. He is well with no obvious bleeding. He is currently being treated for a urine infection which is improving.

He tells you that these are his current medicines:

Warfarin usual dose 3mg once daily
Ramipril 10mg once daily
Amlodipine 10mg once daily
Simvastatin 20mg once daily
Ciprofloxacin 500mg twice daily for last 3 days

Tasks:

1. Complete the medicines reconciliation form, including action plan for each medicine.
2. Write up the prescription sheets for continuing medicines
3. Make a decision regarding how you will deal with the raised INR, what you will do about his warfarin dose and when you will check his INR again

ADMISSION CASE 2

It's 8pm on Wednesday.
Jessie Kesson is an 80 year old lady admitted to the orthopaedic ward with a right fractured neck of femur. She has a past history of ischaemic heart disease, osteoarthritis, COPD and recent DVT. Her AMT is 7/10. Your registrar thinks she will need an operation.
Medication history:

Information from Jessie	**Information from Jessie's daughter**	**Information from the ambulance crew who found the following medicines in Jessie's House, so brought them in**
"Puffers"	"water pills"	Salbutamol inhaler 2 puffs if required for wheeze
"Wee white pills"	"blood thinner"	Tiotropium inhaler 18mcg daily
Pain "killers"	Heart pills	Rivaroxaban 20mg once dialy
	Might be able to bring in note from house	Atenolol 50mg once daily
	Questions whether Jessie has been taking her medicines properly	Felodipine 5mg once daily
		Furosemide 20mg once daily
		Co-dydramol 2 tabs as required for pain

Task:

Write up the medicines reconciliation form, complete the medicine action plan on this form and then write up the prescription sheet

ADMISSION CASE 3

Mrs Middleton (aged 60) arrives in the AMAU from A&E on a Saturday morning. She has had an episode of chest pain which the registrar thinks may be due to gastro-oesophageal reflux, but is waiting for a 12 hour troponin. She has taken along all her drugs in a carrier bag. This is what it contains:

3 empty packets of aspirin – 75mg tablets, dated 12, 8 and 3 months ago, 56 tablets per pack
1 half full packet of co-codamol (30/500), dated 4 months ago, 112 tablets
2 packets of paracetamol – 1 empty, 1 half full - no date
1 half full packet of co-dydramol, dated 2 months ago (for James Middleton)
1 half full bottle of lactulose, dated 4 months ago
1 empty packet of clopidogrel, dated last year
1 GTN spray, dated 19 months ago
2 strips of sertraline, each containing 14 tablets, unopened
3 salbutamol MDI inhalers, 2 almost empty
2 seretide accuhalers
1 half strip of clarithromycin 250mg tabs dated 7 months ago
1 half packet of benson and hedges
1 packet of atenolol 50mg dated 1 month ago
1 half used grotty tube of betnovate (no instructions or date)

Tasks:

1. Please complete the medicines reconciliation form, action plan and prescription chart for continuing medicines.
2. What medicines related problems might this patient have?

DISCHARGE CASE 1

Margaret MacPherson is a 77 year old woman who has been in hospital for a vaginal hysterectomy. This has all been straightforward.
See following 4 pages which are the medicine reconciliation form and prescription chart. Please write her discharge flimsy.

Medicines Reconciliation Sheet **Teaching purposes only**

Patient Details / Addressograph	Hospital/Ward: ARI WARD 1
Name: MARGARET MACPHERSON	Date of Admission: 1/5/14
Address 1 OLD ROAD NOWWHERE	Tick if NO known drug allergies √
Date of Birth: 21/4/33	Drug allergies/Intolerances:
CHI Number: 2104332150	

Tick if Patient is on NO regular medicines ☐

Source of Drug History (minimum of 2 sources to be used):

Patient / Patient's own drugs / Relative	√	GP practice / GP patient Summary	√
Repeat Prescription list	☐	Emergency Care Summary	☐
Community Pharmacy	☐	GP referral letter	☐

Other (e.g Care home notes, Midwife notes) _____

Admission Medication			Medication Action – Doctor must complete			
Name	Dose	Frequency	Conti -nue	With-hold	Stop	Comments
RAMIPRIL	5mg	Once daily		√		Going to theatre
ASPIRIN	75mg	Once daily		√		Going to theatre
VERAPAMIL	40mg	Three times daily	√			
SIMVASTATIN	20mg	At night	√			
PARACETAMOL	1g	If needed	√			

If patient has Compliance aid / Dosette state here :
Community Pharmacy:

List any OTC (over the counter) medicines / alternative medicines / illicit drugs used by patient:
NIL
If the patient prescribed treatment for substance misuse enter date community pharmacy advised of admission: and date advised of discharge:

Medication history taken by Doctor: ADOCTOR
Signature: *adoctor* Date/time: 1/5/14 14:00

Accuracy Check by Pharmacist: APHARMACIST
Signature : *apharmacist* Date/time: 1/5/14 17:00

Are any further actions required to complete Medicine Reconciliation? No √ **Yes** ☐
List in below section. E.g check dose with relative

State and communicate any further actions required to complete medicine reconciliation:

Follow up actions completed by: Signature: Date/time:

********** This form must be filed with Medical Notes **********

NHS Grampian *(2 page)* **PRESCRIPTION & ADMINISTRATION RECORD**

Patient Name: **MARGARET MACPHERSON**	Date of admission **1/5/14**	
CHI number: **2104332150**	Prescription number **1**	
Date of Birth: **21/4/33** (Attach printed label here)	Date re-written	
Hospital / Ward: **ARI WARD 1**	Weight: **65** kg	Height: **1.65m**
Consultant: **DR GOOD**	Date recorded: **1/5/14**	Gender: M / F **F**

KNOWN MEDICINE ALLERGIES/SENSITIVITIES (if NONE confirmed write NKDA in Box 1)

Must be documented before prescription/administration except in exceptional circumstances

1.	2.	3.	4.
NKDA			

VENOUS THROMBOEMBOLISM RISK ASSESSMENT HAS BEEN UNDERTAKEN ON ADMISSION sign _____

OTHER MEDICINE CHARTS OR TREATMENT PLANS IN USE (Please tick)

CHART TYPE		CHART TYPE		CHART TYPE	
1. Diabetes prescription sheet		5. Anaesthetic Record		9. Mental Health Care and Treatment (Scotland) Act 2003 - T2/T3 form	
2. Intravenous Patient-controlled analgesia prescription sheet		6. Oral anticoagulant prescription sheet		10. Adults with Incapacity (Scotland) Act 2000. (Section 47 Certificate and Treatment Plan)	
3. Fluid (additive medicine) prescription and recording sheet	√	7. Dermatology sheet		11. Syringe Driver	
4. Chemotherapy prescription sheet		8. Ophthalmology sheet		12. Other	

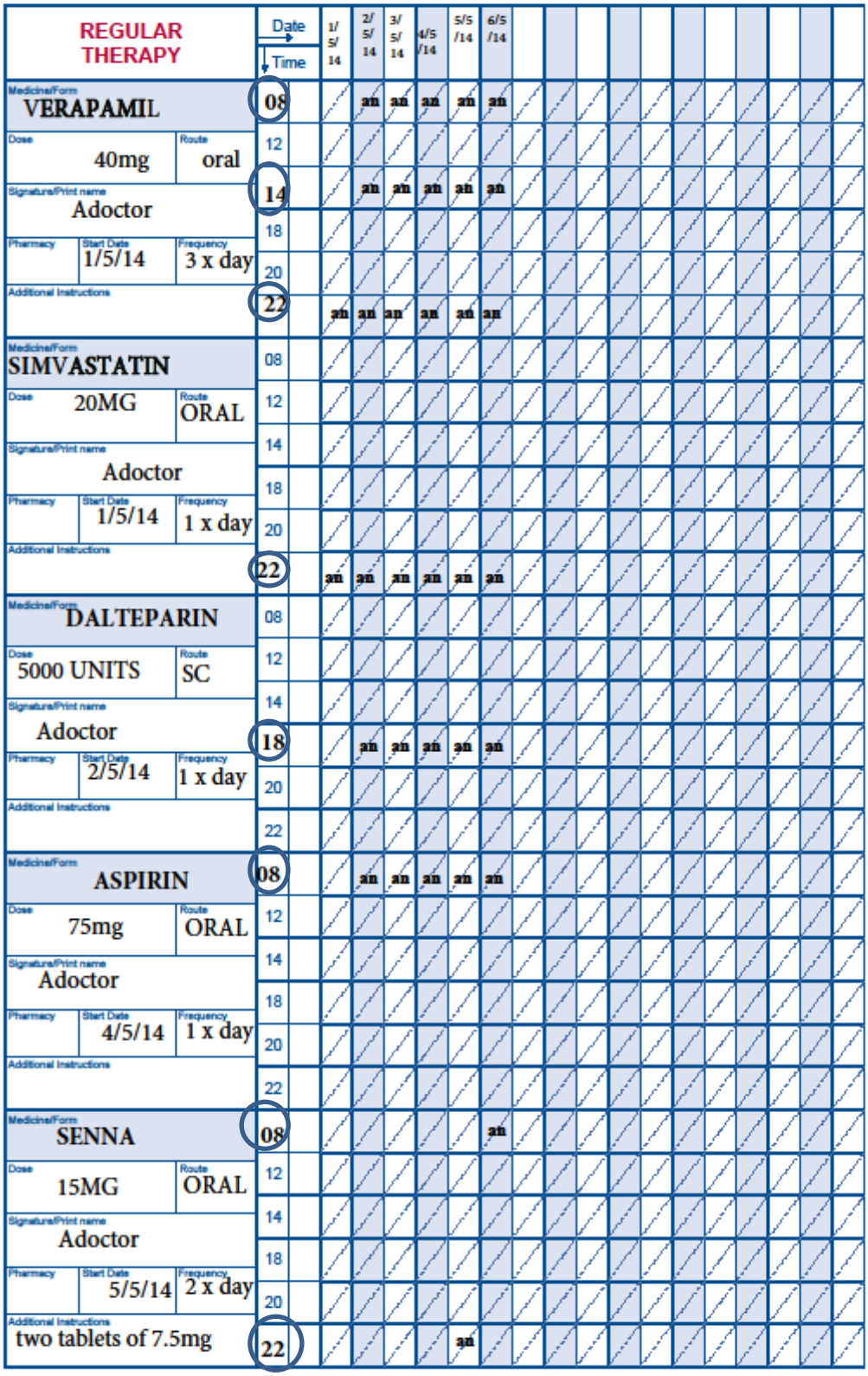
ONCE ONLY PRESCRIPTIONS

Date	Time	Medicine	Dose	Route	Prescribed By (signature / print name)	Time Given	Given By

Approved by Records Standards Group

FILE IN SECTION D

Patient name MARGARET MACPHERSON DOB 21/4/33 CHI 2104332150



Patient name MARGARET MACPHERSON DOB 21/4/33 CHI 2104332150

AS REQUIRED THERAPY

Medicine/Form: PARACETAMOL
Dose: 1g | Route: ORAL
Frequency & Indication: 4 - 6 HOURLY IF NEEDED FOR PAIN | MAX Dose in 24hrs: 4g
Signature/Print name: Adoctor | Start Date: 1/5/14
Pharmacy | Additional Instructions

Date	4/5/14	5/5/ 14	5/5/14	6/5/14	6/5/14			
Time	23:00	08:00	15:00	08:00	16:00			
Dose	1g	1g	1g	1g	1g			
Initials	an	an	an	an	an			
Date								
Time								
Dose								
Initials								

Medicine/Form: CYCLIZINE
Dose: 50MG | Route: IV
Frequency & Indication: 6 - 8 HOURLY IF NEEDED NAUSEA OR VOMITING | MAX Dose in 24hrs: 150MG
Signature/Print name: Adoctor | Start Date: 2/5/14
Pharmacy | Additional Instructions

Date	3/5/14	4/5/14	
Time	06:30	03:00	
Dose	50mg	50mg	
Initials	an	an	
Date			
Time			
Dose			
Initials			

discontinued by Dr Adoctor 4/5/14

Medicine/Form: MORPHINE
Dose: 5mg | Route: IV
Frequency & Indication: 2 hourly if needed for pain | MAX Dose in 24hrs: 30mg
Signature/Print name: Adoctor | Start Date: 2/5/14
Pharmacy | Additional Instructions

Date	3/5/14	3/5/14	3/5/14	3/5/14	3/5/14	4/5/14	4/5/14	
Time	06:30	11:00	14:30	19:30	23:15	09:00	15:00	
Dose	5mg	5mg	5mg	5mg	5mg	5mg	5mg	
Initials	an bn	an bn	an bn	an bn	an bn	an bn	an bn	
Date								
Time								
Dose								
Initials								

Medicine/Form: CYCLIZINE
Dose: 50mg | Route: ORAL
Frequency & Indication: 6 - 8 HOURLY FOR NAUSEA OR VOMITING | MAX Dose in 24hrs: 150MG
Signature/Print name: Adoctor | Start Date: 4/5/14
Pharmacy | Additional Instructions

Date								
Time								
Dose								
Initials								
Date								
Time								
Dose								
Initials								

Medicine/Form: DIHYDROCODEINE
Dose: 60mg | Route: oral
Frequency & Indication: 6 - 8 hourly if needed for pain | MAX Dose in 24hrs: 240mg
Signature/Print name: Adoctor | Start Date: 4/5/14
Pharmacy | Additional Instructions

Date	4/5/15	5/5/15	6/5/14					
Time	23:00	08:00	08:00					
Dose	60mg	60mg	60mg					
Initials	an	an	an					
Date								
Time								
Dose								
Initials								

DISCHARGE CASE 2

Melvin Stuart is a 75 year old man with non-small cell lung cancer. He was admitted with chest pain. His primary cancer has infiltrated the surrounding tissues and he has bony metastases. He has been started on opiates for analgesia to good effect.
Patient's prescription chart is as follows (4 pages)
Please write his discharge (IDL – Immediate Discharge Letter) prescription, using one sheet for all the controlled drugs and one for the other medicines.

NHS Grampian **PRESCRIPTION & ADMINISTRATION RECORD**

Patient Name:	**MELVIN STUART**	Date of admission	**3/5/15**
CHI number:	**2502351129**	Prescription number	**1**
Date of Birth: (Attach printed label here)		Date re-written	
Hospital / Ward:	**ARI WARD 1**	Weight: kg	Height:
Consultant:	**DR GOOD**	Date recorded:	Gender: M / F **MALE**

KNOWN MEDICINE ALLERGIES/SENSITIVITIES (if NONE confirmed write NKDA in Box 1)

Must be documented before prescription/administration except in exceptional circumstances

1.	2.	3.	4.
NKDA			

VENOUS THROMBOEMBOLISM RISK ASSESSMENT HAS BEEN UNDERTAKEN ON ADMISSION sign _____

OTHER MEDICINE CHARTS OR TREATMENT PLANS IN USE (Please tick)

CHART TYPE		CHART TYPE		CHART TYPE	
1. Diabetes prescription sheet		5. Anaesthetic Record		9. Mental Health Care and Treatment (Scotland) Act 2003 - T2/T3 form	
2. Intravenous Patient-controlled analgesia prescription sheet		6. Oral anticoagulant prescription sheet		10. Adults with Incapacity (Scotland) Act 2000. (Section 47 Certificate and Treatment Plan)	
3. Fluid (additive medicine) prescription and recording sheet		7. Dermatology sheet		11. Syringe Driver	
4. Chemotherapy prescription sheet		8. Ophthalmology sheet		12. Other	

ONCE ONLY PRESCRIPTIONS

Date	Time	Medicine	Dose	Route	Prescribed By (signature / print name)	Time Given	Given By

Approved by Records Standards Group

FILE IN SECTION D

Patient name MELVIN STUART DOB 25/2/35 CHI 2502351129

REGULAR THERAPY	Time	1/5/15	2/5/15	3/5/15	4/5/15	5/5/15	6/5/15	7/5/15
Medicine/Form: SERETIDE 250 Dose: ONE PUFF; Route: INH Signature/Print name: A Doctor Pharmacy; Start Date: 1/5/15; Frequency: 2 x day Additional Instructions: MDI	08	an	an	an	an	an	an	an
	12							
	14							
	18							
	20							
	22	an	an	an	an	an	an	
Medicine/Form: TIOTROPIUM Dose: 18 micrograms; Route: INH Signature/Print name: adoctor Pharmacy; Start Date: 1/5/15; Frequency: 1 x day Additional Instructions: via handihaler	08	an	an	an	an	an	an	an
	12							
	14							
	18							
	20							
	22							
Medicine/Form: PARACETAMOL Dose: 1g; Route: oral Signature/Print name: adoctor Pharmacy; Start Date: 1/5/15; Frequency: 4 x day Additional Instructions:	08	an	an	an	an	an	an	an
	12							
	14	an	an	an	an	an	an	
	18	an	an	an	an	an	an	
	20							
	22	an	an	an	an	an	an	
Medicine/Form: DICLOFENAC Dose: 50mg; Route: oral Signature/Print name: a doctor Pharmacy; Start Date: 3/5/15; Frequency: 3 x day Additional Instructions: with or after food	08				an	an	an	
	12							
	14				an	an	an	
	18							
	20							
	22			an	an	an	an	
Medicine/Form: MST TABLETS Dose: 10mg; Route: oral Signature/Print name: adoctor Pharmacy; Start Date: 5/5/15; Frequency: Additional Instructions: morphine sulphate S/R	08						anbn	anbn
	12							
	14							
	18							
	20					anbn	anbn	
	22							

ENTRIES MUST BE RE-WRITTEN BEFORE FURTHER DOSES ARE ADMINISTERED

Patient name MELVIN STUART DOB 25/2/35 CHI 2502351129

REGULAR THERAPY

Date → / Time ↓	5/5/15	6/5/15	7/5/15
08	an	an	an
12			
14			
18			
20			
22	an	an	

Medicine/Form: DOCUSATE
Dose: 200mg **Route:** oral
Signature/Print name: adoctor
Pharmacy: **Start Date:** 5/5/15 **Frequency:** 2 x day
Additional Instructions:

Time	5/5/15	6/5/15	7/5/15
08		an	an
12			
14			
18			
20			
22			

Medicine/Form: DEXAMETHASONE
Dose: 8mg **Route:** oral
Signature/Print name: adoctor
Pharmacy: **Start Date:** 6/5/15 **Frequency:** 1 x day
Additional Instructions: reducing dose

Time	5/5/15	6/5/15	7/5/15
08		an	an
12			
14			
18			
20			
22			

Medicine/Form: OMEPRAZOLE
Dose: 20mg **Route:** ORAL
Signature/Print name: Adoctor
Pharmacy: **Start Date:** 6/5/15 **Frequency:** 1 x day
Additional Instructions:

Time	5/5/15	6/5/15	7/5/15
08			
12			
14			
18			
20			
22			

Medicine/Form:
Dose: **Route:**
Signature/Print name:
Pharmacy: **Start Date:** **Frequency:**
Additional Instructions:

Time	5/5/15	6/5/15	7/5/15
08			
12			
14			
18			
20			
22			

Medicine/Form:
Dose: **Route:**
Signature/Print name:
Pharmacy: **Start Date:** **Frequency:**
Additional Instructions:

ENTRIES MUST BE RE-WRITTEN BEFORE FURTHER DOSES ARE ADMINISTERED

Patient name MELVIN STUART DOB 25/2/35 CHI 2502351129

AS REQUIRED THERAPY

Field	Entry
Medicine/Form	SALBUTAMOL
Dose	2 PUFFS
Route	INH
Frequency & Indication	IF NEEDED WHEEZE
MAX Dose in 24hrs	
Signature/Print name	ADOCTOR
Start Date	1/5/15
Pharmacy	
Additional Instructions	MDI

Date	3/5/15							
Time	15:00							
Dose	2 PUFFS							
Initials	AN							
Date								
Time								
Dose								
Initials								

Field	Entry
Medicine/Form	SEVREDOL TABLETS
Dose	5MG
Route	ORAL
Frequency & Indication	2 HOURLY IF NEEDED FOR PAIN
MAX Dose in 24hrs	20MG
Signature/Print name	ADOCTOR
Start Date	4/5/15
Pharmacy	
Additional Instructions	

Date	4/5/15	4/5/15	4/5/14/	5/5/15	5/5/15	5/5/15	5/5/15	6/5/15
Time	10:15	14:30	19:00	01:00	05:00	11:30	21:30	03:45
Dose	5mg	5mg	5mg	5mg	5mg	5mg	5mg	5mg
Initials	an bn	an bn	an bn	an bn	an bn	an bn	an bn	an bn
Date	6/5/15	7/5/15						
Time	13:00	05:30						
Dose	5mg	5mg						
Initials	an bn	an bn						

Field	Entry
Medicine/Form	
Dose	
Route	
Frequency & Indication	
MAX Dose in 24hrs	
Signature/Print name	
Start Date	
Pharmacy	
Additional Instructions	

Date								
Time								
Dose								
Initials								
Date								
Time								
Dose								
Initials								

Field	Entry
Medicine/Form	
Dose	
Route	
Frequency & Indication	
MAX Dose in 24hrs	
Signature/Print name	
Start Date	
Pharmacy	
Additional Instructions	

Date								
Time								
Dose								
Initials								
Date								
Time								
Dose								
Initials								

Field	Entry
Medicine/Form	
Dose	
Route	
Frequency & Indication	
MAX Dose in 24hrs	
Signature/Print name	
Start Date	
Pharmacy	
Additional Instructions	

Date								
Time								
Dose								
Initials								
Date								
Time								
Dose								
Initials								

ANTICOAGULATION CASE 1

Jennifer McRobert is a 62 year old woman who was admitted to the medical ward 2 weeks after getting an elective left hip replacement. She has no past medical history other than osteoarthritis of her hips. She was prescribed aspirin as DVT prophylaxis but has complained of 3 days of a more swollen left leg and today experienced sudden onset right sided pleuritic chest pain and shortness of breath. She mentions that her brother had a post operative PE.
She weighs 68 kg.
Following a high probability V/Q scan, a pulmonary embolism is diagnosed.
Please prescribe low molecular weight heparin (dalteparin is local choice) and start warfarin. Please write down your plan for warfarinisation.

ANTICOAGULATION CASE 2

Martin McKendrick is a 36 year old man who has recently had an aortic valve replacement (metallic valve) for endocarditis. He was initially treated with intravenous heparin and has now been started on warfarin.
Today his INR is 3.2.
Please write his discharge prescription, including all the information that the GP needs. See warfarin prescription chart on next page.
You will need to make decisions about the target INR and length of treatment – this can been deliberately left off the following chart, but in reality this information must be included on the chart.

NHS Grampian **IN-PATIENT WARFARIN PRESCRIPTION CHART**

Patient Name:	MARTIN MCKENDRICK	Date of admission	28/4/15
CHI number:	0106743221	Prescription number	1
Date of Birth:	1/6/74	Date re-written	
(Attach printed label here)			
Hospital / Ward:	ARI WARD 4	Weight: kg	Height:
Consultant:	GOOD	Date recorded:	Gender: M / F MALE

KNOWN MEDICINE ALLERGIES/SENSITIVITIES (if NONE confirmed write NKDA in Box 1)

Must be documented before prescription/administration except in exceptional circumstances

1.	2.	3.	4.
NKDA			

VENOUS THROMBOEMBOLISM RISK ASSESSMENT HAS BEEN UNDERTAKEN ON ADMISSION sign

WARFARIN ON ADMISSION	
Dose:	
Intended Duration	
NEW WARFARIN THERAPY	
Fast / slow initiation (see overleaf)	FAST
CONCURRENT MEDICINES WHICH MAY INTERFERE WITH ANTICOAGULANT (SPECIFY LIKELY EFFECT):	

INDICATION	TARGET INR	STANDARD DURATION	TICK
DVT	2.5 (2.0 - 3.0)	3 - 6 months	☐
Mural thrombus	2.5 (2.0 - 3.0)	3 months	☐
Systemic embolism (including PE)	2.5 (2.0 - 3.0)	3 - 6 months	☐
AF	2.5 (2.0 - 3.0)	lifelong unless cardioversion	☐
Heart valve disease, heart failure cardiomyopathy	2.5 (2.0 - 3.0)	lifelong	☐
First generation mechanical heart valves e.g. Starr Edwards	3.5 (3.0 - 4.5)	lifelong	☐
New aortic valve replacement (mechanical)	2.5 (2.0 - 3.0)	lifelong	☐
New mitral valve replacement (mechanical)	3.0 (2.5 - 3.5)	lifelong	☐
Prophylaxis or recurrence of venous or arterial thromboembolism despite INR within 2.0 - 3.0	3.5 (3.0 - 4.5)	lifelong (requires further investigation)	☐
Other:			

ORAL ADMINISTRATION RECORD

DATE	INR	MEDICINE	DOSE	TIME	SIGNATURE/ PRINT NAME	ADMINISTERED BY
30/4/15	1.2	WARFARIN	10mg	18:00	adoctor	anurse
1/5/15	1.4	WARFARIN	10mg	18:00	adoctor	anurse
2/5/15	2.4	WARFARIN	4mg	18:00	adoctor	anurse
3/5/15	3.0	WARFARIN	5mg	18:00	adoctor	anurse
4/5/15	4.5	WARFARIN	4mg	18:00	adoctor	anurse
5/5/15	3.8	WARFARIN	4mg	18:00	adoctor	anurse
6/5/15	3.5	WARFARIN	4mg	18:00	adoctor	anurse
7/5/15	3.2					

Approved by Records Standards Group

FILE IN SECTION D

DVT PROPHYLAXIS CASE

A 64 year old woman is admitted for an abdominal hysterectomy. She is obese. Otherwise she is well with no past medical history. Her current medicines are: tranexamic acid when required and dihydrocodeine. Her HRT was stopped 4 weeks ago.
She weighs 90kg.

Tasks:

1. Name her risk factors for VTE
2. Name her risk factors for bleeding
3. What prophylaxis would you consider? Please prescribe this on the prescription sheet provided.

PRE-OPERATIVE MANAGEMENT CASE 1

A 72 year old man is admitted with a fractured neck of femur. He has a past medical history of hypertension and atrial fibrillation. These are his usual medicines:

Amlodipine 10mg daily
Atenolol 50mg daily
Warfarin – usual dose 4mg daily at 18:00 hours; INR today is 2.2.

He is put on the theatre list tomorrow morning. Consider which of his medicines you should write up on his prescription chart and any other necessary action.

PRE-OPERATIVE MANAGEMENT CASE 2

A 45 year old woman with type II diabetes mellitus is admitted for an elective cholecystectomy. These are her usual medicines:

Metformin 2g daily in divided doses
Glipizide 5mg once daily
Apixaban 5mg twice daily
Felodipine 5mg once daily
Atorvastatin 40mg daily
Ramipril 10mg daily

Consider which of his medicines you should write up on prescription chart and any other necessary action.

SEDATION CASE 1

Alexander Ewing is an 89 year old man who normally lives in a nursing home due to dementia. He is admitted to an orthopaedic ward following a fall in which he sustained a fractured neck of femur. He has very poor vision and is almost deaf. Nursing staff report that Mr Ewing is agitated and distressed at times, and they are struggling to stop him trying to climb out of bed. He has not had any treatment for agitation. When you arrive he is staggering around his room and in danger of falling.

His current drugs are:

Paracetamol 1g four times daily
Senna 2 tabs at night
Tolterodine MR 4mg once daily
Chlorphenamine 4mg three times daily
Prochlorperazine 5mg 6 – 8 hourly if needed nausea

Tasks:
1. List the possible causes of Mr Ewing's agitation and consider non-pharmacological measures that could be used.
2. Prescribe once off sedation to deal with the current issue on the prescription chart.

SEDATION CASE 2

Jessie McDougall is a 55 year old woman who has been admitted with a pneumonia (CURB 2). She is concerned that she will not sleep in hospital and you have been asked to write up a sleeping tablet for her. She is haemodynamically stable and her oxygen saturations on 2 litres oxygen by nasal cannula is 96%.

Prescribe (or not) an appropriate medicine.

ACUTE PAIN CASE 1

A 20 year old man presents to A &E after falling off his bike. He is alert and conscious but in obvious distress and states that he is in "absolute agony". You suspect that he has a simple fracture of the tibia but are awaiting an Xray to confirm. Your registrar asks you to prescribe some parenteral analgesia.

Tasks:

1. Consider the issues around administering parenteral analgesia.
2. Prescribe a one off dose of your drug of choice on the prescription chart.

Part 2
The fracture is confirmed and the registrar decides it does not need fixation. A plaster cast is applied. The nursing staff approach you and ask you to prescribe him some oral analgesia for when the IV analgesia wears off.

3. Consider the options and prescribe suitable analgesia.

ACUTE PAIN CASE 2

A 63 year old man is admitted to a medical ward with crushing retrosternal chest pain. His ECG shows ST depression and a NSTEMI is suspected. The nurses ask you to prescribe something for his pain.

Prescribe your choice of analgesia on the prescription chart.

ALCOHOL WITHDRAWAL CASE

A 58 year old man is admitted to the medical ward with diarrhoea and vomiting. He is admits to drinking a couple of vodkas a day. He last had a drink 2 days ago and is quite shaky although he denies any issue. Both you and the nursing staff suspect he drinks more than he admits to (his GGT and MCV are noticeably raised). The nurses are keen that you write up something to prevent the DTs.

Prescribe an appropriate regime for this man (he is managing oral intake).

IV FLUIDS CASE 1

Mark Smith is a 45 yr old man is admitted at 0800 to a general surgical ward for a hernia repair and he is first on the list. He has been admitted electively and has been fasting since midnight. You receive a phone call from the anaesthetist to say that the operating list has been changed and this patients operation has been delayed to 4pm.

The nursing staff bleep you to ask you to prescribe some fluids for this patient.

Prescribe appropriate fluids on the IV infusion prescription chart.

IV FLUIDS CASE 2

Mary McPherson is an 80 year old lady with history of 3 previous MI's. She is admitted to medicine for the elderly with a urinary tract infection (confused and off legs). Her drugs include furosemide and antihypertensives. On examination she looks dry, HR 70 BP 90/40.

Her bloods are:

Na 154
K 3.7
Urea 21.2
Creat 173

Tasks:

1. Please prescribe initial IV fluids on the prescription chart.
2. Make a plan for further monitoring and fluids.

IV FLUIDS CASE 3

A 34 year old man (Andrew Wright) has had a short section of his distal ileum excised for Crohn's disease. He is 2 days post-op and will probably not be able to eat and drink for another 2 days. He is stable.
There are no blood results for today yet.

This is his fluid chart. The nurses ask you to prescribe today's fluids.

Prescribe the fluids on the chart.

He had 2 bags of normal saline on this chart (6 hourly).

See IV fluids 3 overleaf

LINE:

FLUID (ADDITIVE MEDICINE) PRESCRIPTION AND RECORDING SHEET

(Drugs in the high risk category must be prescribed on Syringe/Volumetric Pump Prescription Sheet)

FILE IN SECTION D
NHS Grampian

	Date	FLUID (USE BLOCK LETTERS) / ADDITIVE MEDICINE	Vol. (ml) / Dose (mg)	Route of Admin. / Duration of Admin.	Rate	DOCTOR'S SIGNATURE	Batch No. / Batch No.	Time Begun / Expected Completion Time	Started By / Added By: Initls.	Initls.	PUMP ID/MP No.	RECORD OF INFUSION (Please use 24 hour clock when recording time)	Actual Completion TIME/DATE
A	1/5/15	SODIUM CHLORIDE 0.9%	1000 mls	I.V / 6 hrs	167 mls/hr	adoctor	xxxxx	16:00 / 22:00	an	bn		Time / Vol. Inf / Vol. Left / Initials	
B	1/5/15	SODIUM CHLORIDE 0.9%	1000 mls	I.V / 6 hrs	167 mls/hr	adoctor	xxxy	22:30 / 04:30	an	bn		Time / Vol. Inf / Vol. Left / Initials	
C												Time / Vol. Inf / Vol. Left / Initials	
D												Time / Vol. Inf / Vol. Left / Initials	
E												Time / Vol. Inf / Vol. Left / Initials	
F												Time / Vol. Inf / Vol. Left / Initials	
G												Time / Vol. Inf / Vol. Left / Initials	
H												Time / Vol. Inf / Vol. Left / Initials	

COMMENTS:- see overleaf

RATE OF FLOW READY RECKONER:- see overleaf

NOTE: Separate sheets are available for:

PCA Pumps By-top/Volumetric Pumps etc

KNOWN DRUG/MEDICINE SENSITIVITY

1. 2. 3.

SURNAME	FORENAMES	CR	UNIT NUMBER	HEIGHT	WEIGHT	HOSPITAL	WARD	CONSULTANT
WRIGHT	ANDREW	2209761071				ARI	64	GOOD

IV FLUIDS CASE 4

A 78 year old man (Duncan Robertson) has been admitted to the surgical ward with a subacute obstruction. He has no cardiac or renal history that you know about. He is initially treated conservatively with a large bore NG tube. He needs I.V fluids as he is nil by mouth.
On examination, he looks a little dry, with a HR of 100bpm, BP 120/56.

Bloods today are:

Na 144
K 5.2
Urea 15.3
Creat 120

These are his charts – urine output 200 mls today; NG output 500mls (until about 15:00, admitted at 06:00)
Has had 1 bag of saline over 8 hours so far

See IV fluids chart overleaf

Please prescribe appropriate fluids.

LINE:

FLUID (ADDITIVE MEDICINE) PRESCRIPTION AND RECORDING SHEET

(Drugs in the high risk category must be prescribed on Syringe/Volumetric Pump Prescription Sheet)

FILE IN SECTION D
NHS Grampian

	Date	FLUID (USE BLOCK LETTERS) / ADDITIVE MEDICINE	Vol. (ml) / Dose (mg)	Route of Admin. / Duration of Admin.	Rate	DOCTOR'S SIGNATURE	Batch No. / Batch No.	Time Begun / Expected Completion Time	Started By / Added By: Initls.	Added By: Initls.	PUMP ID/MP No.	RECORD OF INFUSION (Please use 24 hour clock when recording time)	Actual Completion TIME/DATE
A	1/5/15	Sodium Chloride 0.9%	1000ml	I.V 8 hours	125 mls/hr	adoctor	xxxx	07:00 15:00	an	bn		Time / Vol. Inf / Vol. Left / Initials	
B												Time / Vol. Inf / Vol. Left / Initials	
C												Time / Vol. Inf / Vol. Left / Initials	
D												Time / Vol. Inf / Vol. Left / Initials	
E												Time / Vol. Inf / Vol. Left / Initials	
F												Time / Vol. Inf / Vol. Left / Initials	
G												Time / Vol. Inf / Vol. Left / Initials	
H												Time / Vol. Inf / Vol. Left / Initials	

COMMENTS:- see overleaf

RATE OF FLOW READY RECKONER:- see overleaf

NOTE: Separate sheets are available for:

PCA Pumps, Syringe/Volumetric Pumps, etc

KNOWN DRUG/MEDICINE SENSITIVITY

1. 2. 3.

SURNAME	FORENAMES	CR	UNIT NUMBER	HEIGHT	WEIGHT	HOSPITAL	WARD	CONSULTANT
ROBERTSON	DUNCAN	0502361111				ARI	64	GOOD

DIABETES PRESCRIBING

DIABETES PATIENT ONE

Mr David King (CHI 2307752209) has Type 1 Diabetes Mellitus and has presented into the AMAU with shortness of breath and cough. He has been diagnosed with pneumonia and is able to eat and drink. He is on a basal bolus regimen. Novorapid 6 units before breakfast, 8-10 units before lunch and 10-12 units before teatime. He takes his Levemir 12 units at bedtime.

Hours 1 - 2

All his medications have been written up apart from his diabetes chart. Prescribe his diabetes medication. His blood sugar is currently 17. What other information do you want to know?

Hours 3 - 4

David was commenced on antibiotics but he began to vomit and was unable to keep anything down. It turns out he had also missed his morning insulin. His blood glucose was now 22 and he had 3 plus ketones and 4.2 blood ketones.

Task 1: What should be the next step in his management? Signs?
Task 2: As suspected he has developed DKA – see the protocol attached. Prescribe fluids and insulin treatment regime on DKA prescription pathway sheet.

Diabetic ketoacidosis care pathway 1

NHS SCOTLAND

Time of Arrival:_____ NAME: *Affix label*
Location: _____
Date: _____

0-4 hours Emergency Management

Ideally patients with DKA should be managed in a MHDU setting

Aim: To improve the acute management of diabetic ketoacidosis in adults aged 16 years and over within the first 4 hours of presentation (for paediatric management go to **www.bsped.org.uk**)

Definition: Severe uncontrolled diabetes with: a) ketonaemia/ketonuria b) metabolic acidosis c) usually with hyperglycaemia

Severe DKA = pH <7.1 or HCO3 <5mmol/L or H+ > 80mEq/L

Consultant/Senior physician should be called immediately if:

- Cerebral Oedema
- Severe DKA
- Hypokalaemia on admission
- Reduced conscious level

1. Immediate actions	✓
Confirm diagnosis H+ > 45 or HCO3 < 18 or pH < 7.3 on **venous gases**	
Check U&Es and laboratory Blood Glucose	
Check urine or blood ketones	
Confirm patient ≥ 16 years	
Record time of arrival	
2. Management 0-60 mins	
Commence iv 1L Sodium Chloride 0.9% over 1 hour within 30 mins of admission	
Time and sign fluid commencement (on reverse)	
Commence soluble insulin IV 6 units/hour within 30 mins of admission	
Time and sign start of insulin (on reverse)	
Record SEWS/MEWS/SIRS score	

Other interventions to be considered (tick box if performed)	✓		
Review ECG or cardiac monitor		Blood cultures	
Record GCS score		Central line	
Insert catheter if oliguric		Chest Xray	
MSSU		DVT prophylaxis	
If protracted vomiting insert NG tube		**If deteriorating, consultant or senior physician called**	

3. Ongoing Management 1-4 hours							✓
Record: SEWS/MEWS/SIRS		ECG		GCS			
Time and sign ongoing Sodium Chloride 0.9% replacement (on reverse)							
1L Sodium Chloride 0.9% hour 2 + KCL							
500mls/hour for hours 3-4 + KCL							
Review K^+ result – admission or most recent result Prescribe KCl in 500 ml Sodium Chloride 0.9% bag as: None if anuric or K^+ > 5 mmol/L 10 mmol if level 3.5-5 mmol/L 20 mmol if level <3.5 mmol/L							
Check finger prick Blood Glucose hourly	1hr		2hrs		3hrs	4hrs	
Lab Glucose, U&Es and HC03 at:			2hrs			4hrs	

(tick box if measured)

If Blood Glucose falls to ≤ 14 mol/L in first 4 hours	
Commence Glucose 10% 500mls with 20 mmol KCl at 100ml/hour	
Continue Sodium Chloride 0.9% at 400mls/hour + KCL (as per K+ table above) until end of hour 4	
Reduce insulin to 3 units/hour	
Maintain Blood Glucose >9 mmol/L and ≤14 mmol/L adjusting insulin rate as necessary	
If Blood Glucose <9mmol/L adjust insulin to maintain level >9mmol/L and <14mmol/L	
If Blood Glucose >14mmol/L see supplementary note	
Progress on to second DKA Care Bundle "4 hours to discharge"	

Fluid (potassium) prescription sheet

	DATE	FLUID POTASSIUM	Vol (ml) Dose (mmol)	Duration	Signature	Serial No Batch No	Time begun	Given by
A		Sodium Chloride 0.9%	500ml	30mins				
B		Sodium Chloride 0.9%	500ml	30mins				
C		Sodium Chloride 0.9%	500ml	30mins				
D		Sodium Chloride 0.9%	500ml	30mins				
E		Sodium Chloride 0.9%	500ml	60mins				
F		Sodium Chloride 0.9%	500ml	60mins				
G								
H								

Once Blood Glucose <14mmol start Glucose 10% in addition to Sodium Chloride 0.9%

I		Glucose 10%	500ml	5 hours				
		KCL 20 mmol						
J		Glucose 10%	500ml	5 hours				
		KCL 20 mmol						
K								

Intravenous Insulin Prescription

DATE TIME	INSULIN RATE (units/hr)	TYPE OF INSULIN	SIGNATURE	GIVEN BY
	6units/hour when Blood Glucose >14 mmol/L			
	3units/hour when Blood Glucose ≤14 mmol/L			

Supplementary notes

1. **Guidance on bicarbonate**
   Do not use bicarbonate.
2. **Potassium Replacement**
   KCL should not normally be administered at a rate of greater than 20mmol/hour
3. **WBC Count**
   The WBC count is often raised in DKA and antibiotics should only be administered if there is clear evidence of infection.
4. **Blood Glucose >14 mmol/L**
   If Blood Glucose rises >14mmol/L do not stop glucose, adjust insulin to maintain level between 9 and 14 mmol/L
5. **Signs of Cerebral Oedema**
   Children and adolescents are at the highest risk of cerebral oedema. Consider if:
   - Headaches
   - Reduced conscious level.
   - Monitoring for signs of cerebral oedema should start from the time of admission and should continue until up to at least 12 hours after admission
   - Administer IV mannitol (100mls of 20% over 20 minutes) or dexamethasone 8mg (discuss with Consultant)
   - Undertake CT scan to confirm findings;
   - Consider ITU (check arterial blood gases)
   - If there is a suspicion of cerebral oedema or the patient is not improving as expected /within 4 hours of admission, call Consultant.
6. **Laboratory Blood Glucose Testing**
   It is reasonable to use a point-of-care blood glucose meter to monitor blood glucose level if the previous laboratory blood glucose value is less than 20 mmol/L .
7. **Insulin Management**
   Insulin should be prescribed, beginning at 6 units/hour. Rate will generally be reduced with time depending on clinical circumstances, presence of long acting insulin and to avoid a fall of >5mmol/L per hour as rapid falls in Blood Glucose may be associated with cerebral oedema.

Do not stop glucose once started

DIABETES PATIENT TWO

Sally Smith (CHI 3001472271) has Type 1 Diabetes she is due to have a hysterectomy the following day on ARI Ward 43. Her usual insulin is Novomix 30 at doses of 26 units before breakfast and 14 units before tea. She is listed for surgery in the morning.
Please prescribe her insulin and discuss the next step of her management.

When do you recommence her insulin and what do you do?

CHESTPAIN CASE

Mr Michael Mouse (65) has no significant previous medical history. He is admitted to ARI Ward 101 with chest pain. Serial ECGs show no ST changes but a significant rise on Troponin-1 and he has been diagnosed with an NSTEMI. Following consultation with seniors it was decided not to proceed to PCI.
eGFR>60mls/min, BP 165/90 mmHg, Pulse 66/min in SR.

1. Prescribe initial treatment for Mr Mouse
2. Prescribe secondary prevention medications