

Safer Prescribing Workbook

SECTION 1

PRESCRIPTION WRITING

Andy Fox Principal Pharmacist - Risk

The objectives of this section are:

- To be able to write prescriptions according to guidelines for prescription writing in the BNF and local practice
- To know how to prescribe unusual dose regimens on a drug chart
- To know how to write a prescription for a controlled drug

PRESCRIPTION WRITING

Errors occur when planned actions fail to achieve a desired outcome.

There are two main error types

- Slips and lapses, where the actions do not go according to plan e.g. intending to write 5mg of a drug but *unintentionally* writing 50mg
- Mistakes, where the plan itself is wrong e.g. writing 50mg of a drug not knowing the usual dose is 5mg.

It is not known how often prescribing errors occur. However it is known that patients can be harmed as a result of some prescribing errors. Prescribing errors can occur as a result of

Inadequate knowledge of the patient and their clinical status

Inadequate drug knowledge

Calculation errors

Illegible handwriting

drug name confusion

poor history taking

Fatigue and workload may also contribute to the risk of slips and lapses.

It is important that all prescribers are aware of the risks and principles of safe prescribing.

Allergy documentation

Before writing any prescription check the patient's allergy status for contraindicated drugs, and confirm that the drug you wish to prescribe is safe for the patient. Check also for drugs which the patient may not be able to tolerate because of their clinical conditions e.g. in G6PD deficiency, chronic renal impairment, myasthenia etc.

Illegible prescriptions

The following are examples of where drug names have been misinterpreted as a result of poor handwriting. Patients were harmed as a result

A prescription for amoxycillin was misread as Daonil (an oral hypoglycaemic). The patient suffered permanent harm as a result of prolonged hypoglycaemia.

A prescription for Isordil (isosorbide mononitrate) was misread as Plendil (felodipine)

MEDICAL CENTER HOSPITAL
 500 - 600 W. 4TH STREET ODESSA, TEXAS Ph. 333-7111

FOR Varguez Ramon AGE _____
 ADDRESS 1111111111111111 DATE 6/23/95

Pendil 20mg # 120 -
20mg P.O. Q6hr

NO REFILLS ☐ Ferron Sulfate 300mg # 100
300mg P.O. TID c meals

REFILLS _____
 LABEL ☐ Humulin N
30 units SQ QAm.
Ram-1/6/95

PRODUCT SELECTION PERMITTED DISPENSE AS WRITTEN

D.E.A. # _____

728 937 2/88 IN 88-270

(Ref. BMJ 1999; 319: 1456)

What should the nurses administer against this prescription?

DRUG (APPROVED NAME) - <u>Humulin N</u>				6							
Dose	Route	Start Date	Valid Period	8							
<u>100mg</u>	<u>0</u>	<u>2/3/97</u>		12							
Signature <u>[Signature]</u>			Pharm.	14							
Additional Instructions				18							
				22							

Or this prescription?

Aloxine

ENSURE YOUR PRESCRIPTIONS ARE LEGIBLE AND CANNOT BE MISINTERPRETED.

Write out the names of the following drugs in your usual handwriting. Get a non-medically trained friend to transcribe them. If they can transcribe them accurately then your handwriting is likely to be legible!

Amiodarone
Amiloride
Amlodipine
Carbamazepine
Carbimazole
Thyroxine
Ceftriaxone
Ceftazidime

Dose units

As well as drug names, dose units can be misinterpreted. This is especially important in paediatrics and for drugs where there is a wide variation in the dose that can be administered e.g. opiates

- *A patient died after receiving an epidural infusion containing 30mg diamorphine in 10mls instead of 3mg in 10mls. The doctor's prescription had been misread.*

(The Times. July 3 1996)

Write the word units in full

- *Abbreviation of the word units to IU resulted in the administration of 10-fold overdoses of insulin when prescriptions for 6IU were misread as 61 units*

(PharmJ 2001;267:193)

Always prescribe in whole units avoiding the need for decimal points wherever possible. Milligram to microgram conversions can result in 10-fold errors.

- *A baby weighing 3.2kg was prescribed 10micrograms/kg of digoxin. When the prescription was written the decimal point was omitted and a dose of 320microgram was prescribed and administered.*

(BBC News Online, March 9, 1999)

Write up the following doses in micrograms

Digoxin 0.0625mg
Thyroxine 0.05mg
Clonazepam 0.1mg
Octreotide 0.05mg
Ipratropium inhaler 0.02mg per dose
Atropine 0.6mg

Prescribing unusual frequencies

Mistakes may occur when drugs are not given every day, or the frequency changes. A small number of medicines are only taken weekly e.g. oral methotrexate, or are formulated to be taken once weekly instead of once daily e.g. alendronate 10mg daily/alendronate 70mg once a week. If the prescription is not clear weekly doses may be given daily causing patient harm.

Example 1

Prescription for weekly alendronate

On the first drug chart it is possible for the patient to be administered 70mg daily. The weekly instruction can easily be overlooked and the drug given at 8am every day.

On the second drug chart the administration record is crossed through on the days when doses are not due. The drug cannot be given and the risk of inadvertent daily administration of a weekly drug is avoided.

Chart 1

Date →				1	2	3	4	5	6	7	8	9	10
DRUG (print approved name)													
Alendronate													
Signature													
A													
Print name & designation													
A.F.													
Dose													
70													
mg microgram ml units													
Additional info and/or dose/kg													
Weekly													
Date													
11/7/07													
Route													
ORAL													
Pharmacy													
Bleep													
1234													
Time													
09.00													
13.00													
17.00													
21.00													

Chart 2

Date →				1	2	3	4	5	6	7	8	9	10
DRUG (print approved name)													
Alendronate													
Signature													
A													
Print name & designation													
A.F.													
Dose													
70													
mg microgram ml units													
Additional info and/or dose/kg													
Date													
11/7/07													
Route													
ORAL													
Pharmacy													
Bleep													
1234													
Time													
09.00													
13.00													
17.00													
21.00													

IMPORTANT: Oral Methotrexate is prescribed to be taken once weekly for psoriasis and rheumatoid arthritis. Patients have been harmed when methotrexate has been inappropriately prescribed or taken daily in error. National Guidance has been issued to try to avoid such harm from occurring.

ENSURE DOSES NOT DUE ARE CROSSED THROUGH ON THE CHART

Answers

Digoxin 62.5micrograms, thyroxine 50 micrograms, clonazepam 100micrograms, octreotide 50 micrograms, ipratropium 20micrograms, atropine 600micrograms

Example 2

Prescription for amiodarone loading doses

Amiodarone is typically initiated by giving 200mg tds for 7 days, then 200mg bd for 7 days, then 200mg od for 7 days. Because the drug charts are valid for 14 days particular care is needed when the prescription is transcribed. There is a risk that amiodarone is transcribed as tds. Always transcribe the drug chart using the latest dosing regimen

DRUG (print approved name)	Dose	Additional info and/or dose/kg			1	2	3	4	5	6	7		
Amiodarone	200			09.00									
Signature	mg microgram ml units			13.00									
Date	Route	Pharmacy		12.00									
Print name & designation	Bleep			21.00									
A.F	1234	ORAL											

PRESCRIPTION WRITING STANDARDS

Legal responsibility for prescribing lies with the practitioner who signs the prescription.

GENERAL	
The patient	All drug charts and TTAs MUST include the patient's surname and given name, their date of birth, date of admission, consultant. Where dosing is weight dependent e.g. paediatrics, low molecular weight heparins, or patient is significantly under- or overweight, the weight should be documented
Allergy box	Both positive and negative allergy histories and drug sensitivities MUST be documented. Where allergy history is positive symptoms of the allergy should be described.
Drug name	Write approved names, legibly and correctly spelt. Do NOT use abbreviations Print if necessary
Dose	NO trailing zeroes (5mg NOT 5.0mg) Quantities of 1gram or more should be written (1g, 1.5g etc.) Quantities less than 1g should be written in milligrams (500mg NOT 0.5g) Quantities less than 1mg should be written in micrograms (100micrograms NOT 0.1mg) When decimals are unavoidable the decimal point MUST be preceded by another figure (0.5mls NOT .5mls)
Dose units	The words <i>micrograms</i> , <i>nanograms</i> and <i>units</i> MUST NOT be abbreviated. The term <i>millilitre</i> is abbreviated to ml NOT cc or cm ³
Frequency	The dose and frequency must be specified. For <i>As Required</i> prescriptions the minimum dose interval MUST be specified (6hours NOT qds)
Start date	Specify the date the drug was FIRST prescribed/due this admission (not the date the chart is rewritten)
Indication	For <i>As required</i> prescriptions the indication should be included
Signature	Prescriptions must be signed in ink. Bleep/contact numbers should be included so that prescribers can be contacted if necessary
CONTROLLED DRUG TTAs	
	Must be written entirely in the doctor's own handwriting and must include: The patient's name and address (or unit number) The form (e.g. tablets, liquid) and the strength of the preparation The total number of dose units to be supplied in both words and figures The dose. Examples are included in the BNF and the King's Formulary.
INTRAVENOUS PRESCRIPTIONS	
	Drugs for continuous infusion should be written on an IV Fluid prescription
	The drug and quantity must be specified
	The name of the infusion solution (diluent) must be specified
	The rate of administration must be specified in mls/min or mls/hr
UNUSUAL REGIMENS	
	For doses taken intermittently or at irregular intervals boxes corresponding to doses that are not due MUST be crossed out. e.g. weekly alendronate, 3x week erythropoietin
DISCONTINUING MEDICATIONS and CHANGING DOSES	
	Cross off the prescribing section of the drug chart AND the administration section. Sign and date the chart.
	If the dose is changed it must be rewritten with the NEW start date
ADDITIONAL DRUG CHARTS	
	Insulin and warfarin must be prescribed on drug charts with the instruction <i>see insulin prescription</i> or <i>see anticoagulation prescription</i> . Doses must NOT appear on two separate charts concurrently.
	Only ONE drug chart should be in use at once.
	Two drug charts are ONLY permitted if the number of drugs currently prescribed exceeds the number of spaces on the chart. Where more than one chart is used they must be labelled '1 of 2', '2 of 2' etc.
	Where two charts are necessary they must be fastened together.

Controlled drugs

The way in which CD prescriptions are written is strictly defined and must be adhered to. Contrary to popular belief this is not difficult...honest.

The only difference between a CD prescription and any other prescription is that the preparation to be supplied must be defined, e.g. morphine sulphate 10mg tablets (Sevredol), and the total number of units of that preparation specified in both words and figures - see attached example. Also it ALL has to be written in the doctors own handwriting (which means that Pharmacy cannot make changes for you!)

If still in doubt consult the guidelines in the BNF or contact the pharmacy for advice

This section of the workbook contains tasks for you to complete.

You might find it helpful to do this alone and then discuss the answers in your groups.

Task 1

Mr AB was admitted through casualty last night and a drug chart has been written. Comment on the drug chart and make any necessary amendments for it to conform to Trust prescription writing standards.

Date →						
DRUG (print approved name) DIGOXIN	Dose .125		Additional info and/or dose/kg			
Signature A	mg microgram ml units					
Print name & designation	Date 10/2	Route PO	Pharmacy	09.00		
	Bleep 1234			13.00		
				17.00		
				21.00		
DRUG (print approved name) LABIX	Dose 1		Additional info and/or dose/kg			
Signature R	mg microgram ml units					
Print name & designation	Date 10/2	Route PO	Pharmacy	09.00		
	Bleep 1234			13.00		
				17.00		
				21.00		
DRUG (print approved name) WARFARIN	Dose 4		Additional info and/or dose/kg			
Signature A	mg microgram ml units					
Print name & designation	Date 10/2	Route PO	Pharmacy	09.00		
	Bleep 1234			13.00		
				17.00		
				21.00		

Task 2

On a ward round the decision is made to commence Mr CD on heparin thromboprophylaxis. The consultant asks you to prescribe twice daily heparin. Write a prescription for this patient

DRUG (print approved name)	Dose		Additional info and/or dose/kg						
	mg	microgram		ml	units	09.00			
Signature	Date	Route	Pharmacy						
Print name & designation	Bleep			13.00					
				17.00					
				21.00					

Task 3

Mrs PQ, a patient with breast cancer and bony metastases, is to be discharged from hospital. Her analgesic requirements have been stabilized while she has been in hospital and she needs a supply of Morphine Sulphate tablets to go home on. (As well as her usual medication she will also need painkillers for possible breakthrough pain and regular laxatives)

Write a controlled drug TTA corresponding to this regular morphine sulphate prescription.

Bleep								
DRUG (print approved name) MR MORPHINE SULPHATE		Dose 40		Additional info and/or dose/kg				
Signature CA		mg microgram ml units				09.00		
Date 10/2		Route PO		Pharmacy /CD		13.00		
Print name & designation AF		Bleep				17.00		
						21.00		
DRUG (print approved name)		Dose		Additional info and/or dose/kg				

C O N F I D E N T I A L

Patient
Address

Tel No
Date of Birth:
Hospital No:
NHS No:
Discharge date:

Sex:

Admit date:

Admit
method/type:

Discharge to:

Discharge From:

DIAGNOSES/MAIN PROBLEMS:		OPERATION/PROCEDURE:		DATE:	
1.		1.		1.	
2.		2.		2.	
3.		3.		3.	
4.		4.		4.	
5.		5.		5.	
6.		6.		6.	

CLINICAL RECOMMENDATIONS:

OTHER RELEVANT INFORMATION:

Please record ALL DRUGS that the patient is taking and indicate with a TICK those which you require to be dispensed.

	DRUG (APPROVED NAME)	DOSE AND FREQUENCY	NO OF DAYS	PHARMACY

Continuation Sheet used YES ☐ NO ☐

PHARMACIST CLINICAL CHECK:

DISPENSED BY:
CHECKED BY:
DATE:

OTHER DRUG INFORMATION:

INFORMATION GIVEN TO PATIENT:

FOLLOW UP ARRANGEMENTS:

RESULTS AWAITED:

Signature:

Patient's Ward:

Date:

Name:

BLEEP:

Designation:

EXT:


Responsible Consultant:

Copies to:

Task 4

The following prescriptions contain errors. Comment on the prescriptions and think about how these errors might have occurred, what the risks are and how they could be avoided.

1. Mixtard

DRUG (print approved name) Mixtard	Dose 70		Additional info and/or dose/kg				
Signature 	mg microgram ml units			09.00			
Print name & designation	Date 23/7/07	Route sk	Pharmacy	13.00			
	Bleep 1234			17.00			
				21.00			

What are the risks?

How might this have occurred?

How could the risks be avoided?

The insulin prescription charts used at SUHT's are designed to avoid this type of error. The dose in units is prescribed directly onto the insulin chart. There is no need to write the word units, or any abbreviation of the word units after the dose.

Familiarise yourself with the insulin chart.

2. Ramipril

DRUG (print approved name) RAMIPRIL	Dose 25 5mg		Additional info and/or dose/kg				
Signature AZ	mg microgram ml units	Date 23/7/07	Route PO	Pharmacy	09.00	A	A
Print name & designation	Bleep 1234				13.00		
					17.00		
					21.00	A	A

What are the risks?

How might this have occurred

How could the risks be avoided?

3. Comment on this prescription


DRUG (print approved name) CIPROFLOXACIN	Dose 500		Additional info and/or dose/kg				
Signature A	mg microgram ml units	Date 16/7/07	Route PO	Pharmacy	09.00		
Print name & designation A. Fox	Bleep 1492				13.00		
					17.00		
					21.00		
DRUG (print approved name) CALCIHEW DS TABLETS	Dose 10		Additional info and/or dose/kg				
Signature A	mg microgram ml units	Date 16/7/07	Route	Pharmacy	09.00		
Print name & designation A. Fox	Bleep 1492				13.00		
					17.00		
					21.00		

What are the risks?

How could this have occurred

How could the risks be avoided?

4. What is this drug?

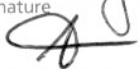
DRUG (print approved name) AZT	Dose 250		Additional info and/or dose/kg				
	mg	microgram	ml	units	09.00		
Signature 	Date 10/2	Route PO	Pharmacy		13.00		
Print name & designation	Bleep 1234				21.00		

What are the risks?

How might this have occurred?

How could the risks be avoided?

5. What are the risks with this prescription?

DRUG (print approved name) Phenytoin	Dose 1g		Additional info and/or dose/kg				
	mg	microgram	ml	units	09.00		
Signature 	Date 23/7/07	Route IV	Pharmacy		17.00		
Print name & designation	Bleep				21.00		

How could this have occurred?

How could these risks be avoided?

INFORMATION SOURCES

The objectives of this section are:

- To be able to interpret drug dosing information in the BNF
- To know how to use the BNF, pharmacy and computer-based prescribing decision support to access information about drug treatments including drug interactions
- To know the difference between the different formulations of oral morphine and the implications for prescribing
- Be aware of the role of the Medicines Information Department

Introduction

British National Formulary (BNF)

This is published twice a year by the British Medical Association and the Royal Pharmaceutical Society of Great Britain. It is designed to be a concise, first-line reference source on the prescribing, dispensing and administration of drugs. It will usually provide information on UK indications, dosages for adults and any licensed paediatric dosages, adverse effects and different formulations in which a drug is available.

The BNF comprises a set of chapters, appendices and indexes. The introductory chapters provide some general information such as guidance on prescribing and prescribing in palliative care. Most other chapters cover a single area of medicine e.g. cardiovascular system, and consist of a section of general information followed by drug monographs.

The appendices comprise topics such as drug interactions, liver disease, renal impairment, pregnancy, breastfeeding and intravenous administration.

Other helpful sections of the BNF include the list of drugs to be avoided in acute porphyrias, summaries of antibacterial treatment and prophylaxis, drugs to be avoided in G6PD deficiency and the British Thoracic Society Guidelines for the management of asthma. There is also information on relevant NICE guidance included throughout.

The content of the BNF is drawn from a variety of sources and information may not always reflect *licensed* indications or doses, although it will often state if it is an unlicensed indication. It does not usually give details about the frequency, clinical presentation or management of side effects and interactions. It is generally not referenced and chapters on specialist areas like oncology are brief, as professionals working in these fields should have access to detailed literature.

The appendices do give some guidance on prescribing in problem areas such as pregnancy and breast-feeding, but these should be used in conjunction with more specialist resources where necessary.

The BNF is available free of charge on-line at www.bnf.org.uk.

BNFC

The BNF for children contains all the licensed and unlicensed doses of medication used in children. This is the primary source of information for prescribing in children in SUHT

Medicines Information Department

The Medicines Information Department within Pharmacy is staffed by Pharmacists specifically trained to access specialist information sources and medical and pharmacy databases. The department offers an enquiry answering service to hospital staff, primary care and patients and can be contacted between 9 and 5:30 on extension 3007 (0207 346 3007). Out of hours urgent information relating to medicines may be obtained by contacting the on-call pharmacist via King's Switchboard.

Your Clinical Pharmacist

Don't forget that each ward is visited by a clinical pharmacist at least once a day. Get to know who they are. They will be able to answer most of your questions relating to medication

Patient 1

Mrs. SS is a 31-year-old lady admitted with a UTI. On the ward round it is decided that she should be treated with trimethoprim.

- a. Write an appropriate prescription for this

Whilst you are writing the prescription Mrs. SS tells you that she thinks she may be pregnant and will these tablets be OK to take.

- b. Is trimethoprim an appropriate antibiotic for her? If not write a prescription for a suitable alternative.

Mrs. SS is also complaining of a headache.

- c. Write a prescription for a suitable analgesic for her

DRUG (print approved name)	Dose		Additional info and/or dose/kg						
	mg	microgram	ml	units					
Signature	Date	Route	Pharmacy						
Print name & designation	Bleep								

DRUG (print approved name)	Dose		Additional info and/or dose/kg						
	mg	microgram	ml	units					
Signature	Date	Route	Pharmacy						
Print name & designation	Bleep								

DRUG (print approved name)	Dose		Additional info and/or dose/kg						
	mg	microgram	ml	units					
Signature	Date	Route	Pharmacy						
Print name & designation	Bleep								

Patient 2

Mr. JB has AF. He received an IV loading dose digoxin and has been receiving oral digoxin 125 micrograms daily for about 14 days. He has also been loaded with warfarin and his INR is currently about 2.4 (within range). His heart rate has come down but is still not fully controlled and his digoxin level has come back as $1.6\mu\text{mol/L}$. On the ward round the consultant says he can't remember what the normal level is and asks you if you could find out if this is therapeutic?

- a. What is the normal therapeutic range for digoxin?

It is decided that Mr. JB needs to have oral amiodarone added in and you are asked to come back and write it up after the ward round.

- b. What dose of amiodarone should you use and how should it be continued.
- c. Is there anything else that needs to be considered taking into account the medication that he is already receiving?

Patient 4

Mr. PS is an elderly gentleman with heart failure. His current medication includes the following:

ramipril 5mg bd

bisoprolol 5mg od

Frumil 1 tablet each morning

aspirin 75mg od

He has been seen by the cardiologists and they have recommended that he be started on low dose spironolactone.

- a. What would be an appropriate dose of spironolactone?

Two days later Mr. PS's blood results come back and he is noted to have a potassium level of 6.6mmol/L.

- b. What do you think has happened?

- c. How should this be treated?

Patient 4

Mr. BB is an asthmatic patient who has been admitted with chest pain. He needs to be started on a medication for his angina and since he is asthmatic it is decided that he should be given diltiazem. Mr. BB says he would prefer any new medications to be just once daily if possible so that he will remember to take them.

- a. Write a prescription for his diltiazem choosing an appropriate formulation.

DRUG (print approved name)	Dose		Additional info and/or dose/kg					
	mg	microgram	ml	units	09.00			
Signature	Date	Route	Pharmacy		13.00			
Print name & designation	Bleep				17.00			
					21.00			

End of Section 1.

F1 Doctor Signature.....GMC.....

F2 Doctor Signature.....GMC.....