INTRODUCTION

The ability to prescribe is a fundamental privilege of our roles as doctors. It gives us the opportunity to help people with their symptoms, to cure their illnesses and to prevent illnesses they haven't even had yet. Prescriptions also can cause significant harm which is why this is not a privilege that is earned easily and why the process has a significant system of checks and regulations to support it.

The introduction of a national assessment in prescribing underlines the importance of prescribing and GP placements are the ideal place to learn about this. Throughout this chapter we will make full use of the BNF online. Try opening this essential resource and start to familiarise yourself with it.

Because prescribing is such a practical activity unlike other chapters, the placement activities and resources necessary are with each section, rather than appearing at the end.

NEED TO KNOW

WHAT IS A PRESCRIPTION?

- (Of a medical practitioner) advise and authorise the use of (a medicine or treatment) for someone, especially in writing.
- Recommend (a substance or action) as something beneficial.
  Oxford English Dictionary

Prescribing can take the form of advice or referral to a form of therapy. More commonly though, when we refer to a prescription, we are talking about bits of green paper with unpronounceable names and abbreviated Latin on it. In secondary care settings prescriptions may be written on drug charts or on e-prescribing systems. No matter what form a prescription takes, it is essentially a form of communication. A very precise message from a prescriber, about a particular patient and the medicine suggested for that patient.

WHY PRESCRIBE?

A lot of medications are available "over the counter". This means that a prescription is not required for a person to purchase it. Some medicines can be dispensed by a pharmacist without a prescription.
All medicines in the UK are issued their licences and regulated by the Medicines and Healthcare products Regulatory Agency (MHRA). Medicines which carry a greater risk of harm to the individual or the population can only be dispensed following a review with a health professional who is able to prescribe.

A prescription is only issued when:

"they are necessary, and in all cases the benefit of administering the medicine should be considered in relation to the risk involved."

EXERCISE - HAVE A GO AT PRESCRIBING

You are asked to go on a home visit to Mr Johnstone. He is a 60yr old builder. He was seen 2 days ago and was diagnosed with cellulitis of his left foot after standing on a nail. He was prescribed oral Flucloxacillin and has been taking it for the last 48hrs. He has asked for a visit because the cellulitis has spread up to his knee and now he can’t walk more than a few meters. His observations are normal, he is not systemically unwell but is in a lot of pain despite regular Paracetamol and Ibuprofen. He has no allergies and is requesting ”those painkillers which really helped when I put my back out”. His records show that these were Co-codamol 30/500. His recent bloods show raised inflammatory markers but are otherwise normal.

You discuss his case with the on-call Microbiologist and the Acute Care at Home Team (specialist nurses, able to give IV medications in a patient’s home). You decide to prescribe IV Ceftriaxone 2g OD for 5 days and Co-codamol 30/500, 2 tablets QDS as needed, 28 tablets in total.

Click on the images to download and print a blank FP10 to write a prescription for the chemist to dispense the medicines AND a prescription for the ACAH nurse to give the Ceftriaxone. With your placement partner, practice what you need to say to the patient before giving him the prescription. Referring to the BNF may be helpful. Critically evaluate each-other, before asking a supervising GP to comment.

ACAH prescription form: https://drive.google.com/open?id=14yuNH24oCsVoPtL5Ny2Vpgow-Qo3fTU-

Sample FP10: https://drive.google.com/file/d/1_uSNzgTYkhg1hQt9Qt9RMM2b-Ier-0cQo/view?usp=sharing
WHAT ARE THE COMMON PITFALLS OF PRESCRIBING?

"You are responsible for the prescriptions that you sign. You must only prescribe drugs when you have adequate knowledge of your patient's health. And you must be satisfied that the drugs serve your patient's need."

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What are the most common considerations when choosing the right drug at the right dose, for the right patient? Below is a graph from an article on prescribing errors:

![Graph of prescribing errors](image)


Using the links and resources below, try some exercises that help illustrate some hazards in prescribing, see below.
Mary is a 32-year-old office-worker with type 1 diabetes. She has come to see you because she has a productive cough and sore throat. She had a similar illness a year ago and was initially prescribed Amoxicillin. Mary was distressed by some associated loose stools. She subsequently felt her symptoms improved with the Doxycycline she was changed to and this is what she wants today. Mary also mentions that her period is 2 weeks late.

Whilst Mary is doing a urinary pregnancy test you note from her medical records that she has recently been commenced on Warfarin for a DVT which was believed to be secondary to the combined oral contraceptive pill (COCP). Mary tells you that the COCP was stopped at the time of her DVT diagnosis (3 weeks ago) but she has not been able to come in to discuss alternative contraception. Mary has been managing the pain from her DVT with "simple" (over-the-counter) painkillers. Mary's pregnancy test is positive.

1. Assuming you feel antibiotics, are indicated, would you prescribe Doxycycline? What might be an appropriate alternative? How might this effect your risk vs benefit conversation?
2. Are there nutritional supplements which are indicated in pregnancy? Do her co-morbidities effect the dose of any of these? Are there any nutritional supplements or vitamins Mary should avoid?
3. Which over-the-counter medications should Mary avoid during pregnancy?
4. What are Mary's therapeutic options for her DVT?
5. What are the implications of pregnancy on Mary's diabetes and how might her diabetes effect the pregnancy?
6. What aspects of Mary's social history are important to check?

Helpful resources:
Robert Smith is an 80-year-old, retired policeman. He is on your telephone triage screen. He tells you that he has had diarrhoea and vomiting for the past 24hrs. He feels things are settling, is feeling tired and “washed out”. He denies any symptoms suggestive of a low blood pressure. He feels that this might have set off his gout as well - you note that he is prone to this in his 1st MTPj. He is asking if he can take something for this illness and wants to know if there is anything else he can do to aid his recovery.

PMH - CKD 3, T2DM, IHD (previous stent), Gout
DH - Metformin, Aspirin, Bisoprolol, Ramipril, Furosemide, Simvastatin, Allopurinol
You identify Robert as being at risk of AKI. Measures to increase the profile of AKI prevention include *Stop the DAMN drugs!* This provides an easy to remember mnemonic for commonly prescribed drugs in the community which have the potential to be nephrotoxic in overdose or during an acute illness/ dehydration.

D - Diuretics
A - ACE inhibitors and ARBs
M - Metformin (accumulates in renal impairment and causes potentially fatal lactic acidosis)
N - Non-steroidal anti-inflammatories (NSAIDs)
Patients often benefit from pausing these drugs during an acute illness, but the risk vs benefits will vary on a case-by-case basis.

What other commonly prescribed nephrotoxic drugs can you think of?
If Robert’s eGFR were to drop below 30, how might you adjust the doses of the following medicines?

- Allopurinol
- Rivaroxaban
- Metoclopramide
- Gentamicin
- Amoxicillin
- Clarithromycin
- Trimethoprim

Helpful resources:
COMPLIANCE VS CONCORDANCE

Betty Pascoe is a 78-year-old lady with Asthma, Hypertension, OA (hands and knees) and bilateral cataracts. Her husband has called the surgery to request a home visit. Over the phone he tells you that Betty has had a tight chest and bothersome cough for months now. Nothing seems to help, but the symptoms have been variable which is why she hasn't "bothered us" with them yet. He goes on to say that they were in London at the weekend and since then the arthritis in her knees has been more bothersome. She has tried to take her usual painkillers, but they haven't helped, and she has become increasingly dizzy. Today she is struggling to get out of bed with the dizziness, hence the request for the visit. A brief chat with the patient reveals that she is symptom free when lying in bed, so you decide to visit.

During the home visit you establish the following facts:

- You notice several boxes of unopened MDI inhalers and Co-Codamol 8/500 in an upturned, dusty spacer. Betty admits to stopping these months ago because the blue one didn't work and the brown one gave her a sore throat. She also didn't think she needed her medications for hypertension because the tablets had "cured it" so why did she need to keep taking them? She didn't want to upset her regular GP so had been collecting the repeat meds she was prescribed.
- Betty's records show her previous BP was 136/86, on Amlodipine and Atenolol. Today her lying BP is 110/70, P 50 regular. Within a minute of sitting on the edge of the bed she feels dizzy, with a BP of 88/58, P 56 regular.
- When asked what meds she has been taking it transpires that Betty has been taking her hypertension meds, thinking they were her painkillers. She has been struggling to read the boxes due to her cataracts. She is fearful of the prospect of surgery to her eyes.
- The Pascoes were in London in support of an Extinction Rebellion event.

This case illustrates a significant waste of resources within a system of limited funds. It is not uncommon. We are also starting to appreciate the environmental consequences of such waste.

- What is the difference between compliance and concordance?
- What might a clinician do to ensure the best possible concordance?
- What is the effect of drug concordance in RCTs? What is Intention to Treat Analysis?
- What happens to medicines when they are returned to a pharmacist? Can they be re-issued to someone else?

- How do you think Big Pharma compares to other industries in terms of CO2 emissions?
- How many miles might you need to drive to achieve the equivalent global warming effect of one, 100-dose metered dose inhaler (MDI)?
- What can we do to reduce this waste, and can we achieve this alongside improved outcomes for patients?
Helpful resources:
- Compliance becomes concordance  
  - BMJ 1997;314:691
- Taking medicines: concordance is not compliance  
  - BMJ 1999;319:787
- NICE glossary
- For definition of Intention to treat analysis  
  - https://www.nice.org.uk/glossary?letter=i
- Carbon footprint of the global pharmaceutical industry and relative impact of its major players  
- World Asthma Day: counting the environmental cost of common inhalers  
  - https://www.medicaldevicenetwork.com/features/asthma-inhaler-emissions/

POLYPHARMACY

Kapil is a 65yr old holiday maker. He comes to see you with several ailments and requests. He tells that he has suffered from sciatica for years and that the pain from this has become excruciating since the drive to Cornwall. He goes on to say that when the pain is this bad his own GP normally prescribes him oral morphine. Kapil then tells you that he has had a cold which he thinks has "gone onto his chest" and that he normally needs an antibiotic which he thinks is twice a day. He thinks Penicillin gives him a rash. Lastly, Kapil would like a tablet to treat his itchy, unsightly toe nails because the "nail polish stuff" his GP gave him isn't helping.

Kapil has forgotten his regular medicines and hasn't brought a prescription but assumed you could access his records "online" to provide him with some of his repeat medicines. He tells you that he takes a blood thinner for a funny heartbeat, something else to slow his heart down, a statin, something for his BP, some strong painkillers for his sciatica, something to help him sleep and was recently started on a medicine for "electric shock" pains in his face. He takes a "herbal" treatment to help with his mood. Further history and examination reveal no red flags. Kapil is overweight and admits to overindulging with beer and cigarettes more frequently than he should. Your practice secretary will attempt to contact Kapil's own GP for a copy of his records. In the meantime, have a look at the list of medicines below. What are the indications for these meds and how might they interact with one another to cause adverse outcomes for this patient?

What special considerations are there about discussing the prescription of controlled drugs and the practicalities of writing these prescriptions? Practice hand writing prescriptions for various preparations of controlled drugs and mark each other’s efforts? Which of these medications could be stopped if Kapil was supported in adopting some meaningful changes to his lifestyle?
<table>
<thead>
<tr>
<th>Medicines which the patient might be taking regularly</th>
<th>Drugs/foods which might be taken acutely or sporadically</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amitriptyline</td>
<td>Oral Morphine</td>
</tr>
<tr>
<td>Digoxin</td>
<td>Clarithromycin</td>
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<tr>
<td>Warfarin</td>
<td>NSAIDs</td>
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<tr>
<td>Statin</td>
<td>Colchicine</td>
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<td>ACEi</td>
<td>Terbinifine</td>
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<tr>
<td>Co-codamol 30/500</td>
<td>Alcohol</td>
</tr>
<tr>
<td>Zopiclone</td>
<td>Grapefruit Juice</td>
</tr>
<tr>
<td>Carbamazepine</td>
<td>St John's Wort</td>
</tr>
</tbody>
</table>

Helpful resources:
- [https://bnf.nice.org.uk/](https://bnf.nice.org.uk/)
- [https://bslm.org.uk/](https://bslm.org.uk/)

**WHAT SYSTEMS HELP TO PREVENT ERRORS?**

"You should make use of electronic and other systems that can improve the safety of your prescribing, for example by highlighting interactions and allergies and by ensuring consistency and compatibility of medicines prescribed, supplied and administered"

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**EXERCISE - FOLLOW THE PRESCRIPTION:**

From the beginning of the therapeutic conversation to the point at which the drugs are dispensed, follow a patient and their prescription. Pay close attention to all the questions, conversations, computer alerts, prescribing considerations and the variety of checks carried out prior to dispensing. Ask if you can have a look at the information printed on the medication box.

Critically evaluate this process. Are there opportunities for error in this system? What about repeat medications or temporary residents (where the entire GP record might not be available)?

This should be pre-agreed with your supervising GP during a clinic when you are observing them consult or where they are prescribing for a patient you have seen in your parallel clinic.
DOES ‘PRESCRIBING’ ALWAYS RESULT IN A MEDICATION?

There is an increasing proportion of patients presenting to healthcare settings with problems which require much more than solutions available from a prescription pad. In the section below Daisy Kirtley (Lead of the NHS England Social Prescribing Student Champion Scheme) introduces us to an exciting movement in community care which is gaining momentum.

SOCIAL PRESCRIBING:

Social prescribing represents a means of enabling GPs and other frontline healthcare professionals to refer patients to a link worker - to provide them with a face to face conversation during which they can learn about the possibilities and design their own personalised solutions, i.e. ‘co-produce’ their ‘social prescription’- so that people with social, emotional or practical needs are empowered to find solutions which will improve their health and wellbeing, often using services provided by the voluntary and community sector.

EXERCISE:

Think of a patient that you’ve seen recently on placement and try and imagine an alternative management plan involving social prescribing in your local area.

For some local inspiration in Devon and Cornwall, please click here.

Helpful resources:

- UEMS Social prescribing masterclass
  https://youtu.be/xP9oXd-sMmA

- Dept. of Health and social care. Social prescribing: A GP’s perspective
  https://youtu.be/meOKIQmUm0I

- Dept. of Health and social care. Social prescribing: A Patient’s perspective
  https://youtu.be/YZKjJMyLKvQ

The following resources have been developed in conjunction with SAPC Heads of GP Teaching. If you have any queries or questions regarding the resources on offer, please contact Prof. Joe Rosenthal or Prof. Alex Harding, Co-Chairs of SAPC’s Heads of GP Teaching Group.