

# Appendix

## Some important pharmacological agents

Students may feel overwhelmed by the number of drugs described in pharmacology textbooks. We would emphasise that it is more important to understand general pharmacological principles, and to appreciate the pharmacology of the main classes of drug, than to attempt to memorise details of individual agents. Specific drugs are best learned about when they are encountered in the setting of particular topics (e.g. noradrenergic transmission), during practical classes or (for therapeutic drugs) near a patient's bedside. The following list gives examples of some of the more important pharmacological agents. It is not intended as a starting point to learning pharmacology, and we would caution against attempting to memorise lists of names and properties. The important agents we list here were selected subjectively; they include (but are not limited to) the 100 drugs most likely to be prescribed by newly qualified doctors in the UK (Baker, 2010) and are divided into agents of primary and secondary importance. For students of some subjects, and in different geographical areas, one or another class of drug will have more or less importance (e.g. anthelmintics are very important for veterinarians and for all clinicians in regions where helminthiasis is common), so these categories are meant only as a broad guide. The list includes not only drugs used therapeutically, but also endogenous mediators/transmitters (med/trnsm) and certain important drugs used mainly as experimental tools (exp.tool)—especially important for students studying basic or applied pharmacology as a science subject—and drugs used for recreational (recreat) rather than therapeutic purposes. Some endogenous mediators (e.g. adrenaline [epinephrine]) are also important therapeutic drugs.

The General Medical Council's 'Tomorrow's Doctors' (September 2009; <http://www.gmc-uk.org/>) specifies that students should be able to demonstrate knowledge of drug actions; therapeutics and pharmacokinetics; drug side effects and interactions, including for multiple treatments, long-term conditions and non-prescribed medication; and also including effects of drugs on the population, such as the spread of antibiotic resistance. A working knowledge of drugs in the 'primary importance' category should be built up gradually as they are encountered during training. For drugs in the second category, it is usually sufficient to be aware of the mechanism of action, supplemented by

understanding how they differ from those in the primary category when relevant.

The choice of drugs in clinical use is somewhat arbitrary. Hospital formulary committees (on which pharmacists play a crucial role) grapple with choosing which individual drugs to stock in the pharmacy. There is a play-off between stocking several individual drugs of one category, for each of which there is good evidence of efficacy for distinct indications, and stocking a more restricted choice based on indirect evidence that efficacy is likely to be a common feature of different members of a class of drugs. Local variations will be encountered (e.g. as to which angiotensin-converting enzyme inhibitor or non-steroidal anti-inflammatory drugs are stocked in the hospital pharmacy). If the student or clinician (e.g. doctor, dentist, veterinarian or nurse) comes to these (e.g. when changing to a job in a new hospital) with a sound appreciation of the general principles of pharmacology and of the specifics of the various classes of agent involved, he or she will be able to look up and understand the details of agents favoured locally and use them sensibly. Drugs are grouped broadly as in the chapters of the text, and some appear more than once in the lists.

### REFERENCE

Baker, E.H., 2010. The challenge of developing safe and effective prescribers: is a student formulary the way forward? *Br. J. Clin. Pharmacol.* In press.

### KEY

(Note: designation does not exclude a separate therapeutic role—for example, nicotine and cocaine are used therapeutically as well as recreationally, adrenaline is used therapeutically as well as being a mediator; conversely, some primarily therapeutic drugs such as morphine or other opioid analgesics are used recreationally by some individuals.)

med/trnsm = mediator/transmitter

exp.tool = experimental tool

recreat = drug used especially for recreational purposes

antag = antagonist

## Primary

## Secondary

**1. Cholinergic transmission (see Ch. 13)****Agonists**

acetylcholine (med/trnsm)	carbachol
suxamethonium	pilocarpine
nicotine (recreat)	

**Antagonists**

atropine	tropicamide
tubocurarine (exp.tool)	pancuronium
hexamethonium (exp.tool)	atracurium
vecuronium	$\alpha$ -bungarotoxin (exp.tool)
oxybutinin	tolterodine
botulinum toxin (presynaptic action)	

**Anticholinesterases and related drugs**

neostigmine	pyridostigmine
edrophonium	pralidoxime:
donepezil	cholinesterase reactivator

**2. Noradrenergic transmission (Ch.14)****Agonists**

adrenaline (epinephrine) (med/trnsm)	clonidine
noradrenaline (norepinephrine) (med/trnsm)	phenylephrine
isoprenaline (isoproterenol) (exp.tool)	dopamine (med/trnsm)
salbutamol	dobutamine

**Antagonists**

propranolol	prazosin
atenolol	doxazosin
metoprolol	tamsulosin
bisoprolol	

**Drugs affecting noradrenergic neurons**

cocaine (recreat) (Ch. 48)	guanethidine (exp.tool)
tyramine (exp.tool)	reserpine (exp.tool)
methyl dopa (Ch. 22)	amitriptyline (Ch. 46)
amphetamine (recreat) (Ch. 48)	$\alpha$ -methyltyrosine (exp. tool)
	phenelzine (Ch. 46)

## Primary

## Secondary

**3. 5-Hydroxytryptamine (serotonin) (Ch. 15)****Drugs acting on 5-HT receptors (see Ch. 46 for 5-HT reuptake inhibitors)**

5-HT (serotonin) (med/trnsm)	ergotamine/ dihydroergotamine
LSD (recreat)	metoclopramide
ondansetron	granisetron
methysergide	pizotifen
triptans (e.g. sumatriptan)	ketotifen

5-HT, 5-hydroxytryptamine; LSD, lysergic acid diethylamide.

**4. Purines (Ch. 16)****Drugs/mediators acting on purinoceptors or purine uptake**

adenosine (med/trnsm) (+ therapeutic: Ch. 21)	dipyridamole
theophylline, aminophylline	prasugrel (Ch. 24)
caffeine (recreat)	
ATP (med/trnsm)	
ADP (med/trnsm)	
clopidogrel	

## Primary

## Secondary

**5. Local hormones (Ch. 17)****Cytokines (all: med/trnsm)**

interleukins  
chemokines  
tumour necrosis factor

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**Tumour necrosis factor antagonists:****etanercept, infliximab**

interferons (med/trnsm)  
colony-stimulating factors (Ch. 25)  
(med/trnsm)

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**Histamine and antagonists (H<sub>1</sub> and H<sub>2</sub>)**

histamine (med/trnsm)	fexofenadine
cetirizine	cyclizine
promethazine	
ranitidine	
cimetidine	

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**Eicosanoids and related substances**

prostaglandins E and F (med/ trnsm)	platelet activating factor (med/trnsm)
prostaglandin I <sub>2</sub> (med/trnsm)	latanoprost
thromboxane A <sub>2</sub> (med/trnsm)	lipoxins (med/trnsm)
leukotrienes (med/trnsm)	

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**Inflammatory peptides**

bradykinin	icatibant (bradykinin antagonist)
	substance P
	calcitonin-gene-related peptide (CGRP)
	neurokinin A

**6. Cannabinoids and related drugs (Ch. 18)**

$\Delta^9$ -tetrahydrocannabinol (recreat)	nabilone
anandamide (med/trnsm)	

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## Primary

## Secondary

**7. Nitric oxide (Ch. 20)**

nitric oxide (med/trnsm)

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L-N<sup>G</sup>-monomethyl arginine (L-NMMA) (exp.tool)

**8. The heart (Ch. 21)****Antidysrhythmic drugs (Vaughan-Williams classification)**

Class I	lidocaine	flecainide
Class II	metoprolol	
Class III	amiodarone	sotalol
Class IV	verapamil	
Unclassified	adenosine	
	digoxin	

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**Antianginal drugs****Nitrates**

glyceryl trinitrate  
isosorbide mononitrate  
nicorandil (combined with K<sup>+</sup>-channel activation)

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 **$\beta$ -Blockers**

metoprolol

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**Calcium antagonists**

diltiazem

## Primary

## Secondary

## 9. The vascular system (Ch. 22)

**Antihypertensive drugs (A, B, C and D)****A: angiotensin-converting enzyme inhibitors and angiotensin II (AT<sub>1</sub> receptor) antagonists**

captopril	lisinopril
ramipril	trandolapril
losartan	irbesartan
candesartan	

**B: β-adrenoceptor antagonists**

metoprolol

**C: calcium antagonists**amlodipine  
nifedipine**D: thiazides and related diuretics**bendroflumethiazide  
hydrochlorothiazide  
indapamide  
chlortalidone**α<sub>1</sub>-adrenoceptor antagonists**

doxazosin

**Other vasodilators**

hydralazine	minoxidil
	nitroprusside
	aliskiren (renin inhibitor)
	methyl dopa
	moxonidine

**Centrally acting drugs****Drugs used in heart failure and shock****Diuretics (see also Ch. 28)**furosemide  
amiloride  
spironolactone  
eplerenone**Angiotensin-converting enzyme inhibitors and AT<sub>1</sub> antagonists: see antihypertensives table above****Cardiac glycoside**

digoxin

**Drugs acting on adrenoceptors**carvedilol  
dobutamine  
bisoprolol  
dopamine  
metoprolol**Vasodilators**hydralazine  
K<sup>+</sup>-channel activators  
isosorbide mononitrate**Pulmonary hypertension**epoprostenol  
iloprost  
sildenafil  
bosentan

## Primary

## Secondary

## 10. Atherosclerosis and dyslipidaemia (Ch. 23)

simvastatin	ezetimibe
atorvastatin	pravastatin
	fibrates (gemfibrozil, fenofibrate)
	nicotinic acid derivatives
	resins (colestyramine, colestevlam)
	fish oil

## 11. Haemostasis and thrombosis (Ch. 24)

**Oral anticoagulants and related drugs**

warfarin	rivaroxiban
vitamin K (antag)	
dabigatran etexilate	

**Heparin-related drugs and related drugs**

heparin	protamine (antag)
enoxaparin	fondaparinux

**Antiplatelet drugs**

aspirin	dipyridamole
clopidogrel	epoprostenol
abciximab	prasugrel

**Fibrinolytic drugs and inhibitors of fibrinolysis**streptokinase  
tissue plasminogen activator  
tranexamic acid (inhibitor)

## 12. Haematinics and related drugs (Ch. 25)

ferrous sulfate	filgrastim
desferrioxamine (iron chelator)	hydroxycarbamide (hydroxyurea)
folic acid	eculizumab
hydroxocobalamin	
epoietin	

## Primary

## Secondary

**13. Anti-inflammatory and immunosuppressant drugs (Ch. 26)****Cyclo-oxygenase inhibitors (NSAIDs)**

aspirin (see also Ch. 24)	indometacin
paracetamol (acetaminophen)	diclofenac
ibuprofen	coxibs (e.g. celecoxib)
naproxen	

**Disease-modifying antirheumatic drugs (DMARDs)**

methotrexate	gold complexes (e.g. auranofin)
tumour necrosis factor antagonists: etanercept, infliximab	hydroxychloroquine
glucocorticoids (e.g. prednisolone)	penicillamine
	sulfasalazine

**Immunosuppressant drugs**

azathioprine	anakinra (interleukin-1 antagonist)
ciclosporin	
tacrolimus	
methotrexate	
prednisolone	

**Drugs used in gout**

NSAIDs (see above)	colchicine
allopurinol (prophylaxis)	probenecid (prophylaxis)
	sulfinpyrazone

NSAID, non-steroidal anti-inflammatory drug.

## Primary

## Secondary

**15. The kidney (Ch. 28)****Thiazides and related diuretics**

bendroflumethiazide, and see Table 9 above

**Loop diuretics**

furosemide	bumetanide
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**K<sup>+</sup>-sparing diuretics**

spironolactone	triamterene
amiloride	epplerenone

**Osmotic diuretics**

mannitol

**Carbonic anhydrase inhibitors**

acetazolamide

**Antidiuretic hormone (vasopressin) V<sub>2</sub> agonists and antagonists**

desmopressin	demeclocycline (antag)
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**Anion exchange resin**

sevelamer

**14. Respiratory system (Ch. 27)****β<sub>2</sub>-adrenoceptor agonists**

salbuterol	terbutaline
salmeterol	formeterol

**Inhaled glucocorticoids**

beclometasone  
mometasone

**Inhaled muscarinic antagonists**

ipratropium	tiotropium
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**Xanthine alkaloids**

theophylline

**Leukotriene antagonists and 5-lipoxygenase inhibitors**

montelukast  
zileutin

**Anti-immunoglobulin E**

omalizumab

**Antitussive drug**

codeine

## Primary

## Secondary

**16. Gastrointestinal system (Ch. 29)****Antacids and ulcer-healing drugs**

magnesium or aluminium salts	sucralfate (aluminium complex)
alginates	

**H<sub>2</sub> receptor antagonists**

ranitidine	cimetidine
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**Proton pump inhibitors**

omeprazole	
lansoprazole	

**Antibiotics for *Helicobacter pylori***

amoxicillin	
clarithromycin	
metronidazole	

**Prostaglandin analogues**

	misoprostol
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**Laxatives**

lactulose	sodium picosulfate
senna	
bulk-forming (e.g. ispaghula husk)	

**Antiemetics**

phenothiazines	
antihistamines	
domperidone	granisetron
metoclopramide	nabilone
ondansetron	aprepitant

**Antidiarrhoeal drugs**

codeine	
loperamide	

**Drugs for inflammatory bowel disease**

prednisolone	mesalazine
sulfasalazine	

**Antispasmodics**

hyoscine	
cyclizine	

**Gastric secretagogues**

gastrin (med/trnsm)	pentagastrin
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## Primary

## Secondary

**17. Endocrine pancreas and related drugs (Ch. 30)****Hormones**

insulin	amylin (med/trnsm)
insulin glargine	somatostatin (med/trnsm)
insulin lispro	
glucagon	
incretins (GIP, GLP1)	

**Drugs that act on the sulfonylurea receptor**

tolbutamide	nateglinide
gliclazide	gliburide

**Biguanide**

metformin	
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**α-Glucosidase inhibitor**

acarbose	
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**Thiazolidinediones**

rosiglitazone	
pioglitazone	

**Incretin-mimetics and related drugs**

exenatide	vildagliptin
sitagliptin	

**18. Obesity (Ch. 31)**

leptin (med/trnsm)	neuropeptide Y (med/trnsm)
	orlistat

**19. Adrenal cortex and pituitary (Ch. 32)****Glucocorticoids and related drugs**

Hydrocortisone (med/trnsm)	metyrapone (blocks synthesis)
prednisolone	
dexamethasone	

**Mineralocorticoids (and their antagonists)**

aldosterone (med/trnsm)	eplerenone (antag)
fludrocortisone	
spironolactone (antag)	

**Pituitary hormones and related drugs**

corticotropin (adrenocorticotrophic hormone) (med/trnsm)	
growth hormone (med/trnsm)	sermorelin (growth hormone-releasing hormone analogue)
somatostatin (med/trnsm)	
octreotide	lanreotide
vasopressin (med/trnsm)	desmopressin
oxytocin (med/trnsm)	
prolactin (med/trnsm)	
gonadorelin	
bromocriptine	

## Primary

## Secondary

## 20. Thyroid (Ch. 33)

**Hormones and precursors**

thyroxine (med/trnsm)  
 liothyronine (med/trnsm)  
 calcitonin (med/trnsm)  
 iodine/iodide

**Antithyroid drugs**

carbimazole  
 propylthiouracil  
 radioiodine ( $^{131}\text{I}$ )

## 21. Reproductive system (Ch. 34)

**Oestrogens**

oestradiol (med/trnsm)  
 ethinylestradiol

**Antioestrogen**

tamoxifen  
 clomiphene

**Progestin**

progesterone (med/trnsm)  
 norethisterone

**Antiprogestogen**

mifepristone

**Androgen**

testosterone (med/trnsm)

**Antiandrogens and related drugs**

cyproterone  
 flutamide  
 bicalutamide  
 finasteride (5- $\alpha$   
 reductase inhibitor)

**Gonadotrophin-releasing hormone analogues**

buserelin  
 goserelin

**Drugs acting on the uterus**

ergometrine  
 oxytocin  
 dinoprostone (prostaglandin  $E_2$ )  
 atosiban

**Erectile dysfunction**

sildenafil  
 tadalafil

## Primary

## Secondary

## 22. Drugs and bone (Ch. 35)

parathyroid hormone (med/trnsm)	calcitonin
vitamin D	teriparatide
calcium salts	cinacalcet
oestrogen (med/trnsm)	
raloxifene	
alendronate	etidronate
risedronate	strontium ranelate

## 23. CNS mediators (Ch 36–38)

**Neurotransmitters and related drugs**

glutamate	
NMDA (exp.tool)	ketamine (NMDA channel blocker)
glycine (med/trnsm)	strychnine (exp.tool) (glycine antag)
GABA (med/trnsm)	baclofen (GABA <sub>B</sub> agonist) bicuculline (GABA <sub>A</sub> antag)

**Amines**

noradrenaline (norepinephrine) (med/trnsm)	melatonin (med/trnsm)
dopamine (med/trnsm)	
5-hydroxytryptamine (med/trnsm)	
acetylcholine (med/trnsm)	
histamine (med/trnsm)	

## 24. Neurodegenerative diseases (Ch. 39)

**Parkinson's disease**

levodopa	selegiline
carbidopa	trihexyphenidyl hydrochloride (benzhexol)
bromocriptine	amantadine apomorphine MPTP (exp.tool)

**Amyotrophic lateral sclerosis**

riluzole

**Alzheimer's disease**

donepezil	memantine
rivastigmine	galantamine

## Primary

## Secondary

**25. General anesthetics (Ch. 40)****Inhalational**

fluranes (enflurane, isoflurane, desflurane, sevoflurane)  
nitrous oxide

ether, chloroform,  
halothane (historical  
interest)

**Intravenous**

propofol  
etomidate  
thiopental

midazolam  
  
ketamine

**26. Analgesics and related substances (Ch. 41)****Opioids and related drugs**

morphine  
codeine  
fentanyl  
pethidine  
naloxone (antag)

oxycodone  
  
methadone  
diamorphine (recreat)  
naltrexone (antag)

**Mild analgesics**

aspirin and other NSAIDs  
paracetamol

**Other analgesic drugs**

tramadol  
carbamazepine  
gabapentin  
amitriptyline

**Others related to nociception**

enkephalins and endorphins:  
dynorphin (med/trnsm)  
capsaicin (exp.tool)

**27. Local anaesthetics and other drugs that affect sodium or potassium channels (Ch. 42)****Local anaesthetics**

lidocaine  
bupivacaine (and levobupivacaine)

tetracaine (amethocaine)  
ropivacaine

**Selective sodium channel blocker**

tetrodotoxin (exp.tool)

**Potassium channel antagonists**

tetraethylammonium (exp.tool)  
sulfonylureas (Ch. 30)

**Potassium channel activators  
(see Ch. 22 and Table 17 above)**

nicorandil  
minoxidil  
cromakalim

## Primary

## Secondary

**28. Anxiolytic, hypnotic and related drugs (Ch. 43)****Antidepressants used as anxiolytic drugs  
(see also Ch. 46)**

fluoxetine  
paroxetine  
sertraline

**Benzodiazepines and related drugs**

temazepam  
diazepam  
midazolam

nitrazepam  
lorazepam  
flumazenil (antag)  
zopiclone

**Other**

bupirone (5-HT<sub>1A</sub> receptor agonist)  
buspirone (5-HT<sub>1A</sub> receptor agonist)

propranolol (beta  
blocker)  
antiepileptic drugs e.g.  
gabapentin, valproate

**29. Antiepileptic drugs and centrally acting muscle relaxants (Ch. 44)**

carbamazepine

phenobarbital

valproate

diazepam

vigabatrin

clonazepam

gabapentin

ethosuximide

lamotrigine

leviteracetam

baclofen

phenytoin

**30. Antipsychotic drugs (Ch. 45)****Classic**

chlorpromazine  
haloperidol

fluphenazine  
thioridazine

**Atypical**

clozapine  
olanzapine

risperidone  
sulpiride



## Primary

## Secondary

**31. Drugs used in affective disorders (Ch. 46)****Tricyclic antidepressants**

amitriptyline	imipramine
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**Selective serotonin (5-HT) reuptake inhibitors**

fluoxetine	fluvoxamine
sertraline	

**Monoamine oxidase inhibitors**

moclobemide ('RIMA')	phenelzine
	tranylcypromine

**Miscellaneous antidepressants**

venlafaxine	trazodone
	bupropion

**Mood stabilisers**

lithium	atypical antipsychotic
carbamazepine	drugs (e.g. olanzapine)

**32. Central nervous system stimulants and psychotomimetics (Ch. 47)**

amphetamine (recreat)	LSD (recreat)
cocaine (recreat)	phencyclidine (recreat)
caffeine (recreat)	strychnine (exp.tool)
methylphenidate	bicuculline (exp.tool)
MDMA ('ecstasy')	pentylenetetrazol (exp. tool)

LSD, lysergic acid diethylamide; MDMA, methylenedioxymethamphetamine.

**33. Drug dependence and drug abuse (Ch. 48)**

opiates (morphine, diamorphine—heroin)	$\Delta^9$ -tetrahydrocannabinol (recreat)
nicotine (recreat)	amphetamine (recreat)
ethanol (recreat)	solvents (recreat)
cocaine (recreat)	benzodiazepines

## Primary

## Secondary

**34. Antibacterial agents (Ch. 50)****Bacterial cell wall inhibitor**

benzylpenicillin	piperacillin
amoxicillin	
flucloxacillin	
cephalosporins (cefadroxil, cefotaxime, ceftriaxone)	
vancomycin	

**Topoisomerase inhibitor**

ciprofloxacin
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**Folate inhibitors**

trimethoprim	sulfonamides
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**Bacterial protein synthesis inhibitors**

gentamicin
amikacin
tetracycline
chloramphenicol
erythromycin
clarithromycin

**Antianaerobe drug**

metronidazole	benzyl penicillin
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**Antimycobacterial agents**

isoniazid	ethambutol
rifampicin	streptomycin
pyrazinamide	
dapsone	
clofazimine	

## Primary

## Secondary

**35. Antiviral agents (Ch. 51)****DNA polymerase inhibitors**

aciclovir	foscarnet ganciclovir tribavirin (ribavirin)
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**Reverse transcriptase inhibitors**

zidovudine (AZT)	didanosine
lamivudine	
efavirenz (non-nucleoside inhibitor)	

**Protease inhibitor**

saquinavir	indinavir
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**Immunomodulators**

interferons (med/trnsm)

**Neuraminidase inhibitor**

zanamavir

**Inhibitor of HIV fusion with host cells**

enfuvirtide

**Inhibitor of viral entry**

maraviroc

**36. Antifungal drugs (Ch. 52)****Polyene antibiotics**

amphotericin B	nystatin
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**Azoles**

fluconazole	miconazole
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**Antimetabolite**

flucytosine

**Others**

terbinafine  
echinocandin B

## Primary

## Secondary

**37. Antiprotozoal drugs (Ch. 53)****Antimalarials**

chloroquine	pyrimethamine plus sulfadoxine
quinine	
artemesinin	
primaquine	

**For *Pneumocystis pneumoniae***

co-trimoxazole (high dose)	pentamidine
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**Amoebicidal drug**

metronidazole

**Leishmanicidal drugs**

antimonials (e.g. stibogluconate)  
pentamidine

**Trypanosomicidal drugs**

suramin	pentamidine
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**Toxoplasmicidal drug**

pyrimethamine-sulfadiazine

**38. Anthelmintic drugs (Ch. 54)****Broad spectrum**

mebendazole

**Roundworm, threadworm**

piperazine  
levamisole (roundworm)

**Schistosomes**

praziquantel

**River blindness**

ivermectin

## Primary

## Secondary

**39. Anticancer drugs (Ch. 55)****Alkylating agents and related compounds**

cyclophosphamide	lomustine
melphalan	busulfan
cisplatin	chlorambucil

**Antimetabolites**

cytarabine	fluorouracil
methotrexate	mercaptopurine
thioguanine	
pentostatin	gemcitabine

**Cytotoxic antibiotics**

doxorubicin	
bleomycin	dactinomycin

**Plant derivatives**

vinca alkaloids (vincristine, vinblastine)	etoposide
taxanes (paclitaxel, docetaxel)	
irinotecan	

**Hormones and related drugs**

prednisolone	
dexamethasone	
flutamide	
buserelin	anastrozole
tamoxifen	

**Monoclonal antibodies**

rituximab	erlotinib
trastuzumab	serafinib
panitumumab	
bevacizumab	

## Primary

## Secondary

**40. Treatment of poisoning (Ch. 57)**

activated charcoal

acetyl cysteine

naloxone

This appendix was originally adapted from that in Dale M M, Dickenson A H, Haylett D G 1996 Companion to pharmacology, 2nd edn. Churchill Livingstone, Edinburgh, with permission.