**7 days of ciprofloxacin**

A by-product of chloroquine synthesis, quinolone antibiotics were discovered in the early 1960s. Already broad spectrum, the addition of chemical groups e.g fluorine led to the 2nd generation agents such as [#ciprofloxacin](https://twitter.com/search?q=%23ciprofloxacin), which have enhanced gram-ve action. Licensed in 1987

Day 2: [#ciprofloxacin](https://twitter.com/search?q=%23ciprofloxacin) adult uses: various respiratory tract infections, especially where gram-ve bacteria; upper UTIs; acute prostatitis; gonorrhoea; diabetic foot infection; gram-ve skin/bone infections; anthrax; surgical prophylaxis; fistulating Crohn’s. NOTE: ineffective v Streptococcus spp. Children; severe respiratory & GI infections; complex UTI/pyelonephritis (not exhaustive).

(cont) Usual adult oral dose range 500-750mg twice daily, duration variable. i.v 400mg every 12 hours given over 60 mins (not exhaustive). Formulations: tablet, suspension, infusion

Day 3:[#ciprofloxacin](https://twitter.com/search?q=%23ciprofloxacin) has good oral absorption & bioavailability. Avoid with dairy/calcium products 1-2 hours before or 4 hrs after as this reduces absorption. Low protein binding, high Vd & high tissue drug concentrations. Some metabolism via CYP1A2, but majority undergoes renal excretion unchanged, t½ 4-7hrs. [#ciprofloxacin](https://twitter.com/search?q=%23ciprofloxacin) itself is a moderate inhibitor of CYP1A2, with relevance to drug-drug interactions

Day 4: To fit in a double stranded DNA chromosome (longer than itself), bacterium ‘twist’ their DNA via ‘breaks’ & lock into place via DNA gyrase family, which also permit relaxation’ of key regions e.g for replication. Quinolones bind & cause chromosome cleavages, triggering cell death

Day 4 (cont); Humans also express topoisomerase enzymes, but with minimal homology, allowing selective toxicity for the quinolone class [#ciprofloxacin](https://twitter.com/search?q=%23ciprofloxacin)

Day 5: [#ciprofloxacin](https://twitter.com/search?q=%23ciprofloxacin) ADRs (some dose-related); common include nausea/diarrhoea. Uncommon are mycotic superinfections, agitation, sleep disturbance, rash, photosensitivity reactions. Rare;blood disorders, psychiatric reactions, SJS, tendon rupture (can occur months after)

Day 5 (cont)Can trigger seizure e.g if used with NSAIDs, & caution hypoglycaemia (especially in elderly) & caution if risk factors for QT prolongation. Rarely severe reactions with chronic fatigue, neuro/MSK symptoms; can be severe/disabling/irreversible (NOT exhaustive)

Day 6: [#ciproflaxacin](https://twitter.com/search?q=%23ciproflaxacin) DDIs; All drugs which can prolong the QT interval. NSAIDs increase risk seizure. Can reduce breakdown & increase concentration of VKA (↑bleeding), lidocaine, clozapine, phenytoin, theophylline & methotrexate (not exhaustive)

Day 7: Resistance to [#ciprofloxacin](https://twitter.com/search?q=%23ciprofloxacin) can occur via several mechanisms, including target site mutations (poor antibiotic ‘binding’) & efflux pumps. If there are multiple resistance pathways, then quinolone class resistance may result

CPD: in addition to the tweets, read the BNF sections on ‘Antibacterials, principles of therapy’, as well as the monograph on ciprofloxacin

<https://bnf.nice.org.uk/treatment-summary/antibacterials-principles-of-therapy.html>

<https://bnf.nice.org.uk/drug/ciprofloxacin.html>

Another useful source is the Summary Products Characteristics for ciprofloxacin

<https://www.medicines.org.uk/emc/product/3484/smpc>

CPD questions (most but not all answers will be in the tweets). There is only one correct answer per question

1. Quinolone antibiotics like ciprofloxacin are all broad spectrum

TRUE or FALSE

1. Which of the following bacterial species is NOT suspectable to ciprofloxacin?
2. Shigella spp.
3. Streptococcus spp.
4. Pseudomonas aeruginosa
5. Escherichia coli
6. Ciprofloxacin can be used in adults, but not children

TRUE or FALSE

1. Ciprofloxacin is used as a first line antibiotic for which of the following
2. Uncomplicated female lower UTI
3. Sinusitis
4. Acute prostatitis
5. Community acquired pneumonia
6. Which of the following is TRUE?
7. Ciprofloxacin inhibits CYP1A2, which causes many drug-drug interactions
8. There are no drug-food interactions with ciprofloxacin
9. Ciprofloxacin is extensively metabolised in the liver
10. The half-life for ciprofloxacin is very short
11. Quinolone antibiotics prevent the bacteria from accessing their coiled-up DNA sections, which has a bactericidal effect

TRUE or FALSE

1. Tendinopathy and rupture always occur soon after the course is completed

TRUE or FALSE

1. which of the following is a common side-effect of ciprofloxacin?
2. Photosensitivity reactions
3. Blood disorders
4. Psychiatric reactions
5. Diarrhoea
6. Using NSAIDs together with ciprofloxacin can lower the seizure threshold

TRUE or FALSE

1. It is not possible for a bacterial infection to be resistant to all quinolone antibiotics

TRUE or FALSE