

QUINOLONES DRUG INTERACTIONS TABLE V2.0

This information on drug interactions with antimicrobials is intended for use as a guide and not as a complete reference source. Further information is available in the SmPCs of the individual medicines (section 4.5) available at www.HPRA.ie, the BNF Appendix 1 and Stockley's Drug Interactions. Please be aware that new evidence may emerge that may overtake some of these recommendations.

It is important to note that quinolones have many drug interactions due to effects on QT interval prolongation. The list provided is not exhaustive. Check for interactions against patient's medication before prescribing. Consult product SmPC (section 4.5) for full list of interacting medicines.

Antibiotic Class	Interacting Drug	Comment
Quinolones e.g. <ul style="list-style-type: none"> • Ciprofloxacin • Levofloxacin • Moxifloxacin • Ofloxacin (continued on the next 2 pages)	Warfarin	Risk of bleeding. Monitor INR closely and adjust warfarin dose as necessary.
	Drugs that prolong QT interval* <i>*Non-drug risk factors for prolonged QT interval: Family history, Increasing age, female sex, electrolyte abnormalities (hypokalaemia, hypocalcaemia, hypomagnesaemia), cardiac ischaemia, cardiomyopathies, hypothyroidism and hypoglycaemia.</i>	Ciprofloxacin & levofloxacin should be used with caution in patients receiving medicines known to prolong QT interval (e.g. Class IA and III anti-arrhythmics e.g. amiodarone, tricyclic antidepressants, macrolides, antipsychotics) and in patients with known risk factors for prolongation of the QT interval. Ciprofloxacin & levofloxacin are contraindicated with domperidone. Moxifloxacin is contraindicated with drugs that prolong the QT interval e.g. antipsychotic medication amiodarone & other anti-arrhythmics, some antidepressants (tricyclic antidepressants, SSRIs and MAOIs), alfuzosin, domperidone, galantamine, indapamide, lithium, macrolides, methadone, quinine sulphate, tamoxifen, tizanidine, ranolazine, sildenafil, tolterodine, azole antifungals, prochlorperazine. This is not a complete list. For a composite list of drugs that can prolong QT interval please consult the relevant SmPC on HPRA website , the BNF or www.crediblemeds.org for further information. NB: Consider OTC medication patient may be taking e.g. domperidone.

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<p>Quinolones e.g.</p> <ul style="list-style-type: none"> • Ciprofloxacin • Levofloxacin • Moxifloxacin • Ofloxacin <p><i>(continued from the previous page and on the next page)</i></p>	Methotrexate	Co administration of methotrexate with ciprofloxacin may increase the plasma concentrations of methotrexate leading to increased risk of methotrexate-associated toxic reactions. Concomitant use is not recommended.
	Aminophylline, theophylline, NSAIDs	Increased risk of convulsions.
	Epilepsy	Can reduce seizure threshold. Use with caution.
	Ciclosporin	Increased risk of nephrotoxicity.
	Theophylline and other drugs metabolised by CYP1A2 e.g. clozapine,olanzapine, ropinirole,duloxetine, melatonin	<p>Ciprofloxacin inhibits CYP1A2 and may cause increased serum concentration of substances metabolised by this enzyme (e.g. theophylline, clozapine, olanzapine, ropinirole, tizanidine, duloxetine, agomelatine).</p> <p>Theophylline: Ciprofloxacin can raise theophylline levels by more than 100%. This can lead to theophylline-induced side effects that may rarely be life threatening or fatal. Avoid combination or if it is necessary to use both medicines patients should be closely monitored; monitor theophylline levels on day 2 and adjust dose.</p> <p>Clozapine: Monitor for clozapine adverse effects (e.g. agitation, dizziness, sedation, hypersalivation), adjust the dose as necessary to one third of usual clozapine dose.</p>
	Tizanidine	Tizanidine is metabolised by CYP1A2 and is contraindicated with ciprofloxacin. Increased serum tizanidine concentration is associated with a potentiated hypotensive and sedative effect.
	Phenytoin	<p>Administration of ciprofloxacin and phenytoin may lead to increased or reduced serum phenytoin levels.</p> <p>Monitoring of phenytoin levels is recommended when initiating or discontinuing ciprofloxacin. Adjustment of phenytoin dose may be required. Quinolones can reduce seizure threshold. Use with caution in patients with epilepsy.</p>

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	<p>Dairy products and fortified drinks</p>	<p>Absorption reduced by dairy products (give doses at least 2 hours apart).</p>
	<p>Corticosteroids</p>	<p>Increased risk of tendon damage with concomitant use of quinolones and corticosteroids.</p>
	<p>Zolmitriptan</p>	<p>Quinolones predicted to increase zolmitriptan concentrations. Maximum dose of zolmitriptan 5mg in 24 hours for patients taking a quinolone.</p>
	<p>Hypoglycaemic agents (e.g. sulfonylurea, insulin)</p>	<p>Increased risk of dysglycaemia – monitor glucose carefully in patients with diabetes.</p>
	<p>Zolpidem</p>	<p>Co-administration of ciprofloxacin may increase blood levels of zolpidem, concurrent use is not recommended.</p>

Combined Hormonal Contraception

Extra precautions are no longer required when using combined hormonal contraception (CHC) with antibiotics (unless those antibiotics are enzyme inducers e.g. rifampicin, rifabutin, isoniazid). The usual additional precautions regarding vomiting, diarrhoea and non-adherence to CHC apply. Correct contraceptive practice must be adhered to.

The National Medicines Information Centre (NMIC) clinical enquiry answering service is available to prescribers in Ireland for further information about a specific drug-drug interaction(s). Contact details for the NMIC are available [here](#).