# Metronidazole Fact Sheet for Healthcare Professionals

**Key messages:**

## Use less metronidazole

- Metronidazole is often given unnecessarily in combination with another antibiotic that already has activity against anaerobes such as co-amoxiclav and piperacillin-tazobactam
- Double anaerobic cover is rarely indicated
- It is associated with a risk of side-effects and usually offers little clinical benefit to the patient

## Prescribe oral where possible

- Metronidazole is 100% absorbed after oral doses
- Intravenous use is associated with a risk of bloodstream infection and is usually no better than oral
- Oral prescribing reduces the risk of bloodstream infections, increases patient mobility, reduces nursing time and reduces the use of single use plastics

## Is my patient on an antibiotic that already has anaerobic activity, therefore metronidazole may not be required?

Other agents with anaerobic activity include:

- Beta-lactam/beta-lactamase inhibitor combinations, such as co-amoxiclav or piperacillin/tazobactam
- Carbapenems, such as meropenem or ertapenem
- Clindamycin
- Tigecycline

A recent Irish study found that beta-lactam/beta-lactamase inhibitor combinations and meropenem are efficacious against the majority of anaerobic isolates. (Source: Ali, S. (2021))

## In what infections is metronidazole use appropriate?

- Metronidazole is an important drug for the management of infections caused by anaerobic bacteria and protozoa.
- There are some common infections for which metronidazole is a first line choice as a single agent:
  - Bacterial vaginosis
  - *Clostridioides difficile* infections (non-severe)
- There are some common infections for which metronidazole is used in addition to other antibiotics:
  - Pelvic inflammatory disease (with ceftriaxone and doxycycline)
  - *H. pylori* combination drug therapies
- In infections where resistant anaerobic bacteria are suspected/ confirmed then metronidazole may be required in addition to an agent also with anaerobic activity. Seek infection specialist advice if necessary.

## If metronidazole is indicated for my patient, what formulation is best?

- Most infections can be managed safely and effectively using the oral route
- Give metronidazole orally if clinically suitable
- Metronidazole has excellent oral bioavailability - it is 100% orally absorbed
- It's important to remember that in most instances if patient is nil by mouth tablets can be taken with a sip of water
- Only if patient is strictly nil by mouth (for instance, has no oral access such as unconscious, vomiting, high outputs from enteral tube) that the intravenous route should be considered

- Using an intravenous medication when not required exposes a patient to the unnecessary risk of line-associated infections. In a patient with an intravenous catheter for other reasons, the risk of infection is likely to be reduced if the catheter is accessed as little as possible
- If initial intravenous therapy is required, it may be possible to switch to oral before 24 - 48 hours if the patient is responding well to treatment
- See intravenous to oral (IVOS) toolkit available on the hospital related page on **www.antibioticprescribing.ie** for more information.

## Patient safety considerations with metronidazole

## Adverse effects

- Most common side effects are dry mouth, metallic taste, "furry" tongue, nausea (approximately 12% of patients), vomiting and myalgia
- Mild, reversible leukopenia can occur with long term or intensive therapy
- Peripheral neuropathy can occur with long-term or repeated use: (source: Chin, HY. (2018))
    - Appearance of abnormal neurological signs requires prompt evaluation
    - Symptoms resolve after discontinuation of therapy in most patients
    - Risk is greater when treatment exceeds 4 weeks or >42g total dose
    - Patients for whom metronidazole is deemed necessary above these durations/ dosage cut-offs should receive appropriate counselling on the increased risk of peripheral neuropathy
- Central nervous system effects (e.g. aseptic meningitis, encephalopathy)
- Intense or prolonged therapy should only be under close surveillance for clinical and biological effects and under specialist direction.

## Drug-drug interactions

Overall, metronidazole has few drug-drug interactions. Three significant interactions of note:

- Alcohol: a disulfiram-like reaction (flushing, vomiting, tachycardia) occurs when taken with alcohol. Patients should be advised to avoid alcohol during and within 48 hours of therapy. Also applies to alcohol containing medicines
- Lithium: metronidazole can increase concentration of lithium, with evidence of possible renal damage. If use unavoidable, taper or withdraw lithium before administering metronidazole. Monitor lithium concentrations, creatinine and electrolytes
- Warfarin: anticoagulant effects of warfarin are increased by metronidazole. Bleeding has occurred in some cases. Monitor INR if metronidazole is added or withdrawn in patients taking warfarin.

## Severe hepatic impairment: 50% dose reduction required

See SmPC on www.hpra.ie for further information on cautions and interactions.