

When calculating the dose of medicine for a patient it may be necessary to carry out a dose reduction, for example if they have co-morbidities such as renal impairment or liver impairment.

Try the following exercises that involve percentage dose reductions:

1. The normal dose of medicine A is 300mg daily. If the dose is reduced by 25% what dose should be prescribed? **225mg**
2. The normal dose of medicine B is 300mg daily. If the dose needs to be reduced to 25% of the original dose what dose should be prescribed? **75mg**
3. The normal dose of medicine C is 1 x 100mg capsule three times a day. If the dose is reduced by one-third what dose should be prescribed? **100mg twice a day**
4. The normal dose of medicine D is 80mg daily. The dose needs to be reduced by 50% to accommodate a drug interaction. What dose should be prescribed? **40mg**
5. The normal dose of medicine E is 200mg daily. The dose is to be reduced to 75%. What dose should be prescribed? **150mg**

Now try these percentage reduction calculations which are based on BNF dosage advice (RPS&BMA, 2019):

Metronidazole adult dose in anaerobic infections is 400mg three times a day orally for 7 days. In severe liver disease the total daily dose should be reduced to one-third, and given once daily.

6. What dose should be prescribed? **400mg once daily**

Digoxin adult dose to treat heart failure (for patients in sinus rhythm) is 62.5–125 micrograms orally once daily,

The manufacturer advises to reduce the dose by half with concurrent use of amiodarone, dronedarone and quinine.

7. What dose range should be considered for prescribing for a patient taking concurrent amiodarone? **31.25–62.5micrograms**

The BNF advises that when switching from intravenous to oral route the dose may need to be increased by 20–33% to maintain the same plasma-digoxin concentration.

8. If an IV dose of 62.5micrograms has been given, calculate what oral dose should be considered if the dose was increased by 20% **75micrograms**

Percentages are also used when considering the benefits of treatment, for example reduction in risk of stroke with anticoagulation. Anticoagulation in patients with Atrial Fibrillation reduces the risk of stroke by approx. 69% (NICE, 2014)

9. Out of 1000 patients with a CHA₂DS₂-VASc score of 4 and no anticoagulant, 55 of them will have a stroke.

How many strokes will be avoided if they are all anticoagulated? **38**

Out of 1000 patients with a CHA₂DS₂-VASc score of 2 and no anticoagulant, 25 of them will have a stroke.

10. How many strokes will be avoided if they are all anticoagulated? **17**

References

Royal Pharmaceutical Society (RPS) & British Medical Association (BMA) 2019, British National Formulary 76. Pharmaceutical Press, London.

National Institute of Health and Care Excellence (2014) Patient Decision Aid - Atrial fibrillation: medicines to help reduce your risk of a stroke – what are the options?