

## GUIDELINES FOR BREAKING OR CRUSHING TABLETS

The reasons for considering tablet crushing are numerous, however crushing tablets has repercussions on the licensed status of the medicine and how the medicine may affect the patient. This guide is intended to give information to aid decision making on altering a licensed medicine by crushing, opening capsules etc

### 1. **Switching to liquid or dispersible oral formulations**

- Changing the formulation of a medicine may alter its bioavailability, efficacy and/or side-effect profile
- Do not assume that the dose of a liquid/dispersible formulation will be the same as the solid oral form of a particular product
- Check dose equivalence
- When switching from a sustained-release to a standard-release form of a medicine, dose frequency will need to be adjusted accordingly
- Evaluate efficacy and side effects frequently
- Dispersible tablets may not give an even solution so part dosing (i.e. dissolving one tablet in 10ml of water then giving 5ml equating to half the dose) is potentially inaccurate
- Certain types of drug should never be altered without advice from a pharmacist and/or the manufacturers due to the changes these actions impose on the pharmacokinetics and pharmacodynamics of the drug. Some important examples are outlined in Table 1.

### 2. **Alternative routes of administration should be considered**

Check in the [British National Formulary](#) or seek advice from pharmacy (01482 301724) to ascertain whether alternative formulations of the medication in question are available, for example:

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|---------------|----------|--------------|
| • Transdermal | • Buccal | • Intranasal |
| • Injectable  | • Rectal | • Sublingual |

In the case of P.E.G tube administration – specialist advice can be obtained from the pharmacy department who can access up to date on-line references.

### 3. **Altering a solid-dose oral medication**

Altering a solid-dose formulation should be reserved as last-resort and practised only after appropriate advice has been sought from a pharmacist.

#### **Prescribers should also consider:**

- How stable the product is once opened to the environment
- Whether the safety of the person preparing or administering the product would be put at risk. Alteration of a solid-dose oral formulation should be considered under Control of Substances Hazardous to Health (COSHH) regulations since there may be an increased exposure to chemical components
- Whether the dose preparation could be accurately repeated to get the same dose
- Variation in the amount of drug reaching the system due to formulation change may impact on efficacy and the potential for side effects, particularly in drugs with a narrow therapeutic window including:

- |                    |                |
|--------------------|----------------|
| • Phenytoin        | • Theophylline |
| • Digoxin          | • Lithium      |
| • Carbamazepine    | • Warfarin     |
| • Sodium valproate | • Citalopram   |

Table 1 **Effect of crushing tablets- important examples**

<b>Preparation Type</b>	<b>Notes/ abbreviations</b>	<b>Considerations</b>	<b>Examples</b>
Modified release	Frequently identifiable by two letters such as m/r, LA, SA, CR, XL or SR at the end of the name. Words such as 'Retard', 'Slow' or 'Continus' in the title are sometimes used	Should not be altered because: The medicine is designed to be released over prolonged period. The mechanism for slowing release may be damaged. Patient receives full dose quicker than expected and subsequently little or no dose at all for a period of time.	Verapamil m/r (Securon SR) Propranolol m/r (Inderal LA) Felodipine m/r (Plendil) Tramadol m/r (Zydol SR) Morphine m/r (MST Continus)
Enteric coated	Usually identifiable by the two letters EN or EC at the end of the name	When coating is added to protect the stomach, co-administer a suitable gastro-protective product if the form is altered; but consider potential for drug interactions.	Aspirin EC (Nu-seals) Naproxen EC (Naprosyn EC)
		When coating is designed to deliver the drug beyond the stomach, crushing may result in the medicine not reaching its intended target.	Sulphasalazine (Salazopyrin EN)
Hormonal, cytotoxic or steroidal		Drug may be dispersed in the air if crushed, and the administering nurse or carer may be exposed to the drug inadvertently; consider risk of exposure if pregnant.	Tamoxifen (Nolvadex) Methotrexate (Maxtrex) Dexamethasone Oral contraceptives Hormone replacement therapy
Film and sugar coated	Usually identifiable by the two letters f/c or s/c at the end of the name	Disruption of the coating may result in rapid degradation of the drug, poor tasting medicine and may also cause skin irritation in the patient or carer	Quinine sulphate Ibuprofen
Pre-Scored Tablets	Tablets which are manufactured to have a score line to aid cutting of the dose form	These tablets may be broken along the score line. It may not be possible to crush these tablets as they may release normally if broken but erratically if crushed i.e. micro-coated or modified release tablets.	Carbamazepine m/r (Tegretol Retard) Lithium m/r (Priadel)

(Adapted from Wright. *Nursing Standard* 2002; 17: 43–45)