# Training: CDs & Formulations

Administering drugs Safely and Accurately

21st July 2004

KBH000197-0002

# Objectives:

- To learn/revise about different types of Drug formulations
- To increase knowledge & understanding of Opioids.
- To promote safe administration of medicines – starting from prescribing to administration of drug.

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# Why so many different formulations?

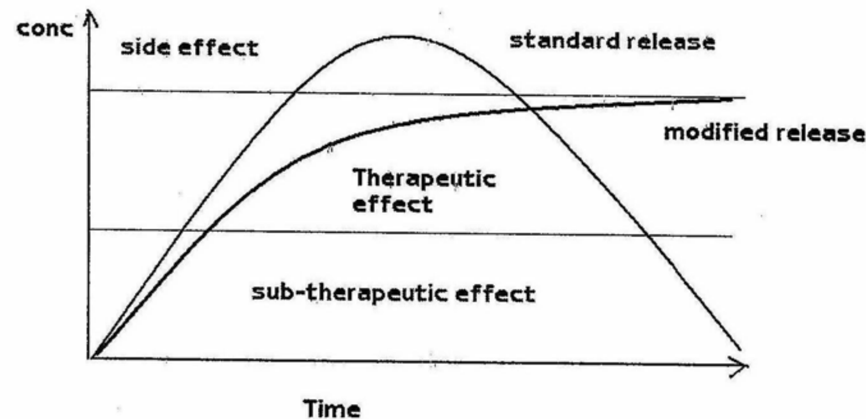
- 7 areas for potential entry into body:
  - Eyes/ears/nose/MOUTH/rectum/vagina & skin.
  - Invasive: injection through skin e.g. iv, im, sc,
- Each route is determined by the patient & the pharmaceutical product form available.
  - E.g. Morphine is stable drug therefore has many p'ceut. forms: tabs, caps, m/r, sachets, oral solutions, injections & suppository.
  - Diamorphine – less stable orally ∴ exists in injectable form. Is 2 – 3 x stronger than oral morphine salt.

# Glossary of Pharmaceutical terms

- **Solution**: a solute (solid) dissolved in a solvent (liquid) to produce a homogenous system (of equal concentration.)
- **Suspension**: is a liquid (vehicle) containing very fine particles of solids (usually the active ingredient) which stay suspended in the vehicle (after shaking) to contain a predictable amount of solid on administration to the patient.
- **Granules**: are aggregates/clumps of homogenized powders ready to be administered orally or to be dissolved in water before administering.
- **Sachets**: are small envelopes used to contain a unit dose of powder or granules ready to be administered or dissolve in water before admin.

# Oral medication

- Standard – immediate release [Coating affects tablet size]
  - Film-coated tabs (polymer), sugar coated tabs.
  - capsules
- Modified release – releases drug slowly over time.
  - Usually 12 hourly or 24 hours →*Swallow whole, not chew.*
- Enteric coated – release drug not in stomach - drug may be gastric irritant or acid-labile. Usually slower onset than std. –Must be *swallowed whole, not chewed.*



# Morphine sulphate - which one?

Strong opioid. Useful for severe pain.

- Oral Forms: **<u>'immediate release'</u>** – soln & tabs.
  - 4 hourly dose. (up to 6 times in 24 hrs)
  - Used for **breakthrough pain** & to **titrate** up opioid dose to convert to e.g. modified release 12 hourly [BD].
  - Forms: morphine sulphate 10mg tab (® sevredol).
  - Morphine sulphate solution 10mg/5ml, (® Oramorph soln) 20mg/ml [= 100mg/5ml] (® Oramorph Conc soln.)
- **<u>Modified release</u> (m/r)** 12 hrs: caps/tabs/sachets
  - caps: ®Zomorph can open caps & sprinkle contents on soft food.
  - tabs: ® MST, ® Morphgesic.
  - suspension/sachet: ® MST suspension – dissolve granules in water

# Approx. Opioid equivalents guide

## from Wessex Palliative care handbook 5th edition

(oral morphine sulphate 30mg ≈ sc/im Diamorphine HCl 10mg BNF 47)

| **Drug** | **Total daily dose (24hr)** |
|---|---|
| Co-proxamol | 8 tablets |
| Codeine | 360mg |
| Dihydrocodeine | 300mg |
| Tramadol | 150mg |
| **Morphine** | **30mg** |
| Diamorphine (subcutaneous) | 10 – 15mg |
| Oxycodone | 15mg |
| Fentanyl (transdermal) | Complex |

# Prescribing Standards – Medicine Policy

1. State **Generic Name & not abbreviated**:
   e.g. Morphine sulphate 10mg/5ml solution – NOT oramorph
2. State **Strength/concentration** – if liquid
3. Specify **Form/Route** of admin: sc, im, iv, po, m/r (modified release, solution, etc. [outpatient Rx – specify tablets or caps.]
4. **Dose** [microgram Not mcg or µg] & **frequency.**
5. **Start Date**: of 1st prescribing & Dr's Signature.
6. **Countersign & Date** discontinued drug. Cross off drug with a Z & through admin side.
7. **PRN**: state reason & max dose frequency in 24hr

*Beware of > 1 Opioid prescribed*
*(on regular +/or PRN side) & also if > 1 Rx chart!*

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# Drug handling in the Elderly

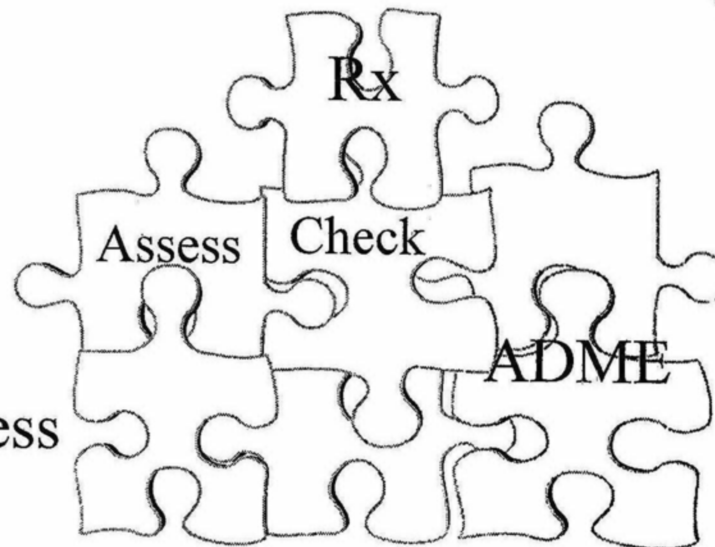
*Drug-induced blood disorders – more common in elderly.*

- Administration: swallowing, post-stroke etc.
- Other disease states?
- Food – drug interactions?
- Drug – drug interactions?

**Changes caused by Ageing → alters drug behaviour**

- Pharmacokinetics
  - Absorption
  - Distribution
  - Metabolism
  - Excretion
- Pharmacodynamics
  - end organ responsiveness

  altered by disease.



# Summary

- Elderly require special care – ageing body changes, ↓ renal function, pharmacokinetic & pharmacodynamics, disease states.
- Dose for Elderly: normally **½ Adult dose.**
- Prescription chart MUST be clear, precise & complete – it must comply with Medicines Policy & Law → *or safety is compromised.*
- If in doubt/unsure– always check BNF/ask the doctor, pharmacist, experienced nurse, ask for training etc.
- DOUBLE check dose is appropriate; the correct quantity & drug formulation with experienced nurse

# Where to Get More Information

*It's ok Not knowing everything – you're human.*

But if in **DOUBT – CHECK it OUT**!

- In the latest edition of the **BNF**,
- Experienced Nurse.
- Portsmouth District Formulary (Green A5 bk)
- Wessex Palliative Care Handbook 5th Edition
- Pharmacist: Sue Chan, Bleep 13
- Pharmacy at QAH or SMH.
- Other sources: internet, Doctor, textbooks, Rowans Hospice or Countess Mountbatten.