EMT 104 Pharmacology for the Paramedic

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Quantitative Reasoning Principles in EMT 104

• Demonstrate the ability to administer medications safely and effectively within the scope of practice for a paramedic including successfully performing drug calculations required to solve a given problem.

• Use quantitative information to support assertions and/or to solve real world math problems relevant to pharmacology and drug calculations.
Principles (cont’d)

• Convert relevant information into various mathematical forms such as equations, diagrams and tables specifically related to drug calculations including charts and equations/formulas for medication administration dosing.

• Use Metric/English math system calculations in terms of drug administration, patient weights and other pharmacological applications.
Drug Dosage Calculations

• What we cover:
  – The metric system & equivalents to English system
  – Common conversions
  – Multiplying and dividing fractions
  – Equivalencies and determining parts
  – Understand and interpret statistical data related to pharmacokinetics (action of drugs, efficacy rates, etc.), factors altering drug responses (half-lives), etc.
More...

- Methods (equations) for figuring:
  - Patient weights based on metric (kg from lbs)
  - Medication and fluid infusion (drip) rates
  - Medication doses for single administration (IV, PO, SL, etc.)
  - Medication dose by weight
  - Medication dose by time (mg/min)
• All of these include a multi-part mathematical equation for the student.

• They must be able to determine:
  – The dose for the patient
  – How it is to be administered
  – What the concentration of the medication is on hand
  – How to achieve the desired dose
EMT 104...by the numbers!

- Medication administration charts are also used to avoid lengthy calculations & drug errors to simplify the paramedic’s job.
- Example: the Lidocaine or dopamine clock
- Medication dose charts
How do we do it?

- Classroom discussions and exercises
- Real world scenarios in lab exercises
  - Meds math
  - IV stations
  - Medication stations
  - ‘Megacode’ stations (‘putting it all together’)
- Quizzing and testing
- Evaluation based on QR learning and outcomes criteria