

MACDOPE - AN INTERACTIVE COMPUTER PROGRAM FOR THE SIMULATION OF PHARMACOKINETICS IN THE HUMAN

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MacDope is an interactive computer program which allows a student to administer a maximum of four drugs to a patient by different routes, and to study the time course of the drugs in various compartments. The program has four main components.

- i) A store of physiological data on subjects. The student can choose a preset subject or specify his own subject. Each subject is defined by 23 patient factors, some of which may be modified interactively, enabling a wide range of clinical states to be simulated.
- ii) A store of information on 18 different drugs. Each drug is defined by 44 drug factors, some of which may be modified by the user, so that the effects of changes in chemical structure may be investigated.
- iii) A multi-compartment model of the body in which the drug factors are combined with the patient factors.
- iv) A prescribing routine which accepts prescriptions in conventional form allowing any of the drugs to be given by a specified route.

The output is in graphical form for plasma or urine concentration. Alternatively the results may be in tabular form listing concentrations in plasma, urine, interstitial, intracellular, gastric and intestinal fluids. In some cases values for active metabolites as well as the parent drug are given.

The mode in which the drug distributions are presented as numerical data is suitable for developing coursework schemes in dosing studies. The results may be analysed by appropriate methods and the effects of routes of administration of dosing frequency, of physiological disfunction and of variations in physical properties of drugs may be examined.