EDUCATION SESSION

A card and board game to reinforce learning of elementary clinical pharmacology

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Basic scientific pharmacology is taught at Nottingham Medical School as part of an integrated curriculum. Thus, as an example, medical students learn about local anaesthetics immediately after instruction on the nerve action potential and are taught this area of pharmacology by a pharmacologist sharing the lecture theatre with an anaesthetist. This progression from physiology and/or biochemistry to pharmacology and thence to elementary therapeutics is applied to all major classes of drugs and begins (with the above example) in the first term of the course.

This introduction of integrated scientific and clinical pharmacology early in the curriculum means that students need to absorb pharmacological mechanisms, drug names and key therapeutic principles without the opportunity for reinforcement offered in later years by clerking and ward rounds. Some form of simulation seemed appropriate to fill this reinforce-

[1] 'Monopoly' is a registered trademark of Waddingtons & Co. Ltd.

ment gap and, in obedience to the principle that learning ought to be fun as well as disciplined, a game was devised.

The game bears a superficial resemblence to 'Monopoly'[1]. Each of 3 to 5 players has a small number of counters and each counter represents a patient. The counters enter and are moved around the board on the throw of dice. At each throw the counter may land on a square which specifies a health problem (e.g. allergic asthma, post-partum bleeding). Each player also has eight cards dealt at the start of the game from a deck of 72. Each card bears the name and classification of a drug. Thus, to move away from a problem square, the player must display a card bearing an appropriate treatment. Treatment cards circulate on the 'pick up and discard' principle. Contraindications and other subtleties are built in via a second card deck with functions like 'Chance' in Monopoly. The objective of the player is to move all patients once round the board to the 'Discharge' square.

Students claim to enjoy the game. Unsupervised groups use it in their own time, the only request from staff being that they log their treatment of each problem and check these for validity with a member of staff. Their treatments are in general responsible and ethical. The game would appear to provide convivial and disciplined small group activity for absorption of drug names and therapeutic principles.

Student-constructed hydraulic and mechanical models for learning fundamentals of pharmacokinetics

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Existing pharmacokinetic texts depend substantially on mathematical exposition which is unpalatable for many medical students. Models or simulations of drug distribution are a response to this problem. For example, Jansen (1977) has used dye distribution in glass vessels as a pharmacokinetic teaching aid. We

have used student-constructed models to help learning in this field. A group of 7 third year medical students devoted approximately 10 h to the preparation of elementary explanations, for a non-mathematical audience, of pharmacokinetic principles founded on demonstrations with simple hydraulic and mechanical models.

The models constructed were:

(a) A model simulating regular oral dosing of a drug having a mono-exponential plasma elimination curve. This consisted of a large aspirator cyclically filled with water from a pipette-washer and drained from a bottom vent, the drug concentration being represented by fluid depth in the aspirator, and dose by fluid volume—so that volume of distribution was simulated by the vessel cross-sectional area.

(b) A model of two compartments having the features of the above model on a smaller scale and pro-