Human Pharmacology Training Programmes – UK

John Posner

Diploma and Certificate in Human Pharmacology Faculty of Pharmaceutical Medicine

John Posner

Director of D/CHP Programmes

Visiting Professor King's College, London

Faculty of Pharmaceutical Medicine

A faculty of the Royal Colleges of Physicians of the UK.

Professional membership of c1,450 pharmaceutical physicians - 40% based outside the UK.

Its mission is to advance the science and practice of pharmaceutical medicine for the benefit of the public.

Prof Duff's Expert Scientific Group - 2006

Recommendation 18

"Principal Investigators who are responsible for the care of subjects in first-in-man trials should always be appropriately qualified, and satisfy themselves that they know enough about the agent, its target and mechanism of action to be in a position to make informed clinical judgements."

"The development of a national professional accreditation system for Principal Investigators conducting first-in-man clinical trials should be strongly encouraged."

DHP and CHP

Diploma in HP for physicians intending to be Principal Investigators in exploratory studies of investigational medicinal products in man - tolerability, PK and drug effects on biomarkers of efficacy and safety.

Certificate in HP for doctors, scientists, pharmacists, regulatory and other personnel supporting such studies e.g. design, management, monitoring, analysis, reporting, regulation, pharmacy.

Eligibility

DHP

Registered doctors with sufficient clinical experience to diagnose and manage patients with acute medical conditions competently and to exercise appropriate clinical judgement e.g. 3-4 years post-qualification.

CHP

A relevant degree e.g. BSc, BPharm or Medicine; many already have higher degrees.

Objectives

Diploma

To attain and demonstrate **competence** to serve as a **PI** for exploratory studies of IMPs in man.

Certificate

To attain and demonstrate a comprehensive knowledge of all aspects of exploratory studies of IMPs in man.

DHP* and CHP Syllabus

- Clinical Pharmacology and Therapeutics*
- Mechanisms of drug action
- Phase I/II clinical trials: design, conduct, analysis - small molecules, biologicals, oncology
- First administrations to man
- Safety – pre-clinical and clinical*
- Pharmacokinetics, Pharmacodynamics, Biomarkers, PK/PD
- Proof of principle/concept
- Mass balance and studies with radiopharmaceuticals
- Pharmaceutical requirements - quality and GMP
- Regulatory requirements for Phase 0 and 1 and NIMPs
- GCP, ethics, law and indemnity
- Management / Client relationships / Communication*

DHP Curriculum

1. **Work-place training**
   - minimum of 2 years' structured training in a Phase I unit
   - defined learning objectives and competencies
   - supervised and assessed by accredited Educational Supervisor
   - assessed portfolio – reflective learning
   - assessments quality assured by FPM
2. **Clinical skills**
   - up-to-date skills in life support (ALS/ALERT or equivalent)
   - management of acute conditions (clinical attachment desirable)
3. **Courses and private study**
   - mandatory attendance at specific courses
   - satisfactory completion of assignments
4. **Written examination**

CHP

Portfolio

Tasks (projects) undertaken during a 2-year period of training in the workplace with each broken down into specific responsibilities e.g.

- assessment of preclinical package;
- literature review
- written contributions to protocols, reports, IBs;
- volunteer consent and screening;
- risk assessments, management of AEs;
- details of REC submissions and presentations.

Emphasis is on reflective learning

Supervisor assesses regularly and sign off competencies

DHP - Learning Objectives

The trainee will be competent to:

1. Evaluate preclinical and pharmaceutical data relating to small molecule and biological IMPs;
2. Apply the principle of minimal risk;
3. Apply ethical principles, regulation and law relevant to human experimentation;
4. Design, conduct, report and interpret results of studies:
   - first administration of single and repeat doses of IMPs
   - PK e.g. bioavailability, interactions, organ impairment
   - radioactive compounds e.g. mass-balance, imaging
   - PD and other biomarkers to assess dose-concentration - response and benefit:risk
   - therapeutic interventions;

DHP - Learning Objectives (cont)

5. Conduct clinical trials in compliance with Good Clinical, Medical and Manufacturing Practices;
6. Manage adverse events including medical emergencies;
7. Evaluate published scientific literature critically;
8. Supervise staff, negotiate with sponsors and communicate satisfactorily with all personnel in the workplace.

Candidates are required to provide evidence of competencies within each of the learning objectives in their portfolio

DHP and CHP Courses

1. **Exploratory Drug Development** **5 days**

2. **Drug Development Pharmacology** **5 days**

- Include:
  - pre-reading
  - problem-solving
  - case studies
  - post-course MCQ
  - assignments (submit in 8 weeks, assessed by course providers and moderated by FPM.

3. **Clinical management of subjects** **1 day** (DHP only)

- FPM has contracted courses to KCL and quality assures course content and delivery.

Course: Exploratory Drug Development

- Preclinical package
- Starting dose selection
- Study designs for FIH, SAD, MAD including case study
- Minimising risk
- Ethics
- PK
- DDIs – case study
- Biomarkers and surrogates
- Statistics
- Gene therapy
- Biologicals
- Oncology
- Vaccines
- The elderly
- Regulation

Course: Drug Development Pharmacology

- Agonists, antagonists, partial and inverse agonists
- Paradoxical pharmacology
- Dose–response
- Therapeutic window
- Receptors, ion channels etc
- Cell signalling
- Factors influencing drug action
- Pharmaceutics
- Action of drugs on systems: CNS, CVS, Blood, cancer, bacterial and viruses, inflammation, immunopharmacology

Examinations

Day 1 – DHP and CHP

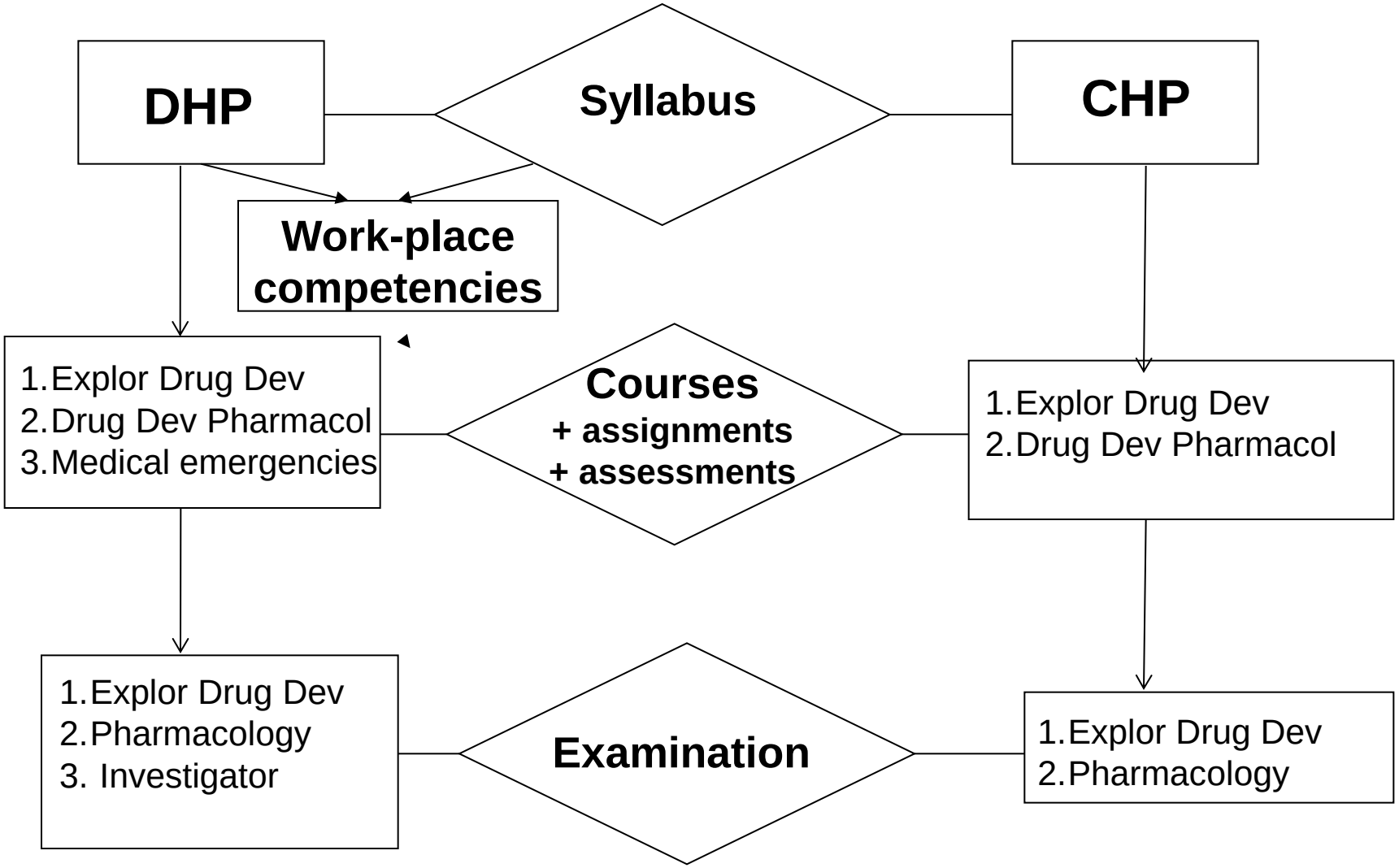
MCQ – 'True/False' format - 100 Qs (stems) each with 5 completions (total 500). Duration 3 h
Factual knowledge in any area of syllabus.

Day 2 – DHP only

MCQ – 'Best of Five' format – 75 Qs. Duration 2.5 h.
Clinical including screening, AEs, ECGs, labs.

SAQs – 6 to 7 Qs, bullet point answers, 15-30 min each. Duration 2.5 h.
Selection of starting dose, assessment of preclinical data, study designs, drug interactions, clinical safety.

Diploma and Certificate Programmes



Current Status

- Both courses have run annually for 4 years – very highly rated with c20 students per course
- Courses now earn credits for MSc modules at King's:
  - Clinical Pharmacology,
  - Translational Medicine
  - Drug Development Science

  } Pharmatrain

- CHP: > 50 registrations, first exams in 2010
- DHP: c20 registrations, first exams in 2011
- Almost all Phase I CROs in the UK are now participating in these programmes.
- MHRA consider DHP to be the qualification for Phase I investigators in accredited Phase I units

My conclusions

- We are providing relevant competency-based training for Phase I investigators
- We are also providing education for scientists working in exploratory development
- Perhaps we are starting to reverse the decline in Clinical Pharmacology as a skill set and promoting its contribution to drug development.

Acknowledgements

FPM Advisory group

- Malcolm Boyce (Chairman)
- John Posner (Director of Programmes)
- Ruth Dixon
- Tim Mant
- Peter Stonier
- Nigel Baber

KCL Course leaders

- Professor Clive Page – Drug Development Pharmacology
- Professor Tim Mant – Exploratory Drug Development