Integrated Pharmaceutical and Patient Care

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Preparation for practice: Developing final year pharmacy students to become a practice-ready workforce using a problem-based learning approach
Presentation outline

• Background
  • Issues facing healthcare
  • Pharmacy response

• Pharmacy (MPharm) course at University of Nottingham

• Integrated Pharmaceutical and Patient Care
  • Overview and development
  • Case-based learning

• Assessment
  • Oral Exam
  • Clinical checking
  • Reflective teaching portfolio

• Feedback, reflections and summary
The final year of the degree is devoted to ensuring our graduates have all of the skills they require to make them world leading pharmacists, and to help them ‘to be the best they can be’, through a series of integrated advanced modules, building on the excellent foundations laid in the first three years of the course.
Issues facing healthcare

- NHS in crisis as budgets cut
- A&E swamped, long waits for GP
- Docs warn of care ‘timebomb’

‘The NHS is a shambles. You’ll probably die on the waiting list’

What desperately ill cancer patient was callously told... by her DOCTOR

NHS pays to cure shopping & gaming addicts

NHS crisis deepens as bed blocking costs £6bn
Issues facing healthcare

Current issues facing healthcare across England, Scotland and Wales include:

- Trusts reporting operational pressures\textsuperscript{1, 2}
- Increasing A&E attendances and more patients experiencing a greater than 4 hour time from arrival to admission, transfer or discharge\textsuperscript{3}
- Increasing expenditure on health care in UK\textsuperscript{4}
- Increasing cost of NHS medicines prescribed in the hospital and community\textsuperscript{5}
Professional response

• Chief Pharmaceutical Officers - pharmacy professionals are to respond to the changing roles and responsibilities facing the profession.

• Primary care - over £100m of investment to support an additional 650 clinical pharmacists to work in General Practice.

• Secondary care - Hospital Pharmacy Transformation Programme (HPTP)

• Increase in prescribing pharmacists

• Pharmacists in Emergency Departments

Implications for how pharmacy undergraduates are prepared for practice

Implications for the future of the pharmacy workforce
Overview of Pharmacy (MPharm) course

- 4-year MPharm
  - Integration
  - Miller’s triangle
  - Drug, medicine and patient modules (DMPs)
- Vertical themes
- Clinical placements
- Multiple-Mini Interviews
  - Recruiting for values

**Overview Diagram**

- Values & Attitudes
- Skills
- Knowledge

- Does
  - Shows how
  - Knows how
  - Knows

= Performance
= Competence

**Drug, Medicine and Patient modules**

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Does
Shows how
Knows how
Knows

Performance
Competence
Overview of Pharmacy (MPharm) course

Drug, medicine and patient (DMP) modules

- Pharmacology & therapeutics
- Biology & leadership
- Professionalism & leadership

Future Medicines
- Advanced Drug Discovery

Future practitioner
- Pharmacy Leadership and Management
- Integrated Pharmaceutical and Patient Care

Transition
- Chemistry
- Pharmaceutics
- ADME (kinetics)
- Clinical pharmacy & practice
Overview of Pharmacy (MPharm) course

Case Studies

- At least 25 case-studies embedded throughout course (2-3 per module)
- Each begins with the description by a patient of their symptoms.
- As the Case Study progresses over the years, the clinical and scientific content becomes more complex providing excellent examples of how science underpins the clinical interventions of the pharmacist.

Placements, inter-professional learning/education and patient involvement support learning throughout the course
Integrated Pharmaceutical Care and Patient
Integrated Pharmaceutical Care and Patient

- Two 20-credit modules (IPPC1 in Autumn semester, IPPC2 in Spring semester)
- **Problem (case)-based learning** and **peer teaching / learning** (groups of 12, 4 cases, one case per team of 3)

**Learner**
- Case study
- Develop teaching
- Deliver teaching
- Learn other cases
- Facilitation
- Life-long independent learners

**Teacher / facilitator**
- Lecture
- Formative feedback
- Teaching pack review

**Team member**
- Case reflection
- Critically evaluate
- Prioritise problems
- Incorporate clinical evidence

**Learner**
- Patient scenarios
- Medical records
- Medication charts/prescriptions
- Critically evaluate
- Prioritise problems
- Incorporate clinical evidence
Example:

Mr T, aged 55, with hypertension, schizophrenia, gout and eczema presents 9 months after a change to his treatment. He complains of gynaecomastia and galactorrhoea.

He is currently taking allopurinol, amlodipine, ramipril, and haloperidol and using topical betamethasone.

What are the issues, what do you need to know?
Case-based learning

- Health economics
- Information and support
- Medicines administration
- Prescribing (review)
- Clinical pharmacy
  - Epidemiology
  - Diagnosis
  - Pathophysiology
  - Therapeutics
  - ADME

- Patient safety alerts
  - vigilance, speaking up, training
- Transfer of care
- Health education
- Multidisciplinary input into care including referral pathways
- Health promotion
- Safe systems

Across the three broad themes:
- Professional, legal and ethics considerations
- Local, regional and national drivers and initiatives
  - Mid Staffs, Berwick, Keogh, Pharmacy Now or Never etc.
When does it work effectively?

Learning is driven by:

- **Activation** of prior knowledge, with elaboration

- Problem/case arouses **situational interest** that drives learning
Case-based learning

The case starts here...

Patient

History & physical (Patient’s characteristics, complaints and findings)

Diagnosis

List of problems/ issues

Evaluation & interpretation of data

Differential diagnosis

Learning issues

Therapy & intervention

Work-up - labs, tests, images
Case-based learning

- Relevant and interesting problem/case
- Small group collaborative setting
- “Scaffolds”
  - *Hard* scaffold – questions/worksheets
  - *Soft* scaffold – tutor/facilitator (knowledge/social (personal) interactions)
- Self-directed learning
Case-based learning

Learn the case

- Aim - understand the case in depth and then teach the rest of their group about the medical conditions
- Students work on case and meet back with a facilitator at regular intervals.

Develop teaching

- Towards the end of the module students teach each other
  - Formative feedback provided about teaching style in advance of teaching
  - Formative feedback provided about teaching content

Deliver teaching

Assessment
“The seven-star pharmacist” as described by WHO

- Care-giver
- Decision-maker
- Communicator
- Leader
- Manager
- Life-long learner
- Teacher

“The pharmacist has a responsibility to assist with the education and training of future generations of pharmacists.

Participating as a teacher not only imparts knowledge to others, it offers an opportunity for the practitioner to gain new knowledge and to fine-tune existing skills”.

- important role in multi-, interdisciplinary care teams
- provide information and advice on medications to patients and their carers, provide health promotion

Source:
Positives of peer-teaching (learning)

- Builds leadership and confidence
- Develop co-operative and collaborative working skills (team-work)
- Offers students an alternative method of studying
- Take responsible of others’ (and own) learning

- Prepares pharmacy students for their future role as educators
  - Places importance on the transmission of wisdom to future pharmacists (academic, clinical), and training of other HCPs
  - Engagement with patients, carers, general public

Equal-status peer-teaching/ learning – teacher and learner are at the same level
Assessment for IPPC 1

**Oral exam 60%**
Assessment of student’s ability to provide clinical reasoning and to apply knowledge of case studies to manage pharmaceutical care related issues.

**Teaching portfolio 40%**
Assessment of the development of teaching (include peer assessment of teaching methods) supported by teaching pack.
Assessment for IPPC 2

**Oral exam 60%**
Assessment of student’s ability to provide clinical reasoning and to apply knowledge of case studies to manage pharmaceutical care related issues.

**Clinical Checking test 40%**
Assessment of prescriptions for validity, clarity and pharmaceutical issues.
Oral Exam
Oral Exam

Procedures

- Registration: 5 minutes
- Briefing: 5 minutes
- Preparation: 50 minutes
- Oral Exam: 20 minutes
- Marking: 10 minutes

Framework

Questions of case studies (2.5 minutes per question)
Assessor asks 4 questions from the case studies in the semester. One question on each of the cases.

Oral presentation (≈1.5 minutes per issue)
Present 3 pharmaceutical care issues identified from the oral exam case.

Questions of the cases (≈ 1.5 minutes per question)
Assessor asks 3 questions about the oral exam case.
Oral Exam

1. Instruction

2. Medical notes

3. Drug chart, prescription or medication record
Oral Exam

- Academic and supporting staff
  - One assessor assesses one student (240 students), a whole day assessment

- Multiple venues
  - Registration room, preparation rooms, oral exam rooms

- Multiple material and equipment
  - Cases, Information sheets, instruction sheets, mark sheets
  - Timer, recorder

- Adjustable Examination Arrangements
  - Personalises arrangement

- To achieve a fair and consistent procedures of oral examination
Oral Exam

• To manage and streamline the examination process several technologies and strategies were used
• When preparing the exam, students were able to access restricted websites during the preparation of the examination case
Timer
The progress of the exam is controlled by a timer shown on screens in each examination room.

Recorder
Each student’s oral examination is audio-recorded and saved in a password-protected University server.
The exam mark sheet is an optically read mark sheet with room for comments.
Clinical checking
Clinical checking

- Pharmacists must demonstrate competence with respect to their area of practice to ensure safety of patients and the public\(^9\)

- A fundamental activity of a pharmacist is the ability to undertake a clinical assessment ("clinical check") of prescriptions

- Several studies have recognised the clinical contributions that pharmacists make towards the care and safety of patients via the clinical assessment of prescriptions\(^{10,11,12}\)
• **MPharm**
  - 10.2.2.e - Clinically evaluate the appropriateness of prescribed medicines
    - **Shows how**

• **Pre-registration**
  - 10.2.2.e - Clinically evaluate the appropriateness of prescribed medicines
    - **Does**
    - Performance standard – C1.3 Assess the prescription for safety and clinical appropriateness.
Clinical checking

- Face to face introductory lecture
- Facilitated examples
- Online formative tests
- Simulated formative test
- Discussion board
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Teaching Portfolio
Reflective teaching portfolio

- Teaching philosophy (500 words)
- Teaching methods and material (i.e. teaching pack) (500 words)
- Evaluation and reflection on the teaching experience (1000 words)
Student teaching experiences

• Most seemed to enjoy the peer-teaching, though expressed nervousness and unconfident at start of their teaching

• Most appreciate “what it is to be a good teacher”, found it hard work and tiring

• A lot enthused about what they gained from the experience

“The biggest thing that I have learned through teaching is a new level of respect for those that do teach and just how hard it is……Teaching must also be paced in a way that the other person is comfortable with….. so being concise and accurate while still understandable is a skill that takes time to develop.”

This was my first real experience of teaching other students and it has certainly fueled my desire to become a clinical academic…. I particularly relish the idea of sharing my knowledge to help others learn.”

“Being intimately involved with my case has vastly enhanced my own understanding of it, with the preparation and act of teaching itself being prime examples of active learning.”
Feedback from students and staff and reflections

• Negative feedback from students: assessment load, content load, relevance

• Positive feedback received from external examiners and internal assessors

• Post-examination assessor focus group
  • Oral examination is a good assessment to discriminate students’ competence.
  • Highly relevant and well linked with pharmacy practice

• Echoed views from the focus groups held with pre-registration pharmacy trainees - conducted at the end of pilot oral examination
“I just wanted to give you some feedback that the IPPC modules in year 4 have been tremendous use to me so far in pre-reg.

I realised the other day that the case studies were a very realistic reflection of the types of patients, conditions and treatments I have been seeing in hospital upon the wards everyday.

I feel that the majority of the knowledge I have been using and being able to answer questions is due to familiarity with the conditions after studying them in the case studies. I have also been revisiting them to refresh my knowledge before a ward visit.

I also have been speaking to a few Nottingham friends who are also in hospital and they feel the same way.”


