Simulation in Pharmacy Education

Professor Stephen Chapman BSc PhD Cert H Econ Res FRSM FRPharmS
Head of Medicines Optimisation
School of Pharmacy
Keele University
The Full Patient Experience

Patients in Primary Care:
- Community Pharmacy Placements
  - Walk-in Centres
    - GP practices
      - PCTs

Patients in Secondary Care:
- Ward visits
  - Outpatient Clinics
  - Dispensary Services
  - Medicines information services

The Patients:
- Simulated Patients
  - Expert Patients
- Patients in the University
- Patients In Mind
  - Virtual Patient Population
  - Case-based Scenarios
Why use technology in simulation?

Actual & Simulated patients give a ‘complete’ hands-on experience

BUT........

There are two big challenges

Standardisation
Access
Why Avatars? Why not mannekins?

- Allows learners to examine short and long term consequences of their decisions
  - on the patient
  - the healthcare team
- Concentrates on emotional intelligence and logic – not physical
You have 30 minutes to complete this scenario. Patient information can be found by clicking the Information tab. Click START to begin.
Female, 18-25 yrs
Period Pain
Asthma
Busy Receptionist

Female, 20-30 yrs
Nurse
Dentists' Assistant

Female, 65-80 yrs
Allergic Rhinitis
Chronic Pain
Caring Grandmother

Male, 45-60 yrs
Viral Gastroenteritis
COPD
Impatient GP

Male, 45-55 yrs
GP Commissioner
Hyperlipidaemia

Male, 35-40 yrs
Junior Doctor
Hypertension

Female, 25-30 yrs
Unplanned pregnancy
Chronic Pain
Proven effect on learning

Pharmacologist used KAVE for teaching 3D structure of kinases

Tested matched cohorts of students with and without KAVE

Those with KAVE experience scored 8% higher on both retention and understanding

Richardson A, Bracegirdle L, McLachlan S I.H, and Chapman S R
IPE
Inter Professional Education
OR
Impossible Pedagogical Exercise?
Pharmacy, medical and nursing students working on a synchronous case in the KAVE
Case feedback and discussion
IPE exercise; qualitative results

“...covered both the non verbal communication and the clinical side of things”

“...that when there is a clear mutual understanding of the roles and responsibilities of others it is really easy to work as an effective team”

Pharmacy Students

“Very engaging method of teaching. Good for active learners such as myself”

“learnt definition of roles in a clinical setting- using multi-professional tools. Testing knowledge and being able to discuss”

Nursing Students

“Picked up team working skills “

“Role clarification”

Medical Students
Smiles =learning =success!
Looking to the future...


- Integrated systems—Accounting for 40% of primary care, integrated systems are responsible for all care for a global fee. These integrated systems include managed care organizations such as Kaiser Permanente, as well as a large number of accountable care organizations which were built around local hospitals, multispecialty clinics, and some insurance organizations. The integrated systems all have advanced EMR and analytics. **Most provide their members with very effective personal health avatars (digital coaches), focus on prevention and can enhance the health of populations enrolled in the fully integrated systems...**

- Semi-integrated systems—Another 30% of Americans receive their primary care through semi-integrated systems that receive fee-for-service payments plus incentives or bonuses for health improvements among their patients. They also receive monthly payments for each person in their panel for providing preventive services and being available for phone and email contact. Primary care providers in this group have well-developed EMRs. **Many provide patients with their health avatar (or can integrate the patient-acquired avatar’s information into their system)**

- Fee-for-service—The remaining 30% of primary care occurs in fee-for-service models. For the affluent, “concierge” practices offer primary care to closed panels of patients who pay an additional fee for preferred access to providers via phone, e-mail, virtual reality, and in-person visits. Patients of most concierge practices can **buy sophisticated health avatars linked to the practice.**
Bringing the future forward......

• Making inhalers talk to children; the Virtual Patient Information Project

• Background
- There is still significant morbidity and mortality linked to asthma in children
- Patient information leaflets are regulated documents couched in technical language
- Clinicians wanted a better means to give children and their parents information
- Evidence suggests we take in more of what we see and hear from a human image
The Team

**Keele**
Prof Stephen Chapman – Project executive
Luke Bracegirdle – Technical project Manager

**Stoke CCG**
Prof Ruth Chambers – Project executive

**UHNS**
Dr John Alexander – Clinical lead
Sadie Clayton – Nurse Clinic Lead

Patients from the clinics
Creating the avatar

- Animators created a series of images – mix of cartoons, genders, etc
- Stakeholder group of children selected the images they preferred
Adding the “script”

• Stakeholder group of children, parents and HCPs generated list of questions/issues to be addressed
  • Keele/ Clinical team generate the “script”
  • Clinicians check script
  • Script programmed to animation
  • Prototype avatar sent to stakeholder group for comment
Demo of prototype
Reference for Virtual Patients and KAVE

Bracegirdle, L. Chapman, S.R.
Programmable Patients: Simulation of Consultation Skills in a Virtual Environment.
Bio-Algorithms and Med-Systems 2010, Vol. 6 (No. 11), pp.111-115
Virtual Patient Weblinks

• Keele KAVE Video
  http://www.keele.ac.uk/pharmacy/vp/kave/kave_video/

• Virtual Patient Demonstration
  http://www.keele.ac.uk/pharmacy/vp/vpdemo/

• BBC: Virtual Patients
  http://news.bbc.co.uk/1/hi/england/7990149.stm

• BBC: KAVE http://www.bbc.co.uk/news/uk-england-stoke-staffordshire-14392477
Further Information

Professor Stephen Chapman
Head of Medicines Optimisation
Email: s.r.chapman@keele.ac.uk