Libraries/Educational Resources Section: There's an App for That
Mobile Resources and Web 3.0 in Pharmacy Education

8:00 – 9:30AM
July 12, 2010
Audience Responses to Active Learning Break-Out Sessions

Think/Pair/Share: What items would be useful to your patrons in a mobile interface?

- Ability to print
- Access to primary literature
- Archimedes
- Audio/video players
- Calculator
- Calendar
- Camera
- Campus services
- Clinical guidelines
- Clinical intervention documentation systems
- Connection to hospital/healthcare computer systems
- Course management systems
- Courses—lecture capture
- Disable device
- Dosing programs
- Drug databases including: Micromedex, Lexi-Comp, Stat!Ref, Facts & Comparisons, Clinical Pharmacology, Epocrates
- Drug identification tools
- Drug interaction tracking
- Drug monographs
- DynaMed
- e-books
- Email (mobile interface)
- E-Texts including AccessPharmacy, Harrisons, Merck Manual; AHFS DI
- FDA resources
- Formulas
- Full-text journals
- GPS locator
- Interaction between apps
- Internet connectivity
- Kinetics programs
- Lab values
- Link to EMR/HER
- Long battery life
- MD Consult
- Medical dictionary
- MediCalc
- Medscape
- MedWatch
- MS Office
- Music
- Nurse/patient encounters
- Option on keyboard
- Patient dose reminder alarms
- Patient education
- Patient education materials
- Patient profiles
- PDF reader
- Peripheral brain
- Personal note taking
- Phone
- Pictures (e.g., drug eruptions)
- Podcasts
- Point-of-care resources
- PubMed
- Recent updates/"Breaking News"
- Replace clickers
- Sanford's
- Schedules
- Screen without much scrolling
- Search multiple databases at once
- Security
- social networking—Facebook, Twitter
- therapeutic drug monitoring tools
- Top 200
- Touch screen
- Toxicology information
- UpToDate
- video conferencing
- Web browsing with usable interface

Brainstorm active learning strategies that blend mobile technologies into traditional instruction.

- Literature searches (per patient case); apply, discuss and debate. Wiki page creation. Problem-based learning
- Simulate being a resident on call using Twitter with a drug information question. Drug information question: look for a mobile resource that has an answer.
- TurningPoint/ARS. Conferencing using Skype or Wimba.
- Looking for tertiary resources on either cell phone or laptop and showing other students how they got there. Developing apps for lab portion of class: anatomy lab → filmed dissections, can watch dissections on iPhone during actual dissections. Sterile lab → filmed sterile procedures, can watch while they perform. Questions assigned that require a tertiary resource to answer. They can choose whatever method they want to access a tertiary resource. Students chosen randomly to describe how they arrived at their answer and method discussed.
- Active learning exercise; technology is an acceleration. TurningPoint. Live polling. Simulate "residents on call." Wiki pages. Twitter for questions.
- Virtual patient simulations. Drug information.
- Some students do have mobile devices (beyond required laptops in some programs) but by the time they are in clinical rotations many/maybe most do have them until they get to internal medicine or cardiology, etc. Until those experiences, the databases are easier to use than other "mobile devices" like iPhone.
- Live polling. Ask a question and have class search different sources (see discrepancies). Evaluate resources (do they link to primary references?)
- ePortfolios
- PDA/mobile device use of drug information databases → Lexi-Comp. PDA/mobile device use in APPEs and opportunities to practice in advanced labs. Devices are different → final content access is the same. Convenience makes a difference → PDA/mobile devices preferred to laptops.
- Mobile text like audience response system using a cell phone for baseline knowledge. Search for information. Toolkit for P4 students—what they can access and LibGuide tutorials. Pharmacology class – new drug can anyone find it given the drug class. E-devices policy—faculty approval needed; conflict with old line faculty. In lab sections/skills class. Calculations and counseling courses.
- Clickers—audience response. Ask students to go to the internet and look up information. Show videos and video clips. Push handouts electronically, ideally on iPad.
- Polling (replace clicker technology. Podcasting. Cases—use device to find answers. Twitter/chat feeds to ask questions during class. Games. Quizzes.
- Searching drug information questions. In classes, quizzes—individualized versions issues. Wikis for group cases.
- Audience response, live polling. iTunes U—podcasts, vodcasts. Drug information—download prior to class and use during class to answer questions. Digital inking and web conferencing tutorials. Mobile technologies to access information including access to other individuals to respond to questions.
- Objective structured clinical examinations. Patient information. Teaching drug information. Labs that do not have PC hands-on. Compounding exercises. Online courses—need mobile for WebCT, Blackboard, etc. Twitter classroom discussions. Live polling. Question DI in class and look up and evaluate resources. Simulate being residents on call. Drug information questions on Twitter with one hour to answer. Determine baseline knowledge at beginning of course.

Spontaneous drug information searches. Create own Wiki page; post care plan. In-class assignments evaluating positives/negatives of the path they used to answer questions. Twitter feeds question in class so lecturer can adjust lecture.

- Move computer labs to mobile website resources. Issues with university versus student purchasing the mobile device when requiring it. Transitioning clicker to mobile devices for texting answers for immediate feedback.
- In-class assignments: answer questions (e.g., drug information, diagnosis) using specific resources and open resources. Compare and contrast using previous examples of strengths and weaknesses. Faculty demonstration of approaches. Twitter discussions to force concise response to questions using a group of individual exercises.
- 1) Patients Like Me → review literature → better enable patient, give patient good advice versus rumor, allow student to better focus on important part of literature. 2) Utilize apps that allow better literature search in lab settings. 3) Centers for Disease Control and Prevention "Health-e-Cards"/social media/tools to better connect and change their workflow to interact with patients 4) blogging/internet polling.

ACPE Standard No. 11: Teaching and Learning Methods

The college or school, throughout the curriculum and in all program pathways, must use and integrate teaching and learning methods that have been shown through curricular assessments to produce graduates who become competent pharmacists by ensuring the achievement of the stated outcomes, fostering the development and maturation of critical thinking and problem-solving skills, meeting the diverse learning needs of students, and enabling students to transition from dependent to active, self-directed, lifelong learners.

Guideline 11.1

From the earliest stages in the program through the advanced practice experiences, students should be encouraged to assume and assisted in assuming responsibility for their own learning (including assessment of their learning needs; development of personal learning plans, and self-assessment of their acquisition of knowledge, skills, attitudes, and values and their achievement of desired competencies and outcomes). Students should also be encouraged to participate and assisted in participating in the education of others, including patients, care givers, other students, and health care providers.

Write one learning objective for transitioning students from dependent learning to active, self-directed, lifelong learners based on a typical drug information need you teach.

- Students will be able to identify key resources to remain current on trends and uses of technologies to engage and educate patients.
- The student will be able to critically evaluate and select appropriate tools to provide accurate drug information relevant to patients in their practice setting.
- Be exposed to multiple aspects to continue lifelong learning through multimedia via lecture format. Choose two methods to keep up with pharmacy "news" and updates and utilize them throughout the semester. Mid-semester a course wiki will be created for students to post two things they like about each of their chosen methods and one thing they would like to change. Then at the end of the semester require students to do a short reflective paper evaluating other students chosen methods (from reading the course wiki postings). Also repot two pharmacy-based things they learned from their chosen methods.
- Heighten student awareness of freely available tools, e.g., MedlinePlus.gov, etc. so students are aware of some of the tools that they'll have access to after they leave the academic setting.
- Recognize methods for "keeping up" including table of contents emails, listservs, etc.
- Typical drug information activity: Find dosing for a particular medication that is not FDA approved for a given indication. Divide into groups, use electronic resources, discuss which path they took and evaluate each group's process.
- To develop a strategy to find "existing" patient educational resources for use on iPad in the aisle and provide evaluation of each resource.
- Sharing of personal experiences/stories or relation information. Search of personal interest. Describe search strategy for disease/condition which you or immediate family has.
- Identify resources for self-assessment.
- Familiar with core drug information tool on mobile.
- Knowing where guidelines are and when they are updated. Develop an RSS feed that will allow you to be notified when clinical guidelines are updated.
- EBM activity: Problem → lay/public literature → EBM

- Become a resource for new apps that have been verified; then show student use after graduation. Require basic standardization of devices upon pharmacy school entrance.

Create one related activity using mobile technologies to achieve that objective to be implemented this fall with P1 students.

- Use a widely publicized news story – ask the P1s how they would critically review the news report for accuracy.
- Give the student a question and have them search for an answer. [Example: What dose of colchicines is needed for liver cirrhosis?]
- Team of students will select four drug information tools, determine source/evidence for their information, compare information provided for each of three drugs, and present their evaluation in class.
- Have students construct a search strategy based on a condition/disease that they or someone they know has using available mobile technology resources.
- Log drug information questions that occur on rotations within e-Portfolio. Then near or at the end of the year, analyze their progression/evaluations of development of their drug information skills.
- Assign random groups of students to investigate and report back to class findings from various websites that are clinical guideline warehouses or journals that typically release guidelines.
- Have students talk to family/friends and develop a question a patient may have about a drug. Have student find websites or an app they would recommend to provide patient-directed information to answer the question. At the end of the course, have student re-evaluate those sites/apps or the sites/apps of another student and see if they still agree that these are the best sites.
- Teams download and use a drug comparison tool/app to answer questions (safety, side effect, etc.) fastest in a gaming/drug wars exercise for literature evaluation.