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Simulated electronic patient records for teaching pharmacotherapy work-up: A skills-based lab activity

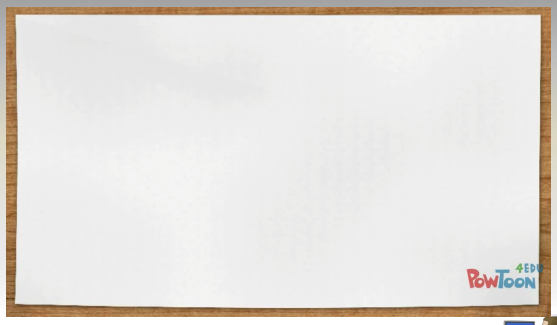
facebook

How do we compete with this?!?!?!

Learning Objectives

1. Share a **hands-on approach** for teaching pharamcotherapy work-up in a pharmacy skills-lab environment
2. Illustrate how **clinical technology** can be used to engage students in "real life" practice skills
3. Highlight **advantages and disadvantages** to this teaching strategy from both instructor and student perspectives

Using Technology in the Classroom



Overview of Lab Activity *

Part A: Orientation Lecture (in Class)

Part B: Lab Activity (in Lab)

Part C: Pharmaceutical Care Plan (Homework)

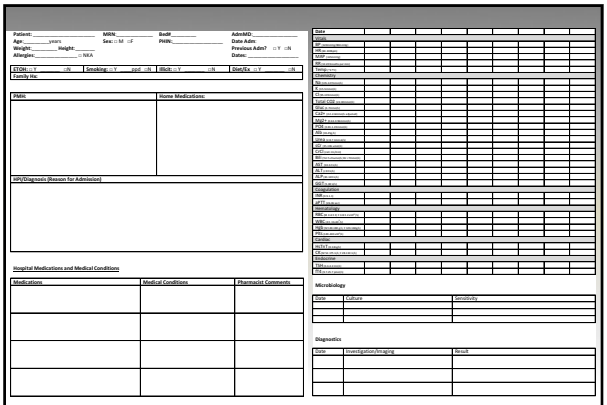
= 5% of final Grade

Part A: Orientation

- 30 minute didactic lecture and question period
- Logistics of activity

Part B: Lab Activity

- Groups of 3-4 students
- 2 hours to look through EPR
- Data collection sheet (1%)
- Formative assessment



Data Collection Form

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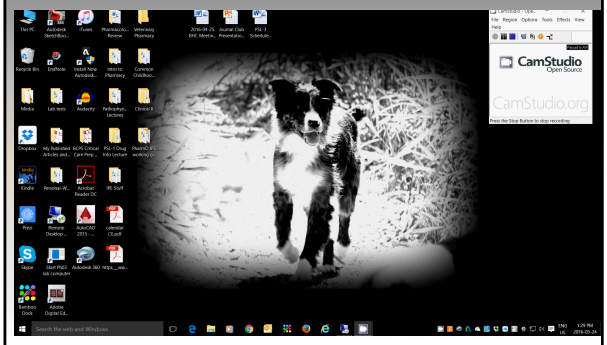


EPR Video

Part C: Care Plan

- Data, Assessment and Plan
- Utilize data from electronic patient chart

Date: March 8, 2016
Pharmacy Note: Re: Anticoagulation Therapy for Atrial Fibrillation

Data: AP, a 57 year old female, presented to emergency at SBGH on Feb. 23, 2016 at 8:52am. That morning she experienced syncope, the primary reason for her admission. She had been experiencing fluttering in the chest, anxiety, fatigue, and dyspnea upon exertion on and off for the past 3 weeks. She was found to have atrial fibrillation (A.fib) (duration possibly >48hr), confirmed via 12 lead EKG, and was rate controlled with metoprolol (<85 bpm). A TEE was performed on Feb. 24 at 9:15am which showed mild left atrial dilation and a small left atrial thrombus (<1cm). She has a PMH of HTN (6.5 years) and A.fib (onset Dec. 7, 2015 - corrected with DCC). She is currently on metoprolol 25mg BID, warfarin 5mg daily, heparin 5000 units subcutaneous q12h, valsartan 160mg daily, vitamin D 1000IU daily, and calcium carbonate 625mg TID. Her INR is 1.7 with a goal of 2-3, HAS-BLED score of 1 and CHADS2 score of 2. Temp: 37.1C, BP: 119/74mmHg, HR: 82bpm, RR: 13bpm, O2sat 95%. Allergies to ragweed and strawberries.

Assessment: AP is currently experiencing persistent atrial fibrillation with a left atrial thrombus and requires appropriate anticoagulation therapy for 4 weeks prior to cardioversion to prevent procedural complications.

Plan: To prevent a thromboembolic event, AP requires at least 4 weeks (due to presence of the clot) of anticoagulation therapy prior to cardioversion. At that point, a TEE should be repeated to ensure absence of the clot prior to procedure. She is not currently stabilized on warfarin (INR <2) but requires discharge in a few hours. Therefore, it is recommended to discontinue heparin and warfarin and switch to a novel oral anticoagulant (NOAC) of rivaroxaban 20mg po once daily to allow for timely discharge. As per the current Canadian Guidelines on Atrial Fibrillation from 2014, NOACs are the preferred agents in non-valvular A.fib. Furthermore, continuing AP on warfarin requires frequent INR testing and bridging therapy which would prolong her hospital stay and would be more invasive. These inconveniences further supports the use of a NOAC. As well, they are noninferior to warfarin, have fewer drug interactions, and likely safer due to the decreased bleed risk. Rivaroxaban was chosen out of the NOACs because of the lack of interactions with her other medications, once daily dosing, and is the most affordable of the NOACs. Rivaroxaban should be initiated upon discharge and for at least 4 weeks prior to her planned cardioversion and will need to be continued for at least 4 weeks post-cardioversion. Our goal is to have her properly anticoagulated (no clot), no bleed from the NOAC, and continued rate control until cardioversion. We are wanting to avoid uncontrolled A.fib, bleeding from the NOAC, and improper anticoagulation (persistent clot).

Prior to hospital admission, AP was taking ginkgo biloba which can increase the toxicity of rivaroxaban and increase her risk of bleeding. Therefore, AP should be counseled to discontinue ginkgo biloba. Since adherence to the new regimen is critical, AP should be followed up in 1 week post discharge to assess adherence and to monitor for any signs of bleeding. There are no lab tests that need to be monitored specifically for this anticoagulation therapy, however sCr should be monitored every 6 months (if she is to remain on it for long-term, which will we be assessed at her follow up appointment with her family physician).

Thank you for the consult.

Case Summary:
- 57 yo F, persistent Afib + HTN
- TEE → LA thrombus
- INR 1.7, CHADS2 =2, HAS-BLED =1

Meds:
- Metoprolol 25mg BID
- Warfarin 5mg ONCE
- Heparin 5000 units Q12H
- Valsartan 160mg OD
- Ca^{2+}/Vit D
- Ginkgo PRN (cold season)
- Was on ASA and HCTZ at home

Discharge Meds?

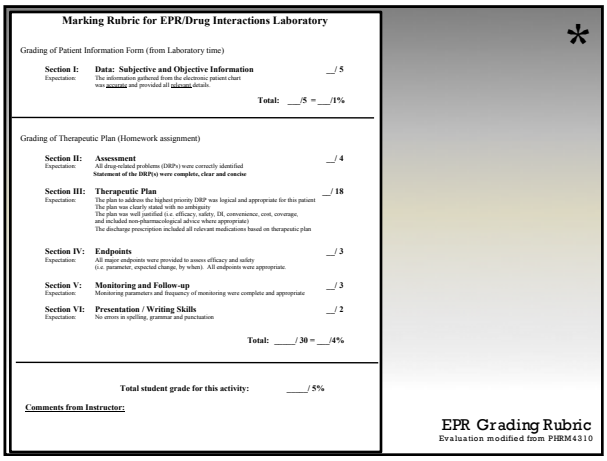
Sample DAP from student group

Student Evaluation

1% Data section of plan + Data Collection Form

4% Assessment and Plan portion of Care Plan

= 5% Total Grade



Marking Rubric for EPR/Drug Interactions Laboratory

Grading of Patient Information Form (from Laboratory time)

Section I: Data: Subjective and Objective Information __/ 5
Expectation: The information gathered from the electronic patient chart was accurate and provided all relevant details.

Total: ___/5 = ___/1%

Grading of Therapeutic Plan (Homework assignment)

Section II: Assessment __/ 4
Expectation: All drug-related problems (DRPs) were correctly identified
Statement of the DRP(s) were complete, clear and concise

Section III: Therapeutic Plan __/ 18
Expectation: The plan to address the highest priority DRP was logical and appropriate for this patient
The plan was clearly stated with no ambiguity
The plan was well justified (i.e. efficacy, safety, DI, convenience, cost, coverage, and included non-pharmacological advice where appropriate)
The discharge prescription included all relevant medications based on therapeutic plan

Section IV: Endpoints __/ 3
Expectation: All major endpoints were provided to assess efficacy and safety (i.e. parameter, expected change, by when). All endpoints were appropriate.

Section V: Monitoring and Follow-up __/ 3
Expectation: Monitoring parameters and frequency of monitoring were complete and appropriate

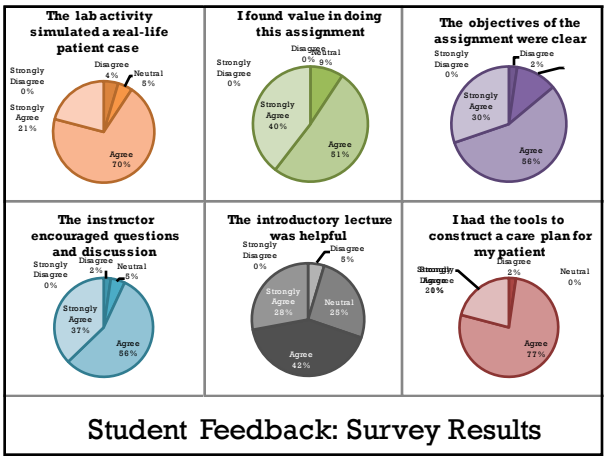
Section VI: Presentation / Writing Skills __/ 2
Expectation: No errors in spelling, grammar and punctuation

Total: ____/ 30 = ___/4%

Total student grade for this activity: ____/ 5%

Comments from Instructor:

EPR Grading Rubric
Evaluation modified from PHRM4310



Student Feedback: Survey Results

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Common Student Comments:

"wish it was an individual assignment – some group members didn't do anything"

- Peer assessment (partners instead)

"2 hours too long to collect info"

- Shorten activity to 1 hour

Teacher Perspective

Very positive student feedback	Prep work overwhelming
Real world application of skills	Case writing difficult
Grading isn't a burden	Technology problems

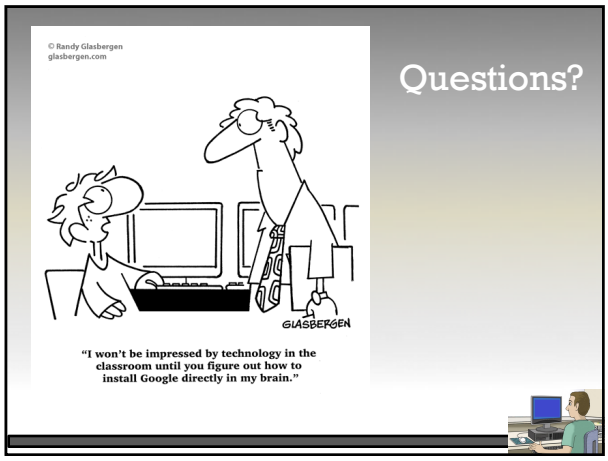
Summary

- Promoted student engagement
- Integrated technology into teaching
- Utilized case-based learning
- Promoted teamwork and clinical reasoning skills
- Students enjoyed activity/found value

☺ = **Successful Lab activity!**

References (where ideas come from)

- Barkley, Elizabeth F. *Student Engagement Techniques: A Handbook for College Faculty*. San Francisco: John Wiley and Sons Inc; 2010.
- Bean, John C. *Engaging Ideas: The Professor's Guide to Critical Thinking and Active Learning in the Classroom*. 2nd ed. San Francisco: John Wiley and Sons Inc; 2011
- Lesson Plan Template: Teaching and Learning Certificate Program. The Centre for Advancement of Teaching and Learning. University of Manitoba.
- Animated video created using PowToon.com (subscription required)
- EPR navigation video created using screen capture software from CamStudio http://camstudio.org/
- Images from clipartpanda.com, shutterstock.com and personal images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"I won't be impressed by technology in the classroom until you figure out how to install Google directly in my brain."
Questions?