Community Pharmacy Technology

INSTRUCTOR'S GUIDE

PLANNING NOTES: **Teams:** 4-5 students; **Length:** 4-8 classes; **Resources Needed:** Computers, copies of student workbook and journal article

Medication-related problems are a significant public health issue within the health care system. Incidence estimates suggest that more than 1.5 million preventable medication-related adverse events, specifically Asthma & Diabetes, occur each year in the United States, accounting for an excess of $177 billion in terms of medication-related morbidity and mortality. The Institute of Medicine advocates that health care should be safe, effective, patient centered, well communicated, timely, efficient, and effective to meet patients' needs and that patients should be active participants in the health care process to prevent medication-related problems.

-MTM in Pharmacy Practice: Core Elements of an MTM Service Model, 2008.

Full report can be found at: http://www.pharmacist.com/sites/default/files/files/core_elements_of_an_mtm_practice.pdf

OVERVIEW:

You just started your pharmacy school and the Dean has challenged your class to come up with a technology-based intervention for your own neighborhood. In this case study, you must team up to assess the current health status of your own community, evaluate the pharmacy services already in place, and create a technology-based intervention to help meet needs of patients in your community.

GOAL:

Identify risk factors in the community and create a technology-based intervention to improve community health.

ROLE:

You are a team of pharmacy school students.

OBJECTIVE:

8.11: Use technology to influence and support people to make positive health choices.

DELIVERABLES:

1) Pharmacy Visit Log
2) Technology-based Intervention

ASSESSMENT:

Your intervention will be graded on a rubric.

Consider allowing students to choose their own groups if past projects/case studies have used assigned groups.

STANDARDS:
NGSS (WHST.9-12.7) Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject demonstrating understanding of the subject under investigation. (HSLS13)
NHES 2.12.6: Evaluate the impact of technology on personal, family, and community health.

Case Introduction:

> In the real world, students will be expected to define the problems they encounter. For example, their boss is not always going to hand them a worksheet saying "Here is the problem, now do this." This case study is designed to also force students to think and decide for themselves what the problem is and how to solve it. Remind students that it may not feel "comfortable" or "easy" to work this way, but it will help them build problem-solving skills.

Re-read the cover page with your team and determine what you know, what you will need to know, and what you need to do.

What do you know about this challenge, based on the info above?

POSSIBLE ANSWERS:
1. I'm in Pharmacy school
2. Need to make a technology based intervention.
*3. **Need to focus on "our own" neighborhood***
*4. **Need to assess the current situation***
5. Medication-related problems are a major health issue.
6. Medication related events can often be prevented.
7. Healthcare should be safe, effective, patient centered, timely, efficient, and effective to meet patients' needs.
8. Medication related problems are expensive: cost up to $177 billion each year.

What do you need to know?

POSSIBLE ANSWERS:
1. What are these medication related problems?
2. Why are medication related problems so expensive?
3. Why are Asthma & Diabetes 2 of the most troublesome diseases?
4. What does morbidity and mortality mean?
5. How do the pharmacies in our neighborhood rank with respect to being safe, effective, patient centered, timely, efficient, and effective to meet patients' needs?
6. How can patients be more active when it comes to ensuring their own medicinal safety?
7. What are some reasons why people might not comply with the medication instructions?

What will you need to do? What is your objective?

POSSIBLE ANSWERS:
How can we improve the health and medication adherence in our neighborhoods in such a way that we consider:
-The most common diseases
-Money
-Time
-Adherence to medication treatment plan
-Safety
-Efficiency
-Effectiveness
-Culture

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Background:

Read selected sections from the journal article, "Smartphone Medication Adherence Apps" by Lindsey Dayer et. al (2013). Answer the question in the table below as you read.

Article is saved as PDF in resource files, but can also be accessed at: http://www.medscape.com/viewarticle/782609_2

Section	Questions	Answers
Epidemiology of Nonadherence (p. 1-2)	1. What is the average adherence rate to chronic medication therapy?	
Measurement of Adherence (p. 2)	2. Which method of measuring adherence is most able to determine the specific type of nonadherence?	
Types of Nonadherence (p. 2)	3. What factors influence unintentional and intentional nonadherence?	
Behavioral Models of Adherence (p. 2)	4. What is the underlying assumption of most medication adherence models?	
Methods to Improve Medication Adherence (p. 2-3)	5. What are the methods to improve medication adherence used and studied most often?	
Counseling and Other Behavioral Interventions (p. 3)	6. For patients simultaneously managing more than six medications at once, what is one of the most effective methods for improving adherence?	
Medication Adherence & Mobile Devices (p. 3)	7. What are the advantages of using a smartphone app for improving medication adherence?	

Answers:
1. 50%
2. Self-report
3. Unintentional (i.e., forgetfulness or carelessness) are influenced by patient factors, treatment factors, and patient-provider issues. Intentions are influenced by perceptions feelings and beliefs.
4. beliefs shape how people interpret info, which shapes behavior
5. reminders, counseling, reinforcement, education, dosage simplification or a combination of these // behavioral (modify environment or incentives), educational (provide more information), or organizational (lifting barriers associated with medicine complexity and communication with care providers)
6. education
7. it is constantly accessible, involves and engages the patient, and provides a repository for patient- and medication-specific information

Gather Information:

PHARMACY VISIT

Setting up Pharmacy visits: The assets of the community and ability of instructor to offer options for pharmacy visits will be variable. Do what works! Some options include:
1. Have students use their resourcefulness to find a pharmacy to visit as a group. Model professional telephone skills and interview skills.   2. Create a bank of possible pharmacies for students to choose from. Get in touch with these pharmacies ahead of time to make sure it is okay for students to reach out to set up interviews. 3. Find volunteer health pharmacists or experienced/mature pharmacy technicians to visit each class.

GOALS:

1. Engage with the front-line workers in the pharmacy field (pharmacists and pharmacy technicians)
2. Gain exposure to the real-world work, new perspectives, and resources
3. Determine one specific unmet need related to community health issues (You may want to ask specifically about diabetes, asthma, or any other priority health issue in your community.)

EXPECTATIONS:

Before and during your pharmacy visit, you will be expected to focus on the following skills:

- **CURIOSITY** Prepare and ask excellent questions. Use all of your senses to make and record observations.
- **INITIATIVE:** Take ownership of the visit. Connect your interests with others' work.
- **PROBLEM-SOLVING:** Identify problems faced by those at the site (relating to the population of teenagers they serve)
- **COMMUNICATION:** Be professional, engaged, and respectful in all of your interactions with anyone at the site.
- **RESOURCEFULNESS:** Find resources to tap into, whether this is people, places, websites, articles, or anything else

PHARMACY VISIT INFORMATION:

Name of Pharmacy: _____Visit Date/Time: _____

Address: _____

Website (if available): _____

Contact Person: _____

Phone Number: _____ Email: _____

Signature (Pharmacist): _____ **Date:** _____

Questions *(Prepare in advance; use separate sheet of paper if needed)*

Observations	Problems	Resources

Other Notes & Reflections

Identify the Problem:

What is the **problem**? (Be sure to be clear and specific--address the who, what, when, where, why, and how!)
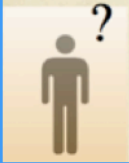
What is your **research question**? (Take the problem and pose it as a question-- remember an effective research question [Lesson 1.11] is relevant, rigorous, and probative!)

> Writing a research question may be a difficult step for many groups. Provide examples! Examples from Rural Health module case study: **"How do patients perceive telemental health services, in terms of relationship with provider, effectiveness, convenience, and comfort level?"** OR **"What attitudes do health care professionals have toward using video-based telemedicine in mental health care, in terms of ease of use, quality of care, and cost-effectiveness?"**

Identify Risk Factors:

Brainstorm and gather risk factors for the problem. Use the information from the journal article, other background sources, your pharmacy visit, and your own inferences to list as many risk factors for the problem as you can in the table below:

> Refer back to Lesson 5.5 (in Public Health Module #5) for an overview of the types of risk factors. This may be helpful to review with students before they arrive at this step.

RISK FACTORS

Predisposing	Enabling	Reinforcing

Predisposing Risk Factors

DEFINITION:

When individuals or a community lack **knowledge or skills** they need to change the modifiable risk factors.

EXAMPLES:

- Not **knowing** how to exercise
- Not **knowing** the effects of smoking
- Not having the **skills** to move

Reinforcing Risk Factors

DEFINITION:

When individuals or a community do not have people around them who can **reinforce** a positive change.

EXAMPLES:

- Living with **someone who smokes**
- Hanging around **people who don't exercise**
- Having **friends involved in gang activity**

Enabling Risk Factors

DEFINITION:

When individuals or a community does not **have access** to necessary facilities, tools, medicines, assets.

EXAMPLES:

- No **access to gyms**
- **Scarcity of hospitals/ clinics** in a region
- **No available fresh produce** in the neighborhood
- **Can't take time off** of work to go to the doctor

EXAMPLES:

Predisposing: 1. Don't know where the nearest pharmacies are located. 2. Don't know which pharmacy can best treat the problem. 3.Don't understand how to use the device or drug. 4. Don't speak the same language as the pharmacist. 5. Don't understand the directions on the box. 6. Don't know anything about insurance & affordability. 7. Don't trust the pharmacist 8. Don't know that pharmacists can answer questions even if they've never met the patient. 9. Don't feel safe asking pharmacist questions because they don't know about HIPPA. 10. The patient is in denial about having a health problem. 11. The patient doesn't know the risk factors for Asthma or Diabetes.

Enabling: 1. Can't afford medication. 2. Pharmacies are too far away. 3. Don't have time to visit a pharmacy. 4. Pharmacies require insurance cards.

Reinforcing: 1. Family doesn't believe in "Westernized" medicine. 2. Family culture suggests different forms of treatment. 3. Family/friends are leery of what pharmacists do. 4. Friends/family don't have a lot of money, so they think they can't afford a pharmacist.

BACKGROUND RESEARCH:

Each team member should select ONE key risk factor from the table above. Then, find a credible source to gather more information about it. Focus on information that relates to possible solutions (especially those that are technology-based) for the risk factor.

Info Type:	Information:
Source *(title, author, name of site, date, and URL below)*	
Important Evidence #1 *(statistic, results of research, etc.)*	All sources should be credible, but instructor should specific what type is required. If student have experience accessing and reading peer-reviewed scholarly journal articles, that type of source can be required. Google Scholar can be used and some articles can be found full-text for free, while others will just allow students to see the Abstract, which on it's own can provide some baseline information. Alternatively, students can be required to find any credible sources (news, govt/policy reports, information pages/ documents from CDC, NIH, etc.)
Based on the evidence above, what solutions for this risk/protective factor might work?	
Important Evidence #2 *(statistic, results of research, etc.)*	
Based on the evidence above, what solutions for this risk/protective factor might work?	
Summary of Article	

Identify Solutions:

Review your research findings. Discuss the information you gathered and select one or more risk or protective factors to focus on in order to improve community health outcomes related to your problem.

Write your factor-outcome focus area below:

Risk or Protective Factor:

Outcome:

Now you will propose a technology-based SMART intervention. You could create a website, app, social media campaign, or some other technology-driven solution. Ensure your intervention is aligned to your risk/protective factor.

Use the space below to brainstorm your intervention, then fill out the Intervention Proposal on the next page.

BRAINSTORM SPACE:

Intervention Proposal:

Risk/Protective Factor:

Name of Intervention:

Description:

How is this intervention SMART?

 Specific:

 Measurable:

 Achievable (yet Ambitious!):

 Relevant:

 Time-bound:

How would your intervention be evaluated in order to determine how it worked and whether it was successful or not?

Technology-based Intervention Execution:

Prepare an action plan to create the solution your proposed.

Steps Needed to Create Intervention (List everything you need to do to get the intervention created.)	
Questions, Barriers, or Knowledge Gaps (Where will you get stuck? What do you need help with?)	
Resources Needed (What materials do you need?)	
Support Needed (Who might you need help from?)	
Action Plan (Assign tasks, owners, and deadlines for all action items)	

The rubric can be modified and tailored as needed to individual instructor needs and grading policies/criteria.

Rubric:

You technology-based intervention will be evaluated using the criteria below.

Obj. 8.11: Use technology to influence and support people to make positive health choices.

	Needs Improvement	Emerging Mastery	Partial Mastery	Mastery
ACCESSIBILITY OF INFORMATION	Achieved 0 of 3 factors: 1) Clear and easy to understand information 2) User-friendly; 3) Neat and professional	Achieved 1 of 3 factors: 1) Clear and easy to understand information and how to use 2) User-friendly; 3) Neat and professional	Achieved 2 of 3 factors: 1) Clear and easy to understand information and how to use 2) User-friendly 3) Neat and professional	Achieved 3 of 3 factors: 1) Clear and easy to understand information and how to use 2) User-friendly; 3) Neat and professional
QUALITY OF INTERVENTION	Achieved 0 of 3 factors: 1) Creative & original; 2) Aligned to one or more risk factors; 3) Meets SMART criteria and has a logical evaluation plan	Achieved 1 of 3 factors: 1) Creative & original; 2) Aligned to one or more risk factors; 3) Meets SMART criteria and has a logical evaluation plan	Achieved 2 of 3 factors: 1) Creative & original; 2) Aligned to one or more risk factors; 3) Meets SMART criteria and has a logical evaluation plan	Achieved 3 of 3 factors: 1) Creative & original; 2) Aligned to one or more risk factors; 3) Meets SMART criteria and has a logical evaluation plan
POTENTIAL TO IMPROVE MEDICATION ADHERENCE & HEALTH	Achieved 0 of 3 factors: 1) Uses educational, behavioral, or organizational factors to improve adherence 2) Targets health issues and populations in need of support or resources; 3) Provides a new or improved service/resource	Achieved 1 of 3 factors: 1) Uses educational, behavioral, or organizational factors to improve adherence 2) Targets health issues and populations in need of support or resources; 3) Provides a new or improved service/ resource	Achieved 2 of 3 factors: 1) Uses educational, behavioral, or organizational factors to improve adherence 2) Targets health issues and populations in need of support or resources; 3) Provides a new or improved service/resource	Achieved 3 of 3 factors: 1) Uses educational, behavioral, or organizational factors to improve adherence 2) Targets health issues and populations in need of support or resources; 3) Provides a new or improved service/resource

If time permits, require each group to PRESENT their intervention. This will boost engagement and interest level. The interventions could also be shared with local pharmacists/pharmacies; inviting them to the presentations, preparing an overview Powerpoint or handout with one project on each slide/page, or having students visit the pharmacies again to present their solutions would all be excellent ways to make this case study authentic!