Students as Pharmacists Extenders-Make Precepting a Win-Win: Review of Literature

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Objectives
- Define the term “pharmacist extender”
- Discuss the benefits and barriers to utilizing students as pharmacist extenders
- Summarize the literature regarding utilizing students as pharmacist extenders

The presenter has no disclosures nor conflicts of interest.

Pharmacist Extender
- Personnel who completes duties that are delegated and overseen by a pharmacist that allows the pharmacist to broaden his or her scope of practice or responsibilities
  - Clerks
  - Technicians
  - Paid Pharmacy Interns
  - Pharmacy Students
    - Introductory Pharmacy Practice Experience (IPPE)
    - Advanced Pharmacy Practice Experience (APPE)

Pharmacist Extender
- Duties
  - Performs data gathering, collating and entry functions
    - May prioritize problems
  - Assist with documentation & scheduling or follow-up
  - Assist with medication use process
- Why needed?
  - Increased duties/responsibilities of pharmacists
    - Despite limited resources and budgets
    - Emphasize direct patient care by pharmacists

Pharmacist Extenders

Benefits
- Allows focus on direct patient care
- For pharmacist and extenders
- Improve patient safety
- Improve patient outcomes
- Improve core measures
- Increase satisfaction

Barriers
- Training required
  - Process
  - Use of systems
- Reinforcement of training
- Keeping up with documentation
- Maintaining motivation
- Scheduling and coverage issues

Review of Literature
- Search of International Pharmaceutical Abstracts (IPA) and PubMed
- Keywords and Controlled Vocabulary Utilized
  - Pharmacy students, experiential, rotations, clerkships
  - Clinical pharmacy services, pharmaceutical services
  - Outcomes, value, interventions
- Limits
  - Publication date 2005 to present
Review of Literature

• Inclusion Criteria
  – Articles that detail utilizing experiential pharmacy students in roles as pharmacist extenders
  – Articles that pertain to pharmacy practice within the United States

• Exclusion Criteria
  – Articles that measure student and/or preceptor perceptions of experiential rotations instead of capturing actual duties or roles
  – Abstracts of posters or presentations at conference meetings

Results

• Initial searches returned between 340 to 400 articles on each database
  – Many were duplicates
  – Many on IPA were posters at various meetings
• 49 articles selected after reviewing titles
• 36 articles remaining after review of abstracts

Results

• One Review Article Identified
  – Search of literature to determine “clinical services provided by pharmacy students and the economic implications associated with those services”
  – Included 29 studies and 6 abstracts
  – Compared number of students, rotation length, length of study, interventions, acceptance rate and cost savings

Results

• Description of Type of Pharmacist Student Extender Utilized
  – 13 articles pertained to APPE Hospital or Acute Care
    • 6 articles were about interventions in general
    • 2 articles were about antimicrobial stewardship
    • 5 articles were about medication reconciliation or discharge medication counseling
    • 1 article was about inpatient anticoagulation service
    • 1 article was about ADR reporting

Results

• Description of Type of Pharmacist Student Extender Utilized
  – 7 articles pertained to APPE Ambulatory care
    • All of which reported interventions
    • Some reported acceptance rate of student interventions
      – One reported that student verbal interventions were accepted more often than written interventions by medical residents
  – 3 articles pertained to APPE Community
    • 2 articles reported self-care recommendations
    • 1 article reported medication therapy management
Results

• Description of Type of Pharmacist Student Extender Utilized
  – 5 articles pertained to IPPE
    • 3 involved Medication Education and/or MTM for elders
    • 2 involved immunizations
  – 2 articles pertained to all APPE interventions
    • Students documented interventions throughout the year during all rotations

Results

• Description of Type of Pharmacist Student Extender Utilized
  – 2 articles described duties of paid interns
    • Facilitating IV to PO switch
    • Facilitating medication history
    • Facilitating with core measures
  – 1 article pertained to volunteer interns that assisted with medication reconciliation

Limitations

• Articles varied widely in outcome measures reported and length to which they were described
• Articles varied widely in number of students participating in experience

Areas for Future Study

• Blocked scheduling of APPE
  – Few studies describe allowing students the ability to complete a number of rotations at a single institution
    • Did not address interventions or value of student to institution
    • Could present opportunity to provide more of an impact on practice

Conclusions

• Literature shows promise for utilizing pharmacy students as practice extenders
• Need more study on the training and logistics as well as time in these activities in addition to more consistent intervention tracking to further expand impact on outcomes and cost savings

Questions?

• All articles reviewed are listed in another document. It has been submitted for posting on TPA website along with slides.
Objectives

- Provide an overview of Medication Therapy Management (MTM)
- Discuss primary barrier to providing MTM and its solution
- Discuss the impact of students as pharmacist extender on the following:
  - Student
  - Administration
  - Patient
- Discuss tips for successfully precepting MTM rotation

Disclosure

I have no actual or potential conflict of interest in relation to this program.

Medication Therapy Management (MTM)

- Term coined by the Center for Medicare and Medicaid Services (CMS) under the Medicare Modernization Act of 2003.
- Aim is to optimize drug therapy and improve therapeutic outcomes for patients.
- Core elements of MTM:
  - Medication therapy review (MTR)
  - Personal medication record (PMR)
  - Medication-related action plan (MAP)
  - Intervention and/or referral
  - Documentation and follow-up
- Pharmacists are #1 providers for delivery of MTM services.
- Impact of MTM:
  - Improves health outcomes
  - Improves medication adherence rates
  - Reduces adverse drug events

Medication Therapy Management Services Provided by Student Pharmacists

- Objective: To evaluate the impact of these MTM services delivered by student pharmacists during their advanced pharmacy practice experience (APPE) on student perception of value and preparation for provision of MTM, and on patient response to the recommendations.
- APPE Sites: Community pharmacy or independent pharmacy ownership
- Duration: 12 weeks for 2 years (mid-February to the first week of May during 2009 and 2010.)
- Training:
  - The concept of MTM - introduced first year of pharmacy school
  - How to perform MTM services - spent a full day of class in their third year
  - Student pharmacists were trained by the CORE faculty members, a day on how to implement MTM services at a practice site and how to document the process on MTM forms – Prior to starting the APPE.
  - An MTM protocol, created by the CORE faculty members, was incorporated into the course syllabus for added guidance.

Barriers to providing MTM services

- Inadequate time
- Inadequate support staff

Solution:

Utilizing pharmacy students as pharmacist extenders!
In 2014, the American Pharmacists Association (APhA) found that one of the greatest barriers to pharmacists providing MTM services was not having adequate time and adequate support staff.

This study was done by Micah Hata and colleagues at the Western University of Health Sciences in California.

Students were P4 and had completed seven 6 week rotation prior to this point had all therapeutic classes.

These forms were developed by the CORE faculty members based on APhA suggested standards and are available upon request.
Medication Therapy Management Services Provided by Student Pharmacists

Process:
• Interested patients completed a medical and medication history form.
• Form reviewed by student pharmacists.
• Within 3 days, the student pharmacists conducted a face-to-face interview with the patient and performed a medication therapy review to address the appropriateness, safety, and cost, and any compliance issues associated with the patient’s medications.
• Students documented the drug-related problems they found, specifically in the following areas:
  - Drug use without indication, or duplication of therapy, unlisted indication, improper drug selection, subtherapeutic dosing, exacerbation inappropriate administration schedule, adverse drug reaction, drug interaction, and cost-effectiveness.
  - The students provided their patients with a written report addressed to the patient’s physician with suggested changes and/or safety concerns, which were approved by the student’s preceptor.
• The patient was also provided with a typed personal medication record that was prepared by the student and approved by the preceptor.

Results:

<table>
<thead>
<tr>
<th>Year</th>
<th>Students, No.</th>
<th>Patients, No.</th>
<th>Interventions, No.</th>
<th>Students surveyed</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>28</td>
<td>288</td>
<td>432</td>
<td>21</td>
</tr>
<tr>
<td>2010</td>
<td>19</td>
<td>221</td>
<td>272</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>47</td>
<td>509</td>
<td>704</td>
<td>40</td>
</tr>
</tbody>
</table>

• Average of 10 patients per student
• Average of 1.4 drug-related problem per patient
• Each student identified 15 drug-related problems

Medication Therapy Management Services Provided by Student Pharmacists

Advantages of utilizing students in MTM

Results continued:

<table>
<thead>
<tr>
<th>MTM Services</th>
<th>No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drug use without indication/Duplication of therapy</td>
<td>58 (7.4)</td>
</tr>
<tr>
<td>Unlisted indication</td>
<td>50 (7.0)</td>
</tr>
<tr>
<td>Improper drug selection</td>
<td>62 (8.7)</td>
</tr>
<tr>
<td>Subtherapeutic dosage</td>
<td>39 (5.5)</td>
</tr>
<tr>
<td>Overdosage</td>
<td>48 (3.6)</td>
</tr>
<tr>
<td>Inappropriate administration schedule</td>
<td>102 (14.4)</td>
</tr>
<tr>
<td>Adverse drug reaction</td>
<td>108 (18.2)</td>
</tr>
<tr>
<td>Drug interaction</td>
<td>205 (48.4)</td>
</tr>
<tr>
<td>Cost-effectiveness</td>
<td>247 (20.7)</td>
</tr>
</tbody>
</table>

Increased MTM Drug Experience

Students

Advantages

<table>
<thead>
<tr>
<th>Students</th>
<th>Patient</th>
<th>Administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recognized the value of MTM services</td>
<td>Improved patient outcomes</td>
<td>Improved efficiency in terms of time</td>
</tr>
</tbody>
</table>

Improved student confidence in Clinical skills

Students satisfied

Improved preceptor participation in MTM
While the preceptor was not required to interview the patient with the student, the preceptor did need to review and sign off on every recommendation before it was presented to the patient.

Vaidehi, 7/1/2015

Five hundred nine patients received MTM services, or an average of 10 patients per student. Among the 509 patients, 704 drug-related problems were identified (an average of 1.4 drug-related problems per patient). Each student identified an average of 15 drug-related problems for their MTM patients. There were no significant differences between data for 2009 and 2010 in terms of the average number of MTM services provided (p > 0.09) or follow-up interviews conducted (p > 0.18).

Vaidehi, 7/1/2015

The most common drug-related problems identified by the students: cost effectiveness (n = 146), adverse drug reactions (n = 116), drug interactions (n = 106), and inappropriate administration schedules (n = 102). The least common drug-related problems identified were overdose (n = 40) and subtherapeutic dosage (n = 39).

Vaidehi, 7/1/2015

ACCP requirement, real life experience

Example of glyburide

Even if community pharmacy preceptors are not familiar with the process of conducting MTM, they have the knowledge to approve clinical recommendations that are identified by student pharmacists. This may address both the efficiency of the process in terms of time, as well as improve preceptor confidence in participation in MTM.

Vaidehi, 7/1/2015

Imp because healthcare need to provide MTM

Survey results

Vaidehi, 7/1/2015
Tips to make your rotation a success

- Define expectations
- Set weekly goals
- Provide adequate resources
- Weekly disease state discussion led by students
- Training videos provided by documentation and billing portals: Example: OutcomeMTM®, Mirixa®, Medmonitor etc.
- Reading material on MTM
- Utilizing preset forms or worksheets
- Provide weekly follow-up to discuss progress and challenges

Assessment questions

Q1. Which of the following is NOT effective precepting behavior?
A. Setting expectation on the first day
B. Setting achievable goals
C. Providing no feedback
D. Providing adequate resources

Q2. Which of the following healthcare professionals are the most common providers of MTM services?
A. Physicians
B. Nurses
C. Pharmacists
D. None of the above

Q3. Which of the following is NOT a result of utilizing students as pharmacist extenders?
A. Better learning experience for the students
B. More time consuming for the preceptor
C. Better patient outcomes and satisfaction
D. All of the above are correct

References

available in reference 1

Vaidehi, 7/1/2015
Students as Pharmacist Extenders

Students as Pharmacist Extenders: Make Precepting a Win-Win for You and Your Practice Site

July 12th, 2015 – Texas Pharmacy Association State Conference
Carole Hardin-Oliver RPh.
Health Care Supervisor, Area 5
Walgreens Boots Alliance

1. Define the term “pharmacist extender”
2. Discuss the benefits and barriers to utilizing students as pharmacist extenders
3. Articulate the benefits of integrating learners into administrative or patient care duties
4. Develop new rotation models integrating learners into daily activities

The presenter has no disclosures nor conflicts of interest.

Students as Pharmacist Extenders

Benefits:
- Allow application of knowledge to create practice-ready Pharmacists
- Fast Track Opportunity
- Relationship and inclusion in higher level processes
- Allows focus on direct patient care for pharmacists and extenders
- Improve patient safety
- Improve patient outcomes
- Improve core measures
- Increase satisfaction

Students as Pharmacist Extenders

Personnel who complete duties that are delegated and overseen by a pharmacist that allows the pharmacist to broaden his or her scope of practice or responsibilities

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Students as Pharmacist Extenders

Benefits:
- Allow application of knowledge to create practice-ready Pharmacists and Fast Track Opportunity

Mentoring transfers years of applied experience with efficiency
Selection of Preceptor/Mentor requires partnership with COP, Site and Student
Preceptor/Mentor has ability to recommend and advance Student careers
Employers recognize these Students experience
Students as Pharmacist Extenders

Benefits:

Relationship and Inclusion in higher level processes
Advocacy – for the Profession and Patient
Membership – Healthcare Team and Committees
Appointments – Access to meetings
Assignments – Bigger picture Thinking

RTS
NTT
LTF
Routine Patient Counseling
Immunization Assessment
Med Sync

Students as Pharmacist Extenders

Barriers:

Quiz: Based on a recent study, what were the Top Three Barriers Identified?

1. Time – no Spare, Assigned or Free Time to precept
2. Resources – I want to….but is do not have____
3. Student Attitude – Yup! Sometimes.....
Students as Pharmacist Extenders

**Students:**
- Come prepared – Ready to Learn
- Patient Confidentiality
- Business Confidentiality
- Strive to leave the Rotation a better person... AND
- Strive to leave the Rotation better than you found it

**Barriers:**
**Barrier Four:**
- Training – 6 week rotation – one week training minimum.
  - Decreased effectiveness of Preceptor
  - Decreased effectiveness level at task/service
- Staffing – Annual schedule and Intern placement.
  - Skill variation between students results in workload variation to staff
  - Rotation assignment gaps leave tasks/services unsupported

**Current Community Rotation Models:**
- Community: Introductory, 300+ hours, Common practice setting
- Community Pharmaceutical Care: Advanced, 400+ hours, Standards are specific to the setting
- MTM: Advanced, Specific, measureable, patient care
- Management: Advanced, Specific, adds management and Administration training and skills

**The Benefits of Integrating Students into Practice**
- Medication Error – 3.68 annually
- MTM Interventions – averaging $700/patient intervention

**Outcomes/Adherence Interventions - Increase Rx and decreased readmissions**
- Pharmacies achieved a nearly 91 percent Proportion of Days Covered (PDC) score for medications of patients enrolled in the program. This compares to a PDC score of 72 percent for patients assigned to a control group.
- Average Days on Therapy (ADT), a measure of medication persistence, was significantly higher in the intervention group, averaging approximately 20 additional fills per patient per year.

**Perspectives**
- Ryan Hudson PharmD UHCOP – PGY1 Resident Graduate 2015.
- Amanda Beck PharmD? IUWCP – 2015 Graduate
- Allison Phuc Nguyen Student Pharmacist UHCOP PharmD Candidate 2016
Students as Pharmacist Extenders
Assessment Question

What is the #1 reported barrier to utilization of Students as Pharmacist Extenders?

1. Poor Staffing
2. Lack of knowledge
3. Time

Students as Pharmacist Extenders
Assessment Question

What benefit does the Student Extender bring?

1. Allows focus on direct patient care for pharmacists and extenders
2. Improve patient safety
3. Improve patient outcomes
4. All of the above

Students as Pharmacist Extenders
Assessment Question

From the Employer Perspective, what is a concern?

1. Lack of skills
2. Inconsistent staffing
3. Patient medication errors rate increases