Development of a Student-Led Ambulatory Medication Reconciliation (SLAMR) Program at an Academic Institution

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Objectives

• Describe the goals, logistics, and data monitoring for this program
• Evaluate the benefit of this program for enhanced interdisciplinary patient care
• Identify potential barriers for implementing the program
• Discuss how this program could be implemented at individual site

Background

• The Joint Commission emphasizes the need to perform medication reconciliation in both inpatient and ambulatory care settings in order to, “maintain and communicate accurate patient medication information”1,2
  - Estimated that 60% of medication errors occur during care transitions and approximately 19% of patients have been reported to have an adverse event within 3 weeks of discharge from the hospital 3,4
  - Various trials have reviewed the benefit of student pharmacists to assist with medication reconciliation
  - Limited literature on successful implementation of a medication reconciliation process in the outpatient setting utilizing student pharmacists

Program Development

• Program initiated in USF cardiology outpatient clinic in February 2015
• Student pharmacists were:
  - Assigned to general cardiologists and were expected to be present on their clinic days and times
  - Expected to work up patients prior to their appointment and present any potential interventions to the pharmacy faculty preceptor
  - Provided with feedback regarding appropriateness of recommendations and disease state management from pharmacy faculty preceptor
• Student pharmacists completed medication reconciliation during the patient encounter and presented any discrepancies and recommendation to the medical attending
• Program was expanded in November 2015 based on physicians’ group interest

Program Goals

• Successfully implement student pharmacists into ambulatory clinics
• Initiated student data collection January 2016
  - Collect data regarding the
    - Number and type of interventions
    - Number of adverse drug reactions (ADRs) potentially prevented
    - Incidence of hospitalization in last 30 days
    - Interventions involving high alert medications
  - Provide patient education
  - Support an interdisciplinary team utilizing student pharmacists as extensions

Disclosure Statement

Presenters and program faculty have nothing to disclose.
Program Logistics

- Team of faculty were created to assist with program development
  - Serve as liaisons for each of the departments interested in having students in their clinics
  - Assist with determining student pharmacists' availability

2016 ANNUAL MEETING

Aimon Miranda, PharmD, BCPS
Cardiology
Melissa Ruble, PharmD, BCPS
General Medicine/Pediatrics
Internal Medicine
Jaclyn Cole, PharmD, BCPS
Family Medicine
Erini Serag-Bolos, PharmD
Family Medicine

Program Logistics

- Alignment efforts were made to ensure that students had consistent experiences based on their specific rotation for that block
- USF Health Information System (IS) developed a formal training orientation for students during the first week of their APPE rotation
- Faculty members were present at this orientation to discuss the objectives of the program and expectations
  - Students provided with Orientation Packet that included faculty contact information, program overview, expectations, and policies
  - Students were given orientation of clinic and introduced to clinical staff members

Program Logistics

<table>
<thead>
<tr>
<th>Number of Medical Attendings</th>
<th>Number of Students Assigned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiology</td>
<td>4</td>
</tr>
<tr>
<td>Family Medicine</td>
<td>4</td>
</tr>
<tr>
<td>General Medicine/Pediatrics</td>
<td>5</td>
</tr>
<tr>
<td>Internal Medicine</td>
<td>1</td>
</tr>
</tbody>
</table>

* 9 of these students did not participate in the full 6-week program due to logistical issues

Program Logistics

- Students were expected to keep an electronic intervention log for data collection
- Logs submitted periodically and at end of rotation to faculty liaison

Data Collection

- Patient age: 4 months to 94 years (mean age: 51 years)
- Number of patients seen: 199
- Interventions made on 105 of patients seen (53%):
  - Cardiology – (11 out of 26 patients) 42%
  - General Medicine/Pediatrics – (36 out of 75 patients) 48%
  - Internal Medicine – (57 patients out of 98) 58%
- Family Medicine results were not included due to logistic barriers
- Students spent an average of 10 minutes per patient encounter
- Patients' medication list came from multiple sources
### Primary Interventions

<table>
<thead>
<tr>
<th>Intervention Type</th>
<th>Cardiology</th>
<th>Internal Medicine</th>
<th>General Medicine/Pediatrics</th>
<th>Family Medicine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omitted Drug</td>
<td>9</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Incorrect Dosage/Formulation</td>
<td>5</td>
<td>7</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Incorrect Route</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Incorrect Frequency</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Commission</td>
<td>34</td>
<td>23</td>
<td>19</td>
<td>1</td>
</tr>
<tr>
<td>High Alert Medication</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Prescribed Medication Corrected</td>
<td>6</td>
<td>10</td>
<td>23</td>
<td>5</td>
</tr>
<tr>
<td>Prescribed Discontinued</td>
<td>0</td>
<td>7</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Patient Counseling</td>
<td>6</td>
<td>12</td>
<td>21</td>
<td>0</td>
</tr>
<tr>
<td>Drug-Drug Interaction</td>
<td>5</td>
<td>6</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Drug-Food Interaction</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Total Interventions</td>
<td>70</td>
<td>104</td>
<td>84</td>
<td>8</td>
</tr>
</tbody>
</table>

### Intervention Type by Department

#### Additional Benefits of Program
- Program emphasized benefit of interprofessional collaboration involving student pharmacists
- Patients were provided one-on-one attention from student pharmacists to discuss their medication-related questions or concerns
- Students were provided additional opportunity to enhance their critical thinking skills and practice patient counselling while providing a valuable and needed service to the physicians group

#### Program Challenges
- Limited time per patient encounter
- Need for consistent documentation in EMR
- Development of modified clinical workflow for family medicine department
- Need for consistent documentation of interventions

#### Future Plans
- Expansion of program to other departments
- Development of electronic reporting
- Patient, clinical staff, and physician satisfaction surveys
Questions

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