Implementation of a Multi-Station Diabetes Self-Care Workshop to Assess First-Year Student Pharmacists’ Competency Using Standardized Checklists.

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Background

- Active learning in pre-clinical coursework is utilized by 67% of United States (US) schools of pharmacy (SOP).
- It is well-established that active learning in self-care education supports and develops students’ abilities to critically think and problem-solve.
- Accreditation Council of Pharmacy Education (ACPE) mandates that SOP curricula emphasize active learning pedagogy for accreditation.
- Active learning during self-care workshops increases professional competency and confidence across many topics.

- Students at the UC San Diego Skaggs School of Pharmacy and Pharmaceutical Sciences (SSPPS) participate in diabetes self-care from their first-year of pharmacy studies (P1) with the UC San Diego Student-Run Free Clinic Project and diabetes-related service projects.
- A literature search revealed that SOPs in the US teach diabetes self-care skills using different methods, including lectures, and/or workshop stations/labs with specific tasks (i.e., glucose checks, administering insulin, foot exam, insulin delivery devices, hemoglobin A1c screening, nutrition/physical activity, etc.) to improve students’ competence, confidence, and attitudes with diabetes-related self-care skills.

- The Diabetes workshop in the SSPPS Pharmacy Practice (PP) self-care course previously:
  - Was taught in winter quarter course of the P1 curriculum.
  - Was designed in 2003 by a course chair and Certified Diabetes Educator.
  - Was lecture-based, minimal active learning (syringe/vial injection technique).
  - Improved students’ knowledge and confidence in diabetes self-care.

- In 2017, PP course faculty at SSPPS created a competency-based workshop to teach and assess P1 students’ diabetes-related self-care skills.

Objectives

- Primary: To improve student competency of diabetes-related self-care skills, as measured by test scores on diabetes-related questions via an 8-station workshop and use of standardized competency checklists for peer-to-peer assessment.
- Secondary: To demonstrate retention of diabetes-related knowledge, as measured in an Objective Structured Clinical Exercise (OSCE) in a subsequent quarter.

Methods

Pre-Workshop Preparation

- Materials: PP faculty developed all workshop materials.
- Facilitators: Recruited five faculty and three volunteer preceptors for eight stations.
- Just-in-Time 40-minute orientation immediately before workshop.
- Students: Provided with competency checklists and stations diagram.

Workshop Details

- Eight diabetes-related skills assessed in 15-minute stations (Figure 1)
- 7-8 students per station for total workshop duration of 2.5 hours.
- Facilitators reviewed skills and demonstrated techniques at start of each station.
- Students practiced skills in pairs using station-specific checklist (Figure 2) before final competency evaluation by student peer, facilitator observation and facilitator check-off (Figure 3).

Workshop Evaluation

- Assessed using student peer, facilitator observation and facilitator check-off.
- Required to watch/study prior to workshop:
  - Pre-recorded narrated PowerPoint lecture (10-15 minutes).
  - Insulin injection routes and absorption rates.
  - Insulin administration technique.
  - Hypoglycemia and treatment.
  - Administrative technique demonstration videos (YouTube).

Workshop Implementation

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Results

Midterm exam performance on diabetes self-care questions:

- Questions were a combination of multiple choice and written responses.
- Diabetes self-care portion comprised 35% of 2016 exam and 41% of 2017 exam.
- Scores improved after workshop implementation in Winter 2017 (Table 1).

<table>
<thead>
<tr>
<th>Year</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>84%</td>
<td>92%</td>
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Knowledge was retained in diabetes OSCE in subsequent quarter:

- 89.5% of students were able to identify, assess, and resolve hypoglycemia.

Discussion

- Implementing a multi-station diabetes workshop with standardized competency assessments maximizes student exposure to a variety of diabetes self-care topics in a limited time frame while standardizing the process of evaluating student competency.
- The multi-modal workshop enhanced active learning with use of hands-on activities and peer-to-peer teach-back.
- The workshop improved diabetes exam performance and diabetes knowledge retention was demonstrated.

Limitation

- Labor intensive: requires one faculty per station; total of eight faculty.

Conclusion

The multi-station active-learning diabetes workshop with standardized competency assessments enhances the learning experience and:

- Improves diabetes related exam performance.
- Allows for application of practical skills in future OSCEs with knowledge retention.

References

5. Darbishire PL, Plake KS, Nash CL, Shaper BM. Active-learning laboratory session to teach the four M’s of diabetes care. AJPE. 2013;77(7): Article 188.