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INSTRUCTIONAL DESIGN AND ASSESSMENT

A Standardized Patient Counseling Rubric for a Pharmaceutical Care and Communications Course

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Objective. To restructure a required pharmaceutical care and communications course to place greater emphasis on communication skills and include a high-stakes assessment.
Design. A standardized counseling rubric was developed for use throughout the pharmacy curriculum and the counseling laboratory practicals were changed to high-stakes assessments.
Assessment. An annual mid-semester and end-of-semester high-stakes patient-counseling objective structured clinical examination (OSCE) conducted prior to and after revision of the course and counseling rubric documented improvements in students' scores. Performance on the post-course annual assessment patient counseling OSCE improved compared to that on the pre-course ($p<0.001$).
Conclusion. The 2010 course revision improved students' medication counseling abilities and readiness to practice. Major course revisions should be undertaken only after input from all stakeholders and with data to support the need for change.

Keywords: medication counseling, rubric, pharmaceutical care, communications, objective structured clinical examination

INTRODUCTION

Communication skills are essential to the development of patient-centered care. The Accreditation Council on Pharmacy Education (ACPE) and the American Association of Colleges of Pharmacy Center for the Advancement of Pharmaceutical Care (CAPE) suggest accreditation standards for training pharmacy students to possess the skills necessary to effectively communicate in the healthcare environment.[1,2] ACPE's pre-advanced pharmacy practice experience (pre-APPE) Core Knowledge Domain 8 specifically discusses patient counseling and states that students should be able to "provide effective health and medication information to patients and/or care givers and confirm patient and/or care giver understanding of the information being provided" prior to beginning APPEs.[1] Further, ACPE standards require that these skills be verified throughout the program. In addition, the State of Texas Administrative Code requires that pharmacists counsel the patient or patient's agent with each new prescription dispensed or at the request of the patient or patient's agent in order to optimize drug therapy.[3] The ACPE and CAPE accreditation standards and the Texas Administrative Code each set out a specific set of components on which each patient should be counseled including, but not limited to, medication name, dosage, indication, proper storage, missed dose instructions, and adverse effects.[1-3] The curriculum at Texas Tech University Health Sciences Center School of Pharmacy attempts to foster effective communication skills centering on the provision of patient-centered care through participation in laboratory courses and clinical practice experiences.

During the second year (P2), medication counseling skills are introduced in the Pharmaceutical Care Laboratory course. This is a 2-credit-hour course taught in the fall primarily by Department of Pharmacy Practice faculty members. Each semester is 16 weeks long with fifteen 50-minute prelaboratory lectures, eleven 2-hour weekly laboratory sessions, 2 formal medication counseling assessment practicals graded by faculty members, a computer-based final on drug knowledge of the Top 200 drugs,

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and the communication and documentation of pharmaceutical care using a subjective, objective, assessment, plan (SOAP) note format.

Students' retention of core knowledge and skills taught in the curriculum are assessed each January on the school's annual assessment. The assessment is targeted at determining student readiness to practice based upon the abilities, skills, and knowledge all students are expected to have mastered prior to graduation. It includes both pen-and-paper examinations and objective structured clinical examinations (OSCEs). The assessment is linked to the courses comprising the school's curriculum by domain-specific ability statements. These ability statements form the basis upon which determination of the individual student's readiness to practice is made. Each year, student's individual scores are compared to their previous scores as well as to overall class scores from previous years to ensure that students are progressing in their knowledge, understanding, and skill ability. The Angoff method was used to establish criterion-referenced standards for all P4 subtests.[4] Each year, a table of specifications is developed that maps the pen-and-paper portion of the assessment to a broad sample of curricular content by domain. This table of specifications and the rubrics used during the OSCEs are disseminated to students 1 to 2 months prior to the assessment each year. OSCE medication counseling assessment scores are generated through simulated patient interactions using actors as patients and faculty members as graders.

Prior to 2011, medication counseling was assessed in multiple courses across the 4-year program and in the annual assessment without the use of a standard rubric. In 2010, second-year students' scores on the medication counseling portion of the annual assessment declined. Specifically, students did not perform satisfactorily those elements highlighted by ACPE and the Texas Administrative Code.[1,3] This decline prompted a review and subsequent revisions to the course in which counseling is taught. These changes focused on training pharmacists to be more effective counselors. During this review and revision of the patient counseling course, the decision was made to design and implement a standardized rubric throughout all courses in the curriculum that would be used in the annual assessment as well.

The teaching team responsible for the revisions hypothesized that by redesigning the course, student counseling proficiency would exceed the previous year's performance. This article describes the redesign of the pharmaceutical care laboratory course to increase the learning and retention of medication counseling skills, and an evaluation of student learning after completion of the course as part of the annual assessment.

DESIGN

Modifications were made to the course during the summer of 2010 in response to the curriculums review and student performance on the annual assessment. Those modifications included revisions of the course mission, objectives, and ability statements. The course mission was revised to place a greater focus on providing the doctoral students with the skills necessary to competently dispense medications and counsel patients according to state and federal law as well as promote best practices. The team focused on approaches in the redesign that would be limited in scope, as opposed to broad sweeping changes as they felt that changes at the introductory course level might yield a larger long-term benefit.[5] The course was redesigned to include an increased number of faculty-observed practice medication counseling sessions, requiring perfect scores on the core counseling requirements specifically noted by ACPE and the Texas Administrative Code, and remediation of students not earning a perfect score on the required components.[1,3] In order to focus solely on communication skills, all patient assessment skills were removed from the course and taught in a separate course during the spring semester.

As course objectives were tailored to meet the new mission for the 2010-2011 academic year, the number of course objectives was reduced from 21 to 7. The course objectives relevant to patient counseling included: effectively communicate with patients, caregivers, and healthcare practitioners; demonstrate competent situation-specific patient medication counseling; and demonstrate professionalism. Given the design of the course, objectives were application-based as defined by Bloom's taxonomy (ie, demonstrate competent situation-specific patient medication counseling).[6]

Because the course contained a variety of content and delivery methods, multiple forms of pedagogy and andragogy were used in 2009 and 2010, and were similar between the 2 years. Classroom-based lectures were mostly teacher-centered, directed learning with active learning integrated throughout, using cases and activities to enhance student involvement. Laboratory activities were mainly student-centered, authentic learning (learning in a setting that mimics the "real world," ie, role-playing medication counseling). Laboratory sessions in both years used peer counseling and grading, facilitated and self-directed learning, and critical-thinking skills.

Another major modification to this course was the revision of the counseling assessment practicals. In 2010, the midterm and final counseling practicals were converted to high-risk assessments to enhance student performance. Students who received a failing grade at any

point on either of the practicals were required to repeat the practical until they achieved minimum competency in order to satisfactorily complete the course. Minimal competency was defined as performing each of 12 required elements, which were developed from ACPE and Texas Administrative Code core counseling requirements (generic and trade names, use/indication, dosage form and route of administration, dose and administration schedule, specialized medication preparation and administration, proper storage, missed doses, expected duration of therapy and whether refills were available, self-monitoring (efficacy and/or safety), common and severe adverse effects, prevent or minimize adverse effect, and common interactions where applicable (include drug-drug, drug-food, and drug-disease).[1,3]

Fall 2009 Course and Grading Rubric

The 2009 Student Counseling Evaluation Form was divided into 3 major sections: attending behavior (25 points), verbal skills (15 points), and counseling structure (60 points). The grading scale was points-based per achievement. The rubric assessed appropriate counseling time, deducting 5 points from the overall grade if the student counseled the patient less than 3 minutes or greater than 6 minutes. The course team allowed partial credit in an effort to minimize the punitive "all-or-nothing" requirements of the 2009 rubric (Appendix 1). On the annual assessment patient counseling OSCE, students were not awarded partial credit in an effort to maintain ease of grading and inter-grader reliability. Students who failed the annual assessment patient counseling OSCE were asked to meet with a faculty member to review their performance and discuss opportunities for improvement.

Fall 2010 Course and Grading Rubric

In 2010, the Student Counseling Evaluation Form was revised and renamed the Patient Counseling Rubric. This form was divided into 2 major sections consisting of 12 required elements (75% of the overall grade, all elements required for passing) and 10 elements required for mastery of counseling (25% of the overall grade). Students were required to perform all 12 of the counseling elements in the required elements section (Appendix 2). If a student missed 1 of the 12 required elements, a grade of 69% was automatically assigned for the counseling session and remediation was required. Converting the rubric of the 12 required elements to a pass or fail grade minimized the risk of subjective grading, maximized student accountability, and improved consistency with the annual assessment patient counseling OSCE and current practice. The 2011 annual assessment OSCE used a modified version of the medication counseling course rubric. The major modifications to the rubric were the allowance of partial credit for each element and elimination of the high-stakes nature of the assessment. The 2011 annual assessment OSCE used a revised rubric that also included pass or fail required elements but was not the same rubric used in the patient-counseling laboratory course.

During each laboratory session, students were required to practice filling prescriptions with accurate labels, counsel a partner regarding 1 of the dispensed medications, and evaluate a peer counseling session. Students were divided into groups of 3, rotating through the roles of pharmacist, patient, and evaluator. A faculty member informally assessed every student at least once prior to the midterm assessment practical using the grading rubric.

The counseling sessions during the midterm and final counseling assessment practical were faculty graded and each worth 20% of the total course grade. Remediation was required for all students who did not meet minimal competency. After the first attempt at the midterm counseling assessment practical, the students' counseling sessions were recorded. This change midcourse was in response to student concerns about the high-risk nature of the assessment and lack of independent verification that an element had been omitted. The faculty member on the course agreed that this was a valid concern and made the change in order to meet the needs of the students. Grading deductions after the initial attempt are reflected in Table 1.

EVALUATION AND ASSESSMENT

All analyses were performed using the SPSS 21.0 statistical package (SPSS, Inc, Chicago, IL). Appropriate descriptive statistics were used to summarize all data. Data from paired samples were analyzed using either the paired *t* test or McNemar statistic. Data from independent samples were analyzed by either independent samples *t* tests or by using the chi-square statistic. In the case of independent samples, the Fisher exact test was substituted for the chi-square statistic in cases where expected frequencies were observed to be less than 5 in any cell. The level of significance for all statistical analyses was maintained at a $p \leq 0.05$. This study was exempt from formal institutional review board review.

For fall 2009, no students failed the course and the students' average scores for the midterm and final practical examinations were 93.8 ± 4.2 and 92.3 ± 4.7, respectively. There was an overall decline in student performance on the 2010 annual assessment with regard to patient counseling skills, particularly in the P2 year, which was comprised of the students who had just completed the course (Table 2). These findings resulted in the redesign of the

Table 1. Overview of a Patient Counseling Course

Patient Counseling Course	**2009**	**2010**
Number of Counseling Lectures	1	3
Description of Laboratory Activity	Dispensing, counseling, patient interviewing, SOAP writing, and patient assessment skills; peer counseling; peer grading; faculty-graded midterm and final; rubric divided into 3 components	Dispensing, counseling, patient interviewing, and SOAP writing; peer counseling; peer grading; faculty review before midterm; faculty-graded midterm and final; rubric divided into 2 components; 1 component consists of 12 required elements
Grade Assignment	40% total – Midterm & Final Non- high stake examination	40% total – midterm and final Both high stakes examination; 12 all-or-nothing components required to pass
Remediation	None	1st Fail of Midterm or Final Re-counsel on a new drug and meet grading requirements – no penalty 2nd Fail of Midterm or Final Re-counsel on a new drug and meet grading requirements – Grade ≤ 85 3rd Fail of Midterm or Final Re-counsel on a new drug and meet grading requirements – ≤ 80 4th Fail of Midterm or Final Re-counsel on a new drug and meet grading requirements – ≤ 75 No limit to number of failures

course in preparation for the fall 2010 semester. The average grades for the midterm and final practical examinations during the first semester of the newly revised course for fall 2010 were 96.2±4.8 and 95.6±5.8, respectively (p=0.283).

During the fall 2010 semester, 51 of 127 students required remediation after the midpoint practical. Twenty-seven of those students satisfactorily completed the midterm on the second attempt. The remaining 24 students satisfactorily passed the practical after the third attempt (second remediation). The number of students requiring remediation after the final counseling practical was drastically reduced, with 10 students requiring remediation. Nine of the 10 students satisfactorily completed the final counseling practical after the second attempt while 1 student required 3 attempts to successfully complete it.

The annual assessment results for 2011 also improved compared with the previous year's results (Table 2). Overall mean patient counseling OSCE scores were 26.6±3.1 and 23.0±3.0 for 2011 and 2010 assessments, respectively (p <0.001). Subdomain scores were similar for communication (9.1±1.1 vs 9.4±0.9, p=0.83, 2010 vs 2011), but significantly improved in 2011 for the skills domain (17.5 ± 2.6 vs 13.6±2.7, p ≤0.001).

Table 2 contains the annual assessment performance for students in 2010 and 2011 (reflecting the course as taught in fall 2009 and fall 2010, respectively). The items marked with an asterisk were the 12 required elements included in the standardized medication counseling rubric during fall 2010. There was no difference between the students' performance in 2010 vs 2011 for 42% of the elements assessed. Of the remaining 58% (or 18 elements) there was a significant improvement in student performance from 2010 to 2011. In the elements where a difference was detected, the majority of the findings favored the 2011 student performance (15 items). Of the 3 items that favored student performance in 2009, only 1 item was specifically included in the newly revised standardized rubric (proper storage and disposal). The 2 remaining elements specifically relate to the Indian Health Services method of patient counseling, which was removed from the course in fall 2010.[8]

DISCUSSION

As Texas Administrative Code requires counseling on all new prescriptions, improving the ability of pharmacy students to appropriately and effectively communicate with patients about their medications is imperative.[3] The intent of the high-risk assessments in the course was

Table 2. Second-Year Pharmacy Students' Performance on an Annual Assessment

Description	2010 n=129	2011 n=130	*P*
Calm enough to communicate clearly.	94.6	90.0	0.17
Distractions (ie, fidgeting) were limited and did not interfere with counseling.	94.6	87.7	0.24
Open body posture (avoided crossing arms).	100.0	99.2	1.0
Squarely faced patient.	96.9	99.2	0.21
Eye contact between 25 to 75% of the time.	94.6	97.7	0.19
Optimal distance (1.5 to 4 feet) from patient.	97.7	99.2	0.37
Pace, tone, and volume appropriate enough to communicate clearly.	94.6	90.0	0.170
Used open-ended questions prior to closed-ended questions.	94.6	87.7	0.05
Avoided leading or restrictive questions.	96.1	94.6	0.56
Avoided medical/technical terms.	65.9	60.0	0.33
Introduced him/herself by name and title.	88.5	97.7	0.004
Asked patient, "What purpose did your doctor tell you. . ." or something similar.	96.9	93.8	0.23
Stated the generic name of the medication.[a]	75.6	96.9	<0.001
Discussed the purpose or indication of the medication.[a]	93.1	98.5	0.03
Asked patient, "How did your doctor tell you to take. . .?" or something similar.	92.4	79.2	0.002
Discussed the specific administration techniques of this medication.[a]	89.3	100.0	<0.001
Discussed the dosage and duration of use.[a]	31.3	85.4	<0.001
Discussed the storage and disposal of this medication.[a]	82.4	73.1	0.07
Discussed missed dose instructions.[a]	64.9	81.5	0.002
Asked patient, "What did your doctor tell you to expect?" or something similar.	94.7	75.4	<0.001
Discussed expected benefits of this medicine.	58.8	82.3	<0.001
Discussed common side effects of this medicine.[a]	67.9	88.5	<0.001
Discussed rare but serious side effects of this medicine.[a]	44.3	70.0	<0.001
Discussed self-monitoring for onset of action and side effects.[a]	42.0	79.2	<0.001
Discussed potential drug–nonprescription drug med interactions.[a]	24.4	65.4	<0.001
Discussed potential drug-food interactions.[a]	35.9	85.4	<0.001
Discussed appropriate lifestyle recommendations.	18.3	62.3	<0.001
Verified patient understanding by asking a relevant question.	73.3	66.9	0.26
Inquired about patient questions.	95.4	93.8	0.57
Identified drug interaction upon review of home medications list.	41.2	80.8	<0.001
Provided appropriate nonprescription drug recommendation to patient request.	52.7	88.5	<0.001
Overall patient counseling OSCE pass/fail.	55.7	84.6	<0.001

Abbreviations: PCOSCE=Patient counseling objective structured clinical examination.
[a] Denotes the required elements included in the standardized rubric introduced in fall 2010.

to ensure that the students focused more on their counseling skills both within and outside the classroom setting, including the annual assessment patient counseling OSCE. There were several factors that contributed to the improved annual assessment performance by students in 2011. Among those were the creation of a standardized, objective rubric; frequent assessment of student counseling performance by faculty members and peers; and revising the counseling assessment into a high-stakes assessment. The culmination of these events contributed to improved student performance both in the course and in the annual assessment over that in previous years. The improvement in annual assessment and course performance was likely multifactorial, influenced by redesigning the course, changing the counseling to a high-stakes assessment, and using a standardized objective assessment tool.

The redesign of the course did not require additional resources. The greatest efforts were in developing a comprehensive rubric to be used in all settings where patient counseling is assessed and in redistribution of faculty time and effort in the laboratory portion of the course. Because the course team changed the counseling to a high-stakes assessment, they felt that each student should receive personal and frequent feedback from peers and faculty members prior to the first assessment. This premise required changes in the laboratory activities, ensuring that student counseling was assessed weekly.

While the alteration of the course design and practical examination grading in the course during the fall of

2010 appears to have contributed to the improved scores in the 2011 annual assessment patient counseling OSCE, course revision was not without complications. After the first practical examination, 41% of students did not pass because they missed at least 1 of the 12 required counseling elements on the grading rubric and were required to remediate, some up to 2 additional times. However, the students showed a marked improvement in skills on the second practical administered later that semester, with fewer students (8%) requiring remediation.

Remediation needs were high during the fall 2010 course and an unexpected demand was placed on faculty time for completion of remediation. With frequent individualized assessment and feedback using the newly developed rubric, the course team thought that there would be little or no need for remediation throughout the semester. The course team underestimated the time and effort required to remediate students in a timely manner. This identified the importance of contingency plans and having a flexible course team to meet the needs of the students to support the course changes. The course revision also highlighted the need of the course team to be responsive and accommodating to student needs and concerns. Fortunately, the school possesses the ability to digitally record student-counseling sessions, so there was a way to quickly and completely respond to student concerns about the high-stakes nature of the assessments and their desire to have independent verification of each counseling session.

The standardized rubric developed for the course has continued to be used in all courses and experiential clerkships throughout the school's curriculum where student counseling of medications is assessed. The development of the rubric used to assess medication counseling has led to standardization throughout the curriculum and reinforced the importance of patient counseling. It has also served to link the various courses and to emphasize the medication counseling components required for minimal competency based on the Texas Administration Code.[3]

SUMMARY

Redesign of the patient counseling course in 2010 improved students' medication counseling abilities and readiness to practice. Quantitative and qualitative data analysis proved a more objective approach to course revision and, ultimately, student performance. Ongoing annual assessment is warranted to ensure that minor changes in delivery or assessment do not stray from the overall course objective or terminal outcomes of the school or university.

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Appendix 1. Student Counseling Evaluation Form Used in Fall 2009

Item	Meets Expectations 100%	Needs Improvement 50%	Unsatisfactory 0%
Attending Behaviors			
Eye Contact	Maintained appropriate eye contact.	Initial eye contact, more time reading notes.	Little eye contact.
Vocal Qualities	Appropriate tone, pace and volume.	At times inappropriate volume/pace/tone.	Tone, pace or volume was inappropriate.
Verbal Tracking	Listened to patient and smoothly changed from one topic to the next.	Listened to patient, consistently changed topics ineffectively, occasionally interrupted.	Did not seem to listen to patient or interrupted patient story.
Body Language	Faced patient squarely, open body posture, expressive face, no distracting gestures	Mostly appropriate body language inappropriate facial expressions.	Mostly inappropriate body language.
Distance from Patient	Maintained comfortable/ appropriate distance.	At times too close or distant posture.	Consistently too close or distant posture.
Verbal Skills			
Appropriate Language	Appropriate language and no inappropriate medical jargon.	Mostly appropriate language or used inappropriate medical jargon.	Relied extensively on medical jargon or displayed consistent inappropriate language.
Use of Questions	Facilitative open-ended questions.	Some closed-ended or restrictive questions.	Mostly closed-ended and restrictive questions.
Facilitated Conversation	Appropriate verbal gestures.	Some facilitating verbal gestures.	Few, if any, verbal gestures.
Counseling Structure			
Introduction	Introduced self and title, appropriately acknowledged individual.	Failed either to give name, title or determine to whom speaking (patient or patient agent).	Skipped intro or intro ineffective.
Determine Patient Knowledge	Asked patient about what physician told them about med and if patient has taken before.	Did not fully explore patient's knowledge of medication or disease state.	Failed to explore patient's knowledge of med/disease or ineffective in doing so.
Medication Regimen	Said med name, indication, dosing frequency and route of administration.	Skipped 1 of the following: name, indication, dosing frequency or route.	Did not discuss any of the following: name, indication, dosing frequency or route.
Med Benefit/ADRs	Thoroughly described benefits of medication prior to discussing major side effects.	Described benefits/side effects but failed to describe in correct order.	Failed to describe benefits or side effects.
Patient-specific Med Issues	Discussed onset of action, duration of therapy, missed doses.	Failed to discuss one or two major issues related to the specific medication.	Failed to discuss or gave incorrect patient specific medication issues.
Medication Issues	Discussed safe storage, refills and discussed interactions.	Failed to discuss one or two major issues related to the specific medication.	Failed to address storage, refills, or interactions or provided superficial information.

(*Continued*)

(*Continued*)

Item	Meets Expectations 100%	Needs Improvement 50%	Unsatisfactory 0%
Verifying Patient Knowledge	Verified patient understanding: asked patient to repeat key aspect of information presented.	Used closed ended questions to verify understanding.	Failed to verify patient understanding.
Closing	Referred to written information and repeated name/contact information.	Failed to address written information or provide contact information.	Superficially closed did not point out written information or provide contact information.

Length of Counseling Session- Appropriate 4-5 minutes, under 3 or over 6 minutes 5 point deduction.

Appendix 2. Patient Counseling Rubric Used in Fall 2010

Required Elements to obtain 75%:		
For each of the following, indicate if student performed or failed to perform the activity.	**Performed**	**Not Performed (Missing any element within a line**)**
Inform patient of medication's **generic & trade names.**		
Identified the medication's **use/indication**.		
Explain the medication's **dosage form & route of administration.**		
Identified the **dose & administration schedule** for the prescribed medication.		
Provided directions **for specialized medication preparation and administration** where applicable**.**		
Discussed the **proper storage** of the prescribed medication.		
Explained what to do in the event of **missed doses**.		
Explained **expected duration of therapy** & if **refills available** for the medication.		
Review techniques for **self monitoring** (efficacy &/or safety) where applicable.		
Identified **common & severe adverse effects** associated with medication. Identified applicable CIs.		
Discussed actions that may **prevent or minimize adverse effect** & what to do if they occur.		
Identified common **interactions** where applicable (include drug-drug, drug-food, & drug disease).		

** If a student misses any of the above required elements the grade is automatically a 69%.

Elements Required for Mastery of Counseling (25%):			
	Satisfactory performance of all elements (2.5 points)	**Unsatisfactory performance on ≥ 1element (1 point)**	**Unsatisfactory performance on all OR not performed (0 points)**
Introduced himself/herself with name and title.			
Identified the medication's **expected benefits.**			
Reviewed the medication's **onset of action.**			
What to do if **patient doesn't experience med effects** in a timely manner.			
Provides **contact info** or explains that contact info is on the bottle/label.			
Verified understanding using open-ended question, asked patient to repeat key aspects of info.			
Pace, tone, volume appropriate enough to communicate clearly.			
Used appropriate language. Defined any medical terminology used.			
Maintained appropriate/comfortable **eye contact** with patient.			
Faced patient squarely, open body posture and no distracting gestures.			

Final Counseling Grade: ☐ 69% OR ☐ 75 + _____ = _____