The High Risk Drug Knowledge Assessment exam to evaluate student readiness for Advanced Pharmacy Practice Experience at Texas Tech University Health Sciences Center – School of Pharmacy

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ABSTRACT

Background: The primary objectives of ACPE Standard 2016 are for pharmacy students to be ready for Advanced Pharmacy Practice Experience (APPE), practice, and patient care team contribution. Objectives: To develop a reliable assessment that evaluates pharmacy students’ basic drug knowledge and readiness for progression to APPE.

Methods: A minimal competency High Risk Drug Knowledge Assessment (HRDKA) exam was developed to evaluate student basic knowledge of top 200 drugs (in-patient and out-patient) utilized in the APPE. The exam assessed student knowledge in seven key pre-defined drug knowledge areas. The HRDKA exam was administered annually in the month of January to 3rd year pharmacy students. Score of 75% or higher was required for student to progress in APPE of the PD curriculum. Reliability of the test utilized Kuder-Richardson 20 (KR-20) and Cronbach coefficient alpha were measured.

Results: This study evaluated the findings of HRDKA exams administered in 2014 and 2015. All together 312 student exam results were evaluated. Year 2014 exam consisted of 113 and year 2015 exam, 135 question items. The average student scores were 90.2% (SD 5.8%) and 89.9% (SD 6.2%) for year 2014 and 2015, respectively. All together 3 students failed the HRDKA exam. KR-20 and Cronbach coefficient alpha, both were 0.75 for year 2014, and 0.84 for year 2015.

Conclusions: The HRDKA exam provides a potentially reliable tool to evaluate student drug knowledge and readiness for APPE. It provides a reliable opportunity to identify students needing remediation prior to progression to the 4th year of pharmacy curriculum.

BACKGROUND

The primary objectives of ACPE Standard 2016 are for pharmacy students to be ready for Advanced Pharmacy Practice Experience (APPE), practice, and patient care team contribution. A reliable annual performance evaluation of students nearing completion of their didactic curriculum is lacking. There is drive within various national pharmacy programs to develop and implement competency assessment program to identify students at risk of underperforming during APPE. In addition, many pharmacy schools desire to develop a predictive assessment for passing a NAPLEX exam. High Risk Drug Knowledge Assessment (HRDKA) is a minimal competency exam developed at the Texas Tech University Health Sciences Center – School of Pharmacy. This is a high stake exam, which requires students to pass before progressing to APPE.

METHODS

A minimal competency HRDKA exam was developed to evaluate student basic knowledge of top 200 drugs (in-patient and out-patient) utilized in the APPE. The exam assessed student knowledge in seven key pre-defined drug knowledge areas. The seven key areas are:

(1) Drug Name (Brand/Generic) [BG]
(2) Mechanism of Action [MA]
(3) Drug Kinetics or interactions [KI]
(4) Dosing [DS]
(5) Indication [IC]
(6) Adverse effects/monitoring parameters [AM]
(7) Contraindications [CI]

The HRDKA exam was administered annually in the month of January to 3rd year pharmacy students. The exam was conducted same time of the day at all four Texas Tech campuses.

RESULTS

Score of 75% or higher was required for student to progress in APPE of the PD curriculum. Significant measures were implemented in 2015 with intent to improve the validity and reliability of the HRDKA exam. Therefore, 2014 and 2015 exam data were compared for the purpose of this study. Descriptive analyses were conducted for baseline exam results as well as for seven pre-defined drug knowledge areas. Test of reliabilities including Kuder-Richardson 20 (KR-20) and Cronbach coefficient alpha were measured.

Table 1: HRDKA Baseline

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Students</th>
<th>Number of Items</th>
<th>Standard Deviation</th>
<th>Median Score</th>
<th>Minimum Score</th>
<th>Maximum Score</th>
<th>Number of students &gt;75%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>131</td>
<td>151</td>
<td>0.82</td>
<td>90.5%</td>
<td>71.30%</td>
<td>96.0%</td>
<td>100%</td>
</tr>
<tr>
<td>2015</td>
<td>152</td>
<td>161</td>
<td>0.75</td>
<td>90.50%</td>
<td>71.30%</td>
<td>96.0%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 2: Reliability Coefficients

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Items</th>
<th>Number of Students</th>
<th>Cronbach Alpha</th>
<th>Kuder-Richardson 20</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>131</td>
<td>151</td>
<td>0.64</td>
<td>0.75</td>
</tr>
<tr>
<td>2014</td>
<td>131</td>
<td>151</td>
<td>0.77</td>
<td>0.77</td>
</tr>
<tr>
<td>2012</td>
<td>161</td>
<td>151</td>
<td>0.65</td>
<td>0.65</td>
</tr>
</tbody>
</table>

CONCLUSIONS

The HRDKA exam provides a potentially reliable tool to evaluate student drug knowledge and readiness for APPE. It provides a reliable opportunity to identify students needing remediation prior to progression to the 4th year of pharmacy curriculum.