



Validation of a Patient Education Skills Assessment Rubric for Initial Continuous Glucose Monitor Placement Among Two Institutions

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Bottom Line Up Front

- ❖ With the increased use of continuous glucose monitors (CGM), pharmacy curricula will need to ensure students are proficient and comfortable with this rapidly changing diabetes technology.
- ❖ A patient education skills assessment rubric for initial CGM placement demonstrated good interrater reliability among two pharmacy institutions.
- ❖ Colleges/schools of pharmacy can consider utilization of this rubric to evaluate students' skills for initial CGM placement counseling.

Background

- ❖ The American Diabetes Association recommends CGM devices be offered to people with diabetes while reinforcing the need to ensure initial and ongoing education and training.¹
- ❖ Pharmacists are uniquely positioned to provide ongoing support, as most pharmacies are open extended hours-nights, weekends and holidays, and patients are twice as likely to visit their community pharmacy as compared to their physician or qualified healthcare provider.²
- ❖ Rapid changes in diabetes technology, including upcoming availability of OTC CGMs, increase the necessity of pharmacy students to be comfortable recommending and counseling on these devices.
- ❖ Ensuring exposure to diabetes technology and assessment with a validated rubric within the pharmacy curriculum will become more important for colleges/schools of pharmacy.

Objective

- ❖ Validate a rubric for assessing an initial CGM placement patient education practical using interrater reliability (IRR)

Scan here for Rubric



Methods

- ❖ IRB-approved rubric validation study
- ❖ **Institution, curriculum year, and course type**
 - Rosalind Franklin University - 2nd year required course
 - Drake University - 3rd year elective course
- ❖ **Inclusion criteria**
 - Students enrolled in the course, participating in the assessment
- ❖ **Exclusion criteria**
 - Practical video/audio recording unavailable (n=1)
- ❖ **Standardized rubric**
 - Developed by course faculty to evaluate student skills
 - Maximum rubric score: 25 points
 - Sub sections and weights: Introduction (4%), Competence (60%), Closing (16%), and Communication (20%)
- ❖ **Performance assessment at each institution**
 - In-person evaluation by 1 faculty member during the assessment that resulted in student grade
 - Post-practical recordings evaluated by 2 different faculty evaluators, which did not impact student grade
- ❖ Intraclass correlation coefficient (ICC) was calculated to evaluate IRR using R Statistical Software (version 4.2.3).

Participants

Table 1. Student and Course Characteristics

| Characteristic | Total, N=53 |
|------------------------------|-------------|
| Institution, n (%) | |
| Rosalind Franklin University | 31 (58) |
| Drake University | 22 (42) |
| Year, n (%) | |
| Second year | 31 (58) |
| Third year | 22 (42) |
| Device Type, n (%) | |
| Dexcom G6 | 16 (30) |
| FreeStyle Libre 2 | 37 (70) |
| Course, n (%) | |
| Required | 31 (58) |
| Elective | 22 (42) |

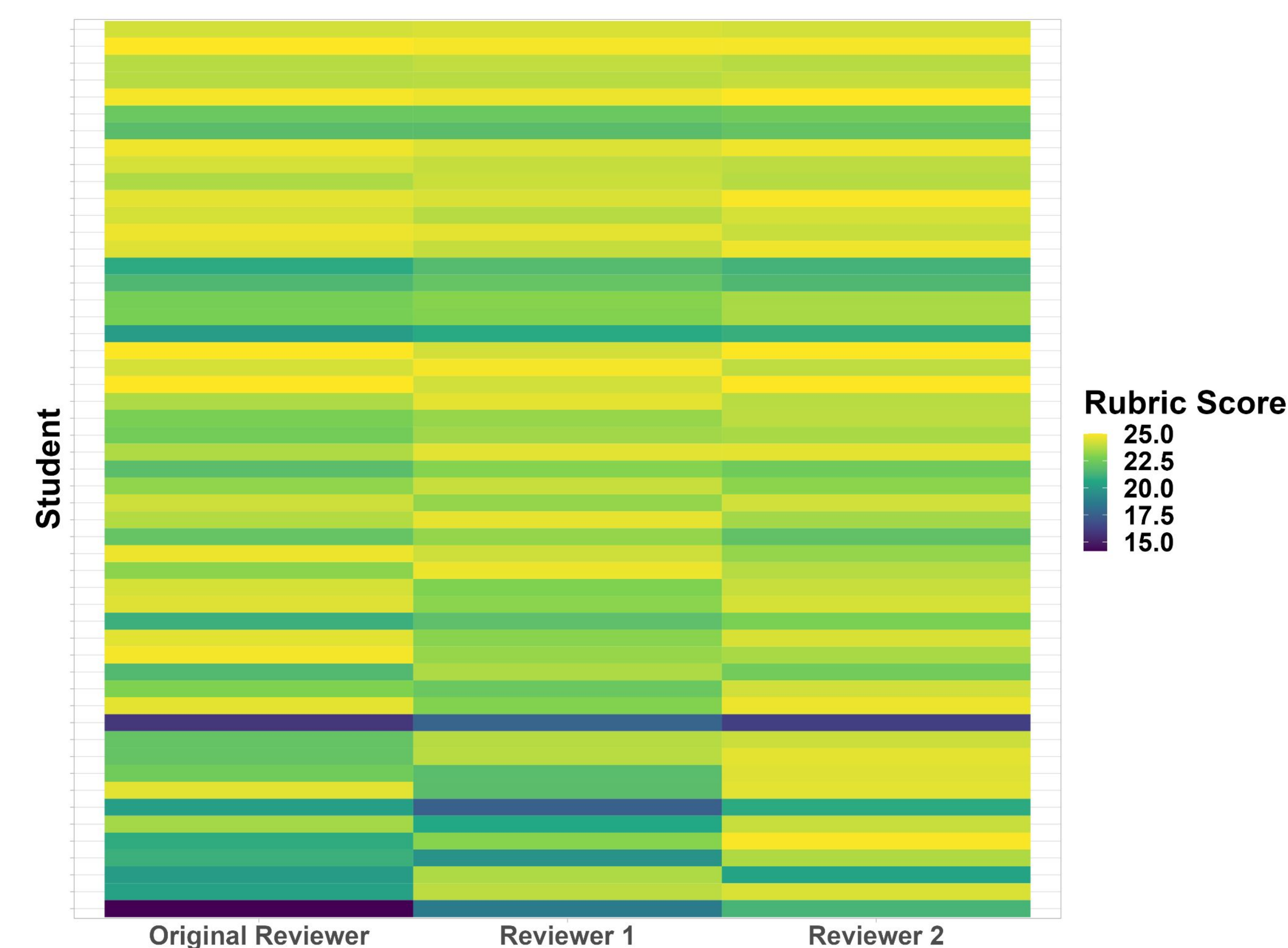
Results

Table 2. Summary Statistics of Rubric Scores

| Characteristic | Median (IQR) | ICC (95% CI) |
|-------------------------------|------------------|------------------|
| All students (n=53) | 23.6 (22.6-24.0) | 0.87 (0.79-0.92) |
| By Device (p<0.001) | | |
| Dexcom G6, n=16 | 22.5 (21.5-23.1) | 0.87 (0.70-0.95) |
| FreeStyle Libre 2, n=37 | 23.9 (23.3-24.3) | 0.81 (0.67-0.89) |
| By Format (p=0.03) | | |
| Live (in-person) | 23.5 (21.8-24.5) | N/A |
| Recorded | 23.7 (22.8-24.2) | 0.79 (0.62-0.88) |
| By Year (p<0.001) | | |
| Second Year, n=31 | 22.9 (21.8-23.5) | 0.85 (0.71-0.93) |
| Third Year, n=22 | 24.0 (23.8-24.4) | 0.70 (0.39-0.86) |
| By Rubric Section | | |
| Section 1 (Introduction) | 1.0 (1.0-1.0) | 0.96 (0.94-0.98) |
| Section 2 (Competence) | 20.3 (19.3-20.9) | 0.89 (0.83-0.94) |
| Section 3 (Closing) | 3.9 (3.7-4.0) | 0.73 (0.58-0.84) |
| Section 4 (Communication) | 4.8 (4.6-4.9) | 0.65 (0.45-0.79) |

Maximum rubric score out of 25 points (section 1 = 1 pt, section 2 = 15 pts, section 3 = 4 pts, section 4 = 5 pts)

Figure 1. Heatmap of Rubric Scores



Discussion

- ❖ The CGM skills assessment rubric, scored using both prospective in-person and retrospective video recordings, demonstrated good interrater reliability (ICC = 0.87) across two separate institutions.
 - Competence section of the rubric, which is largely correlated to CGM device education, demonstrated good IRR (ICC = 0.89).
- ❖ Average student performance on the rubric was high (94%), indicating that the majority of students were successful in providing high-quality CGM counseling.
 - Difference in performance by academic year can be attributed to inherent differences in knowledge and experiences.
- ❖ Student performance on the Dexcom G6 device was lower, indicating a higher device complexity or students were less prepared.
- ❖ Rubric was intentionally created with general grading considerations rather than device specifics (e.g. water compatibility, warm-up time) in anticipation of updates in device technology.
 - This will require evaluators to be familiar with each device or be provided with device specific information.
- ❖ Limitations: small population size; device type was not randomly distributed between cohorts; validated on devices available in 2023

Conclusion

- ❖ A patient education assessment rubric for initial CGM placement demonstrated good interrater reliability across two institutions for second and third year pharmacy students.
- ❖ This rubric may be considered at other institutions evaluating students' skills for initial CGM placement counseling.
 - Considering the general grading items used in the rubric, components can be easily modified to reflect updates in this rapidly changing therapeutic area.

References

1. Diabetes Technology: Standards of Care in Diabetes—2024. Diabetes Care 2024;47(Supplement_1):S126–S144. <https://doi.org/10.2337/dc24-S007>
2. Valliant SN, Burbage SC, Pathak S, Urlick BY. Pharmacists as accessible health care providers: quantifying the opportunity. J Manag Care Spec Pharm. 2022 Jan;28(1):85-90. doi: 10.18553/jmcp.2022.28.1.85



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