

From Quizzes to Team-Based Learning: Revamping Neonatal Case Studies

Megan Falke, DNP, APRN, NNP-BC & Laura Praus, M. Ed.

Creighton University, Omaha, NE

Abstract

Purpose: Neonatal nurse practitioner (NNP) students previously completed a case study through an online quiz, limiting their opportunities for collaboration and in-depth discussion about differential diagnoses and care strategies. By transitioning this activity to a team-based learning (TBL) format, students apply their knowledge interactively while drawing upon their varied NICU experiences to enrich dialogue and improve patient care outcomes. **Background/Significance:** TBL shifts the educational model from passive learning to applied, active engagement, making it particularly effective in healthcare education. It enhances critical thinking, simulates real-world teamwork scenarios, increases student engagement, encourages peer-to-peer learning, improves retention and application of knowledge, and fosters accountability. The TBL format begins with students completing assigned pre-work. In class, they take an individual readiness assurance test (iRAT) to assess their preparation. Immediately afterward, they work in teams to complete the team readiness assurance test (tRAT) until they achieve full proficiency. Feedback is provided immediately, and faculty clarify any misconceptions. Teams then engage in application exercises where they make clinical decisions, present them publicly, defend their reasoning, and critique other teams' approaches. The session concludes with optional peer evaluations. **Methods:** Clearly defined learning goals guided the module design, emphasizing evidence-based decision-making, application of clinical guidelines, communication in complex care planning, and reflective evaluation. Students completed selected readings to prepare for the module and deepen their engagement. A five-question readiness test was developed and built into Canvas for individual and team-based completion. Post-TBL reflection questions were incorporated to help students evaluate their progress and peer contributions. Scoring was distributed across iRAT (30%), tRAT (60%), and reflection (10%). Application exercises simulated real-world neonatal cases, prompting students to analyze pertinent medical histories and apply theoretical concepts through collaborative problem-solving. **Results:** Three students from the 2026 cohort participated in the pilot. They reported that collaboration was essential to their learning and appreciated the opportunity to actively engage in realistic case analysis from start to finish. The session effectively mirrored clinical practice, enabling students to reinforce and apply their knowledge in a meaningful way. They found the experience valuable and expressed interest in future TBL-based activities. **Discussion:** This pilot demonstrated a strong potential for expanding TBL integration throughout the practicum curriculum. Students benefited from immediate feedback and a collaborative environment that enhanced their confidence and refined their patient care strategies. **Conclusions:** Implementing TBL significantly improved student engagement, critical thinking, and clinical reasoning. By moving away from traditional quiz formats toward interactive, team-based discussion, students were able to leverage their individual NICU experiences and apply evidence-based practice more effectively. The TBL model promoted comprehensive case analysis, improved decision-making, and encouraged deeper learning that translates to improved patient care.

References

1. Joshi T, Budhathoki P, Adhikari A, Poudel A, Raut S, Shrestha DB. Team-Based Learning Among Health Care Professionals: A Systematic Review. *Cureus*. 2022 Jan 14;14(1):e21252. doi: 10.7759/cureus.21252.

2. Kelly, P. A., Haidet, P., Schneider, V., Searle, N., Seidel, C. L., & Richards, B. F. (2005). A Comparison of In-Class Learner Engagement Across Lecture, Problem-Based Learning, and Team Learning Using the STROBE Classroom Observation Tool. *Teaching and Learning in Medicine*, 17(2), 112–118. https://doi.org/10.1207/s15328015tlm1702_4
3. Burgess, A., van Diggele, C., Roberts, C. *et al.* Team-based learning: design, facilitation and participation. *BMC Med Educ* 20 (Suppl 2), 461 (2020). <https://doi.org/10.1186/s12909-020-02287-y>

