

# Asynchronous pediatric caregiver simulation in a virtual setting during the COVID pandemic

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## 1 | PROBLEM

Patient simulation has been used widely in health professions education.<sup>1-3</sup> The University of North Carolina at Chapel Hill (UNC-CH) Adams School of Dentistry has embraced patient simulations as a core component of student assessment. Students complete in-person interviews with standardized patient (SP) actors to practice interviewing skills and develop deeper diagnostic reasoning and critical thinking. Simulation exercises are treated as real-life events subject to professional codes of conduct and confidentiality regulations.<sup>4</sup> Each SP encounter is video-recorded for student assessment and debriefing, and the videos are stored on university-approved digital storage platforms. In the spring semester of 2020, patient simulations were integrated into a pediatric dentistry course for second-year dental students. The pandemic prevented students from completing their final in-person simulation. As part of a larger evaluation of patient simulation in dental education, the UNC-CH Institutional Review Board deemed this nonhuman subjects research (IRB #20-0292).

## 2 | SOLUTION

The original objective of the final encounter was to assess the student's ability to deliver oral health counseling and pediatric dental treatment plans. As an alternative to the

in-person encounter, the SP encounter occurred virtually. Using secure Zoom, the course director video-recorded a simulated caregiver interview with the SP training specialist at the UNC-CH School of Medicine's Clinical Skills and Patient Simulation Center. Students responded to SP questions and delivered a prioritized list of treatment options. They had 24 hours to prepare and submit a 5–10-minute video for grading.

The Clinical Skills and Patient Simulation Center provided a communication rubric template to the course director. Departmental faculty added checklists for the clinical interview, and Likert items for oral health counseling and pediatric treatment planning. Calibration occurred during weekly faculty meetings. Following the pandemic modification, the final rubric omitted all checklists, and included only 12 Likert items using a 4-point scale, with 1 = "poor" and 4 = "outstanding" (Figure 1).

Originally, departmental faculty were scheduled to grade the in-person simulations remotely via video simulcast (Figure 2). Following the pandemic modification, the same faculty had 1 week to complete grading.

## 3 | RESULTS

A critical component of SP encounters is student debriefing and reflection.<sup>4</sup> Better guidance from faculty would have standardized student attire and professionalism for

<b>Dent 201 Spring 2020</b> <b>Final Exam Rubric</b>	<b>DDS Student (Name/PID):</b> _____ <b>Faculty Evaluator (Name):</b> _____
<p><b>Final Exam Objective:</b> Manage and work through difficult conversations with caregivers within a specific child's oral health condition.</p> <p><b>Prevention topic (16 points):</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Provides correct contextual information about fluoride (4)</li> <li><input type="checkbox"/> Identifies mechanism of fluoride that provides benefit to dentition (4)</li> <li><input type="checkbox"/> Describes correct dose/amount and frequency of use (4)</li> <li><input type="checkbox"/> Answers caregivers questions/concerns about fluoride (4)</li> </ul> <p><b>Behavior and Disease Management Plan (28 points):</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Discusses extent and severity of dental disease (4)</li> <li><input type="checkbox"/> Discusses the 4 behavior management options (conventional, nitrous, sedation, general anesthesia) (4)</li> <li><input type="checkbox"/> Identifies the 2 main disease management options (traditional restorative, non-surgical) (4)</li> <li><input type="checkbox"/> Reviews the risks and benefits of each option (4)</li> <li><input type="checkbox"/> Answers caregivers questions/concerns about advanced behavior management (4)</li> <li><input type="checkbox"/> Answers caregivers questions/concerns about non-surgical disease management (4)</li> <li><input type="checkbox"/> Prioritizes a list of treatment options tailored to this patient and family (4)</li> </ul> <p><b>Conclusion (6 points):</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Prioritizes a list of treatment options (4)</li> <li><input type="checkbox"/> Provides a list of questions they would ask the caregiver if they were interacting with them (2)</li> </ul> <p><b>Meets Expectations:</b> <input type="checkbox"/></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Provides sufficiently detailed responses to prevention topic</li> <li><input type="checkbox"/> Provides sufficiently detailed discussion about behavior and disease management options</li> </ul> <p><b>Does Not Meet Expectations:</b> <input type="checkbox"/></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Does not mention all 4 behavior management options</li> <li><input type="checkbox"/> Does not mention alternative disease management options</li> </ul> <p><b>If no critical error (X), MEETS EXPECTATIONS:</b> <input type="checkbox"/></p> <p><b>*Notes (required for critical error):</b></p>  <p><b>Suggestions for improvement (communication):</b></p>  <p><b>Suggestions for improvement (content):</b></p>	

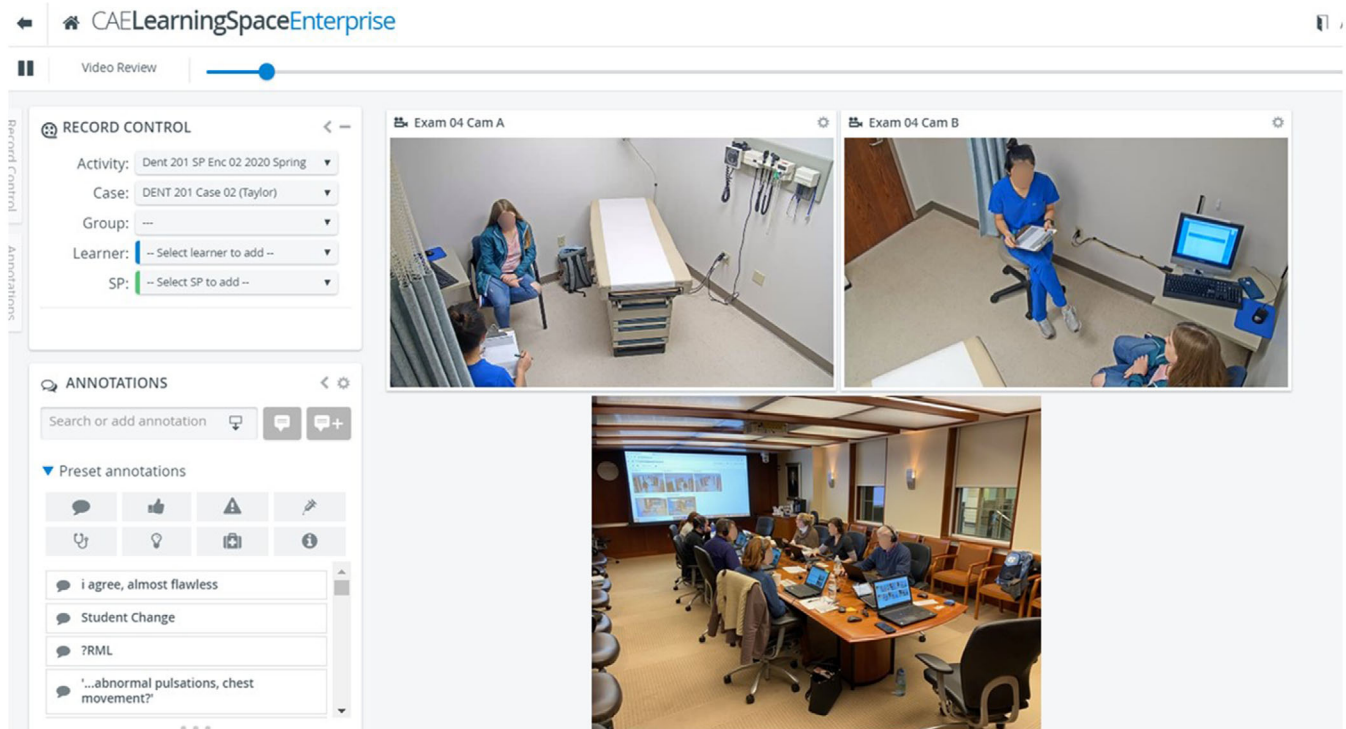
FIGURE 1 A rubric for the final video encounter

their recordings. Students expressed enthusiasm for the future potential of asynchronous teledentistry; however, some were uncertain about the widespread applicability in comprehensive oral health care. Peer-to-peer reflection helped students understand alternative perspectives and integrate key concepts.

As a quality improvement exercise, the consent process for recording SP encounters was revisited. Students signed a generic electronic media policy that included recording for educational purposes, which was assumed to cover SP

encounters. Following the course modification, students will sign course-specific consents for recording these encounters moving forward.

The main takeaway from the faculty was the general success of this modification to patient simulation in terms of providing students an opportunity to demonstrate their grasp of oral health counseling and pediatric dental treatment planning prior to entering clinic. By applying lessons learned, asynchronous teledentistry simulation may become a regular part of the student curriculum.



**FIGURE 2** Simulations are simulcast for grading by faculty using CAELearningSpace Enterprise. The format includes 2 cameras, one on the standardized patient and one on the student. Faculty can annotate the video as needed, and all comments and annotations are time stamped for students to review after the simulation. In the bottom photo, faculty meet collectively in a remote location to grade the simulations in real time

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