

Play to Learn: Gamification Techniques in Medical Education for Exploring Type I Renal Tubular Acidosis

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Introduction

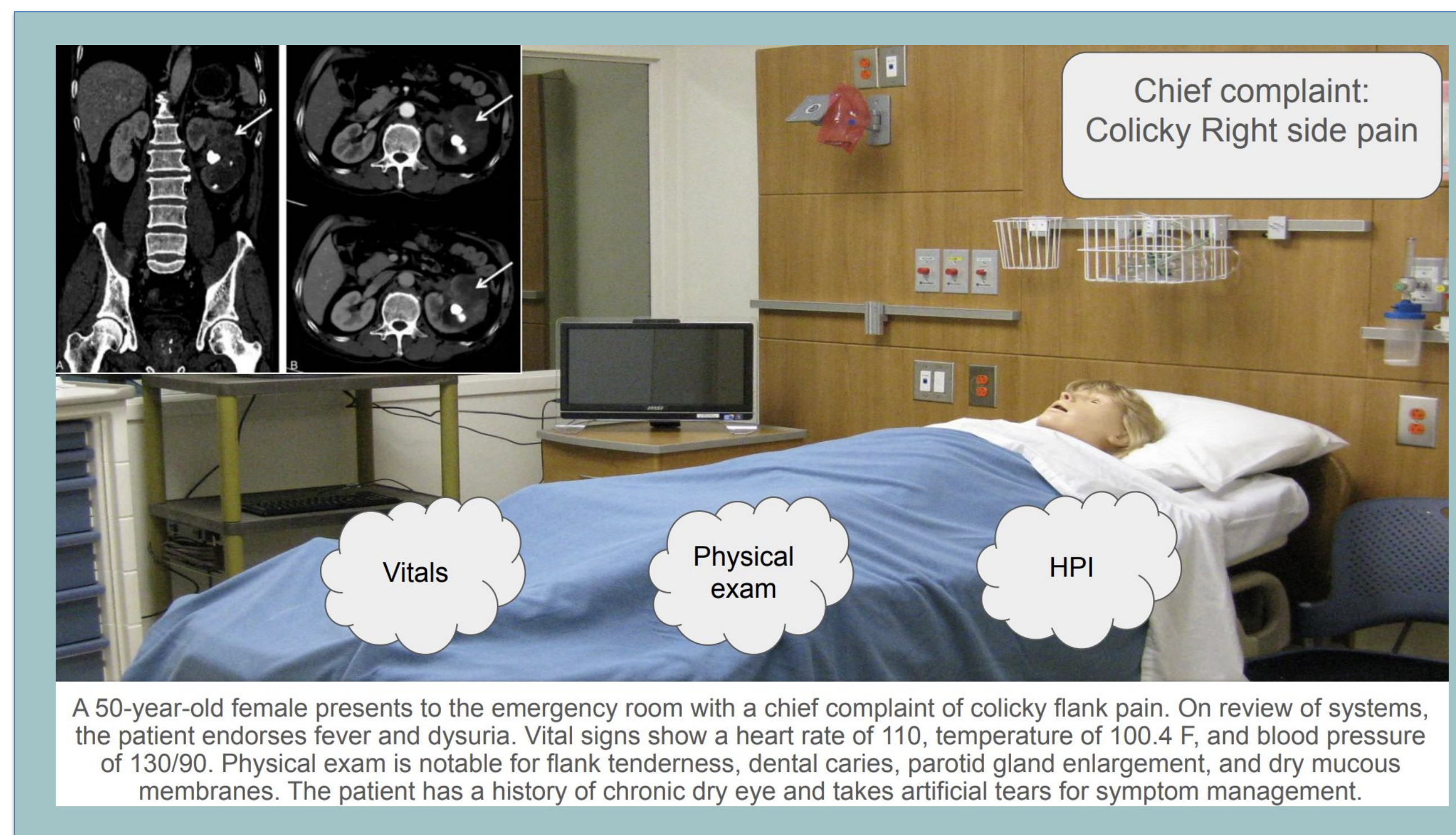
- Gamification is the application of gaming elements as a method of learning.
- The goal is to augment education beyond the scope of lectures, textbooks, and other traditional learning methods.
- Gamification as a learning tool has been found to increase engagement, cognition, and motivation.^{1,2}
- Virtual patient simulations have shown that gamification enhances learning in medical school education.³
- A systematic review suggests that use of gamification in various healthcare professions increases knowledge, skills, and student satisfaction.⁴
- We hypothesize that gamification will increase engagement, critical thinking, motivation, and comprehension when applied in the medical education curriculum.

Aims and Objectives

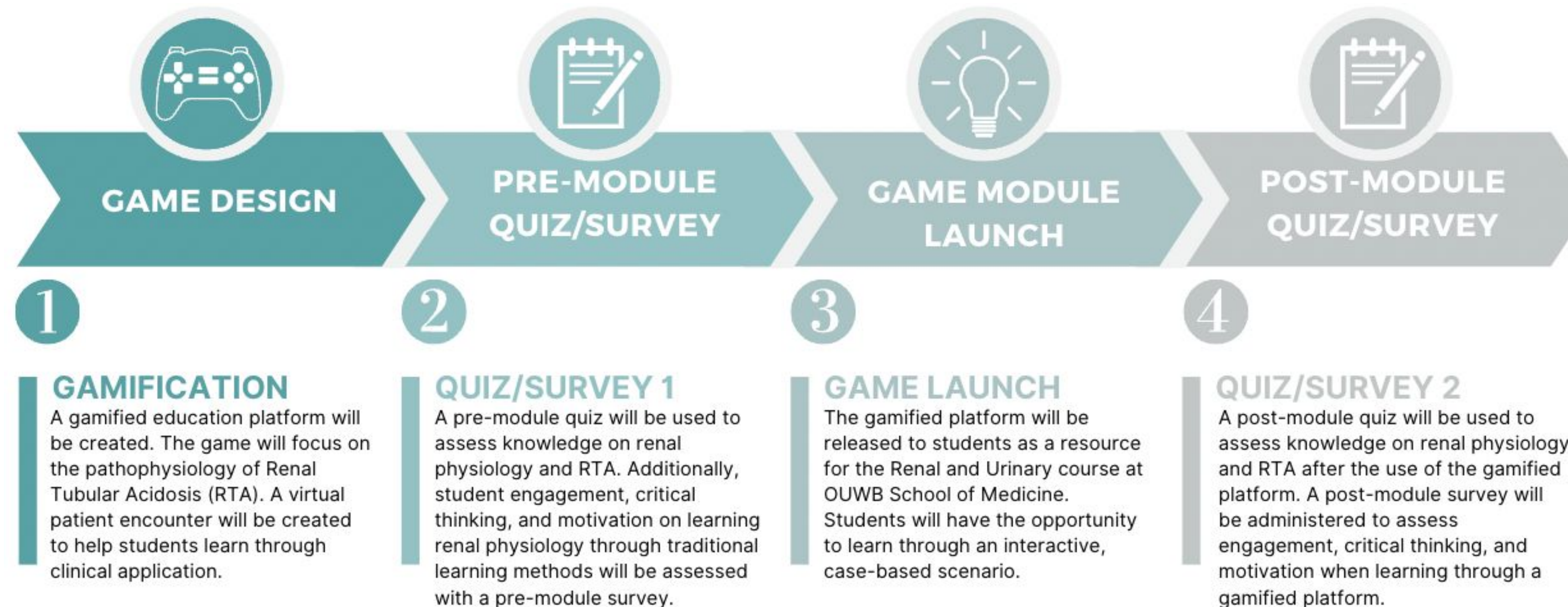
- We aim to develop a gamified education platform tailored to teach renal physiology, renal tubular acidosis, and its clinical application.
- Through gamification principles, the project seeks to increase engagement, critical thinking, motivation, and knowledge comprehension of complex renal concepts among medical students.
- The goal of the project is to make medical education more interactive and immersive.
- This study will serve as a trial for future research; success will enable the creation of an advanced, freely accessible gamified platform for medical education.

Approach/Process: The Gamified Platform

- The gamified module will be interactive, where students can click around the room to discover more about the patient's history of presenting illness, imaging, labs, and more.
- The figure below shows our preliminary game design model.
- The gamified module will also include an introduction to renal physiology and renal tubular acidosis.



Evaluation Plan



Expected Results

Increased Engagement	We anticipate higher level of student engagement due the interactive and immersive nature of the gamified platform.
Increased Critical Thinking	We foresee an enhancement in students' critical thinking skills as they navigate through the simulated clinical case and solve challenges within the gamified platform.
Increased Motivation	We expect a boost in students' motivation to learn renal physiology and renal tubular acidosis, being intrinsically motivated by the interactive and rewarding elements of the gamified education platform.
Increased Comprehension	We anticipate a positive impact on students' comprehension of complex renal concepts, supported by the pre- and post-intervention knowledge assessment.

References

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