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SOS! A Game-Based Simulation App to Improve Care of the Elderly: The Value of Instant Feedback & Analytics to Learners, Educators & Managers.

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Acute changes in condition in the frail elderly are clinically important deviations which, without timely intervention, may lead to unnecessary and costly hospitalizations, iatrogenic complications and significant deterioration or death. This game-based learning App supports the acquisition of gerontological specialty knowledge by healthcare providers and students. The serious game underpinning the App increases efficiency and motivation to complete case-based simulations. Instant feedback enables self-evaluation and self-directed learning. Game play analytics enable educators and managers to assess team progress and to further tailor education to address performance gaps.

The learning objectives are:
1. To recognize and act on acute changes in the frail elderly in a timely manner
2. To improve knowledge through:
Recognition:Pattern identification (acute conditions)
Reflection: Critical thinking (focused clinical decision making)
Response: Problem-solving and communication (SBAR rehearsal)
3. To consider the interprofessional team when selecting clinical actions and recommendations

Building on a previously beta-tested game mechanic (in card-based format), the App links together a set of case studies into a coherent narrative of a successful clinical practice with two player levels. A catalogue of 23 task challenges (casebase simulations) with extra stems was created. Cases are randomized by stem during game play, resulting in 37 cases. Other elements of the game are also randomized. Cases require learners to identify 1-2 care paths, 1-2 actions and 1-2 recommendations and earn 1-3 points and $5-10K. Game mechanics include time constraints, point starvation and powering-up strategy.

A pilot evaluation with 53 nursing students demonstrated that the use of the App improved test scores for care path identification, but not prioritization. Those with low baseline priority or critical path test scores improved their test scores by the end of the study. The improvement in critical path scores was also associated with the number of cases submitted implying practice improved the identification of the critical path. A higher level of comfort playing games on a device was related to more cases submitted and a larger proportion of cases solved. High self-reported knowledge and critical thinking scores were associated with improvement in care path

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scores.