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Enhancing Non-Technical Skills: Assessment of a “Bingo”-style Cue Identification Technique among Urology Trainees

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Non-Technical Skills (NTS) play a vital role in healthcare, encompassing abilities such as communication, situational awareness, decision-making, and teamwork. In high-stakes environments like emergency medical scenarios, effective NTS can greatly impact patient outcomes [1]. Therefore, there is a need for innovative training techniques to enhance skills among urology trainees [2]. A novel method called the 'Bingo' style perception feedback technique has been developed in response to this need. This technique combines gamified learning and scaffolding to create an engaging and effective method for trainees to acquire and internalise non-technical skills [3]. This technique aims to address the observed gaps in conventional training methodologies that often overlook the importance of practical, real-time application of these non-technical skills. Through interactive learning, the technique allows trainees to actively engage in learning, fostering more robust comprehension and retention of these critical abilities. This unique approach aims to equip our future healthcare professionals with a well-rounded skill set, enhancing their competence, improving patient safety, and promoting overall healthcare quality.

The study employed an innovative 'Bingo' technique as a tool to enhance the Non-Technical Skills (NTS) of urology trainees during the urology simulation boot camp [4]. The methodology was a blend of immersive, high-definition 5K 360-degree video recordings of simulated emergency urology scenarios and a 'Bingo' style grid (Supplementary File, Table) populated with NTS indicators. As part of the technique, the trainees were tasked with identifying these indicators as they manifested in the video scenarios. After each scenario, a review session was conducted by a consultant surgeon, the objective of which was to expand on the trainees' reflections and provide support for their cognitive skill development. This distinctive approach ensured that

the trainees were engaged interactively and cognitively, fostering an enriched understanding of NTS and their role in patient safety.

The technique received a unanimous positive response, validating its efficacy in encouraging active trainee involvement and fostering skill recognition in simulated scenarios. Out of all participants, a significant 76.9% reported noticeable improvements in their NTS, indicating the technique's impact on personal skill development. Notably, 84.6% of the trainees gained a deeper understanding of this critical connection and felt motivated to recommend the technique to their peers. Furthermore, the technique helped unravel diverse perceptions and competence levels for different NTS aspects among trainees. Within the events identified, ‘paying attention’ had a minimal negative difference of 2.33%, while a significant positive difference of 27.91% was observed in ‘summarising situations’ and ‘speaking clearly’. However, ‘using appropriate language’ yielded a negative difference of 37.21% (Table). This shows how this technique can help to illuminate how and where trainees identify events differently, which aids to address issues as highlighted in the Swiss Cheese Model for patient safety.

The results underscore the value of individualised NTS training programs in capturing and emphasising differences in attention deployment. The technique highlighted the importance of adapting training programs to individual differences in trainee learning trajectories, improving their management of interruptions, and promoting patient safety. Moreover, it showcased and supported how advanced NTS can lead to rapid cue identification, improved decision-making, and faster response times, thereby enhancing patient outcomes [5]. We aim to use AI to automate feedback to further their critical NTS abilities with next-to-no resource needs.

In summary, the 'Bingo' technique represents a significant stride in NTS training through personalization and cognitive development. It demonstrates the power of individualised training in enhancing critical NTS such as cue identification and decision-making, thereby improving patient safety. The insights from this study provide a strong foundation for future research in effective training strategies on urology and broader healthcare settings.

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