The aim of this study was to compare baseline temporary hemodialysis catheter insertion skills of attending nephrologists with the skills of nephrology fellows before and after a simulation-based mastery learning (SBML) intervention" McQuillan et al (2015).

Abstract:

BACKGROUND AND OBJECTIVES: Concerns have been raised about nephrology fellows' skills in inserting temporary hemodialysis catheters. Less is known about temporary hemodialysis catheter insertion skills of attending nephrologists supervising these procedures. The aim of this study was to compare baseline temporary hemodialysis catheter insertion skills of attending nephrologists with the skills of nephrology fellows before and after a simulation-based mastery learning (SBML) intervention.

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DESIGN, SETTING, PARTICIPANTS, & MEASUREMENTS: This pre- post-intervention study with a pretest-only comparison group was conducted at the University of Toronto in September of 2014. Participants were nephrology fellows and attending nephrologists from three university-affiliated academic hospitals who underwent baseline assessment of internal jugular temporary hemodialysis catheter insertion skills using a central venous catheter simulator. Fellows subsequently completed an SBML intervention, including deliberate practice with the central venous catheter simulator. Fellows were expected to meet or

exceed a minimum passing score at post-test. Fellows who did not meet the minimum passing score completed additional deliberate practice. Attending nephrologist and fellow baseline performance on the temporary hemodialysis catheter skills assessment was compared. Fellows' pre- and post-test temporary hemodialysis catheter insertion performance was compared to assess the effectiveness of SBML. The skills assessment was scored using a previously published 28-item checklist. The minimum passing score was set at 79% of checklist items correct.

RESULTS: In total, 19 attending nephrologists and 20 nephrology fellows participated in the study. Mean attending nephrologist checklist scores (46.1%; SD=29.5%) were similar to baseline scores of fellows (41.1% items correct; SD=21.4%; P=0.55). Only two of 19 attending nephrologists (11%) met the minimum passing score at baseline. After SBML, fellows' mean post-test score improved to 91.3% (SD=6.9%; P<0.001). Median time between pre- and post-test was 24 hours.

CONCLUSIONS: Attending nephrologists' baseline temporary hemodialysis catheter insertion skills were highly variable and similar to nephrology fellows' skills, with only a small minority able to competently insert a temporary hemodialysis catheter. SBML was extremely effective for training fellows and should be considered for attending nephrologists who supervise temporary hemodialysis catheter insertions.

Reference:

McQuillan, R.F., Clark, E., Zahirieh, A., Cohen, E.R., Paparello, J.J., Wayne, D.B. and Barsuk, J.H. (2015) Performance of Temporary Hemodialysis Catheter Insertion by Nephrology Fellows and Attending Nephrologists. Clinical Journal of the American Society of Nephrology. September 25th. .

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