

Enhancing Clinical Safety and Cancer Patient Experience Through Comprehensive eLearning on Central Venous Access Devices

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Abstract. Health practitioners often insert and maintain central venous access devices (CVADs) as part of cancer care. One in four CVADs prematurely fail, which is associated with increased mortality, morbidity and a negative impact on quality of life. To support implementation of updated guidelines, eviQ Education developed a comprehensive, peer-reviewed, evidence-based CVADs eLearning package. An evaluation indicated that the eLearning supported clinicians' practice and increased knowledge and clinical competency in CVAD insertion and management.

Keywords. CVADs; Oncology; Central venous access devices; Care and maintenance; Management; Clinical education; eLearning; Guideline implementation

1. Introduction

Central venous access devices (CVADs) are catheters inserted into peripheral or central veins in the chest, neck or groin, to enable the administration of fluids, blood products, medication and other therapies to the bloodstream and reduce the need for repeated peripheral blood sampling.

Although CVAD insertion is a common clinical procedure for cancer patients, one in four prematurely fail and this is associated with increased mortality, morbidity, healthcare costs and a negative impact on quality of life [1]. CVADs complications are considered preventable [2].

In 2021, the Cancer Nurses Society of Australia published updated clinical guidelines on CVADs [3]. The translation of this new evidence into knowledge and skills was supported by eviQ Education, a national program of the Cancer Institute NSW offering free online learning resources, accessible on any device, anytime, to standardise and promote evidence-based best practice at the point of care.

2. Methods

A literature review identified the best, currently available evidence to address the challenges, clinical problems and poor patient outcomes in clinical practice. Subject

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matter experts in vascular access were engaged to identify aspects of the existing CVADs eLearning and practice that were inadequate, inefficient and/or no longer aligned with clinical guidelines.

A delphi-type method was employed to support peer-review of the revised content, with three rounds of review and consultation undertaken.

3. Results

The review resulted in the introduction of new and updated clinical tools, supportive resources and competency assessments in the updated eLearning package including:

- three eLearning modules
- eight clinical procedures
- four clinical resources
- seven competency assessment tools
- three patient information sheets
- a mobile app mini-quiz
- a live webinar, available as a recording
- complementary training videos.

Following publication in July 2021, resources received endorsement from the Australian Vascular Access Society and Cancer Nurses Society of Australia. As of 10 November 2023, over 22,000 health professionals have completed all three modules, with more than 50,000 pageviews on the course landing page.

A total of 3,241 health professionals completed the course evaluation. The majority (98%) of respondents reported knowledge increase, and 98% reported satisfaction with the look and feel, navigation, content, and length and flow of topics.

4. Conclusions

It is vital for patient safety and quality of life that health professionals are confident and competent in CVADs management. The fully digital eviQ Education CVADs eLearning package has aided the standardisation of new evidence into practice through a flexible delivery model that supports busy health professionals to safely care for patients with a cancer diagnosis.

References

- [1] Ullman AJ, Marsh N, Mihala G, Cooke M, Rickard CM. Complications of Central Venous Access Devices: A Systematic Review. *Pediatrics*. 2015 Nov;136(5):e1331-44. doi: 10.1542/peds.2015-1507. Epub 2015 Oct 12. PMID: 26459655.
- [2] Takashima M, Ray-Barruel G, Ullman A, Keogh S, Rickard CM. Randomized controlled trials in central vascular access devices: A scoping review. *PLoS One*. 2017 Mar 21;12(3):e0174164. doi: 10.1371/journal.pone.0174164. PMID: 28323880; PMCID: PMC5360326.
- [3] Cancer Nurses Society of Australia. CNSA Vascular Access Devices: Evidence-Based Clinical Practice Guidelines, 2021. Available at: <https://www.cnsa.org.au/practiceresources/vascular-access-resources>