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**Dottorando:** Dott. Jacopo Fiorini

**Tutor:** Prof. Alessandro Sili

**Titolo tesi:** **Vessel Health and Preservation: a proactive approach for patients' vein quality.**

### **ABSTRACT**

**Aims.** To summarize current knowledge on difficult intravenous access (DIVA) factors and vessel health and preservation (VHP) in patients who need the placement of a vascular access device (VAD). To develop and validate a tool able to assess the variables related to the quality of peripheral veins and identify those at risk of compromising vessel health.

**Introduction.** When patients are admitted to hospital potentially in need of vascular access, nurses insert a peripheral intravenous cannula (PIVC) on the arm using the traditional approach. This approach implies that VADs are inserted blindly until flow is satisfactory and all possible venepuncture sites have been exhausted. A proactive approach would ensure the evaluation of patients' DIVA risk factors and the placement of the best device for each patient, eliminating repeated attempts at cannulation and preserving vessels for future needs.

**Design.** An integrative review, observational studies and validation study were conducted. Literature searches were conducted in PubMed, Cochrane Library, CINAHL and Scopus. Survey instruments were used, and face and content validity were analysed for the development of the VHP Scale (VHPS). Pearson's correlation, ANOVA, T-test and Receiver-operating characteristic analysis were used in the studies; specificity, sensitivity, positive and negative predictive values were also calculated for the VHPS.

**Results.** Patients were active participants in the proactive approach of the VHP. The new approach improves patient outcomes. Nurses offer a new point of view on DIVA factors, showing that new factors and nurses' expertise are valuable sources of knowledge for targeting clinically significant research. The VHPS was developed and validated, resulting in a sensitive, specific and valid 15-item tool, that evaluates the risk of compromising the vessel health quality of hospitalized patients.

**Conclusion.** Applying the proactive approach and the VHPS in clinical practice allows the preservation of vein health quality by highlighting patients at risk and enabling ward nurses to make an improved evaluation of the patient's vein quality and VADs management. The proactive approach and the use of the VHPS preserves vessels for future needs, improving patients' outcomes and satisfaction, reducing length of stay, costs, risk of infection, complications and pain perceived by patients.

**Keywords:** vessel health and preservation; proactive approach; vascular access.