

Theodoros A katsoulas¹, Siopis Dimitrios², Evangelos A Konstantinou³

1. Associate Professor of ICU Nursing and Vascular Access, Nursing department, School of Health Sciences National and Kapodistrian University of Athens
2. RN, MSc, Major at 401 General Army Hospital of Athens
3. Professor of Nursing Anesthesiology and Vascular Access, Nursing department, School of Health Sciences National and Kapodistrian University of Athens
- Vascular Access Laboratory, Nursing Department, School of Health Sciences National and Kapodistrian University of Athens

Introduction The use of peripherally Inserted Central Catheters (PICCs) has become extremely popular in several clinical situations. In cases that basilic and brachial veins are unavailable due to the small vein diameter, previous lymph node dissection in both axilla due to breast cancer surgery or other local contraindications, the off-label placement of PICCs in the internal jugular or the axillary vein and tunneling of the catheter in the infra-clavicular area is an acceptable option. The aim of the present study was to assess the safety of the off-label use of PICCs and compare the incidence of catheter related complications between the group of patients with PICC and those with off label PICC.

Method A retrospective analysis of the procedures of PICC placement that were placed by the two nurses of a university nurse led vascular access unit of a 290-bed general oncology hospital was performed.

Results A total of 476 procedures were performed. A PICC was placed at 433 patients and an off label PICC through the internal jugular or the axillary vein was placed in 43 patients. The comparison of both immediate and late complications incidence showed a statistically not significant but clinically important lower complication incidence in the off label PICC group of patients. In the PICC group central line associated bloodstream infection (CLABSI) incidence was 1.8%, tunnel infection was 1.8%, catheter related thrombosis (CRT) was 0.7% and catheter occlusion was 1.8% whereas in the off Label PICC group the incidence of CLABSI was 2.3% and 0% respectively for all the other late complications.

Discussion & Conclusion Off label placement of PICCs is technically feasible for experienced VA nurses with high levels of procedural safety and low late complication rates indicating that perhaps is the best option when PICC placement at the arm is contraindicated.

Table 1. Demographic and Clinical Characteristics of the patients (N=476)

Age	61.84 ± 12.766
Gender	
Male	159 (33.4%)
Female	315 (66.2%)
VAD	
PICC	433 (91%)
Off Label PICC	43 (9%)
VEIN	
R Basilic/Brachial	252 (52.9%)
L Basilic/Brachial	145 (30.5%)
R IJV	34 (7.1%)
L IJV	5 (1.1%)
R Axillary	4 (0.8%)
Complications	
Accidental removal	33 (6.9%)
Tunnel Infection	8 (1.7%)
CLABSI	9 (1.9%)
CRT	3 (0.6%)
Catheter Occlusion	11 (2.3%)
Migration	1 (0.2%)

Table 2. Comparison of complication incidence between PICCs and Off Label PICCs

	PICCs	Off Label PICCs	p
Accidental removal	30 (6.9%)	3 (7%)	0.991
Tunnel Infection	8 (1.8%)	0 (0%)	0.37
CLABSI	8 (1.8%)	1 (2.3%)	0.826
CRT	3 (0.7%)	0 (0%)	0.584
Occlusion	8 (1.8%)	0 (0%)	0.369
Migration	1 (0.2%)	0 (0%)	0.752
Multiple attempts (>2)	1 (0.2%)	1 (2.3%)	0.043
Malposition	4 (0.9%)	1 (2.3%)	0.39
Fail to advance catheter and change of vein	6 (1.4%)	1 (2.3%)	0.625

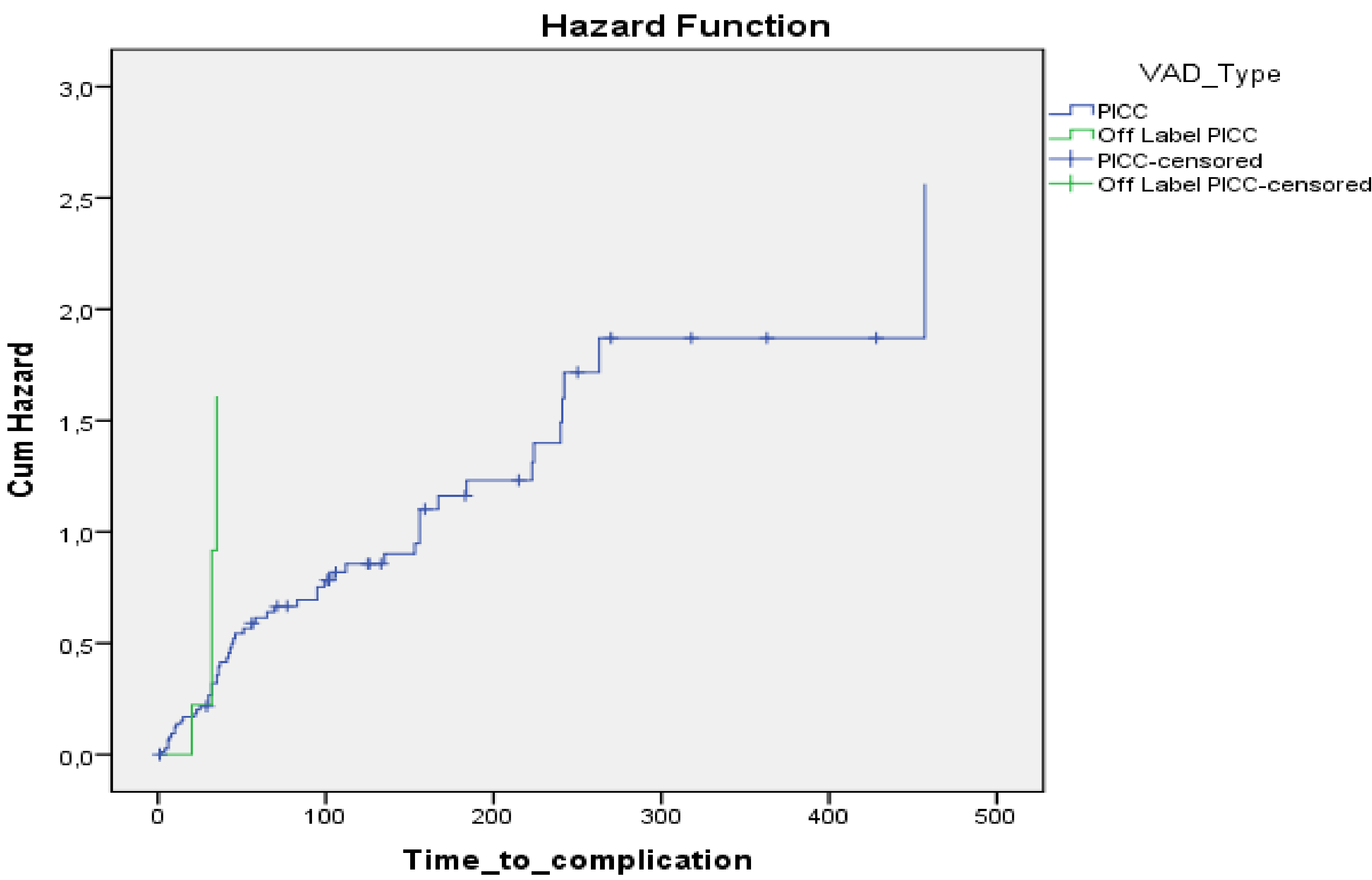


Figure1: Kaplan Meier plot comparing the late complication hazard between PICCs and Off label PICCs. Log Rank **chi square 4.022, p=0.045**. Mean time (SE) to complication: PICCs 150.32 (20.12) days vs Off Label PICCs 47.4 (17.84) days