



Benefits of an intrahospital vascular
access team

Vantaggi di un team di accesso vascolare
ospedaliero

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Disclosures / Divulgazioni

- Presidential Advisor for the AVA Foundation - 2024
- Consulente presidenziale per la Fondazione AVA - 2024
- Employee of Teleflex
- Dipendente di Teleflex
- Opinions expressed are solely my own and do not express the views or opinions of my employer.
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Healthcare Teams / Squadre sanitarie

- *“In delivering health care, an effective team can immediately and positively affect patient safety and outcome. The need for effective teams is increasing due to increasing co-morbidities and increasing complexity of specialization of care”*
- *“Nell'erogazione dell'assistenza sanitaria, un team efficace può avere un impatto immediato e positivo sulla sicurezza e sui risultati dei pazienti. La necessità di team efficaci sta aumentando a causa delle crescenti comorbidità e della crescente complessità della specializzazione dell'assistenza.”*

Vascular Access Teams

Team di accesso vascolare



Vascular access specialist teams for device insertion and prevention of failure (Review)

Carr PJ, Higgins NS, Cooke ML, Mihala G, Rickard CM

The effectiveness of the VAST approach for VAD insertion and prevention of failure has not yet been evaluated in randomized controlled trials where the unit of randomization represents the participant.

L'efficacia dell'approccio VAST per l'inserimento di VAD e la prevenzione del fallimento non è stata ancora valutata in studi clinici randomizzati e controllati in cui l'unità di randomizzazione rappresenta il partecipante.

Vascular Access Team

Team di accesso vascolare

*“A grouping of healthcare professionals whose primary role is to assess, insert, manage, perform surveillance, analyze their service data and solve clinical concerns and where possible remove VADs”.
(Carr, 2019)*

"Un raggruppamento di professionisti sanitari il cui ruolo principale è valutare, inserire, gestire, eseguire la sorveglianza, analizzare i dati dei loro servizi e risolvere problemi clinici e, ove possibile, rimuovere i VAD". (Carr, 2019)

Why Adopt? / Perché adottare?



Guidelines

Use skilled clinicians to insert PIVCs. PIVC insertion in adults by infusion/vascular access specialist teams produced greater first-attempt insertion success and lower rates of complications (refer to Standard 4, Infusion and Vascular Access Services). INS Standards of Practice, 2024

The scope of services provided by infusion and vascular access specialist teams (VAST) is structured to meet patient and organizational needs for safe delivery/administration of quality infusion therapy.

Specialty teams reduce the need to escalate from use of peripheral VADs to more invasive CVADs through clinical consultation; reduce costs associated with device-related complications, labor resources, and vascular access supplies and equipment; and improve patient satisfaction with greater first-attempt insertion success and lower rates of complications.^{2,4,9,10,19-25} (II)

Keys to the success of interprofessional teams are clarity of purpose, communication, adoption of best practices, and optimization of efficiencies to achieve patient-centered outcomes.^{4,13,19,26-34} (IV)

The team provides holistic evidence-based interventions and advances quality of care outcomes in inpatient and outpatient settings. Contemporary teams should provide expertise in procedural tasks (eg, vascular access for patients with difficult intravenous access (DIVA) and perform clinical rounding to assess staff adherence to care and maintenance practices, assess central line necessity, and provide education to staff regarding infusion/ vascular access best practices.^{1-9,11,15,25,57-60} (II)

GAVeCeLT Working Group, 2020

- To implement vascular access teams trained to insert any short- or medium-term venous access device, according to the needs of the individual patient.
- To abandon the routine use of radiology for checking the tip location and ruling out pneumothorax after central venous access insertion, in favor of faster, more accurate, safer, and cheaper methods such as intracavitary electrocardiography and echocardiography;
- To adopt systematically appropriate technique of infection prevention in order to maximize both patient and operator safety during insertion of vascular access devices.

Pittiruti and Pinelli *Critical Care* (2020) 24:269
<https://doi.org/10.1186/s13054-020-02997-1>

Critical Care

COMMENTARY

Open Access

Recommendations for the use of vascular access in the COVID-19 patients: an Italian perspective

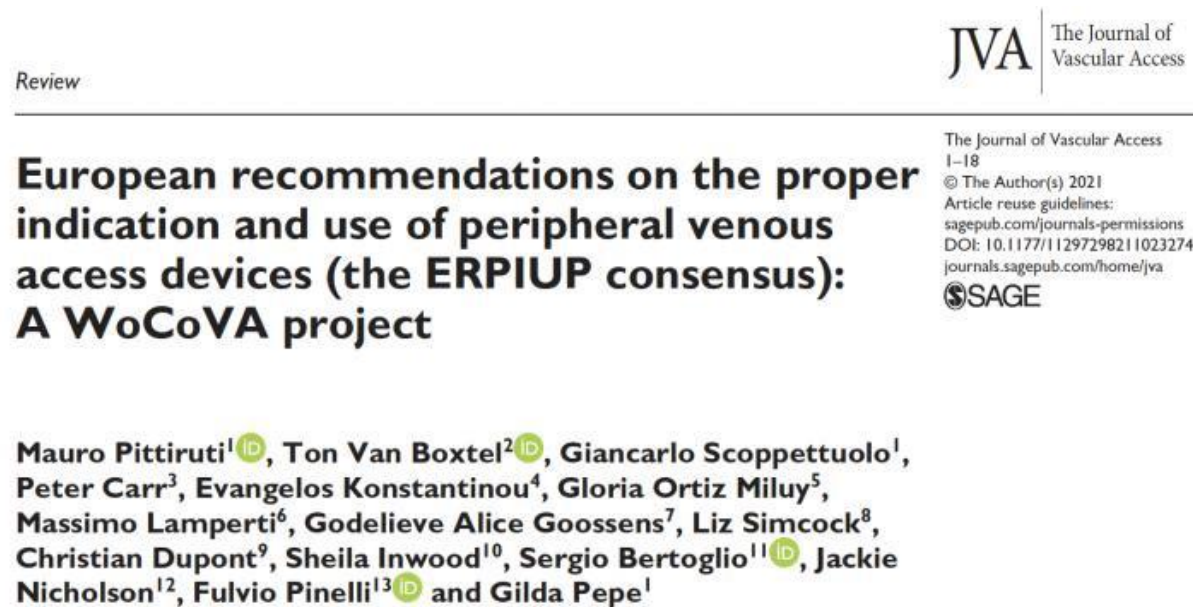


Mauro Pittiruti^{1*}, Fulvio Pinelli² on behalf of the GAVeCeLT Working Group for Vascular Access in COVID-19

- Implementare team di accesso vascolare formati per inserire qualsiasi dispositivo di accesso venoso a breve o medio termine, in base alle esigenze del singolo paziente.
- Abbandonare l'uso di routine della radiologia per controllare la posizione della punta ed escludere lo pneumotorace dopo l'inserimento dell'accesso venoso centrale, a favore di metodi più rapidi, accurati, sicuri ed economici come l'elettrocardiografia intracavitaria e l'ecocardiografia;
- Adottare sistematicamente tecniche appropriate di prevenzione delle infezioni al fine di massimizzare la sicurezza sia del paziente che dell'operatore durante l'inserimento dei dispositivi di accesso vascolare.

ERPIUP Consensus / Consenso ERPIUP

- Consider a dedicated vascular access team for the insertion of LPC and MC.
- Consider establishing an infusion team for insertion, care, and removal of the PVADs.



- Si consideri un team dedicato all'accesso vascolare per l'inserimento di LPC e MC.
- Si consideri l'istituzione di un team di infusione per l'inserimento, la cura e la rimozione dei PVAD.

Vascular Access Teams: A Global Outlook on Challenges, Benefits, Opportunities, and Future Perspectives

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Patient satisfaction

Institutional costs

Inconsistent documentation

Soddisfazione del paziente

Costi istituzionali

Documentazione incoerente

Catheter insertions (100%) and training (86%) were the most performed VAT functions.

Patient satisfaction (6.5) and institutional costs (6.2) were the highest impacts. VAT co-initiatives, advanced technology utilization (6.6), and ongoing member training (6.3) distinctly impacted VAT endeavors. Most institutions (64%) did not have routine mechanisms for recording VAT-related data; however, all participants (100%) stated the importance of sharing data to demonstrate VAT impacts. Time constraints (57%) emerged as one of the major deterrents to data collection or dissemination. The majority (64%) experienced an increased demand or workload for VAT services during the COVID-19 pandemic.

Original research articles

Impact assessment following implementation of a vascular access team

M^a Inés Corcuera Martínez ¹, Marco Aldonza Torres ², Ana M^a Díez Revilla³, Sara Maali Centeno⁴, Amaya Mañeru Oria⁵, Inmaculada Elizari Roncal⁶, Beatriz Ibarra Marín⁷, Maria Isabel Casado del Olmo⁸, Rosario Escobedo Romero⁹, and Marta Ferraz Torres¹⁰

Patient satisfaction

Low complication rates

Economic benefit

Soddisfazione del
paziente

Bassi tassi di
complicazione

Beneficio economico

Background: A vascular access team (VAT) was created in 2018 with the aim of improving vascular access and reducing complications associated with catheters. The impact of the introduction of a VAT in the insertion and maintenance of peripheral insertion central catheters (PICCs) was assessed. The cost-benefit associated with the use of a VAT was evaluated and the satisfaction of patients and professionals interacting with the VAT was measured.

Methods: In a prospective study, 275 PICCs inserted by the VAT were assessed for their impact on complications. PICCs were implanted with maximum barrier measures using an ultrasound with IC-ECG. Also, patient and professional satisfaction have been analysed through a questionnaire over the phone or online, and hospital financial data was used to assess the cost impact of the insertion methodology followed by the VAT versus Anaesthesia Service.

Results: The thrombosis rate was 2.5% (7) and the bacteraemia rate was 1.1% (3). The use of the IC-ECG was correlated with a lower complication than the RX + IC-ECG (OR = 3.28, $p = 0.021$). In addition, there was a high level of perceived satisfaction for the patients surveyed and for the healthcare professionals involved in the care and management of these devices. The calculated saving for the implementation of the VAT was 61.81% compared with PICCs implanted in Anaesthesia Service.

Conclusion: Low complication rates and high overall satisfaction scores in patients and professionals were observed, showing that a specialist VAT can have a positive impact in the insertion of PICCs and which also has a clear economic benefit.

Implementation of a Vascular Access Team to Reduce Central Line Usage and Prevent Central Line-Associated Bloodstream Infections

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Journal of Infusion Nursing 42(4):p 193-196, July/August 2019. | DOI: 10.1097/NAN.0000000000000328

Central line utilization decreased by 45.2%, and CLABSI incidence decreased by 90%. The results of the study demonstrated that a reduced utilization of central lines minimized the risk of patients developing a CLABSI.

L'utilizzo delle linee centrali è diminuito del 45,2% e l'incidenza di CLABSI è diminuita del 90%. I risultati dello studio hanno dimostrato che un utilizzo ridotto delle linee centrali ha ridotto al minimo il rischio che i pazienti sviluppassero una CLABSI.

Infection prevention

Device selection

Improved outcomes

Prevenzione delle infezioni

Selezione del dispositivo

Risultati migliorati

The economic analysis revealed an annual estimated saving of **€867,688.44**. Our study provides a detailed analysis of VAT's activity and functions as well as its relevance to clinical safety and the efficient management of resources within our hospital centre. The findings of this study have enabled the integration of the VAT throughout the hospital to ensure effective, safe and expert VA to all patients.

Original research article



Implementation of a vascular access team and an intravenous therapy programme: A first-year activity analysis

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L'analisi economica ha rivelato un risparmio annuo stimato di € 867.688,44. Il nostro studio fornisce un'analisi dettagliata dell'attività e delle funzioni del VAT, nonché della sua rilevanza per la sicurezza clinica e la gestione efficiente delle risorse all'interno del nostro centro ospedaliero. I risultati di questo studio hanno consentito l'integrazione del VAT in tutto l'ospedale per garantire un VA efficace, sicuro ed esperto a tutti i pazienti.

Economical

Effective

Safety

Experts

Economico

Efficace

Sicurezza

Esperti

Vascular access unit: Six-years experience report in France

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The Journal of Vascular Access
1–6
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DOI: 10.1177/11297298221080228
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Abstract

Background: The role of nurses in peripherally inserted central catheters (PICC) placement has been limited in France. Having a fully trained nurse-led PICC team can positively impact nursing profession and make better use of valuable human and economic healthcare resources. It can also improve the standards of patient's care, procedural experience, and safety.

Aim: The aim of this article is to report the successful outcomes of nurse-led PICC team performed over a 6-year period from a single central hospital in France.

Methods: The authors reviewed all PICCs insertions performed by their trained nurse led team between 2014 and 2019. All quantitative and qualitative variables were considered: the patients admitted, the type of PICC inserted, overall procedural time, the mentor's help, the insert failures, the number of punctures required, the procedural pain utilizing Visual Analog Scale (VAS), any procedural complications, chest X-rays needed, the follow up to the eighth day (D8).

Results: From 2014 to 2019, 12,687 PICC were inserted with 128 failed procedures (1%). In 2019, 73% of procedural insertion time was less than 10 min. The request of support rapidly decreased to 2 calls/month. More than 90% of procedures were associated with mild pain ($VAS \leq 3$). After the first month of training, 81% of all procedures were performed with a single insertion puncture. Accidental artery puncture during procedure was 0.5%. The authors found room for improvement, progressing from 97% in the first year to 99% in 2019. Furthermore, the authors found that only 1.85% of all catheters developed local infection within D8, and only 0.83% evolved in vein thrombosis. Total bloodstream infection was at 0.1%.

Conclusion: The authors report successful outcomes from data collected during the 6-year period demonstrating clear benefits of a nurse-led vascular access team with regard to system wide efficiencies and patient satisfaction.

System wide
efficiencies

Patient
Satisfaction

Efficienza a livello
di sistema

Soddisfazione del
paziente

Objectives: *Peripherally inserted central catheters (PICCs) are increasingly recognized as an alternative to centrally inserted central catheters (CICCs) in critical care, yet the data regarding the safety and feasibility of this choice in septic shock management is growing but still lacking. In this study, we aimed to determine the feasibility, safety, and impact on outcomes of using dedicated vascular access specialist (VAS) teams to insert PICCs versus CICCs on patients admitted to the ICU with septic shock.*

Total patients resuscitated utilizing a PICC vs. CICC. On univariate analysis, the time to central line insertion and time to vasopressor initiation were found to be reduced in those who received PICC at time of ICU admission versus CICC. Other favorable outcomes were also observed in those who received PICC versus CICC including shorter ICU length of stay and lower unadjusted hospital mortality. A multivariable analysis for hospital mortality showed that after adjusting for important covariates, neither the time to central line insertion nor the time to vasopressor initiation was associated with a lower hospital mortality.

Conclusions: *Across two tertiary referral centers within the same enterprise, use of a dedicated VAS team for insertion of PICCs for initial resuscitation in patients with septic shock was feasible and associated with shorter time to central venous access and initiation of vasopressors; however, adjusted hospital mortality was not different between the two groups.*

Use of peripherally inserted central catheters with a dedicated vascular access specialists team versus centrally inserted central catheters in the management of septic shock patients in the ICU

Hassan A Raza¹, Brandon T Nokes^{2,3}, Bruno Alvarez⁴, Julie Colquist⁵, John Park⁶, Rahul Kashyap⁷, Bhavesh Patel⁵ and Rodrigo Cartin-Ceba^{5,8}

The Journal of Vascular Access
2024, Vol. 25(1) 218–224
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DOI: 10.1177/11297298221105323
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SAGE

Device delay

Mortality

Sepsis

Ritardo del dispositivo

Mortalità

Sepsi

Implementation of VATs differ amongst European countries and varies with institution type and size. Institutions where VATs are present are more likely to use tools, algorithms, or guidelines in determining the appropriate device and to use a wider variety of VADs. Also, these institutions were more likely to systematically monitor for complications, to have more trained professionals and an increased presence and awareness of vascular access policies.

L'implementazione dei VAT varia tra i paesi europei e varia a seconda del tipo e delle dimensioni dell'istituto. Gli istituti in cui sono presenti i VAT hanno maggiori probabilità di utilizzare strumenti, algoritmi o linee guida per determinare il dispositivo appropriato e di utilizzare una più ampia varietà di VAD. Inoltre, questi istituti avevano maggiori probabilità di monitorare sistematicamente le complicazioni, di avere più professionisti qualificati e una maggiore presenza e consapevolezza delle politiche di accesso vascolare.

Cortes Rey, N., Pinelli, F., van Loon, F. H., Caguioa, J., Munoz Mozas, G., Piriou, V., ... & Mussa, B. (2021). The state of vascular access teams: results of a European survey. *International Journal of Clinical Practice*, 75(12), e14849.

Received: 11 June 2021 | Revised: 26 August 2021 | Accepted: 10 September 2021

DOI: 10.1111/ijcp.14849

ORIGINAL PAPER

General/surgery/internal

WILEY
CLINICAL PRACTICE

The state of vascular access teams: Results of a European survey

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Gema Munoz Mozas⁵ | Vincent Piriou⁶ | Ulf Teichgräber⁷ | Didier Lepelletier⁸ |
Baudolino Mussa⁹

Teams vary

Access to teams

Accountability

I team variano

Accesso al team

Responsabilità

ORIGINAL RESEARCH

The role of hospital-based vascular access teams and implications for patient safety: A multi-methods study

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Angelique Gaston RN⁵ | Amanda Ullman PhD, RN⁶  | Vineet Chopra MD, MSc⁷  

In conclusion, despite their value and expertise, VATs remain an understudied and underutilized resource. More studies, including international reviews of VATs, may help to fill this research gap. Further, a shift in hospital culture, along with an increased willingness on the part of attending physicians and hospital leaders to more fully integrate vascular access nurses in decision making, may be needed. Future interventions aimed at empowering teams could help to unlock their true potential and advance patient safety.

Remain
understudied

Remain
underutilized

Culture shift

Rimane poco
studiato

Rimane
sottoutilizzato

Cambiamento
culturale

June
2024

BMJ Open Vascular access specialist teams versus standard practice for catheter insertion and prevention of failure: a systematic review

Ismael Fernandez-Fernandez,¹ Gaizka Parra-García,² Ian Blanco-Mavillard ^{3,4,5}, Peter Carr,^{6,7} Paulo Santos-Costa,^{8,9} Miguel Ángel Rodríguez-Calero¹⁰

This review analysed the significance of vascular access specialist teams (VASTs) in improving the success of vascular access device cannulation and reducing adverse events during intravenous therapy for hospitalised adults.

Conclusions: It seems apparent that VASTs contribute to improving the health of patients during the administration of intravenous. VASTs seem to increase the effectiveness of VAD insertion and care and reduce complications.

Questa revisione ha analizzato l'importanza dei team specialistici di accesso vascolare (VAST) nel migliorare il successo della cannulazione del dispositivo di accesso vascolare e nel ridurre gli eventi avversi durante la terapia endovenosa per gli adulti ospedalizzati.

Conclusioni: Sembra evidente che i VAST contribuiscano a migliorare la salute dei pazienti durante la somministrazione endovenosa. I VAST sembrano aumentare l'efficacia dell'inserimento e della cura dei VAD e ridurre le complicazioni.

Improve health

Increase effectiveness

Reduce complications

Migliorare la salute

Aumentare l'efficacia

Ridurre le
complicazioni

GAPS / LACUNE

- No high-level evidence
 - Lack of team variables
 - Lack of model standard
 - How do we measure value?
 - What is the true definition of a vascular access team?
- Nessuna evidenza di alto livello
 - Mancanza di variabili di squadra
 - Mancanza di standard di modello
 - Come misuriamo il valore?
 - Qual è la vera definizione di un team di accesso vascolare?

Conclusion / Conclusione

- Clinically and economically relevant
- Improve device selection and technology adoption
- Reduce patient harm events
- Improve patient and provider satisfaction
- Mega survey to better understand and validate team models
- Rilevante dal punto di vista clinico ed economico
- Migliora la selezione dei dispositivi e l'adozione della tecnologia
- Riduci gli eventi dannosi per i pazienti
- Migliora la soddisfazione dei pazienti e dei provider
- Mega sondaggio per comprendere meglio e convalidare i modelli di team

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Continua a pubblicare!!