

# Controverses et convergences autour de la délégation médicale pour la pose des CCI : point de vue de l'infirmier délégué



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# En préambule....

- Pose de la CCI: étape majeure dans la prise en charge des patients.
  - Disparités organisationnelles nombreuses.
  - Iatrogénie non négligeable.
  - Contexte médico-économique: éviter la « fuite » de la patientèle, libérer du temps médical, raccourcir les délais de prise en charge...
- 



# Contexte de la délégation médico-infirmière pour les CCI.

- ▶ Art 51 loi HPST du 21 juillet 2009: permet la mise en place **à titre dérogatoire** et **à l'initiative des professionnels sur le terrain** de transferts d'actes.
- ▶ Validation du protocole par la HAS le 5 juin 2013.
- ▶ Arrêté du 1<sup>er</sup> mars 2021 paru au JORF.
- ▶ Au moins 1000 actes/an VVC.



# Garanties de la délégation.

- **Ponctions 100% échoguidées.**
- Formation théorique et pratique.
- Suivi des indicateurs qualités.
- **Déclaration des EI.**
- Disponibilité et proximité du médecin délégant.
- Application check-list HAS / VVC.
- **Démarche formative.**

Pour la CCI: VJI ou veines du bras, 3 ponctions max.

# Central Venous Catheter Placement by Advanced Practice Nurses Demonstrates Low Procedural Complication and Infection Rates—A Report From 13 Years of Service\*



Evan Alexandrou, RN, MPH<sup>1,2,3,4,5,6</sup>; Timothy R. Spencer, RN BHealth<sup>2,3,4</sup>; Steven A. Frost, RN, MPH<sup>1,2,4,7,8</sup>; Nicholas Miffelin, RN BNursing<sup>3,4</sup>; Patricia M. Davidson, RN, PhD<sup>5</sup>; Ken M. Hillman, MD<sup>4,7,8</sup>

**TABLE 2. Total Catheter-Related Outcomes** *Crit Care Med.* 2014 Mar;42(3):536-43.

Complications	Internal Jugular Vein	Subclavian Vein	Femoral Vein	p
	n = 93	n = 2,383	n = 163	
CVC-related complications				
No complications (%)	86 (92.4)	2,193 (92.0)	153 (93.9)	0.74
Arterial puncture (%)	2 (2.2)	30 (1.3)	7 (4.3)	0.01
Catheter tip malposition (%)	2 (2.2)	58 (2.4)	0	0.09
Difficult feed of catheter (%)	1 (1.0)	17 (0.7)	2 (1.2)	0.34
Failed vascular access (%)	2 (2.2)	49 (2.1)	2 (1.2)	0.81
Hemothorax (%)	0	1 (0.04)	0	1.00
Midclavicle catheter tip termination (%)	0	2 (0.1)	0	1.00
Other complications (%)	0	24 (1.0)	0	1.00
Pneumothorax (%)	0	9 (0.4)	0	1.00
Diagnosed CRBSI (per 1,000 catheter days)	1 (0.1)	10 (0.03)	1 (0.8)	0.33
Median dwell in days (IQR)	10 (5–17)	16 (8–26)	9 (3–11)	< 0.001



*Pas de risque spécifique lorsque la pose de CVC est assurée par des paramédicaux.*



## Procedures Performed by Advanced Practice Providers Compared With Medical Residents in the ICU: A Prospective Observational Study

*Crit Care Explor.* 2020 Apr; 2(4): e0101

Herman G. Kreeftenberg, MD<sup>1</sup>; Jeroen T. Aarts, MSc<sup>1</sup>; Alexander J. G. H. Bindels, MD, PhD<sup>1</sup>; Nardo J. M. van der Meer, MD, PhD<sup>2,3</sup>; Peter H. J. van der Voort, MD, PhD<sup>3,4</sup>

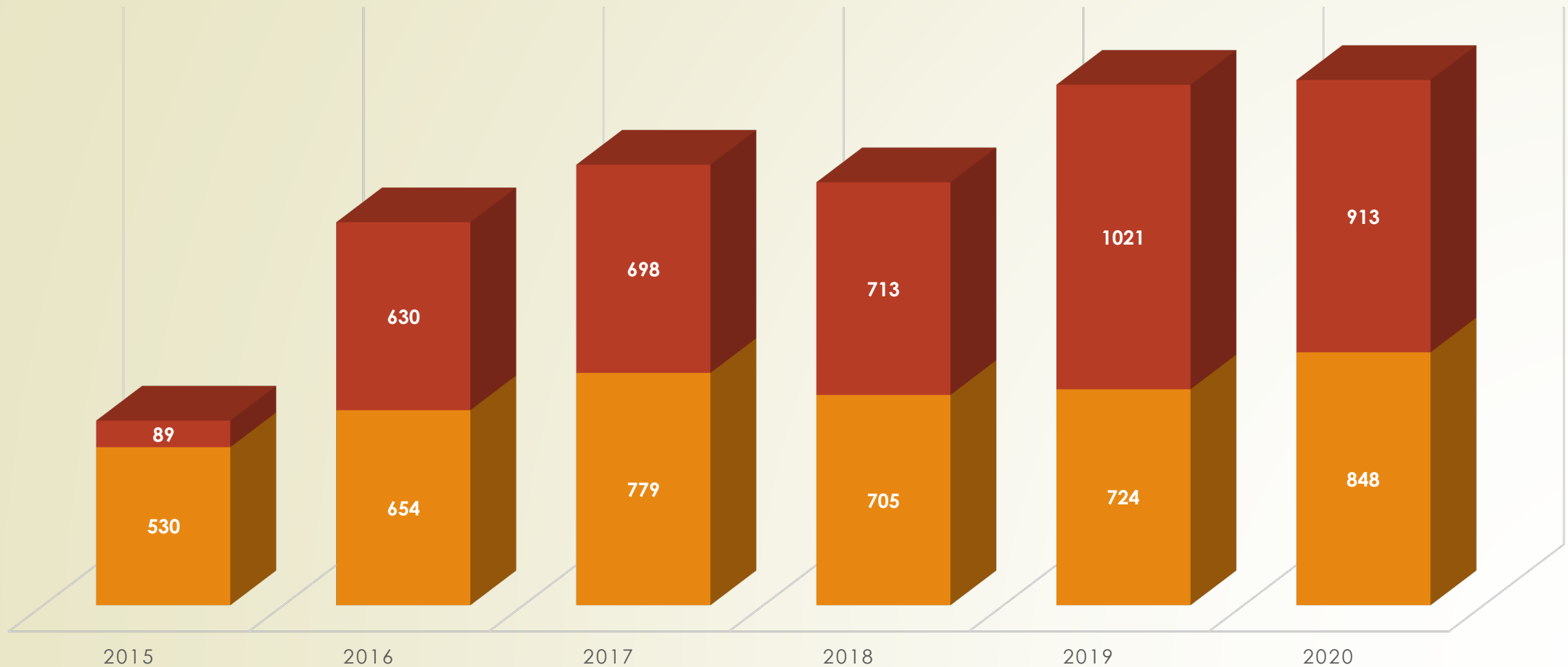
**TABLE 2. Baseline Characteristics of Patients and the Performance of Both Groups Regarding Insertion of Central Venous Catheters**

Central Venous Catheters	Advanced Practice Provider	Medical Resident	p
No. of catheters	247	177	
Femoral vein, n (%)	165 (67)	110 (62)	0.38
Subclavian vein, n (%)	30 (12)	15 (9)	0.30
Jugular vein, n (%)	52 (21)	52 (29)	0.06
Overall			
Ultrasound, n (%)	137 (56)	117 (66)	0.035
No. of attempts before success, median (IQR)	1.20 (1.0–1.71)	1.33 (1.0–1.86)	< 0.005
Success rate at first attempt, n (%)	200 (81)	123 (70)	< 0.005
Total complication rate, n (%)	15 (6)	12 (7)	1.0
Arterial punctures, n (%)	7 (3)	5 (3)	1.0
Major complication rate, n (%)	2 (1)	2 (1)	NA
Pneumothorax	1	1	NA
Bleeding	0	1	NA
Hematoma	0	3	NA
Arrhythmia + reanimation	0	1	NA
Catheter wrong route	1	0	NA
Other	2	2	NA

# Expérience Lyonnaise

## NOMBRE DE CCI IMPLANTÉES / IDE

■ CLB ■ HCL



# Indicateurs qualité

Total de 7685 patients:

- ▶ Taux de réussite du geste : 99,7 %
- ▶ Complications per-implantatoires: 0,67 %, soit 52 patients (hématome, ponction artérielle, PNO, difficultés de mise en place du cathéter, intoxication aux AL, échec de pose...).
- ▶ 1 cas d'hématome nécessitant une prise en charge chirurgicale (évolution favorable), 1 cas d'embolie gazeuse (réanimation + médecine hyperbare).
- ▶  $EVA \leq 3 = 95,9 \%$ .
- ▶ Appel du médecin délégué: 2,6 % en 2019/2020.
- ▶ Satisfaction globale des patients très bonne.



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# Ultrasound guidance versus anatomical landmarks for internal jugular vein catheterization (Review)

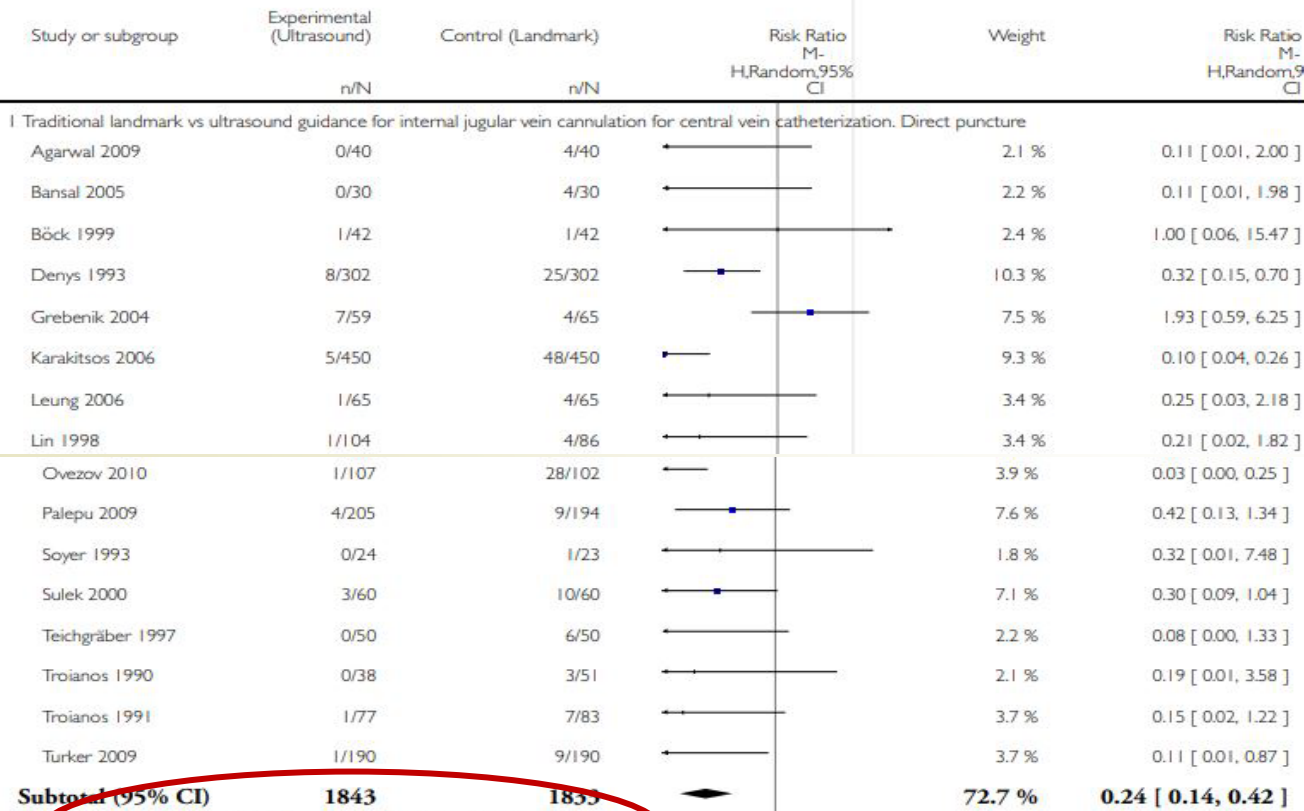
Brass P, Hellmich M, Kolodziej L, Schick G, Smith AF

## Analysis 1.4. Comparison 1 Ultrasound guidance vs anatomical landmarks for internal jugular vein cannulation for central vein catheterization, Outcome 4 Arterial puncture.

Review: Ultrasound guidance versus anatomical landmarks for internal jugular vein catheterization

Comparison: 1 Ultrasound guidance vs anatomical landmarks for internal jugular vein cannulation for central vein catheterization

Outcome: 4 Arterial puncture



Total events: 33 (Experimental (Ultrasound)), 167 (Control (Landmark))

Heterogeneity: Tau<sup>2</sup> = 0.42; Chi<sup>2</sup> = 24.61, df = 15 (P = 0.06); I<sup>2</sup> = 39%

Test for overall effect: Z = 5.01 (P < 0.00001)

➔ 1,79% Ponction artérielle avec échographie

➔ 9,11% Ponction artérielle sans échographie

➔ 0,12 % sur les UAV Lyonnaises





THE COCHRANE COLLABORATION®

# Ultrasound guidance versus anatomical landmarks for internal jugular vein catheterization (Review)

Brass P, Hellmich M, Kolodziej L, Schick G, Smith AF

## Analysis 1.8. Comparison 1 Ultrasound guidance vs anatomical landmarks for internal jugular vein cannulation for central vein catheterization, Outcome 8 Success with attempt number 1 .

Review: Ultrasound guidance versus anatomical landmarks for internal jugular vein catheterization

Comparison: 1 Ultrasound guidance vs anatomical landmarks for internal jugular vein cannulation for central vein catheterization

Outcome: 8 Success with attempt number 1

Study or subgroup	Experimental (Ultrasound)	Control (Landmark)	Risk Ratio M-H,Random,95% CI	Weight	Risk Ratio M-H,Random,95% CI
	n/N	n/N			
I Traditional landmark vs ultrasound guidance for internal jugular vein cannulation for central vein catheterization. Direct puncture					
Agarwal 2009	35/40	27/40		6.6 %	1.30 [ 1.01, 1.66 ]
Bansal 2005	26/30	17/30		5.6 %	1.53 [ 1.09, 2.16 ]
Böck 1999	35/42	23/42		6.0 %	1.52 [ 1.12, 2.07 ]
Denys 1993	248/302	116/302		7.5 %	2.14 [ 1.84, 2.49 ]
Johnson 1994	22/33	6/37		2.5 %	4.11 [ 1.90, 8.89 ]
Leung 2006	50/61	36/51		6.9 %	1.16 [ 0.94, 1.44 ]
Lin 1998	84/104	30/86		6.0 %	2.32 [ 1.71, 3.14 ]
Mallory 1990	7/12	7/17		2.6 %	1.42 [ 0.67, 2.98 ]
Ovezov 2010	88/107	40/102		6.5 %	2.10 [ 1.62, 2.71 ]
Palepu 2009	173/205	141/194		7.8 %	1.16 [ 1.05, 1.29 ]
Scherhag 1989	14/19	11/20		4.3 %	1.34 [ 0.83, 2.16 ]
Teichgräber 1997	48/50	28/50		6.5 %	1.71 [ 1.33, 2.21 ]
Troianos 1990	29/38	30/51		6.1 %	1.30 [ 0.97, 1.73 ]
Troianos 1991	56/77	45/83		6.6 %	1.34 [ 1.05, 1.71 ]
<b>Subtotal (95% CI)</b>	<b>1120</b>	<b>1105</b>		<b>81.5 %</b>	<b>1.58 [ 1.33, 1.88 ]</b>

Total events: 915 (Experimental (Ultrasound)), 557 (Control (Landmark))

Heterogeneity: Tau<sup>2</sup> = 0.08; Chi<sup>2</sup> = 84.48, df = 13 (P<0.00001); I<sup>2</sup> = 85%

Test for overall effect: Z = 5.16 (P < 0.00001)

➔ 80,97% ponction unique avec échographie

➔ 50,40% ponction unique sans échographe

➔ 92% ponction unique en 2020 sur les UAV lyonnaises.

# NICE National Institute for Health and Care Excellence

Guidance on the use of ultrasound locating devices for placing central venous catheters

## International evidence-based recommendations on ultrasound-guided vascular access

Intensive Care Med (2012) 38:1105–1117  
DOI 10.1007/s00134-012-2597-x

**EJA**  
**GUIDELINES**  
Eur J Anaesthesiol 2020; 37:344–376  
European Society of Anaesthesiology guidelines on peri-operative use of ultrasound-guided for vascular access (PERSEUS vascular access)  
European Society of Anaesthesiology and Intensive Care  
ESIC



**Practice Guidelines for Central Venous Access 2020**  
An Updated Report by the American Society of Anesthesiologists Task Force on Central Venous Access  
American Society of Anesthesiologists

> Anaesth Crit Care Pain Med. 2015 Feb;34(1):65-9. doi: 10.1016/j.accpm.2015.01.004. Epub 2015 Mar 5.

## Guidelines on the use of ultrasound guidance for vascular access



Review > Ann Intensive Care. 2020 Sep 7;10(1):118. doi: 10.1186/s13613-020-00713-4.

Expert consensus-based clinical practice guidelines management of intravascular catheters in the intensive care unit



## Rapid Central Vein Assessment:

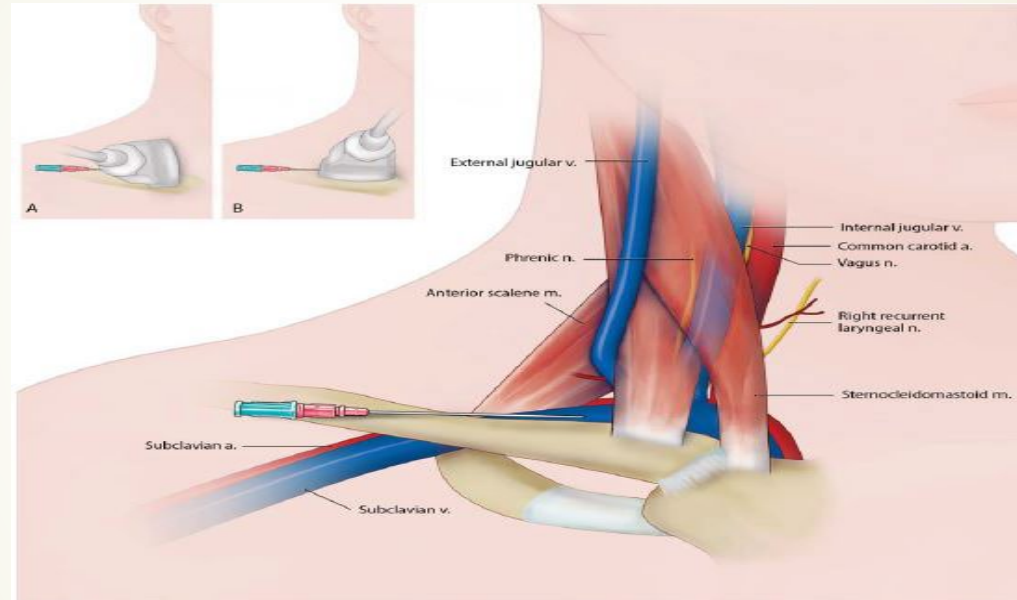
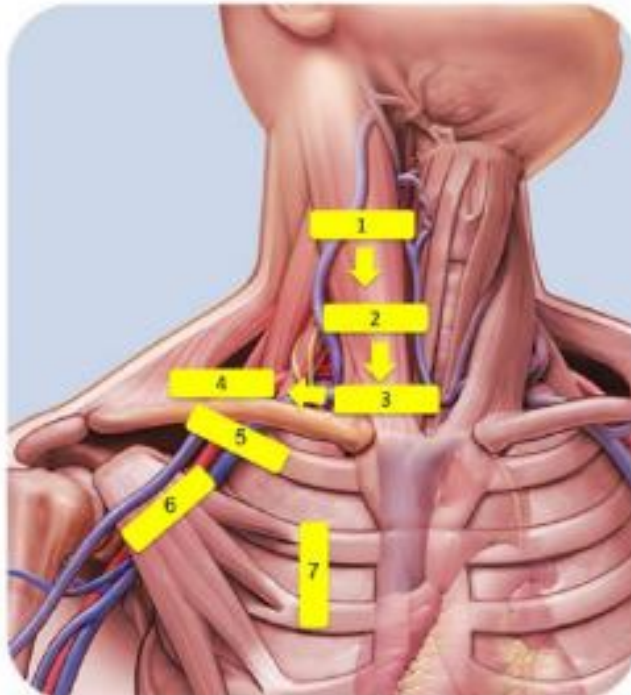
- It takes only 20–30s for each side
- It is easy to teach, easy to learn
- It is a useful guide for a rational choice of the central vein to be accessed, in terms of:
  - Patient's safety
  - Cost-effectiveness
  - Improved performance of central venous catheterization

Parameter	Overall (N = 994)	Internal Jugular Vein (N = 709)	Brachiocephalic Vein (N = 285)
Success at first attempt	868 (87)	611 (85)	257 (90)
Any procedural difficulty	67 (6.7)	57 (8)	10 (3.5)
Insertion failure	34 (3.4)	24 (3.4)	10 (3.5)
Any complication	57 (5.7)	45 (6.3)	12 (4.1)
Major complications	44 (4.4)	33 (4.6)	11 (3.8)
Pneumothorax	9 (0.9)	8 (1.1)	1 (0.3)
Hemothorax	18 (1.8)	14 (2.0)	4 (1.4)
Arterial puncture	17 (1.7)	11 (1.5)	6 (2.1)
Minor complications	14 (1.4)	13 (1.8)	1 (0.3)

Data are n (%).

## The Brachiocephalic Vein as a Safe and Viable Alternative to Internal Jugular Vein for Central Venous Cannulation

April 2018 · *Anesthesia and Analgesia* 127(1):1



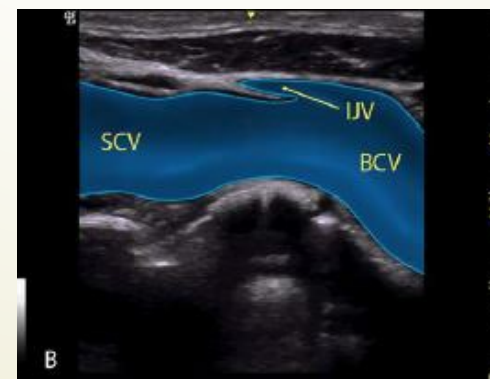
Review

## Rapid Central Vein Assessment (RaCeVA): A systematic, standardized approach for ultrasound assessment before central venous catheterization

Timothy R Spencer<sup>1</sup> and Mauro Pittiruti<sup>2</sup>

JVA | The Journal of  
Vascular Access

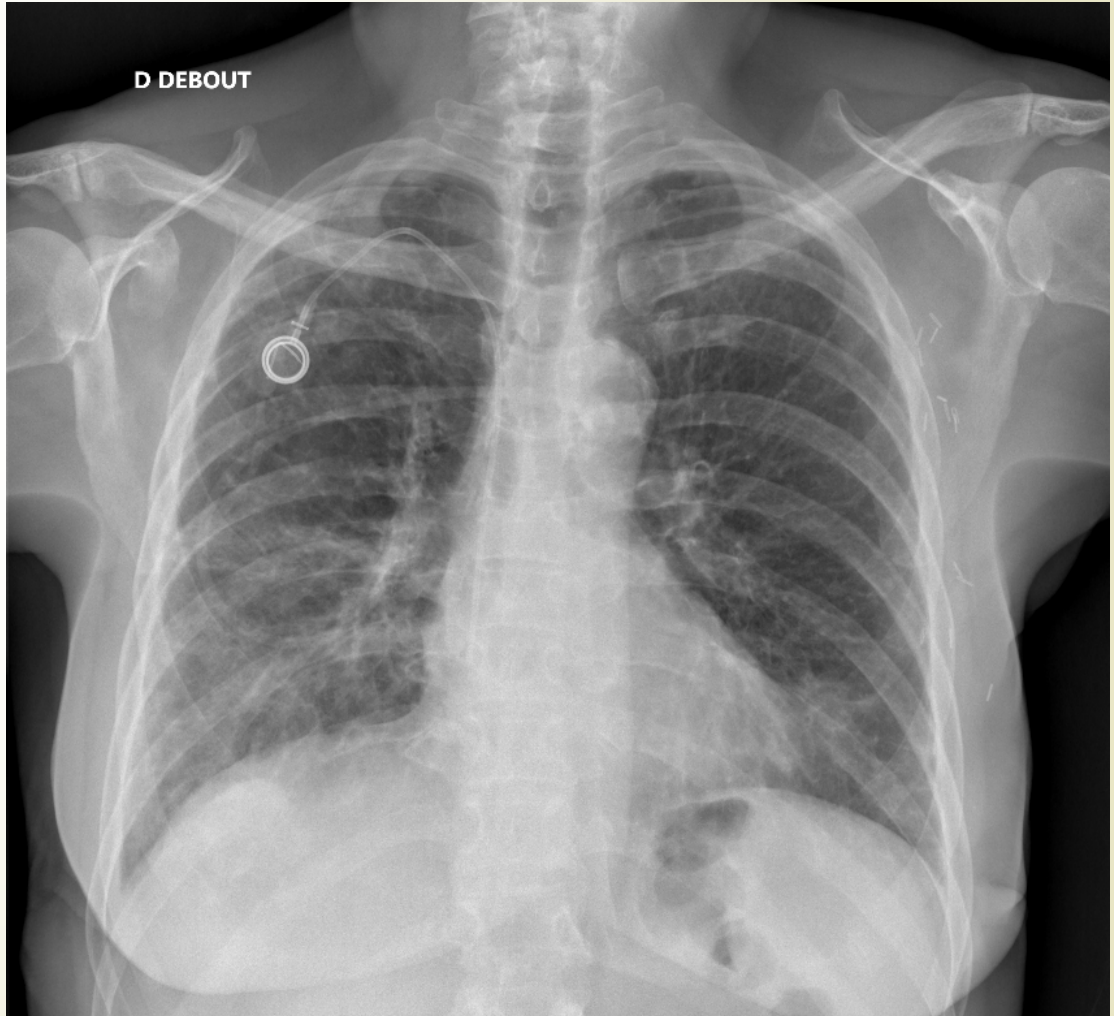
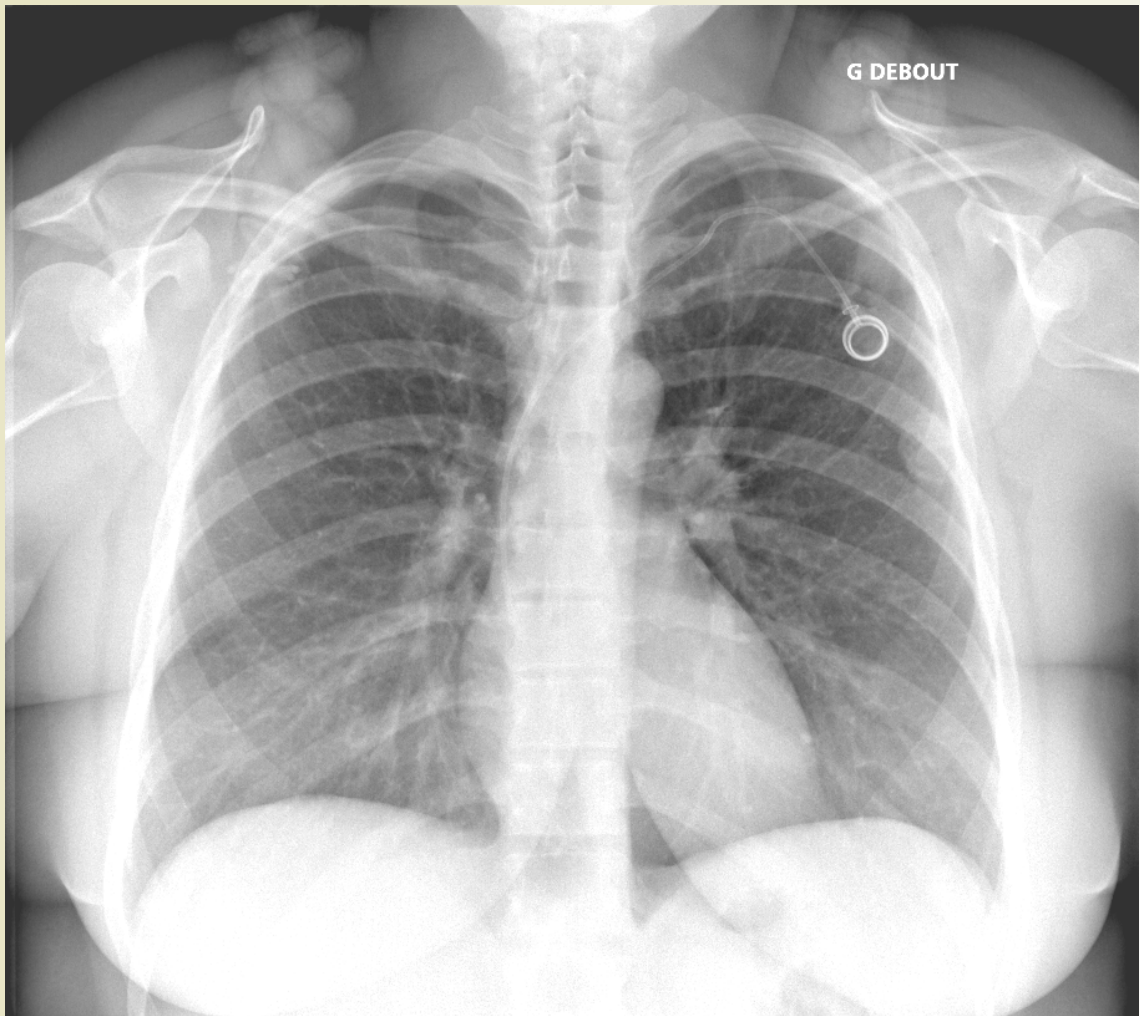
The Journal of Vascular Access  
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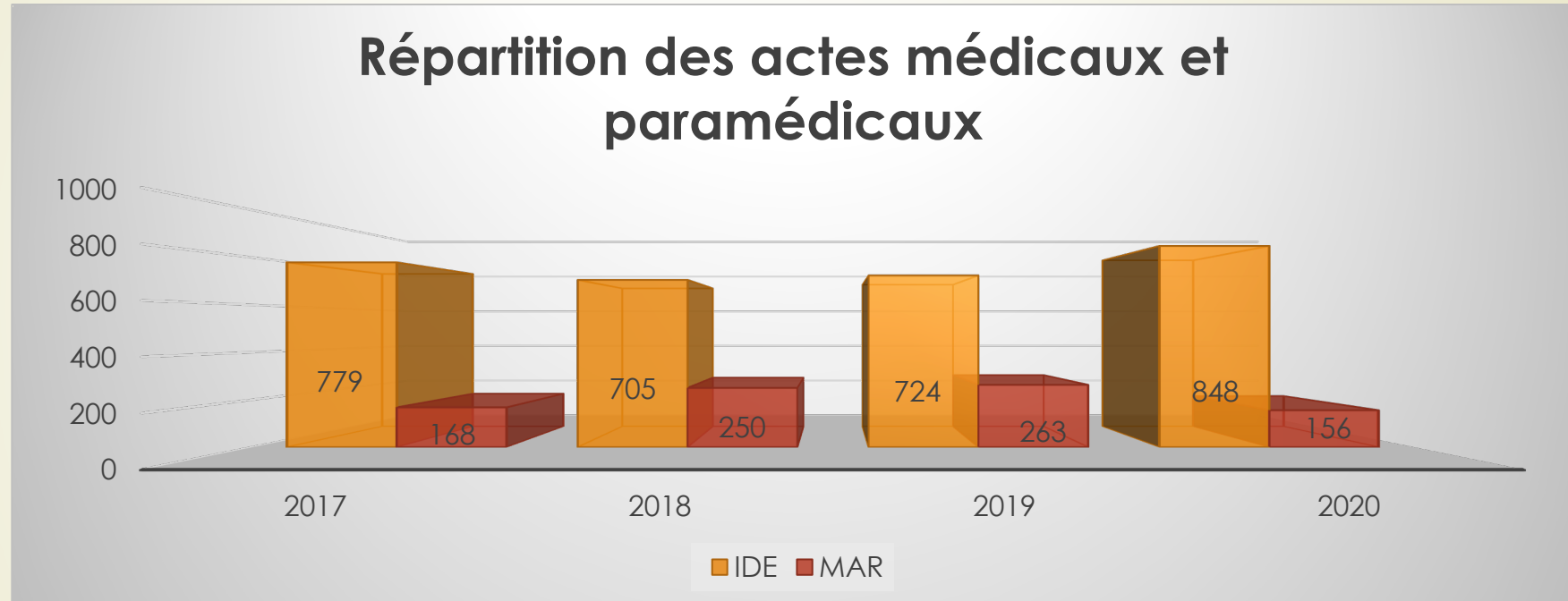
## Ultrasound-Guided Central Venous Catheterization: A Review of the Relevant Anatomy, Technique, Complications, and Anatomical Variations

TARYN HOFFMAN,<sup>1</sup> MAIRA DU PLESSIS,<sup>1</sup> MATTHEW P. PREKUPEC,<sup>2</sup> JERZY GIELECKI,<sup>3</sup>  
ANNA ZURADA,<sup>4</sup> R. SHANE TUBBS,<sup>2</sup> AND MARIOS LOUKAS<sup>1,4</sup>\*

Clinical Anatomy 30:237–250 (2017)



# Mais que font les médecins ??



*D'après rapport d'activité UAV CLB*

- Maintien des compétences pratiques par le maintien d'une activité.
- Rôle de coordonnateur primordial.

A la question: peut-on déléguer la pose de CCI à des infirmiers ?



Assurément, mais pas n'importe comment !!

Mais par ce que selon le sage Salomon/ Sapience nêtre  
point en ame malivoale/à science sans conscience nesi que  
ruyne de lame. Il te cōvient seruit/ayer/à cratndre dieu



1. Formation robuste et rigoureuse
2. Unité dédiée, gestion centralisée de l'accès vasculaire.
3. Volume de patients suffisant (au moins 100 - 150 CCI / IDE / an ?).
4. Gestion possible des complications immédiates dans l'établissement.
5. Respect du cadre de la délégation de l'établissement.
6. Connaissance de ses propres limites.



Sécurité du patient et du délégué.



# Pertinence actuelle du protocole de délégation

- ▶ Exclusivité de la veine jugulaire interne ?
- ▶ Validation systématique de la demande par le médecin délégant ?
- ▶ Homogénéité dans la formation ?
- ▶ Evolution de la délégation vers une pratique reconnue ?





# Et pour conclure...

- ▶ Pas de risque spécifique à la délégation...
- ▶ ... sous réserve d'un cadre strict.
- ▶ Doit s'inscrire dans un cadre de professionnalisation de l'accès vasculaire.
- ▶ Concentrer la compétence (plutôt que la diluer).
- ▶ Formation + gros volume de procédures = expertise opérationnelle.
- ▶ Prise en charge sécuritaire **et soignante** de nos patients.



*That's all Folks!*