

PICC teams in Finland?

Helsingfors november 2015

I'm here to sell something. But it is not...



PICCs, Midlines or other VA gadgets.....

BioFlo PICC
with Endovix and PASV Valve Technology



I'm here to sell 2 things

The concept of vascular access

AND

The concept of a nurse driven PICC/vascular access service

Vascular access now and in the future

- Healthcare (HCS) system today = i'ts all about the money
- Patient flow is important. Like a conveyor belt
- One of the "flow stopper" is vascular access!!!

BUT, if this doesn't work.....



this can lead to.....

- Multiple needle sticks
- Late or missed infusate
- Late or missed treatments (ct scan, surgery)
- Infiltrations/extravasations
- Complications (infections/thrombosis)
- Increased length of stay (LOS)
- Difficult VA in the future



= increased cost!!

So, how about the future in health care...

In US. Americans > 65 y will increase by 36% in 2020.

Patients > 65 y have the greatest medical need, including VA

Increased need of doctors, nurses and other staff in the future

The increase in health care personell will probably NOT keep up with the increased population.

In US by 2020 there will be a shortage of 46.000 physicians and other medical specialties
Expanding the Role of a Vascular Access Team: Incorporating CVCs and Arterial Lines into Your Service Offerings. Teleflex/Arrow

In Sweden there is already a shortage of physicians, nurses and advanced nurse specialists.

Within 10-20 years patients > 65 will increase from 17%-25 %

2030 – Shortage of 30 000 nurses and 100 000 healthcare personell (nurses, Dr., assistant nurses)

Shortage of nurse specialists within 10 years = 11 000,
20 years = 14 800

Statistics Sweden - <http://www.scb.se/en/>

When, why and how we started up

Main reason - All patients with brain aneurysm (SAH).

LOS = 10-14 days.

Nimotop (alcohol based) infusion for 10 days. Need for a central line!!

Occasionally the liquor system fail and a ventricular shunt is needed.

A shunt and a central line (CICC) is not a good combination

We started up in 2011

BARD provided education for 2 days

Strictly nurse driven PICC unit (no DRs involved).

Today we have one ;)

We started to place PICCs. 33 PICCs in 2011

We did our homework and did our home work.

OUR VA problem at the Neurosurgical ward

Difficult vascular access (DIVA) – often multiple sticks

Lack of veins for power injection (contrast)

Pain, phlebitis, extravasations, infections (PIVs)

Late or missed infusate delivery

Occlusions in most VADs

The VA is accidentally pulled out.

Unhappy patient, Nurse and Dr.



And we thought..... - this is probably a problem on all wards at the hospital. We looked in to it and IT WAS

- In 2012 we planned to expand our PICC-service to the hospital – all wards
- Since 2013 we officially
Midlines, PICCs



How to succeed – “our recipe”

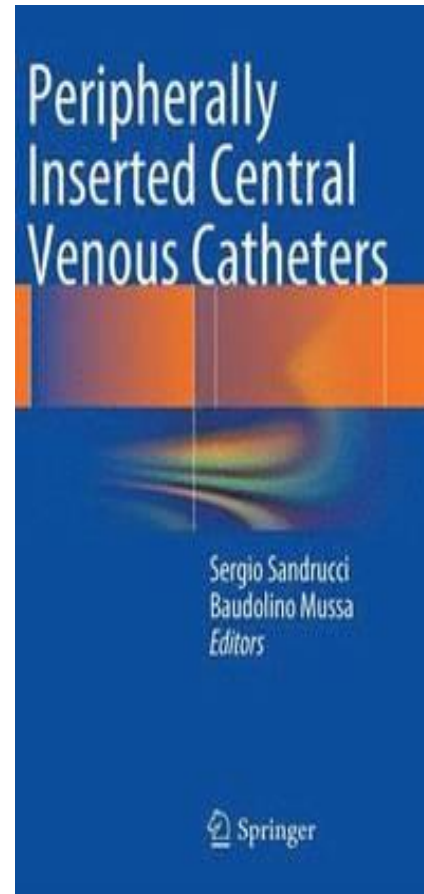
- You have to decide - Do I want to do this? IT IS A LOT OF WORK!
- Team approach – Nurses, nurse assistants, Drs, Radiologists, IR - DRs, infection dept, THE PATIENT, the medical industry (BARD)
- Holistic approach (do not focus on insertions only).
- Be the advocate for the patient – holistic proactive approach!
- Dedicated doctor who is responsible
- Have a good relationship with management and other key persons at the hospital
- Opportunity to insert catheters
- Develop standardized LOCAL routines and policies – insertion, caring for the line and complications (Do not copy. Develop your own “guidelines, standards!”)
- **“Right line, Right patient, Right time”** – consultations about the right indication. (PICC is not always the best choice)

Modern vascular access service today

- Nurses-dominated vascular access procedures have been evolved since the 1970s
- First PICC (long line) inserted mid 1970s
- Many names - IV team, PICC team, Infusion team.

Today - 2015

- Team approach – Collaboration of VA experts, Nurses, nurse assistants, Drs, Radiologists, IR - DRs, Infection dept, THE PATIENT, the medical industry (BARD)
- Dedicated centralized proactive vascular access (VA) team approach - often nurse driven



Peripherally
Inserted
Central Venous
Catheters

Sergio Sandrucci,
Baudolino Mussa
Editors

Modern VA teams today – it's all about...

- Vascular access assessment tool.
- The concept of "RIGHT VAD to the RIGHT patient at the RIGHT time"
- Educational programs for all clinicians
- Placement of VADs (all types)
 - PIVs, USG PIVs, Midlines, PICCs, CICC, Tunneled CICC and Ports, ART-lines
- ALL PICCs should be inserted with ultrasound
"NO more blind sticks" (J Le Donne)
- ALL difficult VA (DIVAs) should be inserted with ultrasound (N, Moureau)
- Provide troubleshooting and training to clinical staff



- Collect DATA, analyze the DATA and report the DATA (outcome, patient satisfaction)
- Investigate complications related to vascular access
- Develop policies and procedures/standards
- Implement strategies to prevent infections from VADs (CLABSI/CRBSI)
- Implement strategies to prevent thrombosis (central and UEDVTs)

•Hadaway L, Dalton L, Mercanti-Erieg L. Infusion teams in acute care hospitals: call for a business approach: an infusion nurses society white paper.

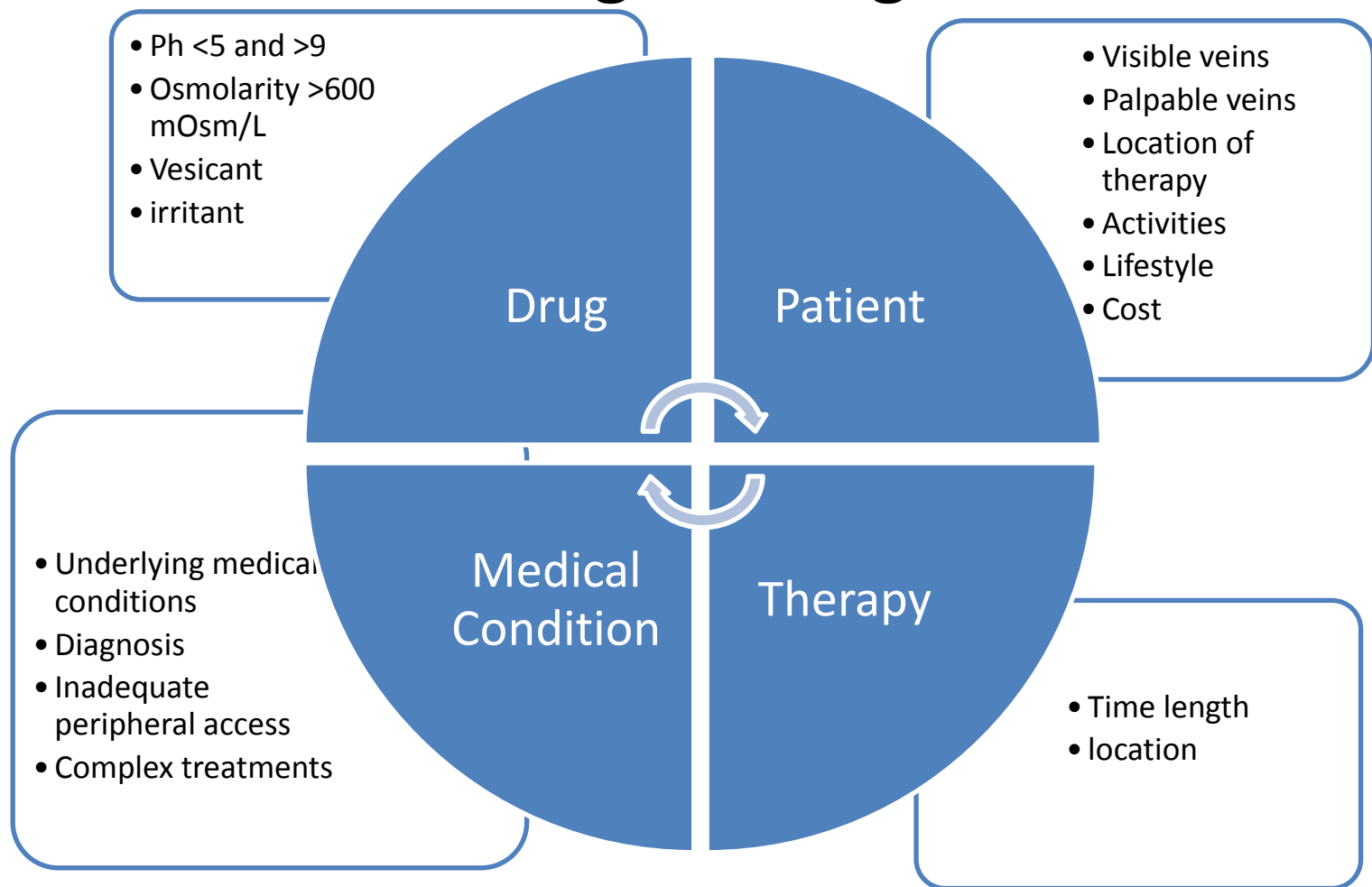
•Expanding the Role of a Vascular Access Team: Incorporating CVCs and Arterial Lines into Your Service Offerings. Teleflex/Arrow

•Carr PJ, Higgins NS, Cooke ML, Mihala G, Rickard CM. Vascular access specialist teams for device insertion and prevention of failure (Protocol). Cochrane Database of Systematic Reviews 2014,

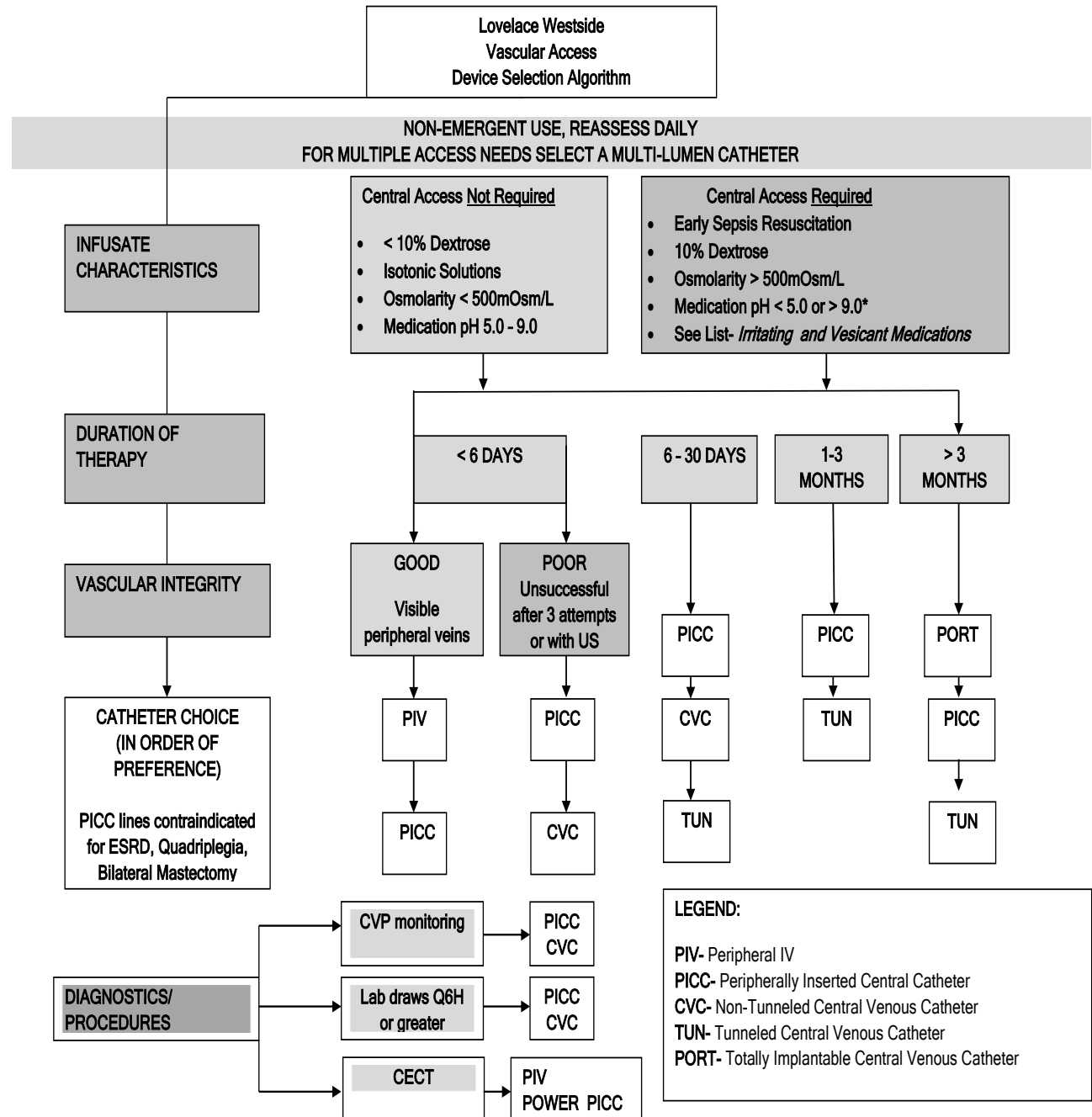
•Sergio Sandrucci, Baudolino Mussa. Peripherally Inserted Central Venous Catheters

Assessment: “RIGHT VA device for the RIGHT patient at the RIGHT time”

Putting it all together



Indications-vascular access assessment tool



LEGEND:

PIV- Peripheral IV

PICC- Peripherally Inserted Central Catheter

CVC- Non-Tunneled Central Venous Catheter

TUN- Tunneled Central Venous Catheter

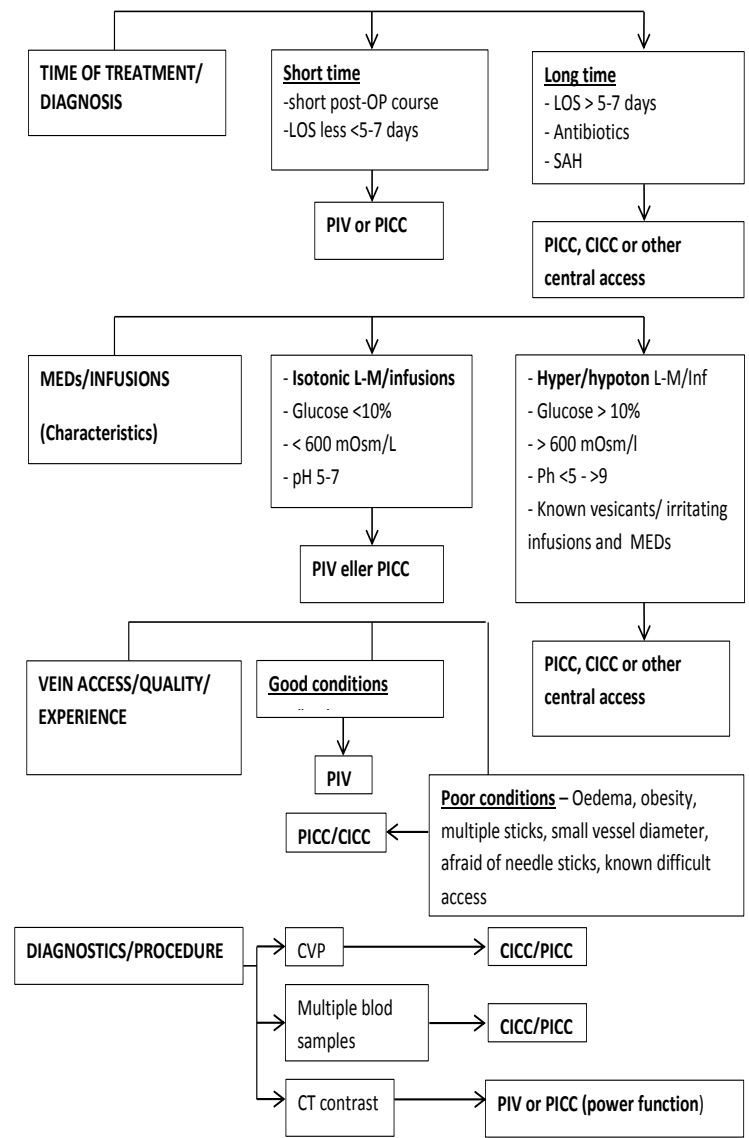
PORT- Totally Implantable Central Venous Catheter

VA assessment tool PICC team NUS

Chopra V. **2015**. The Michigan Appropriateness Guide for Intravenous Catheters(MAGIC): Results From a Multispecialty Panel Using the RAND/UCLA Appropriateness Method

NIVA/dept. of Neurology– VA device selection – Holistic approach

Make an overall assessment before selecting venous access: Patient diagnosis? Which therapy is planned? How long is treatment time? What is the patient's vascular status at admission? What tests / procedures will be / may be done during the hospital stay?



The typical patient (general ward)

- Male/female. 60-80y old. Been admitted earlier (at least 3-5 times)
- Medical history. Cardio/pulmonary, diabetic, osteoarthritis, poor nutritional status, previous antibiotic treatment. Some kind of infection.
- Diagnosis: cardio/pulmonary, som kind of infection. orthopedics
- At admission a PIV is inserted STAT and treatment is started
 - TPN, Glucos 5-10%
 - Antibiotics
 - Other vesicant drugs
 - Multiple blood draws (at least 1/day)

- Hospital stay is often > 10-30 days
- After a couple of days there usually is a problem with vascular access.
 - Multiple needlesticks (blood draws and new PIVs)
 - Phlebitis
 - Extravasations/Infiltrations
 - Pain
 - 5-10 days of multiple needlesticks (20-50 punctures) (PIVs, blood draws)
 - Patient = frustrated, angry, depressed, NO trust in health care personell
 - Late or missed infusions. The patient is not optimally treated.

This is often the result....



The typical neurosurgical patient today

Male or female, 20-70 y

Diagnosis: Cerebral aneurysm, post OP infections, post OP liquor leakage, Head trauma (treatment for 7-14 days)

Our routine

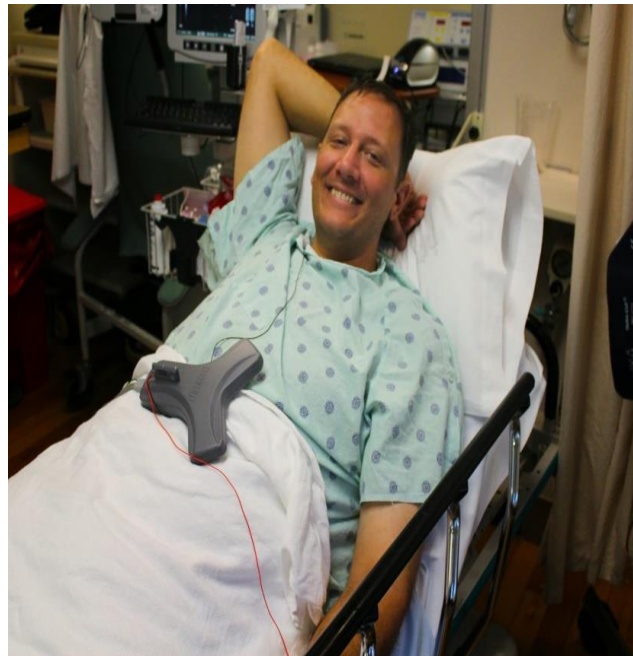
Charge nurse call PICC team for a consult as soon there is a problem or if the indication for a PICC or Midline is correct

Discussion between charge nurse and physician in charge and the PICC team

A vascular access assessment tool is used

The right VA device is usually inserted within 24-48 h

We want happy patients!



So, why a nurse led service? (PROS)

- Lower cost
- Dedicated inserter
- Nurses can become specialized (vascular access expert) and dedicated to the role. Most DOCs would be able to place VA as an additional part of thier existing job (they dont have time)
- Nurses can take ownership of the role ensuring that all relevant policies and procedures are up to date
- Better communication regarding the appropriate device / patient

- Timely placement and no delays in therapy or discharge
- Competency and placement success
- Ownership of line (patient and PICCs nurse owns the line)
- In-house resource and education
- Monitor and improve outcomes
- Nursing empowerment (nurse are eligible to decide)

Kokotis. 2004. Picc line insertions- cost effectiveness. JAVA

Haws. 2007. A proactive approach to combating venous depletion

Hamilton. 2004. Advantages of a nurse-led central vascular access service

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^{1,2,3,4,5,6}; Timothy R. Spencer, RN BHealth^{2,3,4}; Steven A. Frost, RN, MPH^{1,2,4,7,8}; Nicholas Mifflin, RN BNursing^{3,4}; Patricia M. Davidson, RN, PhD⁵; Ken M. Hillman, MD^{4,7,8}

Establishing a Nurse-Led Central Venous Catheter Insertion Service

Evan Alexandrou, RN, BHealth, MPH, ICU Cert. *Tim Spencer*, RN, BHealth, ICU Cert, *Steven A. Frost*, RN, MPH, ICU Cert, *Dr. Michael Parr*, FRCP, FRCA, FANZCA, FJFICM, *Professor Patricia M. Davidson*, RN BA MEd PhD, *Professor Ken M. Hillman*, MBBS, MD, FRCA, FANZCA, FJFICM

A Nurse-led Central Venous Vascular Access Service in the United Kingdom

[Helen C. Hamilton](#), RGN, DM5, BSc[Hons], FRCN  

[EDTNA ERCA J.](#) 2003 Oct-Dec;29(4):203-5.

A nurse led central line insertion service.

[Casey J](#)¹, [Davies J](#).

[Health Technol Assess.](#) 2003;7(36):iii, ix-x, 1-99.

A randomised controlled trial to evaluate the clinical and cost-effectiveness of Hickman line insertions in adult cancer patients by nurses.

[Boland A](#)¹, [Haycox A](#), [Bagust A](#), [Fitzsimmons L](#).

[J R Coll Physicians Lond.](#) 1997 Sep-Oct;31(5):533-5.

Central venous catheter placement: extending the role of the nurse.

Any CONS?

NOT really!!

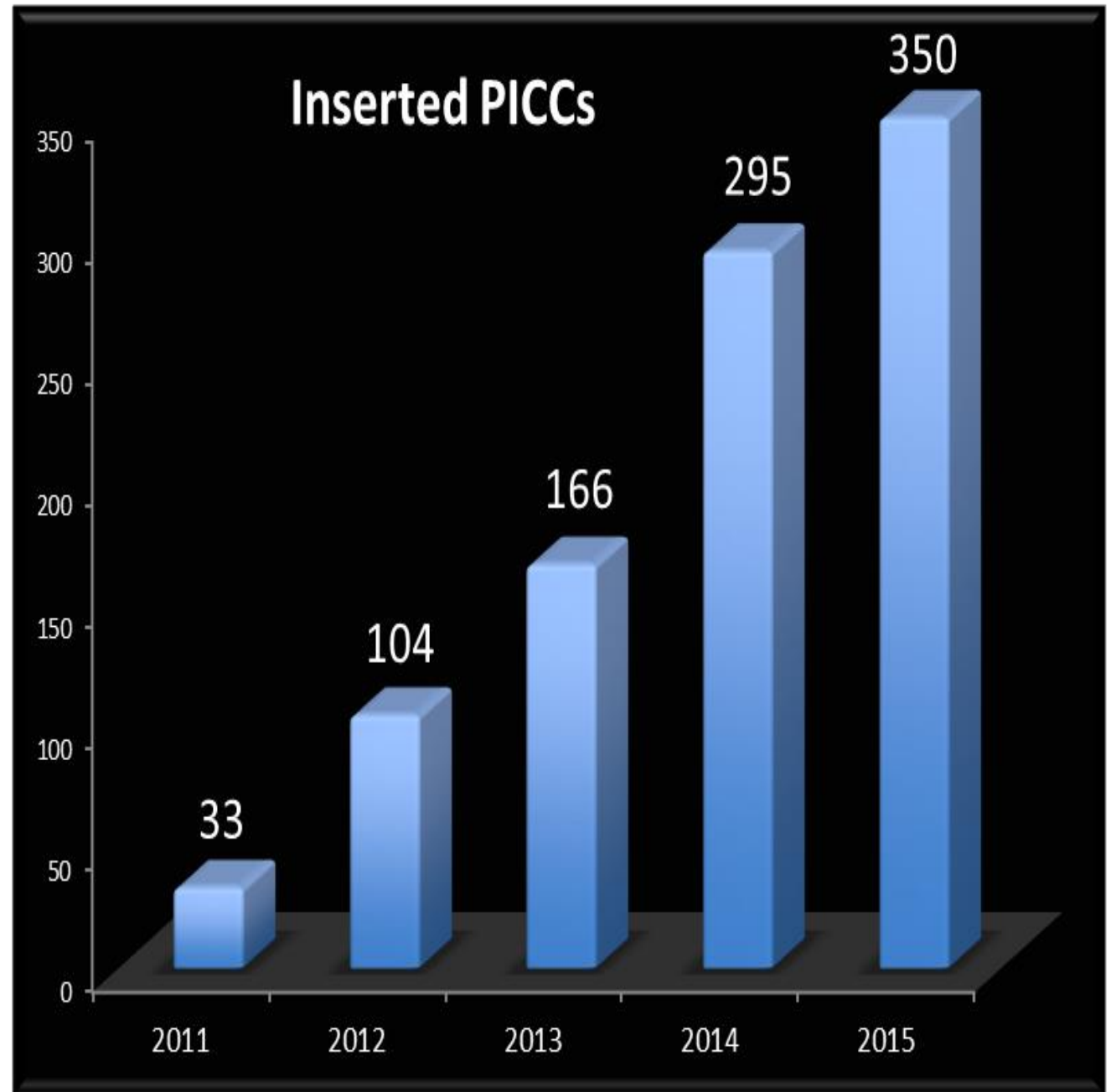
Extra cost for a specialized team

Learning curve



Our
progress

2011-
2015



Complications – PICC team NUS

948 PICCs inserted 2011-2015.

Drop out rate 18% (N 174) 29% still in use (N 50)

Out of 774 catheters (collected data) and 16360 catheter days

- **10 cases of infection.** (6 CLABSI/CRBSI. 4 insertion site infection)
1,3 % or 0,6 cases/1000 catheterdays
- 6 cases of **symtomatic thrombosis** that required treatment =
0,8%

NO serious insertion related complications - 2-3 cases of "needle in the nerve"

NO case of cardiac tamponade (not seen in 20-25 y in adults)

No1 problem = occlusions and withdrawl occlusion syndrome (WOS)

No 2 problem = external part of PICC is moving in or out

Conclusion – My opinion

- Vascular access in the future is important! – we have to prepare!
- Vascular access experts will be important in the future – we need them!
- Dedicated PICC nurses becomes vascular access experts – use them!
- A nurse-led VA/PICC team is patient safe and cost effective!
- PICC is a good choice of catheter with few complications IF you follow “best practice” 2015 and the latest evidence
- Ultrasound is a must in “DIVAs” – “NO more blind sticks”
- “RIGHT VA device for the RIGHT patient at the RIGHT time”

Thank you for your attention



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Key persons in the "vascular access society"

Nancy Moureau

Mauro Pittiruti

Lynn Hadaway

Andrew Johnson

Kathy Kokotis

Jack LeDonne

Timothy Spencer

Other.....