

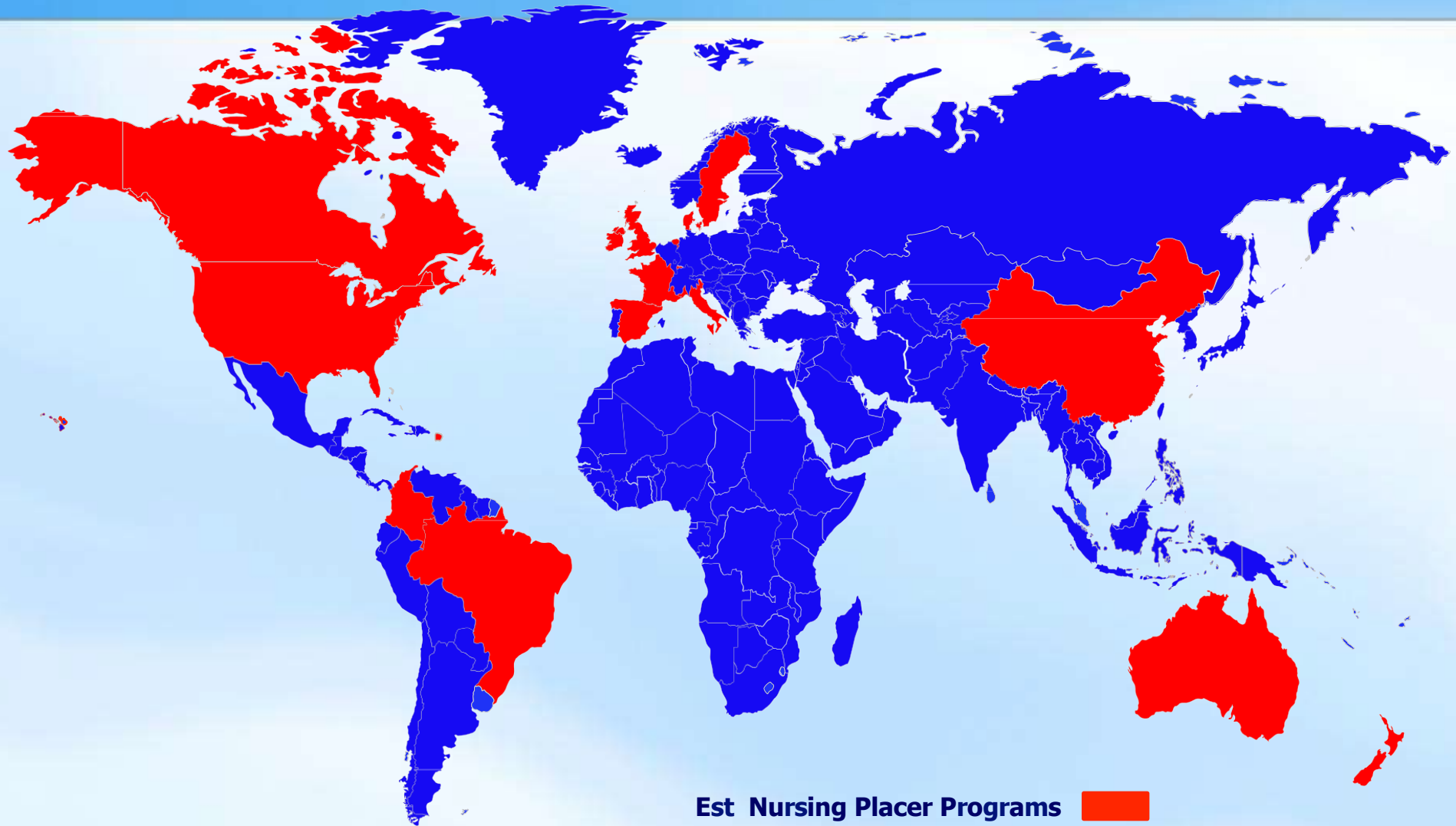


PICC Placement Around the World

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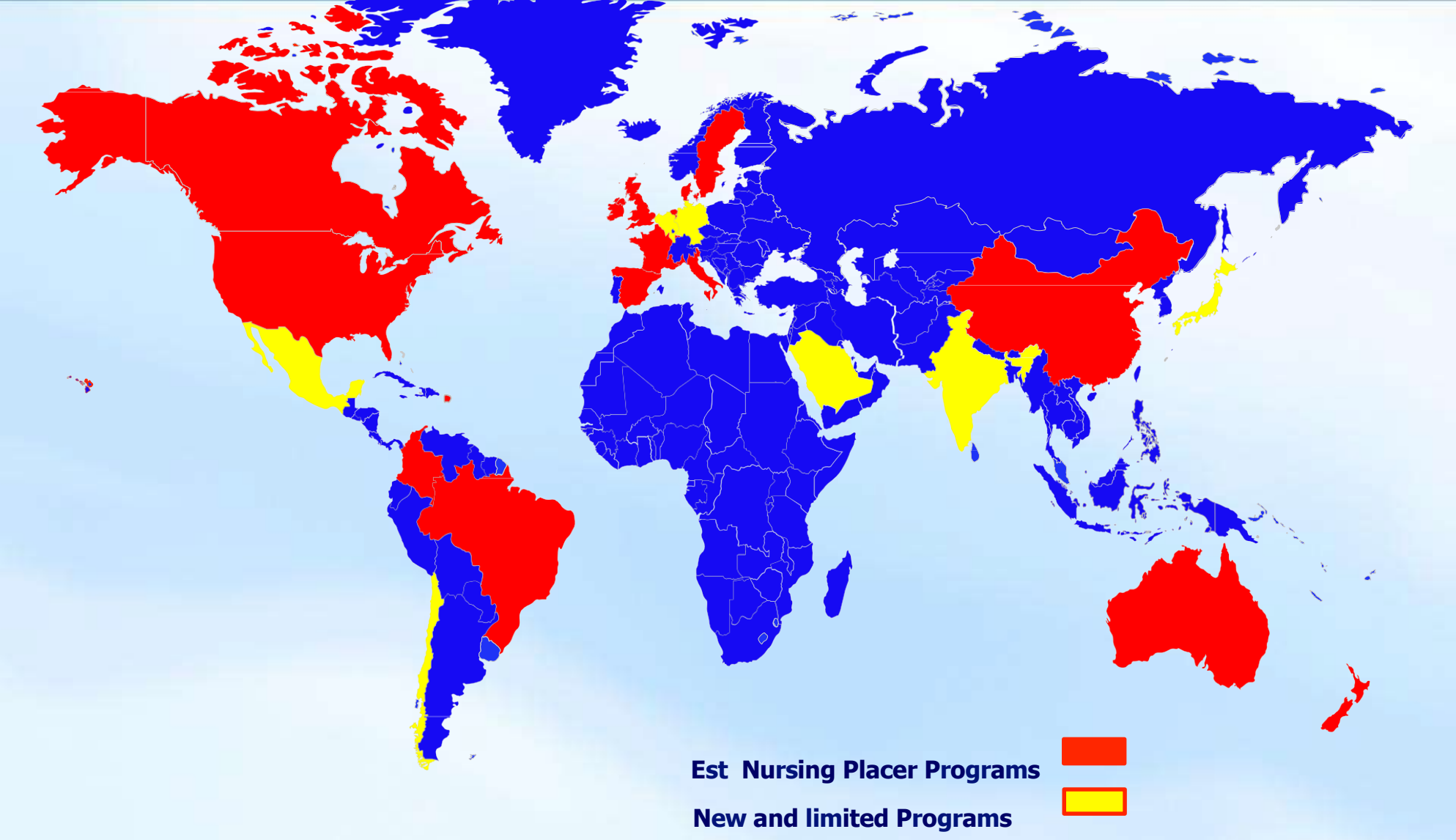


Locations Where Nurses Have Been Observed Placing PICCS



Est Nursing Placer Programs 

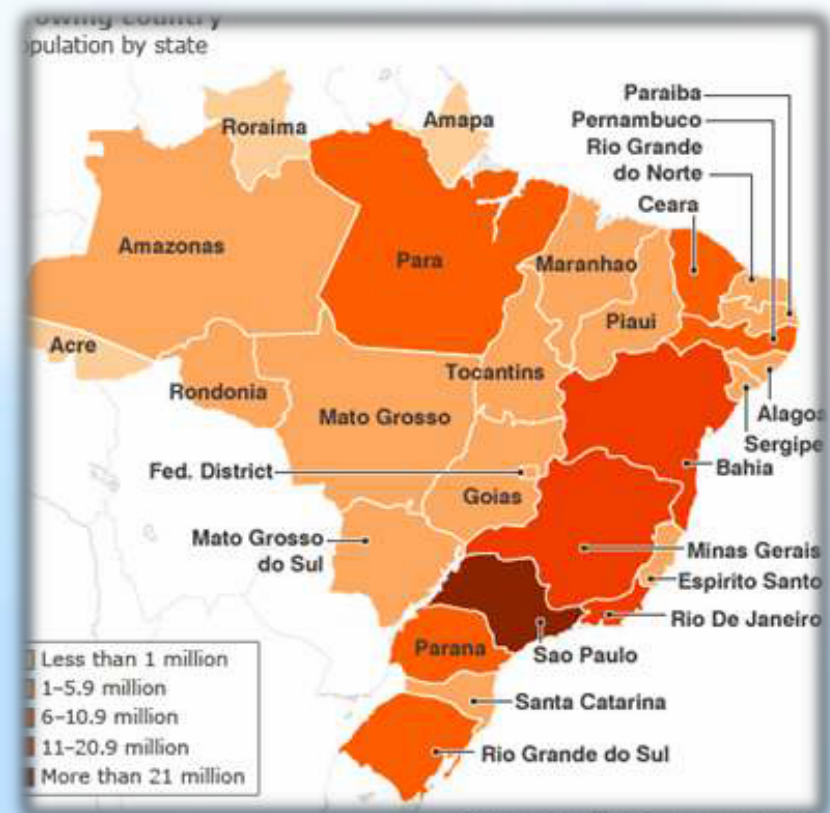
Locations Where Nurses Have Been Observed Placing PICCS



New and limited Programs

Brazil

- **Population 199 M¹ (2012)**
- **Universal Unified² Healthcare system - SUS (1988) is a public system available to all citizens**
 - 6,706 hospitals, 480,332 beds (2014)
 - Ratio of doctors per 1000 patients (2011)
 - 1.95 MD's in the public system
 - 7.6 MD's in the private
 - Healthcare expenditure 4.7% GDP³ (2013)



¹ The World Data Bank; World Development Indicators, Population 2012

² Data collected by Bard Access Systems during Brazil internal review 2014. Bard Access Systems internal data only.

³ The World Data Bank; Healthcare expenditure, public (% GDP) 2013

Brazil

- PICCs are placed in Brazil by:
 - Nurses
 - Vascular surgeons
 - Intensivists
 - Interventional Radiologists
- PICCs are placed in Brazil for:
 - Antibiotics
 - Nutrition
 - Oncology
 - ICU



Data collected by Bard Access Systems during Brazil internal review 2014. Bard Access Systems internal data only

Brazil

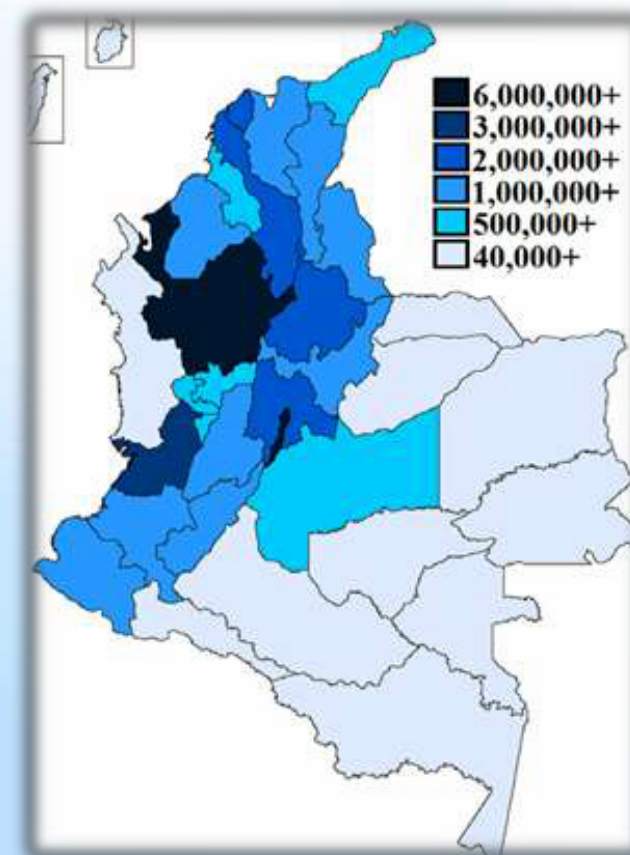
- Clinical Practice¹
 - It is within the scope of practice for nurses to place PICCs
 - Ultrasound
 - MST
 - At one hospital, nurses can request a PICC using a decision algorithm
 - Few dedicated VAD teams



¹ Data collected by Bard Access Systems during Brazil internal review 2014. Bard Access Systems internal data only

Colombia

- **Population 48M¹ (2012)**
 - 96% have access to healthcare² (2014)
 - 95% of the population lives in half of the country ² (2014)
- **Colombia Hospital beds: 1.1 per 1,000 people**
- **Physicians: 1.35 per 1,000 people**
- **Life expectancy : 72.81 years**
- **Healthcare expenditure 5.2% GDP³ (2013)**



¹ The World Data Bank; World Development Indicators, Population 2012

² Data collected by Bard Access Systems during Colombia internal review 2014. Bard Access Systems internal data only

³ The World Data Bank; Healthcare expenditure, public (% GDP) 2013

Colombia

- Clinical Practice¹
 - PICCs are available in Colombia--mixed perception
 - Mostly lower arm placement
 - Limited use of Ultrasound or MST
- Radiologists place using
 - US
 - Fluoroscopy
 - MST



¹ Data collected by Bard Access Systems during Colombia internal review 2014. Bard Access Systems internal data only.

Japan

- Population 128MM¹ (2012)
 - Everyone is required to be insured ² (2014)
 - Employer-based plans cover approx 60% of the population
 - 40% covered through government plans
 - Patient co-pay req'd for 30% of healthcare cost
- 2nd largest healthcare economy in the world
 - 2,600 hospitals with 200+ beds
 - Shortage of both doctors and nurses
- Gov't promoting:
 - Use of high tech medical devices
 - Changing payment structures
 - Attempting to reduce length of stay
 - Healthcare expenditure 8.5% GDP³ (2013)



¹ The World Data Bank; World Development Indicators, Population 2012

² Data collected by Bard Access Systems during Japan internal review 2014. Bard Access Systems internal data only.

³ The World Data Bank; Healthcare expenditure, public (% GDP) 2013

Japan

- PICC placement is nearly 100% physicians¹
- PICC placement is not dominated by any one specialty¹
- Very few clinicians perform a high number of VAD placements¹
- IV antibiotic are not routinely delivered through PICCs – using PIVs¹
- VAD choice is based on physician preference and experience¹



¹ Data collected by Bard Access Systems during Japan internal review 2014. Bard Access Systems internal data only.

Saudi Arabia

- Population: 28 MM¹ (2012)
 - Age breakdown² (2014)
 - 0-14 years—27.6%
 - 15-64 years—69.2%
 - 65 years and over—3.2%
 - Total expenditure on health 2.0% GDP³ (2013)
 - Healthcare system² (2014)
 - Public--(60%)
 - Central/State Govt./Military--(20%)
 - Self Pay/Private Insurance—(20%)
 - 78 International JCI healthcare facilities



¹ The World Data Bank; World Development Indicators, Population 2012

² Data collected by Bard Access Systems during Saudi Arabia internal review 2015. Bard Access Systems internal data only.

³ The World Data Bank; Healthcare expenditure, public (% GDP) 2013

Saudi Arabia

- PICC training is beginning to gain traction in Saudi¹
 - One team uses an advanced practice model
 - Consultants work with physicians to determine the most appropriate VAD for the patient
 - Practice according to ONS guidelines
 - Incorporate CDC guidelines
 - 2nd team working under auspices of cardiology
 - 2 person team
 - Placing PICCs for post-surgical infections
 - Work with neonatal to adult patients
 - 3rd team—nurses working out of interventional radiology
 - Using ultrasound and fluoroscopy
- VAD selection, insertion, care & maintenance is not well understood outside of these three institutions



¹ Data collected by Bard Access Systems during Saudi Arabia internal review 2015. Bard Access Systems internal data only..

Saudi Arabia

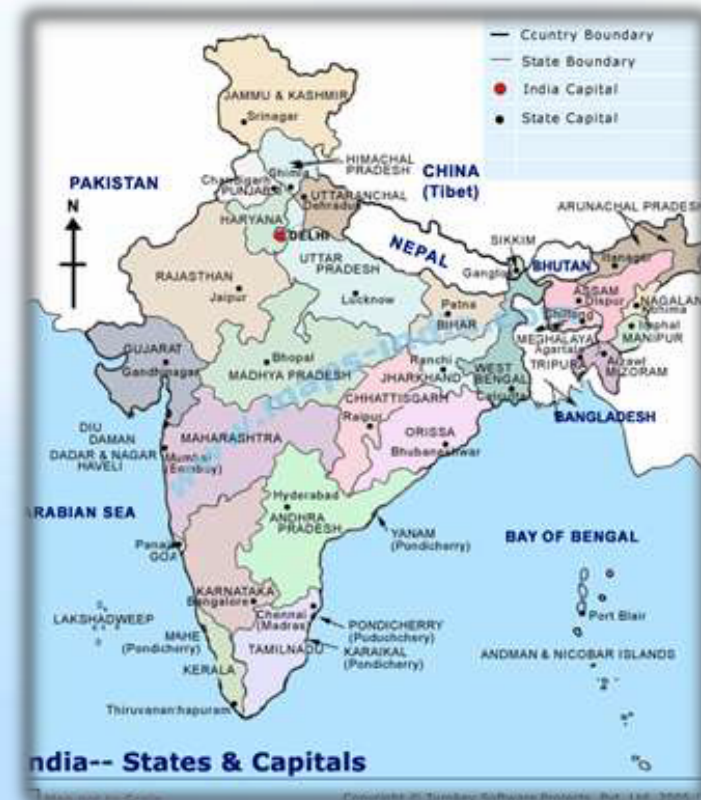
- PICCs are placed in Saudi Arabia by:
 - Interventional Radiologists
 - Nurses
- PICCs are placed in Saudi Arabia for:
 - Antibiotics
 - Oncology
 - Nutrition



Data collected by Bard Access Systems during Saudi Arabia internal review 2015. Bard Access Systems internal data only.

India

- Population: 1.24 billion¹ (2012)
- Healthcare expenditure 1.3% GDP³ (2013)
- Healthcare system² (2015)
 - Private pay-- (14%)
 - Self Pay -- (86%)



¹ The World Data Bank; World Development Indicators, Population 2012

² Data collected by Bard Access Systems during India internal review 2015. Bard Access Systems internal data only.

³ The World Data Bank; Healthcare expenditure, public (% GDP) 2013

India

- US and MST are rarely used by nurses¹
- PIVs are the device of choice for most IV therapies¹



¹ Data collected by Bard Access Systems during India internal review 2015. Bard Access Systems internal data only.

India

- PICCs are placed in India by:
 - Nurses
 - Oncologists
 - Vascular Surgeons
 - Other
- PICCs are placed in India for:
 - Chemotherapy



Data collected by Bard Access Systems during India internal review 2015. Bard Access Systems internal data only.

France



- Placing PICCs / ports currently¹ outside the scope of practice for nurses
- French government provides pathway to allow nurses and techs to place central VADs
 - Delegation/transfer of competency
 - Lengthy process & difficult to qualify

¹ Data collected by Bard Access Systems during France internal review 2014. Bard Access Systems internal data only



Summary

- ❑ The use of PICC's is growing around the World
- ❑ The number of countries placing PICCs is increasing
- ❑ In some countries where PICCs are growing, the role of nurse and other non-physician placers is increasing