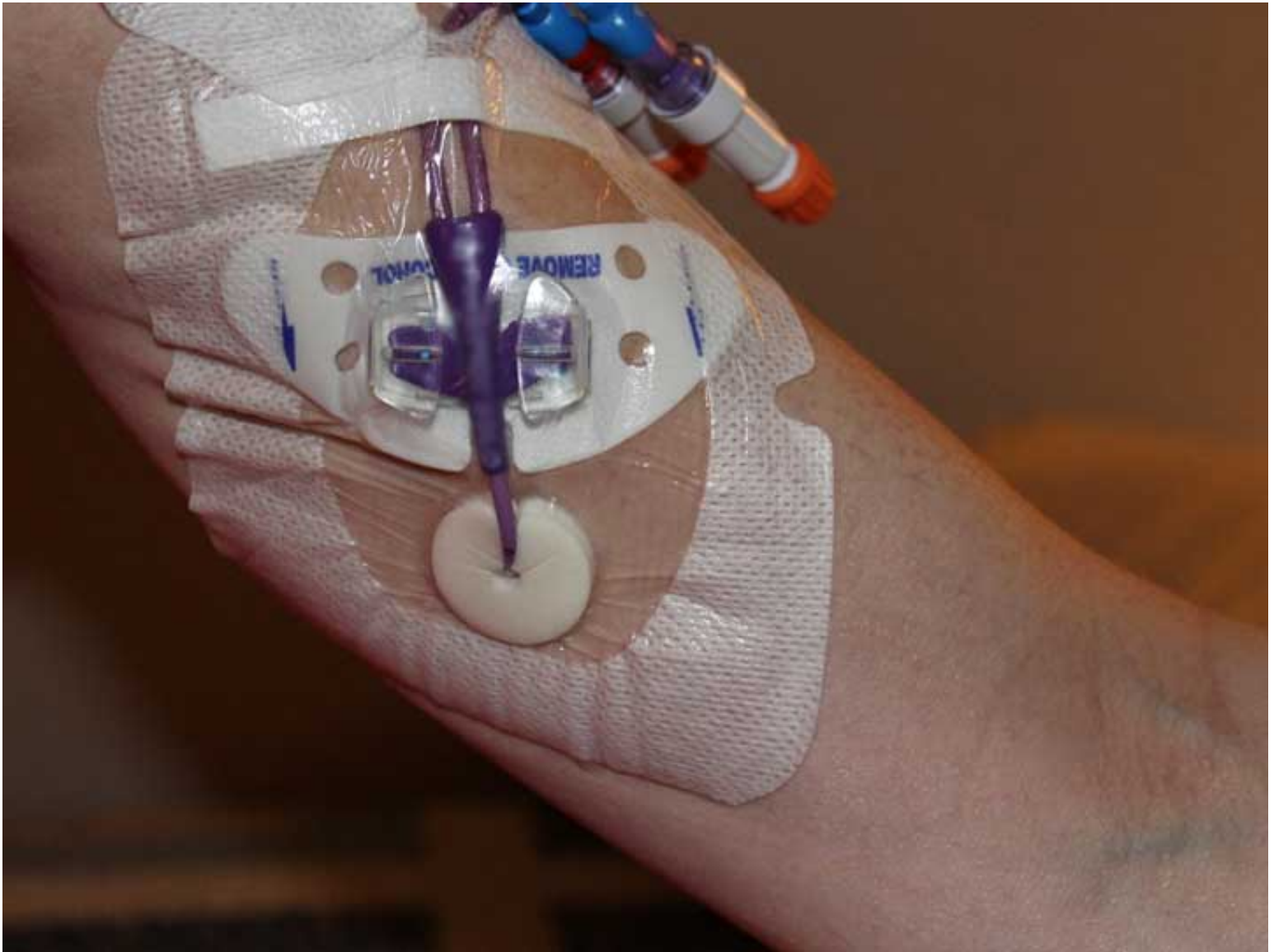


New Guideline Offers 'Best Practices' for PICC

-Multidisciplinary panel aims to provide clarity for PICC management

by Sarah Wickline Wallan, Staff Writer, MedPage Today
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A multi-specialty panel has designed a best practices guide for the "insertion, care, and management" of peripherally inserted central catheters (PICCs).

The group, led by [Vineet Chopra, MD](#), of the University of Michigan in Ann Arbor, used the

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scenarios to create the Michigan Appropriateness Guide for Intravenous Catheters (MAGIC) guideline, they explained.

"A growing number of studies suggest [substantial variation and potentially inappropriate use of PICCs in hospitalized patients](#)," they wrote in the *Annals of Internal Medicine*. They cited one study from a large academic medical center, where "many PICCs were not actively used or were inserted in patients who also had peripheral intravenous catheters."

In addition, they found that one in five inpatient providers did not know that their patients even had central venous catheters (CVCs), "with lack of awareness being greatest for PICCs."

"Defining appropriate indications for insertion, maintenance, and care of PICCs is thus important for patient safety," they wrote. "Thus, we hope that our recommendations will provide clarity for management of complex situations not only before, but also during and after, PICC placement."

The 15-member panel included physicians and nurses from multiple specialties, including pharmacy. A patient was also invited to contribute to panel discussions. Multiple databases were searched for studies and guidelines concerning PICC use from November 2012 to July 2013.

Overall, the researchers selected 665 clinical scenarios and 391 unique indications for PICCs and VADs that would represent the decision-making process concerning peripheral intravenous catheters, ultrasonography-guided peripheral intravenous catheters, midline catheters, nontunneled CVCs, tunneled CVCs, and ports. They were all compared with PICCs.

[To reflect "real-world" situations](#), areas of consensus, controversy, and ambiguity were crafted. All of the scenarios were pilot-tested with two hospitalists.

Among the clinical scenarios, the panelists rated 38% for appropriate PICC or VAC use, 43% as inappropriate use, and 19% as neutral/uncertain.

The researchers generated four charts to track appropriate/inappropriate use by VAD device type and duration of infusate.

VAD recommendations for infusion of peripherally compatible infusate were:

- Peripheral IV catheter: appropriate use ≤ 5 days with no preference between peripheral IV and ultrasound-guided peripheral IV; neutral/uncertain for 6-14 days; inappropriate for ≥ 14 days
- Ultrasound-guided peripheral IV catheter: appropriate use of ultrasound-guided peripheral IV catheter preferred to peripheral IVs if duration is 6-14 days; inappropriate for ≥ 14 days
- Nontunneled/acute central venous catheter: appropriate use of central venous catheter preferred in critically ill patients or if hemodynamic monitoring is needed for 6-14 days; inappropriate for ≥ 14 days
- Midline catheter: appropriate use of midline catheter preferred to PICC if proposed duration is

≤14 days; inappropriate for longer than 14 days

- PICC: inappropriate for ≤5 days; appropriate ≥6 days; preferred to midline catheter if proposed duration of infusion is ≥15 days
- Tunneled catheter or port: inappropriate for ≤30 days; PICC preferred to tunneled catheter and ports for infusion of 15-30 days; appropriate for ≥31 days

VAD recommendations for infusions of non-peripherally compatible infusates were:

- Peripheral IV catheter and ultrasound-guided peripheral IV catheter: inappropriate all times
- Nontunneled/acute central venous catheter: appropriate for use ≤14 days; preferred in critically ill patients or if hemodynamic monitoring is needed for 6-14 days; inappropriate ≥15 days
- Midline catheter: inappropriate for all times
- PICC: appropriate for all times
- Tunneled catheter: inappropriate for ≤5 days; neutral for 6-14 days; appropriate with no preference between tunneled catheter and PICC for ≥15 days
- Port: inappropriate for use for ≤30 days; appropriate with no preference among port, tunneled catheter, or PICC for ≥31 days

VAD recommendations for patients with difficult venous access:

- Peripheral IV catheter: appropriate for ≤5 days with no preference between peripheral IV and ultrasound-guided peripheral IV; inappropriate for ≥5 days
- Ultrasound-guided peripheral IV catheter: appropriate for ≤14 days; preferred over peripheral IV catheter if duration is 6-14 days; inappropriate for ≥15 days
- Midline catheter: appropriate for 1-14 days; preferred to PICC if duration is ≤14 days; inappropriate for ≥15 days
- Nontunneled/acute central venous catheter: appropriate for ≤14 days; preferred to PICC for use ≤14 days in critically ill patients; inappropriate for use ≥15 days
- PICC: disagreement on appropriateness of PICC for use <5 days; appropriate for ≥6 days; preferred to tunneled catheters for 15-30 days
- Tunneled catheter: inappropriate for use ≤14 days; neutral for use ≥15 days; no preference between tunneled catheter or port for use ≥31 days
- Port: inappropriate for 1-30 days; appropriate with no preference between tunneled catheter or port for use ≥31 days

VAD recommendations for patients who require frequent phlebotomy:

- Peripheral IV catheter: appropriate use ≤5 days; no preference between peripheral IV and ultrasound-guided peripheral IV catheter for ≤5 days; inappropriate ≥6 days

- Ultrasound-guided peripheral IV catheter: appropriate ≤ 5 days; preferred if venous access difficult; inappropriate ≥ 6 days
- Midline catheter: appropriate for ≤ 14 days; preferred to PICCs if ≤ 14 days; neutral for 15-30 days; inappropriate ≥ 31 days
- Nontunneled/acute central venous catheter: appropriate for ≤ 14 days; preferred to PICC for use for ≤ 14 days in critically ill patients; inappropriate ≥ 15 days
- PICC: disagreement on appropriateness of PICC for < 5 days; appropriate for ≥ 6 days; preferred to tunneled catheter for 15-30 days
- Tunneled catheter: inappropriate for ≤ 14 days; neutral for 15-30 days; appropriate for ≥ 31 days
- Port: inappropriate for all times

The panelists acknowledged these tools would not answer every question in every patient scenario, but suggested that these criteria will provide physicians with a tool to reference during a "time-out" to think about VAD decision-making and patient risk factors.

The authors reported limitations including the exclusion of neonatal and pediatric studies, a panel lacking bedside nurses, and the focus of the panel on the use PICCs in relation to other devices.

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