

3M Science.
Applied to Life.™

Make peripherals a central focus.

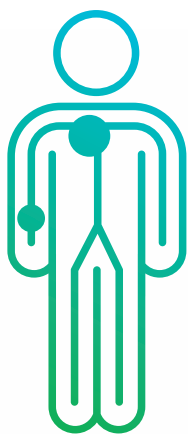
Help reduce the risk of
PIV complications.



Putting a focus on peripheral lines.



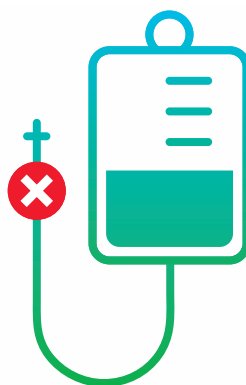
Peripheral intravenous (PIV) access is often considered a simple, low-risk procedure, when in fact:



Up to

60-90%

of patients receive a PIV catheter during their hospital stay¹



Even in major clinical centres with dedicated IV teams performing careful prospective randomized studies, the mean PIV catheter failure rate is

46%¹



The cost of treating catheter-related complications can add 7-10 days² to hospital length of stay and up to

\$25K (CAD)

in additional cost per patient³

All IVs are at risk for microbial contamination.

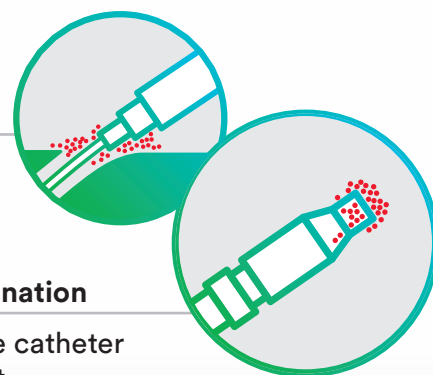
Bloodstream infections from vascular access devices may be related to insertion or maintenance practices, patient condition, technology and staff training level.

Extraluminal Contamination

Bacteria originates on the skin surface.





Intraluminal Contamination

Bacteria enters via the catheter hub or IV access point.



Prevention in practice: PIV care and maintenance guidelines.

We're proud to partner with you to help reduce the risk of PIV complications through evidence-based practice. We believe having the right standards of care, combined with the latest technology can help improve outcomes for every patient. Review these care and maintenance recommendations from the Infusion Nurses Society (INS) and the Canadian Vascular Access Association (CVAA):

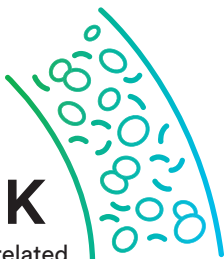
	Recommendation	INS 2021 ⁴	CVAA 2019 ⁵
Prepare and Assess 	Choose upper extremity for insertion	Forearm preferred for long and short length PIVCs	Forearm preferred
	Avoid areas of flexion	●	●
	Designate personnel with IV therapy education, training and competency	Infusion vascular access specialists demonstrated lower PIVC complication rates	●
	Use smallest gauge indicated	●	●
Insertion 	Prepare skin with antiseptic, allow site to dry	Use an alcohol-based CHG skin antiseptic	Select preferred formulation (at least 0.5% CHG) in 70% alcohol
	Practice aseptic technique	Do not palpate insertion site after skin antisepsis	●
Secure and Protect 	Consider securement device options for advanced catheter stabilization	●	Use a securement dressing for lines dwelling more than 6 hours.
	Use a sterile, transparent, semi-permeable polyurethane dressing	●	●
	Change dressing at least every 7 days or sooner if compromised	●	●
	Visually inspect insertion site at regular intervals	●	●
	Evaluate adverse events regularly	●	●
	Disinfect injection port/access site	●	●
	Disinfect needleless connector and add-on devices with active or passive disinfection cap	●	●
Remove 	Ensure disinfecting supplies are readily available at the bedside to facilitate compliance	●	●
	Assess daily and remove if no longer included in the plan of care or not used	●	●
	Remove PIV catheters when clinically indicated	●	●
	Remove emergently placed catheters asap, within 24–48 hours	●	●

See the evidence for yourself.

An often-overlooked risk: With approximately 200 million peripheral venous catheters (PVCs) successfully inserted into adult patients each year in the United States, there may be numerous PVC-related BSIs occurring annually.⁶

165k

potential PIV-related
bloodstream infections
per year in the US



Short peripheral intravenous catheters and infections.

Hadaway L. *Journal of Infusion Nursing*. 2012;35(4).

Results:

Approximately 330 million peripheral catheters are sold annually in the United States, but only about half are inserted successfully. An analysis of 45 studies showed a pooled mean rate of 0.5 infections per 1000 device-days.

View study:

<https://pubmed.ncbi.nlm.nih.gov/22759827/>

Short-term PVCs
accounted for

22%

of hospital-acquired
catheter-related bloodstream
infections (CRBSIs)



Short-term peripheral venous catheter-related bloodstream infections: A systematic review.

Mermel L. *Clinical Infectious Diseases*. 2017;65(10).

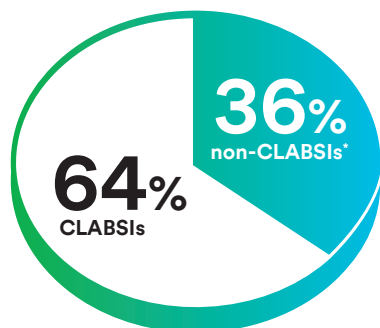
Results:

A systematic review of 63 studies determined that the incidence of PVC-related BSIs was 0.18% among 85,063 PVCs. 38% of healthcare-associated *S. aureus* CRBSIs are due to PIVs.

View abstract:

<https://www.ncbi.nlm.nih.gov/pubmed/29020252>

A total of 122 episodes of primary
SA HABSIs were identified:



*Presumed to originate from an external source, such as a PIV, midline or other source.

Hospital-acquired *Staphylococcus aureus* primary bloodstream infection: A comparison of events that do and do not meet the central line-associated bloodstream infection definition.

Kovacs CS, Fatica C, Butler R, Gordon SM, Fraser TG. *American Journal of Infection Control*. 2016;44(11).

Results:

A study of consecutive hospitalized patients during a 48-month period determined that 36% of primary *S. aureus* (SA) hospital-acquired bloodstream infections (HABSI) originated from the PIV or midline catheter. Overall, 30-day and 1-year mortality rates for the CLABSI and non-CLABSI patients did not significantly differ. However, the incidence of complications of bacteremia was significantly more common in the non-CLABSI group.*

View abstract:

<https://www.ncbi.nlm.nih.gov/pubmed/27158091>

Accepted but unacceptable: Peripheral I.V. catheter failure.

Helm RE, Klausner JD, Klemperer JD, Flint LM, Huang E. *Journal of Infusion Nursing*. 2015;38(3).

Results:

A systematic review of at least 45 randomized controlled studies from 1990 to 2014 determined that PIV insertion is associated with a variety of complications.

View study:

<https://pubmed.ncbi.nlm.nih.gov/25871866/>

Clinically-indicated replacement versus routine replacement of peripheral venous catheters.

Webster J, Osborne CM, Rickard JH, New K. *The Cochrane Database of Systematic Reviews*. 2015;CD007798.

Results:

A review of seven PIV trials (4,895 patients) found no evidence to support the routine changing of catheters every 72–96 hours.

View study:

<https://www.ncbi.nlm.nih.gov/pubmed/26272489>

Risk factors for peripheral intravenous catheter failure: A multivariate analysis of data from a randomized controlled trial.

Wallis M, McGrail MR, Webster J, Marsh NM, Gowardman JR, Playford EG, Rickard CM. *Infection Control and Hospital Epidemiology*. 2014.

Results:

A trial of 3,283 adult patients with expected use of a PIV for > 4 days found that PIV-complications were attributed to any or all of the following: anatomical location, gender, antibiotic infusions, gauge of PIV, and insertions by non-IV team staff.

View study:

<https://pubmed.ncbi.nlm.nih.gov/24334800/>

A bundled approach to decrease primary bloodstream infections related to peripheral intravenous catheters.

Duncan M, Warden P, Bernatchez S, Morse D. *Journal of the Association for Vascular Access*. 2018; 23(1):15-22.

Results:

This quality improvement project in a 900-bed level 1 trauma center introduced a PIV maintenance bundle, including 3M™ Curores™ Disinfecting Cap for Needleless Connectors and 3M™ Curores™ Disinfecting Cap for Male Luers, which significantly lowered the rate of primary bloodstream infections attributable to PIV lines.

View study:

<https://www.sciencedirect.com/science/article/pii/S1552885517300454>

Overall Mean:

Catheter-Related Phlebitis:	15.4%
Catheter Infiltration:	23.9%
Catheter Occlusion/ Mechanical Failure:	18.8%
Catheter Dislodgment:	6.9%
Catheter-Related BSI (up to):	0.2%

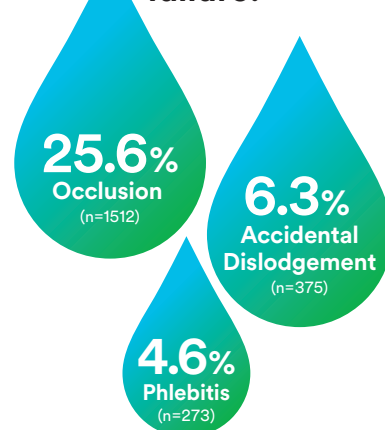
**PIV Catheter
Failure Rate: 46%**

Projected 5-year savings of
clinically-indicated replacement
in the US:

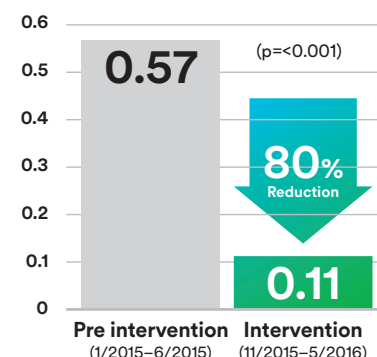
\$300 Million
and
1 Million

health care worker hours

PIV failure:

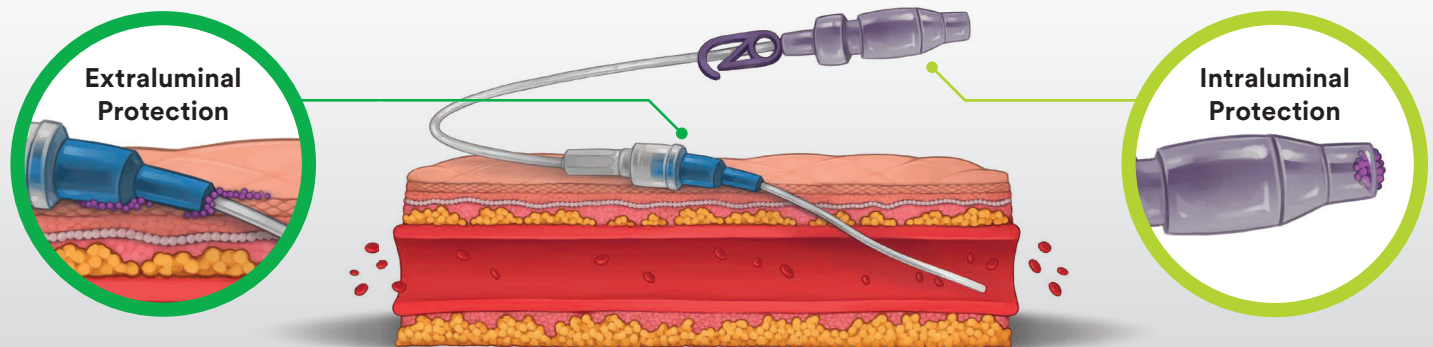


PLABSI infections per 1000 patient days:






Help reduce the risk of PIV complications at all access points.

3M solutions help to protect against both extraluminal and intraluminal contamination of PIVs.⁶



Extraluminal Protection

Use peripheral IV dressings to protect against extraluminal contamination.

	 3M™ Tegaderm™ CHG Chlorhexidine Gluconate I.V. Securement Dressing 1660	 3M™ Tegaderm™ Antimicrobial I.V. Advanced Securement Dressing 9132	 3M™ Tegaderm™ I.V. Advanced Securement Dressing 1683
Antimicrobial Protection			
Only transparent dressing cleared by the FDA and proven to reduce CRBSIs in patients with central venous and arterial lines	●		
Suppresses regrowth of skin flora on prepped skin for up to 7 days ⁷	●	●	
Catheter Securement			
Meets Infusion Nurses Society definition of an integrated securement device (ISD)	●	●	●
Site Visibility			
Transparent dressing enables early identification of complications at the insertion site	●	●	●
Bacterial and Viral* Barrier			
Provides a waterproof, sterile barrier to external contaminants	●	●	●

*In vitro testing shows that the film provides a barrier against viruses 27 nm in diameter or larger while the dressing remains intact without leakage.

Intraluminal Protection

Disinfect and protect IV access points to help reduce the risk of contaminants from entering the catheter post-insertion. Consistent use of 3M™ Curox™ Disinfecting Caps for Needleless Connectors is associated with decreased CLABSI.⁸

Using a peripheral line bundle that includes Curox Disinfecting Caps and 3M™ Curox Tips™ Disinfecting Caps for Male Luers provides effective disinfection. Effective disinfection of needleless connectors and male luers on peripheral lines has been associated with a significant decrease in primary peripheral line-associated bloodstream infections (PLABSI).⁹



Skin Protection

Skin is the body's first line of defense against infection. Catheter-associated Skin Injury (CASI) can be a significant problem, particularly for those with fragile skin. Although CASI can be a serious complication, it does not need to be an inevitable part of the patient experience.¹⁰

Preparation of the skin and selection of proper adhesives are the first steps to help minimize the risks of skin damage.⁴



3M™ Cavilon™ No Sting Barrier Film

The use of a sterile, alcohol-free skin barrier product, compatible with the antiseptic solution, is recommended to protect at-risk skin.⁴ (Level II) Making 3M™ Cavilon™ No Sting Barrier Film a routine part of vascular site care can help ensure the skin around the insertion site is protected.



3M™ Micropore™ S Surgical Tape

If using medical tape for additional securement, it's recommended to select a tape based on the intended use and patient's skin condition, and to use a roll dedicated to a single patient.⁵ (Level IV)

3M™ Micropore™ S Surgical Tape is an effective yet gentle multi-purpose tape that is suitable for secondary securement on all patients, including those with at-risk skin. Available in individually-packaged single-use length rolls, which can help reduce cross-contamination risk by 99% compared to unpackaged tape.*

*3M's packaged single-use length rolls can help reduce exposure to bacteria and spores. In vitro testing on contaminated hard dry surfaces showed as much as 99% protection from pathogens such as MRSA, CRE, VRE and *C. difficile* when compared to unpackaged rolls of tape.¹¹

Individual roll packaging helps minimize exposure of the tape to environmental contaminants from surfaces and hands. Practice good infection prevention technique per facility protocols and published guidelines, including environmental cleaning and proper hand hygiene before and after opening package.

Skin Preparation

Clinicians cannot predict who will get an infection because each patient has a unique immune system and different intrinsic risk factors. And like patients, bacteria have different levels of strength and can form biofilms which are out of a clinician's control.

Clinicians' power to change and impact outcomes starts with using standardized prevention bundles to help reduce a patient's risk to infection.



3M™ Soluprep™ Skin Antiseptic 2% CHG, 70% Isopropyl Alcohol

The INS and CVAA guidelines recommend using a single applicator that allows for clinicians to maintain an aseptic no touch technique.

Cleansing the skin by removing dirt and debris and removing or killing microbes present on the skin are an important first step for reducing the risk of extraluminal contamination.¹²

Partner with 3M to make peripherals a central focus of your IV care program.

Extraluminal Protection					
		Product #	Size	Dressings/Box	Boxes/Case
3M™ Tegaderm™ CHG Chlorhexidine Gluconate I.V. Securement Dressing		1660R	2 ¾ in x 3 ¾ in (7 cm x 8.5 cm)	25	4
3M™ Tegaderm™ Antimicrobial I.V. Advanced Securement Dressing		9132	2 ¾ in x 3 ¾ in (7 cm x 8.5 cm)	25	4
3M™ Tegaderm™ I.V. Advanced Securement Dressing		1683	2 ½ in x 3 ¾ in (6.5 cm x 7 cm)	100	4
Intraluminal Protection					
		Product #	Description	Each/Box	Boxes/Case
3M™ Curores™ Disinfecting Caps for Needleless Connectors		CFF1-270R	Individuals	270	20
		CFF10-250R	Strips (10 count)	50 Strips	20
3M™ Curores™ Stopper Disinfecting Caps for Open Female Luers		CSA1-270R	Individuals	270	8
		CSA5-250R	Strips (5 count)	50 Strips	8
3M™ Curores™ Tips™ Disinfecting Caps for Male Luers		CM5-200R	Strips (10 count)	40 Strips	10
Skin Protection					
		Product #	Size	Items/Box	Boxes/Case
3M™ Cavilon™ No Sting Barrier Film		3343E	1 mL wand	25	4
3M™ Micropore™ S Surgical Tape (single-patient use roll)		2770S-1	1 in x 1.5 yd (2.5 cm x 1.3 m)	100	5
3M™ SoluPrep™ Small Swab, Clear, 2% w/v CHG/70% v/v IPA		102.03	1.6 mL (1 swab) single unit dose, 10 cm x 11 cm (110 cm²) 3.94 in x 4.33 in (17.05 in²)	500	

Important Safety Information for 3M™ Tegaderm™ CHG dressings

Do not use Tegaderm™ CHG dressings on premature infants or infants younger than two months of age. Use of this product on premature infants may result in hypersensitivity reactions or necrosis of the skin. The safety and effectiveness of Tegaderm™ CHG I.V. Securement Dressings has not been established in children under 18 years of age. For full prescribing information, see the Instructions for Use (IFU).

To learn more or to schedule a product evaluation, visit us at [3M.com/PIVcare](https://www.3m.com/PIVcare)

¹ Helm, R.E.; Klausner, J.D.; Klemperer, J.D.; Flint, L.M.; Huang, E. Accepted but unacceptable: Peripheral IV catheter failure. J. Infus. Nurs. 2015; 38(3):189-203.

² Dimick JB, Pelz RK, Consunji R, Swoboda SM, Hendrix CW, Lipsett PA. Increased resource use associated with catheter-related bloodstream infection in the surgical intensive care unit. Arch Surg. 2001; 136: 229-234.

³ Laupland, KB; Lee, H; Gregson, D.B. & Manns, B.J. Cost of intensive care unit-acquired bloodstream infections. J Hosp Infect. 2006;63(2):124-32.

⁴ Gorski, L.A.; Hadaway, L.; Hagle, M.E.; et al. Infusion Therapy Standards of Practice, 8th Edition. J. Infus. Nurs. 2021; 44 (suppl 1): S1-S224. doi:10.1097/NAN.0000000000000396. Refer to the document to view verbatim, comprehensive standards and practice recommendations.

⁵ Canadian Vascular Access Association. (2019). Canadian Vascular Access and Infusion Therapy Guidelines. Pembroke, ON: Pappin Communications.

⁶ Mermel, L. Short-term Peripheral Venous Catheter-Related Bloodstream Infections: A Systematic Review. Clin. Infect. Dis. 2017; 65 (10): 1757-1762.

⁷ Bashir MH, Olson LK, Walters SA. Suppression of regrowth of normal skin flora under chlorhexidine gluconate dressings applied to chlorhexidine gluconate-prepped skin. Am J Infect Control. 2012;40:344-348.

⁸ Voor, In 't Holt, A.F.; Helder, O.K.; Vos, M.C.; et al. Antiseptic barrier cap effective in reducing central line-associated bloodstream infections: A systematic review and meta-analysis. Int. J. Nurs. Stud. 2017;69:34-40.

⁹ Duncan, M.; Warden, P.; Bernatchez, S.; Morse, D. A bundled approach to decrease primary bloodstream infections related to peripheral intravenous catheters. J. Assoc. Vasc. Access. 2018; 23(1): 15-22.

¹⁰ Broadhurst, D.; Moureau, N.; Ullman, A.J. The World Congress of Vascular Access (WoCOVA) Skin Impairment Management Panel. Management of Central Venous Access Device-Associated Skin Impairment: An Evidence-Based Algorithm. J. Wound Ostomy Continence Nurs. 2017; 44(3): 211-220.

¹¹ 3M Data on file. TECH REPORT-05-742819.

¹² Centers for Disease Control. Strategies to Prevent Hospital-onset Staphylococcus aureus Bloodstream Infections in Acute Care Facilities. <https://www.cdc.gov/hai/prevent/staph-prevention-strategies.html>.



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 1-800-228-3957

Note: Specific indications, contraindications, warnings, precautions and safety information exist for these products and therapies. Please consult a physician and product instructions for use prior to application. This material is intended for health care professionals.

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