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## BD PosiFlush™ Pre-Filled Syringe

BD PosiFlush™ syringes are terminally sterile and manufactured to provide clinical benefits to help improve patient care



# IV catheter-related complications put patients at risk and needlessly increase the cost of care

60% to 90% of hospitalised patients require an IV catheter during their hospital stay and it is the most common way to administer medication in healthcare facilities.<sup>1</sup> However, IV catheter failure may cause pain, dissatisfaction, extended length of care and vein depletion.<sup>1</sup>

## Did you know?



**60-90%** of all patients admitted to hospital receive a vascular access device<sup>1</sup>



Around **40%** of healthcare-associated bloodstream infections in Europe are catheter related<sup>2</sup>



The additional cost of catheter-related infections per patient in an Indian study was estimated at **\$3846**<sup>3</sup>



Normal saline flushes performed once daily maintain peripheral intravenous catheter patency<sup>4</sup>

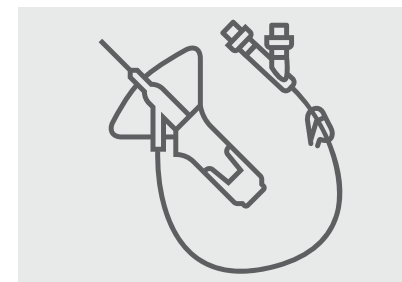
# International guidelines recommend to use pre-filled saline syringes to flush vascular access devices

## Infusion Nurses Society (INS) recommendations for Vascular Access Device flushing<sup>4</sup>:

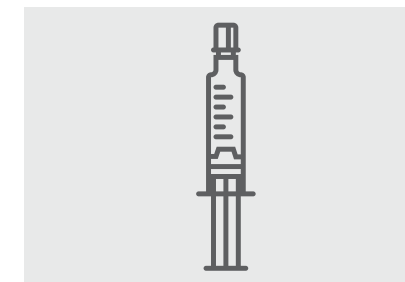
- Flush all vascular access devices with sterile preservative-free 0.9% sodium chloride.
- Flush prior to each infusion to access catheter function and prevent complications.
- Flush after each infusion to clear the infused medication from the catheter lumen, reducing the risk of contact between incompatible medications.
- Lock the device after completion of the final flush to decrease the risk of intraluminal occlusion and catheter-related bloodstream infections.
- Commercially available pre-filled syringes may eliminate contamination, reduce the risk of infections and save staff time for syringe preparation.

## Pre-filled saline syringes can help improve outcomes

Doing so follows best practice recommendations for catheter maintenance and is aligned with international guidelines.<sup>1,4</sup>



Using flush solutions to maintain the patency of catheters is an essential component of a strategy for preventing catheter-related complications.<sup>4</sup>



Using a pre-filled saline syringe is recommended to reduce the risk of catheter-related bloodstream infections (CRBSI) and to prevent syringe-induced blood reflux.<sup>4</sup>



Use sterile normal saline for injection to flush and lock catheter lumens that are accessed frequently.<sup>2</sup>



# Our fully automated manufacturing and inspection process eliminates variability in BD PosiFlush™ syringes



## Manufacturing quality and reliability

Our fully automated system thoroughly inspects every BD PosiFlush™ syringe. Our unique process has multiple vision systems, sensor systems and machines that look for particulate and other defects. Additional inspections ensure that every single syringe meets visual, dimensional, functional and laboratory specifications.



## A no-hands manufacturing process, from start to finish

An automated, end-to-end, sterile, closed-loop manufacturing process eliminates human contact. Most pre-filled flush manufacturers in the market use a manual or semi-automated process, which allows for a higher risk of human error.

The BD PosiFlush™ closed loop manufacturing system has allowed us to manufacture over 14 billion BD PosiFlush™ Sterile Path Syringes.



## Saline and syringes

Our ownership of saline compounding and syringe production ensures quality and consistency in supply.

Using a fully automated production process from start to finish limits interruptions in production due to lapses in the supply chain, and allows a manufacturer to have control over all steps involved in making pre-filled syringes, such as:

- Quality of the raw materials
- Optimized syringe design for flushing
- Extended shelf-life
- Formulation

# BD PosiFlush™: designed and manufactured to help clinicians deliver optimal patient care

Save Healthcare Professionals valuable time



The convenient alternative to manual flushing. Pre-Filled Saline Syringes can save time vs. manually prepared flush syringes, clinical evidence has shown a mean difference of **49 seconds** per flush.<sup>5</sup>

Reduce catheter-related bloodstream infections (CRBSIs)



Pre-filled Syringes have been shown to reduce catheter-related bloodstream infection (CRBSI) by **up to 60 %** when switching from manually prepared to pre-filled syringes.<sup>3</sup>

Helps prevent touch contamination



Luer-lok™ tip cap ensures closure integrity for the 3 years shelf life, **helping prevent touch contamination.**

Help avoid medication errors



**Clear labeling and bar-coding supports easy identification** of syringe volume, lot number and expiration date.

Convenient individually wrapped syringes



Easy to open packaging with individually wrapped syringes in an internal box with **3 years shelf life. Simplifying inventory management and allowing for convenient placement on shelves.**



## BD PosiFlush™:

Designed to prevent contamination

Retention ring and breakloose contamination prevention

BD PosiFlush™ syringes **do not allow the fluid to enter a non-sterile area** of the syringe



BD PosiFlush™ syringes **prevent contamination** during **breakloose** or aspiration due to presence of retention ring

Pulling the plunger back behind its original parking place could contaminate the solution. This can happen during initial plunger breakloose or aspiration to confirm patency.

BD PosiFlush™ is designed to prevent syringe contamination during initial aspiration in order to increase safety for your patients.

## BD PosiFlush™:

Designed to eliminate syringe-induced reflux\*

### What is syringe-induced blood reflux?

Syringe-induced blood reflux occurs during a flush procedure when the rubber stopper meets the end of the syringe. Since it is rubber, it will compress and rebound when pressure is released; creating a vacuum that draws blood back into the catheter.<sup>6</sup>

### How do I overcome syringe-induced blood reflux?

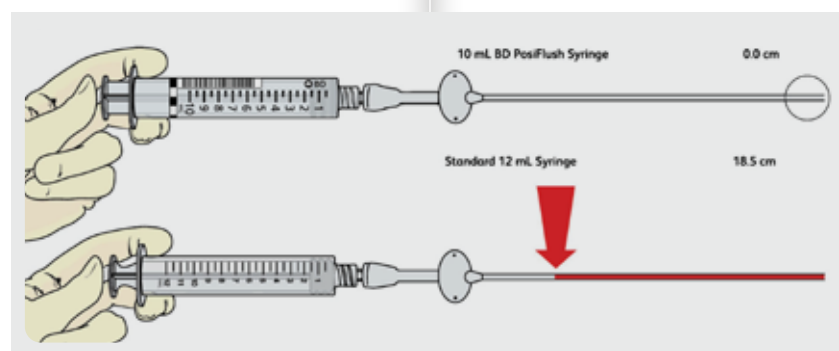
To overcome syringe-induced blood reflux use a pre-filled syringe for catheter ushing that is designed to overcome this problem.<sup>6</sup>

*Positive displacement valves address disconnect reflux, not syringe-induced reflux.*

### BD PosiFlush™ syringes are designed to eliminate syringe-induced blood reflux.\*

BD PosiFlush™ syringes are designed to eliminate syringe-induced blood reflux\*, enhancing catheter maintenance protocols.

Graphic depicts the average amount of blood aspirated into the catheter upon completion of flush procedure if positive pressure technique is not correctly applied.

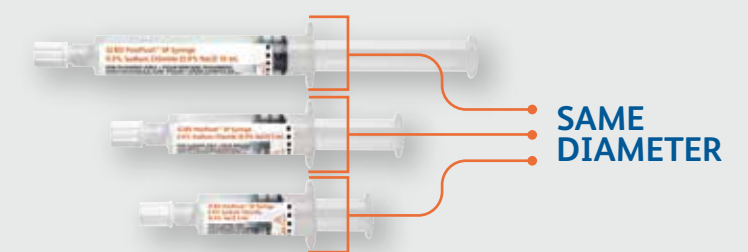


\*Average reflux as measured in 4Fr PICC; data on file at BD

## BD PosiFlush™:

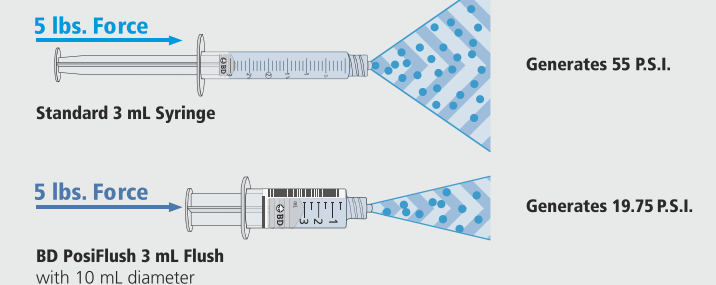
Designed to lower the risk of catheter damage

BD PosiFlush™ pre-filled saline syringes available in 3 sizes, all with standard 10 mL syringe diameter.

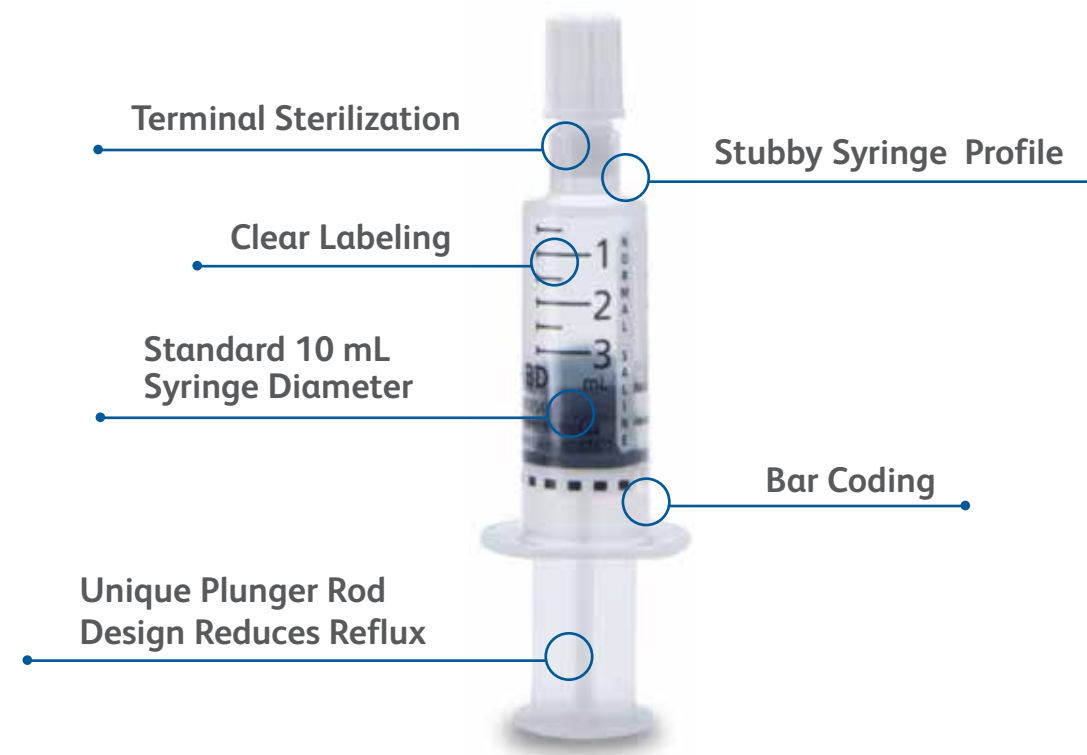


### Consistent 10 mL diameter designed to lower the risk of catheter damage

Syringe size has an impact on the risk of catheter damage. Smaller diameter syringes generate greater amounts of pressure than larger diameter syringe.<sup>6</sup> Choose any size BD PosiFlush™ saline syringe for lower pressure due to the 10 mL syringe diameter (as compared to standard syringes). All BD PosiFlush saline syringes assure compliance with PICC manufacturer recommendations for flushing with a 10 mL diameter syringe.



# Designed to meet your needs



## BD PosiFlush™ Syringes are designed to

### Improve patient outcomes

#### Unique syringe design

- **Terminal sterilization** for maximum sterility assurance level (SAL 10<sup>-6</sup>) of solution and fluid path
- Designed to minimize syringe-induced blood reflux\*
- Designed to prevent solution from entering a non-sterile area of the syringe\*\*

### Reduce the risk of medication errors

#### Clear labeling

- Greater visibility of syringe contents
- Bold print for clarity
- Color and bar coded for easy identification and verification
- Addressed the joint commission's requirement for medication labeling<sup>7</sup>

### Reduce the risk of catheter damage

#### Standard 10 mL syringe diameter

- Generates significantly lower pressure (PSI) compared to standard 3 mL syringe\*
- All sizes comply with PICC manufacturer flushing recommendations

### Reduce waste and costs

#### Stubby syringe profile

- Selecting smaller size syringes (3,5 mL) for peripheral lines:
- Reduces storage and disposal costs
  - Minimizes environmental waste

\* Average reflux as measured in 4Fr. PICC; data on file at BD.

\*\* Data on file at BD

# BD PosiFlush™ is backed by science

BD consistently engages with experts to generate relevant evidence that addresses issues providers and patients face

### Keogh Observational Study<sup>5</sup>

Demonstrates the use of BD PosiFlush™ pre-filled syringes can significantly reduce overall administration time by **49 seconds**.

### Rosenthal Clinical Study<sup>3</sup>

Shows the use of split septum connectors and BD PosiFlush™ pre-filled syringes is cost-effective and associated with a significantly lower CLABSI (**65%**) rate compared with the use of 3-way stopcocks and manually filled flush.

### Bertoglio Clinical Study<sup>8</sup>

Showing the effectiveness of BD PosiFlush™ pre-filled syringes in reducing totally implantable venous access device associated CRBSI by **57%**.

### Keogh Clinical Study<sup>10</sup>

Demonstrates the effectiveness of post-insertion PIVC flushing according to recommended guidelines by reducing PIVC failure rate (**30% vs 22%**) and reducing total costs.

### Saliba Clinical Study<sup>9</sup>

Shows that use of BD PosiFlush™ pre-filled syringe significantly reduce peripheral venous catheter failure (**57% vs 43.3%**) and increased catheter dwell time.



# BD Vascular Access Management

BD PosiFlush™ is a critical part of an integrated approach designed to help reduce complications and improve patient care

## BD VAM assessments establish the baseline

Our clinical experts utilize proprietary tools and proven methodology to conduct assessments of your vascular assess practices, products and policies across care settings.



## Evidence-based recommendation provide a road map to success

We use these assessments to develop detailed, customized recommendations to help you standardize and align to clinical best practices, industry guidelines and your own initiatives and goals.



Products and technologies for every point on the vascular access continuum  
From device selection and placement through care and maintenance,



we offer best-in-class products and technology designed to help your clinicians protect their patients from vascular access complication

## BD VAM training and education for technique, proficiency and compliance

Our clinical consultants can work with you to implement training and education programs that will comply with your policies and support evidence based best practices.

- **Advance** clinical skills and knowledge for every point for care
- **Standardize** aseptic practice techniques across care settings
- **Stay compliant** with the latest INS standards and CDC guidelines



Customized learning sessions



Ongoing product in-service training



Please consult product labels and inserts for any indications, contraindications, hazards, warnings, precautions and directions for use.

# BD offers a comprehensive flush portfolio to meet your patient's needs

## BD PosiFlush™ Pre-Filled Saline Syringe

The type and size of catheter, age of the patient and type of infusion therapy being given should determine the flush volume being used in order to properly maintain patency and prevent contact between incompatible medications.



## BD PosiFlush™ Externally Sterile (XS) Saline Flush Syringe

BD PosiFlush™ Externally Sterile (XS) Saline Flush Syringe is terminally sterilised in its peel pouch, enabling it to be aseptically presented to a sterile field. Typically used in oncology, interventional radiology and critical care, the syringe supports applications such as PICC or CVC insertions.



## BD PosiFlush™ Heparin Lock Flush Syringe

This syringe is intended for maintenance of catheter patency only, by locking vascular access devices.



# Ordering Information

CAT No.	Description	Box/Case
BD PosiFlush™ Pre-Filled Saline Syringe, all with 10 mL diameter		
30657371	BD PosiFlush™ SP - 3mL	30/Box 480/Case
30657471	BD PosiFlush™ SP - 5mL	30/Box 480/Case
30657571	BD PosiFlush™ SP - 10mL	30/Box 480/Case
BD PosiFlush™ XS Normal Saline Syringe		
306572	BD PosiFlush™ XS - 10mL	30/Box 240/Case
BD PosiFlush™ Heparin Lock Flush Syringes		
306413	3 mL BD PosiFlush™ Heparin Lock Flush Syringe, 30 usp units/3 mL (10 usp units/mL)	30/Box 480/Case
306414	5 mL BD PosiFlush™ Heparin Lock Flush Syringe, 50 usp units/5 mL (10 usp units/mL)	30/Box 480/Case
306423	3 mL BD PosiFlush™ Heparin Lock Flush Syringe, 300 usp units/3 mL (100 usp units/mL)	30/Box 480/Case
306424	5 mL BD PosiFlush™ Heparin Lock Flush Syringe, 500 usp units/5 mL (100 usp units/mL)	30/Box 480/Case