Smarter design for better protection

MaxPlus®

CareFusion®

Some needleless connectors create more risk than others

Introduced in the 1990s, needleless connectors dramatically reduced potential for IV-access-related needlestick injuries but also created a few new challenges.

Global thought leaders, including The Centers for Disease Control and Prevention (CDC), identified design-related risk factors specific to this technology:

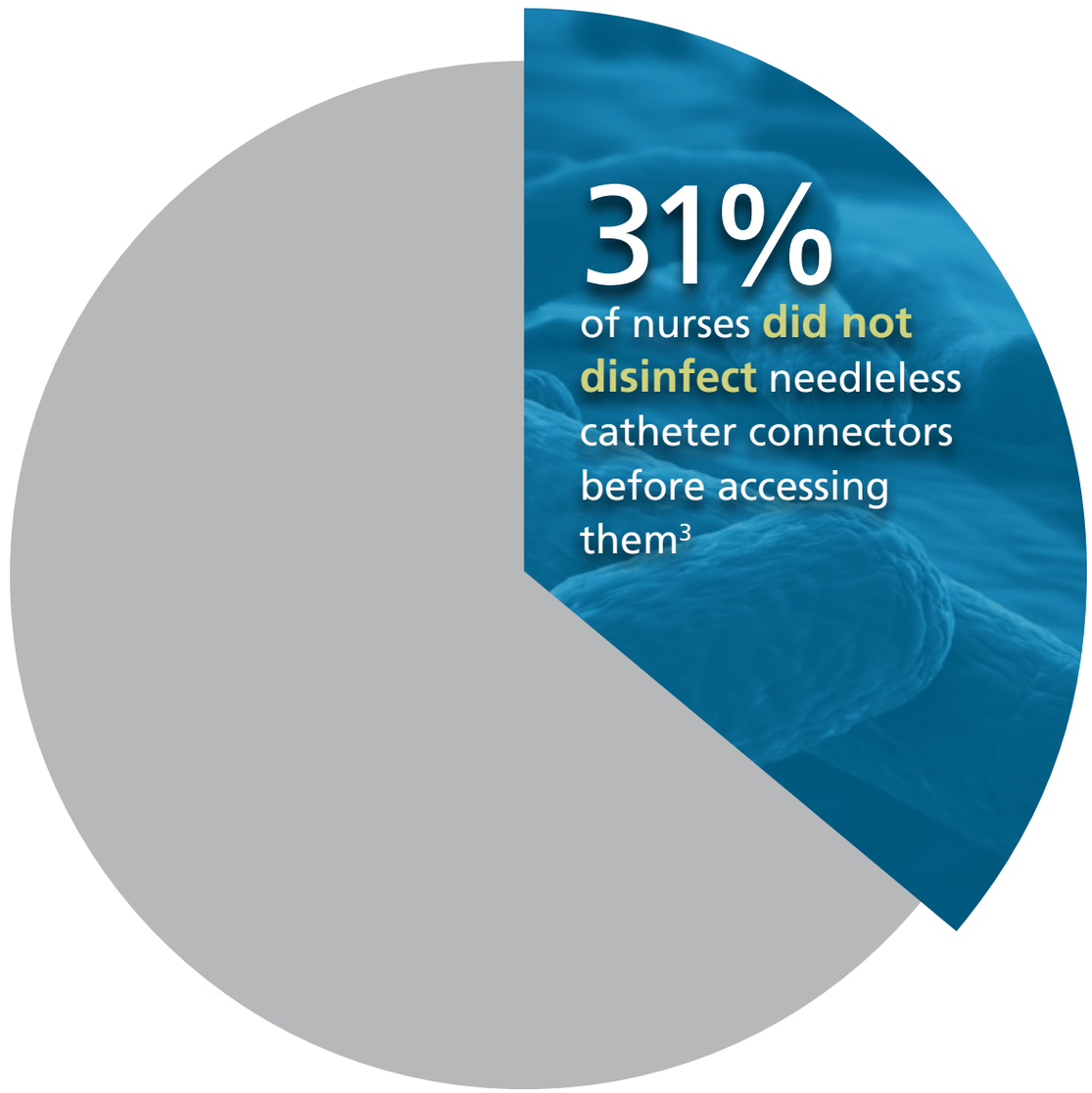
- An access site that may be difficult to clean and disinfect[1]
- Crevices, hinges and lumens affect proper disinfection[2]
- Risk of occlusion[2]
- Fluid flow properties[2]
- Potential fluid dead space[2]
- Presence of internal corrugations that could harbor organisms[2]

Design issues are only part of the problem

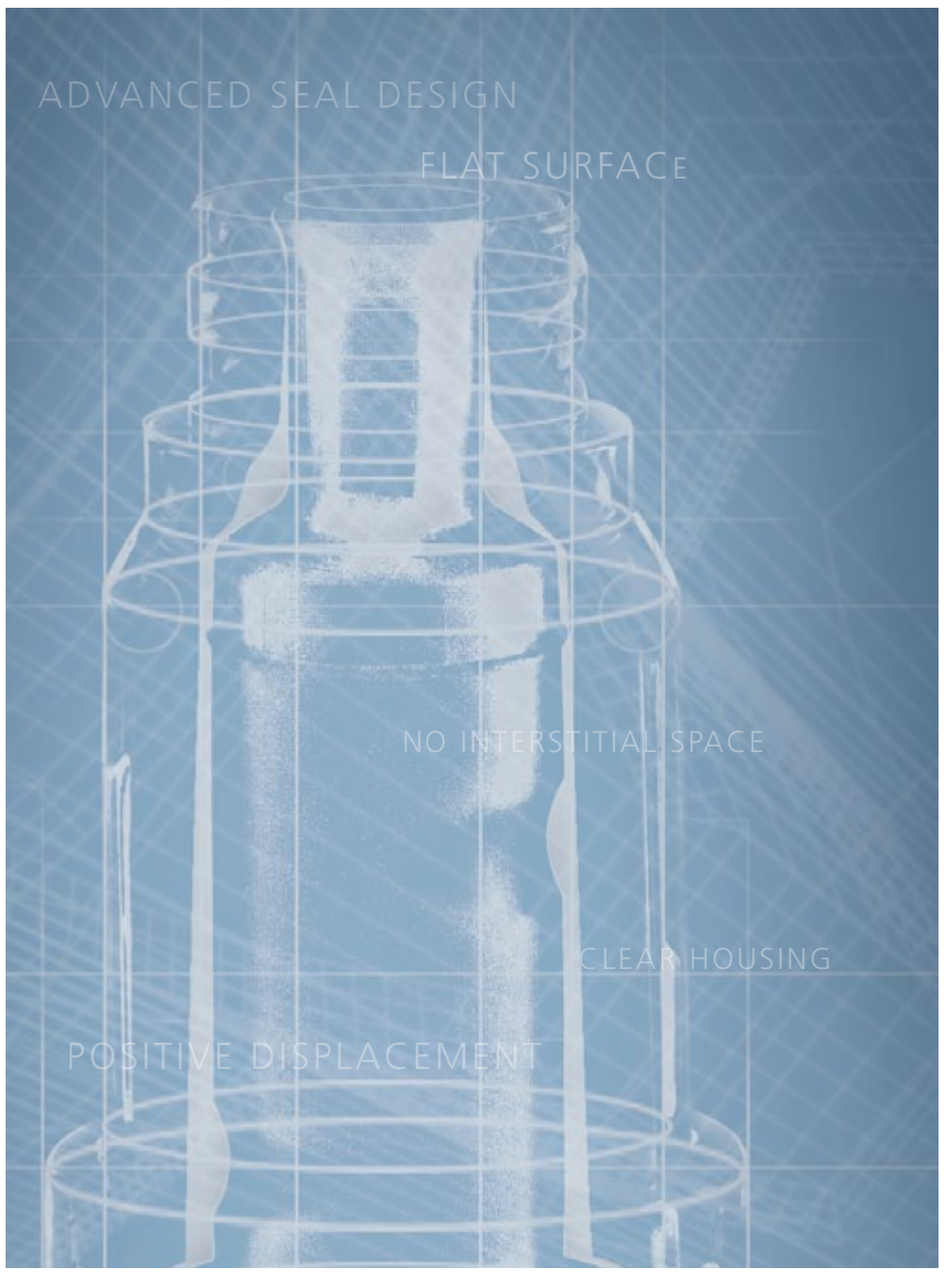
A lack of understanding among healthcare workers regarding

- Types of needleless connectors
- Proper cleaning protocol
- Disinfection requirements

leads to ***inconsistent compliance*** *and* ***increased risk.***



A smarter design can minimize the risks



Smooth, flat surface with no crevices or gaps
- Reduces risk of contamination
- Decreases disinfection time

No interstitial space
- Eliminates dead space within the valve
- Reduces accumulation of blood or fluid that can foster bacterial growth

Advanced seal design
- Multiple seals can reduce the risk of bacterial entry

Clear housing
- Allows visual confirmation of flushing

Positive displacement
- Reduces risk of occlusions
- No need for clamping during flush procedures

MaxPlus® – *intentionally designed to protect.*

MaxPlus®

is now the

NUMBER ONE

stand-alone

connector

Intentionally designed to

PROTECT

1

Flat, solid, smooth-sealed surface

2

Patented dual seal technology

3

Translucent housing

4

Complete, open fluid path

5

Positive displacement

1

Flat,

solid,

smooth-sealed

surface

Easier, faster, more complete disinfection

MaxPlus® is the only connector intentionally designed with a patented smooth top surface making disinfection faster and more effective.

More places for bacteria to hide means more time to disinfect

Recessed surfaces and gaps require at least the industry standard

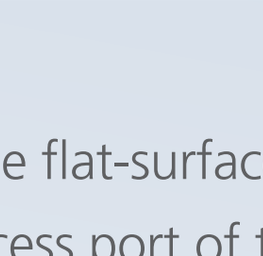
15 seconds to scrub.

Recessed surface

Gaps around the head

3 2 1 ...DONE

The flat-surfaced access port of the MaxPlus® connector can be effectively and **completely scrubbed** with an alcohol swab in just ***3 seconds.***



2

Patented dual seal technology

Helps keep bacteria out

MaxPlus® is the only connector designed with two seals instead of just one to form an unparalleled barrier to microbial ingress.

3

Translucent

housing

Take the guesswork out of flushing

Clear housing provides easy, complete visualization of the fluid path, reducing the risk of incomplete flushing of media fluids.

4

Complete,

open

fluid path

Better, more effective flushing

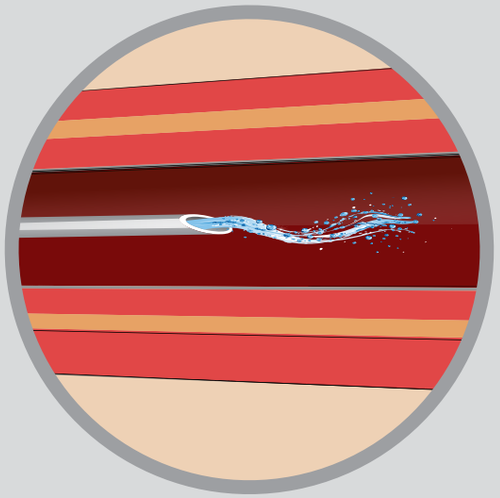
MaxPlus® features an open fluid path with no dead space within the valve where blood or fluid can accumulate for a complete flush of the line.

5

The positive difference in positive displacement

Positive displacement

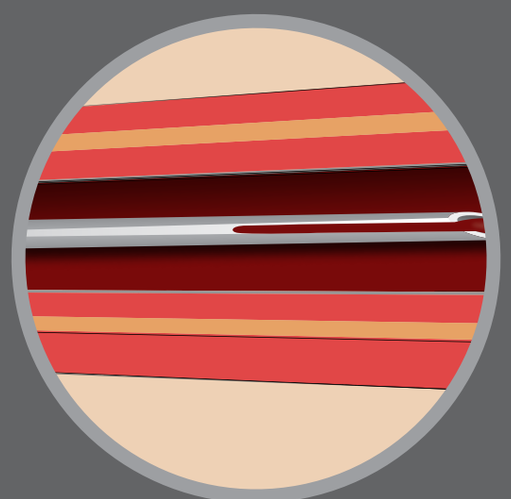
MaxPlus® connectors create positive displacement helping to prevent catheter occlusions and maintain patency for fewer restarts.

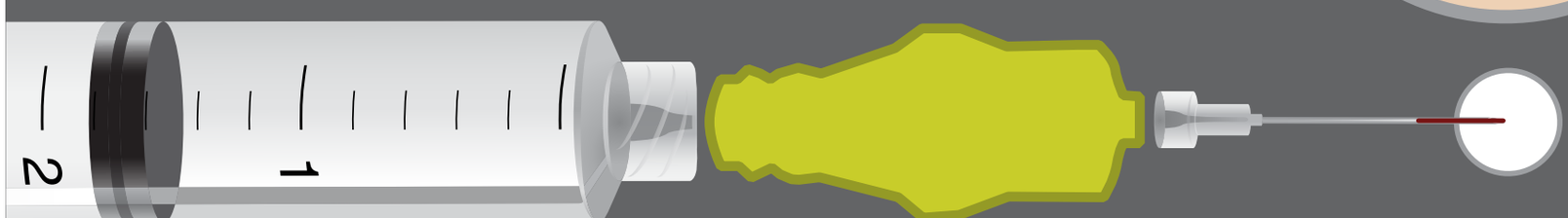


Prevents blood reflux into the catheter at disconnect

Negative displacement

Negative displacement connectors can create a backflow of blood that can lead to clotting.





The MaxPlus® Advantage

1. Flat, solid, smooth-sealed surface for easier, faster, more complete disinfection
2. Patented dual seal technology to ensure a superior microbial barrier
3. Translucent housing allows easy, complete visualization of the flushing process
4. Complete, open fluid path with no dead space for bacteria to settle
5. Positive displacement feature helps prevent blood reflux into catheter at disconnect

References:

[1]O'Grady NP, Alexander M, Burns LA, et al. *U.S. Centers for Disease Control and Prevention guidelines for the prevention of intravascular catheter-related infections*, 2011;19-20.

[2]Rutala WA, Weber DJ, Healthcare Infection Control Practices Advisory Committee (HICPAC) *U.S. Centers for Disease Control and Prevention guidelines for disinfection and sterilization in healthcare facilities*, 2008;11:33.

[3]Karchmer TB, Cook EM, Palavecino EP, et al. Needleless valve ports may be associated with a high rate of catheter-related bloodstream infection [abstract 307]. In: *Program and Abstracts of the 15th Annual Scientific Meeting of the Society for Healthcare Epidemiology of America (Los Angeles)*. Alexandria, VA: Society of Healthcare Epidemiology of America; 2005.

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