

New Data Shows BD Needle-Free Connectors Demonstrate Better Clinical Outcomes

Study Reports Lower Rate of Central Line Bloodstream Infections, Fewer Occlusions and Cost Savings

FRANKLIN LAKES, N.J. (Sept. 6, 2024)— BD (Becton, Dickinson and Company) (NYSE: BDX), a leading global medical technology company, today announced new data that shows certain BD needle-free connectors demonstrated decreased risk for central venous catheter intraluminal blood occlusions (CVC-IBO) and central line-associated bloodstream infections (CLABSI)ⁱ.

The study revealed that connectors with a solid external access surface have been associated with more than two times reduction in the number of CLABSI compared to those without a solid external access surface. BD MaxPlus™ and BD MaxZero™ connectors are the only needle-free connectors on the market today with a solid access surface.

The study's author, Dr. Victor Lange, director of Quality/Risk and Infection Control at AHMC Healthcare in California, attributed the lower infection rates to the unique design of the BD MaxPlus™ and BD MaxZero™ Needle-free Connectors, noting that they can be efficiently cleaned, and have a dual-seal bounce-back design to reduce bacterial ingress and a clear housing that enables observation of flushing. Additionally, with lower rates of occlusion compared to other leading connectors, BD MaxPlus™ and BD MaxZero™ have been associated with a 57 percent reduction in the use of Alteplase, a treatment to dissolve blood clots that have formed in occluded or blocked vessels, leading to significant cost savingsⁱⁱ.

"Vascular device complications can often lead to additional procedures and increase risk of infection," said Dr. Calvin Yu, fellow of the Infectious Diseases Society of America and vice president of Medical Affairs for North America at BD. "CLABSI, in particular, is the most serious downstream consequence and is associated with higher mortality, extra length of stay in the hospital and readmissions. The data presented gives corroborative signals on how use of solid-surface needle-free connectors may reduce risk from these devastating complications."

Needle-free connectors play a critical role in safety and infection prevention, allowing clinicians to access a patient's IV catheter to provide fluid or medication while reducing risk of a needlestick injury for themselves or their patientsⁱⁱⁱ. Colonization of the needle-free connector is linked to 50 percent of catheter-related infections^{iv} like CLABSI, which may extend a patient's length of hospital stay up to 10 days and increase the patient's risk of death by up to 2.75 times^{v,vi}.

The peer-reviewed study published in the [*International Journal of Infection Control*](#) surveyed 16 hospitals in Northern and Southern California that used at least one of five varieties of needle-free connectors, capturing data from more than 88,000 patient days, including more than 30,000 days where patient care included a central line.

About BD

BD is one of the largest global medical technology companies in the world and is advancing the world of health by improving medical discovery, diagnostics and the delivery of care. The company supports the heroes on the frontlines of health care by developing innovative technology, services and solutions that help advance both clinical therapy for patients and clinical process for health care providers. BD and its more than 70,000 employees have a passion and commitment to help enhance the safety and efficiency of clinicians' care delivery process, enable laboratory scientists to accurately detect disease and advance researchers' capabilities to develop the next generation of diagnostics and therapeutics. BD has a presence in virtually every country and partners with organizations around the world to address some of the most challenging global health issues. By working in close collaboration with customers, BD can help enhance outcomes, lower costs, increase efficiencies, improve safety and expand access to health care. For more information on BD, please visit [bd.com](https://www.bd.com) or connect with us on LinkedIn at www.linkedin.com/company/bd1/, X (formerly Twitter) [@BDandCo](https://twitter.com/BDandCo) or Instagram [@becton_dickinson](https://www.instagram.com/becton_dickinson).

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ⁱ Lange VR. Use of different designed needle-free connectors: a snapshot of central venous catheter intraluminal blood

occlusion and central line-associated bloodstream infection in hospitals. *International Journal of Infection Control*. 2024(20). doi.org/10.3395/ijiic.v20.23731

ⁱⁱ Hospitals using the MaxPlus or MaxZero NC had significantly higher cost saving (per 100 patient days) associated with lower use of tissue plasminogen activator vs devices with a nonsolid access surface (\$219 vs \$510 USD; $P=.01$)

ⁱⁱⁱ Nickel B, Gorski L, Kleidon T, et al. Infusion Therapy Standards of Practice, 9th Edition *J. Infus Nurse*. 2024;47(1S):p S114. DOI: 10.1097/NAN.0000000000000532.

^{iv} Moureau NL, Flynn J. Disinfection of Needleless connector hubs: systematic review. *Nurs Res Pract*. 2015:796762, doi: 10.1155/2015/796762.

^v Zimlichman E, Henderson D, Tamir O, et al. Health care-associated infections: a meta-analysis of costs and financial impact on the US health care system. *JAMA Intern Med*. 2013;173(22):2039-2046.

^{vi} Ziegler MJ, Pellegrini DC, Safdar N. Attributable mortality of central line associated bloodstream infection: systematic review and meta-analysis. *Infection*. 2015;43(1):29-36.

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