Nexiva Peripheral IV Catheter System

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Device

The BD Nexiva is described as a closed peripheral IV catheter system with integrated extension tubing and platform for stabilization.[1] According to manufacturers, the design of the catheter has key features that allow for improved patient care. These include but are not limited to, reduced manipulation, movement, and accidental dislodgement (no need to change extension set), less blood exposure, and a reduction in cost due to longer dwell time, when compared with an open system.[1]

The BD Nexiva Diffusics is also a closed peripheral IV catheter with integrated extension tubing and platform for stabilization and similar key features as the BD Nexiva. According to manufacturers, one noted difference is that the BD Nexiva Diffusics is beneficial for patients receiving procedures that require a power injector as the device is rated for use up to a maximum pressure of 325 psi.[2]

Actions for Consideration

Partner: Engage subject matter experts like radiology and cardiology interventionalists, nurses, and the appropriate value analysis stakeholders, to assess plans for use and implementation of the devices. This includes continued conversation and assessment with nursing leadership in infection prevention, the emergency department, radiology, and the cath Lab to understand challenges/concerns. Specific 'criteria for use' guidelines may need to be developed if these products are to be utilized only in a specialty area.

Connect: Identify opportunities to support improved quality of care and evaluate patient outcomes through use of the product. Consider an analysis on the cost of safety catheter with an extension set, versus use of closed catheter system. Work with key stakeholders to determine appropriate patient population.

Communicate: Provide information on available training, encourage hands on demonstrations to gain familiarity with the product. Create plan to continue ongoing education about product, its use, and outcomes.

Professional Society Statements and Clinical Practice Guidelines

In the *Infusion Therapy Standards of Practice*, the Infusion Nurses Society, provides practice recommendations on vascular access devices (VADs) related to aseptic technique, assessment of the placement site (daily vs. other time intervals), as well as removal and dwell time.

In terms of dwell time, article 45.3 states:

> "VADs are not removed based solely on length of dwell time, because there is no known optimal dwell time."[3]

In their *Guidelines for the Prevention of Intravascular Catheter-Related Infections* (2011) the Centers for Disease Control and Prevention state:

> "There is no need to replace peripheral catheters more frequently than every 72-96 hours to reduce risk of infection and phlebitis in adults."[4]

FDA Approval

The BD Nexiva Closed IV Catheter System carries an FDA indication to be used as a short-term product for blood sampling, pressure monitoring, and fluid administration. Power injectors are noted to be acceptable to a

maximum pressure of 300 psi (2068 kPa) (FDA Database Listing; FDA 510(k) No. K183399).[5]

The BD Nexiva Diffusics Closed IV Catheter System carries an FDA indication to be used as a short-term product for blood sampling, pressure monitoring, and fluid administration. Power injectors are noted to be acceptable to a maximum pressure of 325 psi (2240 kPa) (FDA Database Listing; FDA 510(k) No. K173354).[6]

Clinical Evidence

Evidence within this category comparing products and outcomes is limited and primarily-industry sponsored. A sample of the available evidence is provided.

- A quality improvement project by Morrell (2020) sought to assess clinical, safety, and economic outcomes of a vascular access management program (using BD Nexiva closed IV catheter system) at five hospitals in Southern California. According to the author, staff were trained on the new product in 2015, with post program assessment starting in 2017. The study reported success in first-insertion success, longer dwell time, cost savings, and reduced blood exposure to staff as examples. Limitations of the study include the long study period (6 years) as well as potential for bias. The author indicates the study was completed in partnership with a team from BD who assisted with the project development.[7]

Clinical Advisory Board Insight

Members of the HealthTrust Clinical Nursing, Surgery, and Radiology Advisory Boards provided insight into this category and their experience with using these products.[8]

- Departmental use:
    - These devices are reportedly being used in a range of different department types. Some members reported all nursing departments, while other reported they are specific to the ER, radiology, and the cardiac catheterization lab.
- Unique product features include:
    - Eliminates the need for separate IV extension set.
    - Ability to be used for power injections.
    - Potential for increased success in first stick.
- Education for potential conversion:
    - Nurse to nurse staff training on insertion technique.
    - Hands on time and practice with devices for users.
    - Increased learning curve with placement technique due to specific butterfly design.
- Dwell time variation is reported in dwell time from 96 hours to 7 days or changed when necessary; including signs of infection or malfunctions.
- Safety considerations include some reports of increased extravasation events.
- Other considerations:
    - Given the potential benefit of use in certain populations (e.g. radiology contrast), some members reported specific written criteria for use.
    - Concern with increased cost over a standard safety catheter.
    - Some members reported converting back to standard safety catheters, due to inability to quantify perceived patient benefit and increased supply cost.

Summary

Products should be reviewed with all stakeholders to fully support implementation and address any clinical requirements. Additionally, periodic ongoing review should be conducted to understand the impact and outcomes related to product use and potential need for education and training. Facilities may benefit from increasing review on product utilization with key clinical and non-clinical stakeholders to support these goals.

References

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