

Global Insights on LVAD Driveline Dressing Protocols to Advance Nursing Care: A Systematic Review

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Purpose

The purpose of this systematic review is to share insights on infection prevention strategies by examining specific materials and techniques recommended for Left Ventricular Assist Device (LVAD) driveline exit site care.

Background and Significance

- A Left Ventricular Assist Device (LVAD) is a mechanical heart pump for patients unable to receive a heart transplant (Qu et al., 2021).
- LVADs allow patients with advanced heart failure to be discharged from the hospital and can increase both length and quality of life (Rahal et al., 2020).
- Driveline infections are one of the leading complications for LVAD patients (Bernhardt et al., 2020).
- There is a gap in the literature on nursing-specific strategies for driveline infection prevention.

Methods

- **Research Question:** What materials and techniques should be utilized for dressing care of the LVAD driveline exit site to best prevent driveline infections?
- PubMed and CINAL search strategy:
 - driveline AND ("dressing" OR "site care") NOT ("stoma" OR "pin"), "Driveline management strategy", ("driveline" OR "mechanical circulatory support" OR "ventricular assist device") AND "site infection" [tw], "Driveline exit site management" OR "Driveline exit site care", ("mechanical circulatory support" OR "ventricular assist device") AND "driveline infection."
 - 309 studies found
 - 9 studies reviewed
- Used Covidence to manage screening and filtering.

Results

- Nursing-specific recommendations for driveline exit site care included:
 - using standardized approach for driveline wound care (n=8)
 - using sterile technique (n=7)
 - use of a dressing kit (n=5)
 - covering the driveline exit site during a shower (n=5)
 - ongoing staff, patient, and caregiver education (n=7)
- Recommended materials for use in driveline exit site wound care included:
 - chlorhexidine (n=7)
 - a silver-containing dressing material (n=5)
 - a driveline anchor (n=6)

Implications for Nursing Practice

- Recent studies suggest that a standardized protocol to prevent driveline infections should include a sterile dressing kit containing chlorhexidine, a silver-based dressing, and an anchor.
- More research is needed on which other materials should be included in driveline exit site care and the frequency of dressing changes.
- Evidence suggests that showers should be allowed as long as the driveline exit site is kept dry and the dressing is changed immediately after the shower.
- The nurse's role in patient education is also a vital component of driveline infection prevention.

Nurses can advance care for LVAD patients by adopting the *bundle approach* for the prevention of central line infections to the prevention of Driveline Infections.

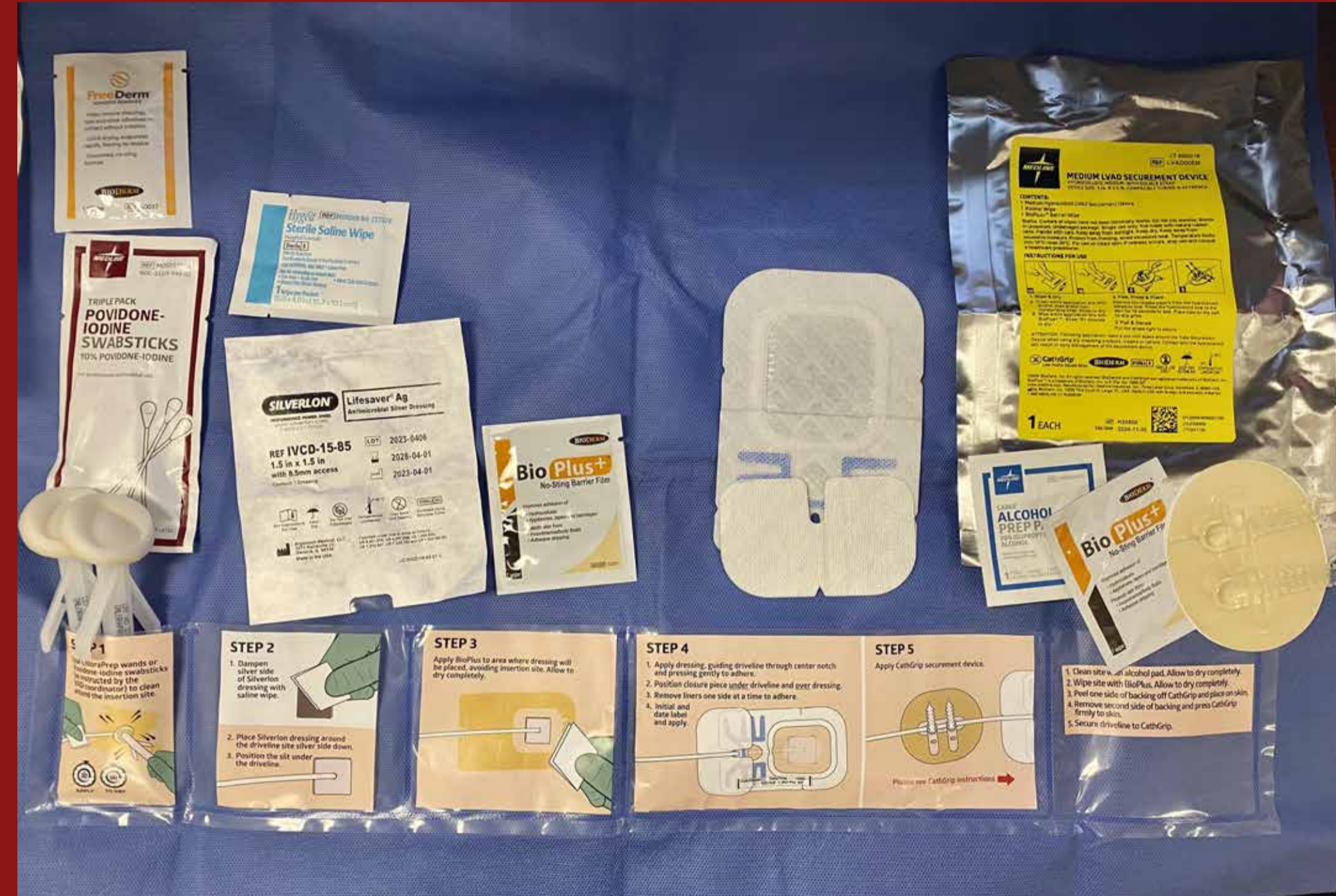


Figure 1: Example Sterile Driveline Dressing Kit (manufactured by Medline, designed by CPMC) that includes chlorhexidine, a silver-based antimicrobial patch and a driveline anchor, as well as step-by-step instructions with pictures.

References

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Figure 2: PRISMA Diagram

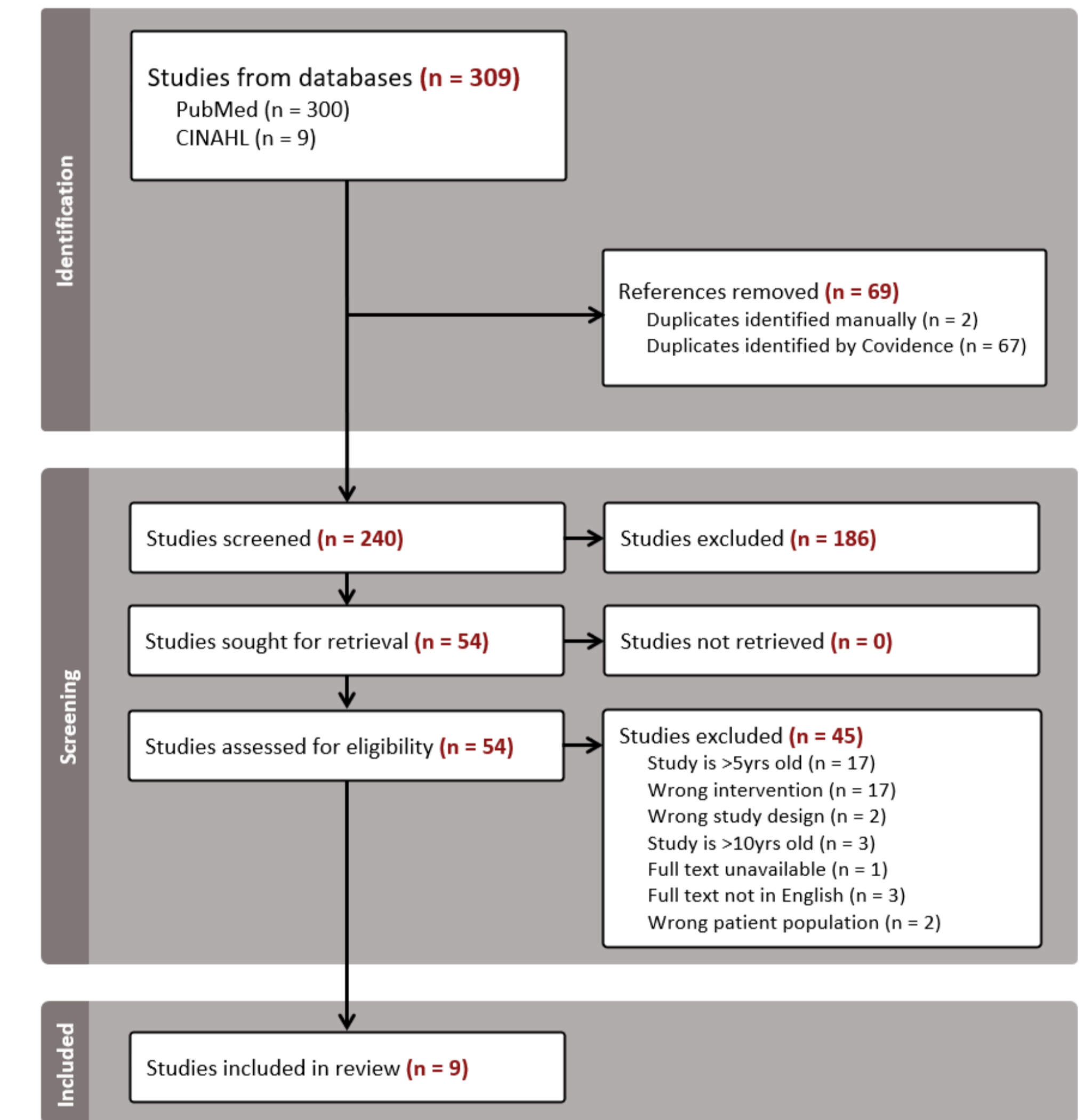


FIGURE 3: LITERATURE RECOMMENDATIONS SUMMARY

