Summary:

Injection safety is essential to reduce healthcare-associated infection (HAI) risks when accessing vascular catheters. This general review evaluates vascular catheter access port contamination and associated HAIs in acute care settings focusing on open lumen stopcocks (OLSs) and disinfectable needleless closed connectors (DNCCs). PubMed was searched from January 2000 to February 2021.

OLS intraluminal surfaces are frequently contaminated during patient care, increasing HAI risks, and neither an isopropyl alcohol (IPA) pad nor a port-scrub device effectively reduces contamination. In contrast, DNCCs can be disinfected, with most studies indicating less intraluminal contamination than OLSs and some studies showing decreased HAIs. While the optimal DNCC design for reducing HAIs needs to be determined, DNCCs alone or stopcocks with a DNCC bonded to the injection port should replace routine use of OLSs, with OLSs restricted to use on sterile fields.

Disinfection compliance is essential immediately before DNCC access since using a non-disinfected DNCC can be an equivalent or greater HAI risk than using an OLS. The recommendations for access port disinfection in selected national and international guidelines vary. When comparing in vitro studies, clinical studies and published guidelines a consensus is lacking, therefore additional studies are needed including large randomized controlled trials.

IPA caps disinfect DNCCs passively, eliminate scrubbing and provide a contamination barrier; however, their use in neonates has been questioned. Further study is needed to determine whether IPA caps are more efficacious than scrubbing with disinfectant for decreasing HAIs related to use of central venous, peripheral venous and arterial catheters.

Reference: