



**SDI Review Form 1.6**

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| Journal Name:            | <a href="#">Advances in Research</a>  |
| Manuscript Number:       | 2013_AIR_8475   |
| Title of the Manuscript: | <b>A Review of the Intraluminal Fluid Pathway to Prevent Catheter Related Bloodstream Infections and Occlusions</b> |
| Type of the Article      |   |

**General guideline for Peer Review process:**

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

To know the complete guideline for Peer Review process, reviewers are requested to visit this link:

(<http://www.sciencedomain.org/page.php?id=sdi-general-editorial-policy#Peer-Review-Guideline>)



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**PART 1: Review Comments**

|                                     | <b>Reviewer's comment</b>   | <b>Author's comment</b> <i>(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i>   |
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| <b>Compulsory</b> REVISION comments | <p>The review is relevant to clinical practice and nursing, there is no consensus on the use of connectors, some authors indicate its use, and some authors refute it. Its use implies training of staff in handling the catheter and analysis of risks and benefits. Protocols for using these connectors are essential, as well as the commitment of the healthcare team.</p> <p>Maintain clear the objective of the review in the introduction.</p> <p>The term "Connector" is known too as needleless connector. This term includes all the types of existing models. I suggest include in the line 68.</p> <p>What CDC (2011) e FDA talk about the connector usage? Up to now there is no consensus regarding the use, further explore has to be done regarding this question in the line 88.</p> <p>Wide the comments about the connector design and the influence in the infections.<br/>Ex: Organisms enter the device, they can colonize in the collapsed folds of the centerpiece or between the fluid pathway and the connector housing, where fluid may leak (Jarvis WR, et al. 2009).</p> <p>There are recent articles about Hubs impregnated with</p> | <p>We want to thank this reviewer for the thorough review.</p> <p>The entire introduction was rewritten, as well as, much of the article and now includes the aim and the methods. There was a total reorganization</p> <p>This paper discusses the common intravenous therapy complications CR-BSI and occlusion are impacted by IV needleless connector design. Methods for article preparation included review of CinHal and medline using the key words CR-BSI, occlusion, connector, and IV technology. Exclusions included studies not IRB approved. Connector technology included in the paper had to have some published related research.</p> <p>We referenced Dr Jarvis's prominent article on connector design in August 2010. We felt that this article said it all when he outlined the design features of a connector. We could have included this earlier work but felt that the later work was more definitive and actually a</p> |



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|  | <p>silver nanoparticles whose were not cited and whose help on infection prevention. (Maki 2010).</p> <p>The study (Hadaway, 2011), found that the nursing professionals did not know to associate the right connector to each catheter, it confirms the need of train the staff. I suggest add this study to the item education.</p> <p>Some Systematic Reviews were not include but help in the review. I suggest checking.<br/>E.g.:</p> <p>– Review regarding use of connectors conclude that (Niel-Weise B S, Daha T J, van den Broek P J, 2006): - The authors concluded that, from the point of view of infection prevention, there are no objections to using needleless closed catheter access systems. However, there is insufficient evidence at this stage to recommend their use.</p> <p>Other reviews about flusing: <a href="#">López-Briz E, Ruiz-García V. (2005)</a>; <a href="#">Anderson BJ et al (2010)</a> ; <a href="#">Mitchell MD, Anderson BJ, Williams K, Umscheid CA (2009)</a> e <a href="#">Goode CJ, et al, (1991)</a>.</p> <p>Cite the study of new technology to disinfect the connectors. (Wright MO, et al, 2012 and Sweet MA, et al. 20)<br/>Joint Commission established protocol disinfecting catheter hubs (2009), mention it.</p> <p>What are the data bases used to this review? Did you use any specific strategy in the articles search? What was the search period? If yes for some of them, mention it.</p> | <p>building block of the later article</p> <p>New technology is always entering the market. There is not much data on the newer silver products. Dr. Maki conclusion in this article is that there is no conclusion and more study needs to be done. The major flaw of this 2010 article is that no blood was used in the study. A protein broth was used. The lack of fibrin, fibrinectin etc. was a huge limiting variable that was not really discussed. Dr. Chernenky wrote a letter to the editor which was later printed discussing this limitation.</p> <p>The Hadaway article was not a study nor had it been through IRB. We chose an IRB approved study that we published that demonstrated the lack of nursing knowledge.</p> <p>The Flushing articles cited were focused on heparin vs saline and the procedure. The focus of this article is how connector design may determine flushing success and not the procedure itself.</p> <p>The newer alcohol caps have yielded some success. With technology designed for success these products are not necessary. This is a Band-Aid approach instead of understanding the route cause. A line was added to the article discussing this point</p> <p>The intraluminal fluid pathway was not</p> |
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|  | <p>Include hands hygiene, which helps on infection prevention.</p> <p>Include Guidelines/Societies orientations that treat the issue.</p> | <p>identified as a nidus for infection until 2006 with Garland. Prior to this time, the insertion site was the focus. Connectors are a multi-billion dollar business in the US and worldwide. This has clouded the real issues – design. The focus has been on the care giver as the reason. Yet the education piece for them has been scanty at best. It is the purpose of this article to offer some information for the reader to use when caring for patients with IVs. In general to realize that the product being used may be a variable in the outcome. A recent AJIC published article findings was included that demonstrates the framework. It shows when just a connector was changed and nothing else, infection rates were significantly approved.</p> <p>Hand washing is a huge issue. I believe I will never see a time when this is not number one. But this article is not a procedure based article. It is an article looking at the variable of product and how it impacts the point of care which is after the handwashing process should have been completed.</p> |
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| <b><u>Minor</u></b> REVISION comments |  |                  |
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|                                       | <p>Check the typing – line 59 (thereforethe);<br/> 88 e 89 (Withneutralconnectors, ordisconnection);<br/> 103 (commondisinfection);<br/> 104 (selectedby);<br/> 112 (studyrevealed);<br/> 116 (Thisprotocol);<br/> 131 (manufacturersof),<br/> 138 (that3-5);<br/> 137 (aninvitro);<br/> 147 (residueproviding - forbacterial);<br/> 175 (anyIV);<br/> 178 (whichclamping);<br/> 179 (Thismakes);<br/> 188 (occlusionsare);<br/> 219 (practiceincluding);<br/> 224 (orneutral);<br/> 239 (connectorwill);<br/> 239 (regardingconnector);<br/> 242 (thenbacteria);<br/> 248 (necessarywith);<br/> 251 (intraluminalvascular);<br/> 253 (outcomesresearch)</p> | <p>Corrected</p> |



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| <p><b><u>Optional/General</u></b> comments</p> | <p>Study references that are not in the review and were suggested:</p> <p>Jarvis WR, et al. Health care-associated bloodstream infections associated with negative- or positive-pressure or displacement mechanical valve needleless connectors. <i>Clin Infect Dis</i> 2009;49(12):1821-7).</p> <p>MAKI, D.M. In Vitro Studies of a Novel Antimicrobial Luer-Activated Needleless Connector for Prevention of Catheter-Related Bloodstream Infection. <i>Clin Infect Dis.</i> (2010) 50 (12): 1580-1587.</p> <p>Niel-Weise B S, Daha T J, van den Broek P J. Is there evidence for recommending needleless closed catheter access systems in guidelines: a systematic review of randomized controlled trials. <i>Journal of Hospital Infection</i> 2006; 62(4): 406-413.</p> <p>Goode CJ, et al. A meta-analysis of effects of heparin flush and saline flush: quality and cost implications. <i>Nurs Res</i> 1991;40(6):324-30.</p> <p><a href="#">López-Briz E</a>, <a href="#">Ruiz-García V</a>. Effectiveness of heparin versus NaCl 0.9% in central venous catheter flushing. A systematic review]. <a href="#">Farm Hosp.</a> 2005 Jul-Aug;29(4):258-64.</p> <p>Anderson BJ et al (2010) What is the evidence for heparin or saline flush to maintain the patency of central venous catheters? <i>Nursing Times</i>; 106: 16</p> <p><a href="#">Mitchell MD</a>, <a href="#">Anderson BJ</a>, <a href="#">Williams K</a>, <a href="#">Umscheid CA</a> Heparin flushing and other interventions to maintain patency of central venous catheters: a systematic review.</p> |  |
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|  | <p><a href="#">J Adv Nurs</a>. 2009 Oct;65(10):2007-21.</p> <p>Hadaway L. Needleless connectors: improving practice, reducing risks. <i>Journal of the Association for Vascular Access: JAVA</i> 2011;16(1):20-5.</p> <p>Wright MO, et al. Preventing contamination of central venous catheter valves with the use of an alcohol-based disinfecting cap. <i>Am J Infect Control</i> 2012;40(5):e179-e180.</p> <p>Sweet MA, et al. Impact of alcohol-impregnated port protectors and needleless neutral pressure connectors on central line-associated bloodstream infections and contamination of blood cultures in an inpatient oncology unit. <i>Am J Infect Control</i> 2012 May 8. [Epub ahead of print.]</p> <p>Joint Commission. <i>National patient safety goals</i>. Oakbrook Terrace, IL; 2009.<br/><a href="http://www.jointcommission.org/standards_information/npsgs.aspx">http://www.jointcommission.org/standards_information/npsgs.aspx</a>.</p> |  |
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