Reviewer's report

Title: Risk of infection due to medical interventions via central venous catheters or implantable venous access port systems at the middle port of a three-way stopcock: luer lock cap vs. luer access split septum (Q-Syte)

Version: 2 Date: 30 May 2013

Reviewer: Anna Casey

Reviewer's report:

This study compared luer lock caps with a closed access system with regard to hygiene, work simplification and costs. This is an important manuscript as whilst several studies have investigated the infection risk associated with such devices, the associated costs and practical issues have not been considered in such detail.

Major Compulsory Revisions

• The authors have previously stated that ethical committee approval was not required however, to my knowledge if patient consent is required for this work then ethical committee approval would be required, this is certainly the case in the UK. Furthermore, patients were excluded if they had received antibiotics. If determination of this factor involved review of medical records by people outside the normal care team this would also require ethical approval.

• It is stated in the Background section of the abstract that contamination of the C-port is a risk that increases with the number of interventions and that lower interventions may be equated with better hygiene. For this reason a comparison of luer caps and the Q-Syte was performed. I think it would be beneficial to define here what an intervention is. The statement suggests that the use of the Q-Syte reduces the number of interventions whereas most people might assume that an intervention is the entire process of giving a particular drug.

• In the background it has been stated ‘For some time, the company BD has offered an alternative to the luer lock cap for avoiding health risks due to contamination of TWC hubs (C-ports), i.e. the Q-Syte,…….’ Many companies have offered alternatives to luer lock caps for some time and this should be stated rather than just identifying BD. Also, most of these products were developed originally to reduce needlestick injuries.

• More detail is required in the methods section to describe the microbiological samples. I understand that no personal patient data was obtained, however were the 100 samples taken from 100 different patients?

• In the methods section it was stated that the bacteria were semi-quantified however I see no results pertaining to this. If the results are reported as negative or positive then there is no requirement for this semi quantified description in the methodology, just a definition of positive and negative.
• I cannot review the process diagram in Figure 3 as it is written in German
• I cannot review the NOMINAL sequence in Figure 4 as it is written in German
• There appears to be some problems with the referencing. References cited in the text commence with number 11, Hetem et al is reference 2, not 3 and reference 15 is mentioned in the text but does not appear in the reference list.

Minor Essential Revisions

The author can be trusted to make these. For example, missing labels on figures, the wrong use of a term, spelling mistakes.

• The sentence in the background section commencing ‘Depending on the complexity of the treatment protocol…’ would fit better following ‘…..patency of the catheter system.’

• I appreciate that more detail has been given in the background regarding the three-way stopcock and luer lock cap used in the authors department however since these items are generic I think it would be suitable to just insert the manufacturer name and country in brackets without introduction into the sentence.

• Figure 5 is not referred to in the text. In any case this could be incorporated into a key in figures 3 and 4.

• In the discussion it is stated that measuring the contamination level of the products showed cost efficiency, however this was not directly investigated in this study.

• It has been stated in the discussion that the contamination rates indicated in other trials correspond with the data obtained in the authors observation however no references are given.

• Would it be possible to add in statistics for the comparison of meaning working times?

Minor issues not for publication

• In the background ‘Infusion hose’ would better read ‘Infusion set ‘ or ‘Infusion line’

• The paragraph commencing ‘to avert injuries, each medical facility in Germany…..’ This does not add anything to the paper and could be removed.

• Figure 6 is not required as a description of the process is sufficient

• Figure 8 – the title is in German

• It would be more accurate to describe the microbiology element as cultures throughout rather than smears.

• The language used in this article is not really consistent with that used in infectious diseases journals, it would help to reduce jargon.

• There are some typos and consistency issues throughout particularly regarding ‘3-way stopcock’.
**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests