Author's response to reviews

Title: Influence of pre- and post-usage flushing frequencies on bacterial water quality of non-touch water fittings

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Author's response to reviews: see over
To
Ms. Philippa Harris
Executive Editor - BioMed Central
236 Gray’s Inn Road
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Authors’ reply to referees’ comments

MS: 1244420389950552.R1: „Influence of pre- and post-usage flushing frequencies on bacterial water quality of non-touch water fittings” R1.

Dear Mrs. Harris,

The authors thank the Journal and the referees for having reviewed our manuscript “Influence of pre- and post-usage flushing frequencies on bacterial water quality of non-touch water fittings”, R1. The reviewers have stated that all their comments and requests have been addressed adequately in the manuscript’s revised version. However, reviewer #4 identified some minor issues, which needed correction. We have addressed these points now in the re-submitted re-revised manuscript (R2). The revised manuscript was read and approved by all co-authors. We hope that the content of our revised paper meets the stringent quality criteria of your prestigious journal.

With our best Regards,

Univ.-Prof. Ojan Assadian, MD, DTMH
(For the author)
Referee #1

C1 The authors answered the questions made during the first review and made the necessary changes. I believe that the manuscript is adequate for publication.

We thank the respected reviewer for this favourable statement.

Referee #3

C1 All comments are considered after the decision.

We thank the respected reviewer for this favourable assessment.

Referee #4

C1 Paragraph 3, Background: Suggest that the following paragraph replace existing one (changes denoted with **). NOTE that the change involves deleting the aim to investigate ‘the influence of brass valve blocks instead of plastic material’. The authors themselves are suggesting that this is something to be investigated in future – see last sentence Discussion paragraph 3. The current study cannot achieve this aim as all valves are brass ones. This study does not assess the impact of the brass valves per se. The only comparison that can be undertaken is an indirect one – i.e. comparison with reported results for plastic valves in the literature but even then the effect of brass versus plastic material has to be disentangled from flushing and stagnation effects investigated in the study -therefore this aim cannot be achieved. Aside from the materials used, easily modifiable factors that may influence the *prevalence and extent of microbial contamination and accumulation* of non-touch-fitting-systems are the frequency of usage and the duration of water flow during and after hand washing. Because of this, water-fitting manufacturers have started to provide programmable non-touch fittings that allow
regular automated post-flushing with cold water to prevent water stagnation. However, the ideal duration of post-flushing is unknown. Therefore, the aim of this experimental laboratory based study was to investigate the frequency of usage, the duration of water stagnation and various post-flushing times after use of non-touch fittings *which incorporate brass valve blocks instead of plastic material,* on the total bacterial count/mL waters. Additionally, the effect of pre-rinsing with cold water before use was explored.

We sincerely thank the respected reviewer for the careful inspection of our revised manuscript and for highlighting the implausibility introduced by us in due course of manuscript revision. The reviewer is absolutely correct. Exploring the difference between brass and plastic valves clearly was not objective of this present study; however, this should be an aspect which may be studied in future. We have corrected the respective passage identically as proposed by the reviewer.

**C2. Experimental setting paragraph 2:** The use of the word ‘faith’ in the following sentence is somewhat unusual. This fitting served also to investigate the faith of the water quality in terms of total cfu count/mL from an unused water fitting. I suggest that the sentence be changed. The following is suggested or something similar: ‘This fitting also served as a ‘control’, representing bacterial accumulation (total cfu count/mL) occurring at the site of an unused (low frequency use?) water fitting’.

Again, the respected reviewer is correct. We have modified the respective sentence to: “This fitting also served as a “control”, representing bacterial accumulation (total cfu count/mL) occurring at a water fitting site with low frequency usage.” We hope that this change describes the experimental set-up now better.

**C3. Water collection and microbiological analysis, paragraph 1, sentence 3:** The following sentence is ambiguous: ‘Water was collected directly from the fittings without
any manipulation by using sterile flasks without pre-rinsing (except for fitting no. 8) and without removing or disinfecting the aerator. ‘This ambiguity arises because it is implies that the sterile flasks were pre-rinsed for fitting no 8. Don’t the authors really mean: ‘Water was collected directly into sterile flasks from the fittings without any manipulation or pre-rinsing (except for fitting no 8) and without removing or disinfection the aerator’.

This is an interesting aspect. Of course rinsing does not pertain to the flasks used, however, the reviewer is correct, as this sentence could be miss-read. We have changes the sentence according to the reviewer’s recommendation.

C4. Discussion, paragraph 1, 4th sentence: The presence of outbreak strains in tap water, not including only P. aeruginosa but also other species, seems to be an important factor in subsequent spread in healthcare facilities. I suggest that it is clarified whether spread refers to the organism and/or to infection/disease: ‘The presence of outbreak strains in tap water, not including only P. aeruginosa but also other (bacteria or species?), seem to be an important factor in subsequent dispersion of bacteria and potential disease transmission within a healthcare setting.’

We thank the respected reviewer once again for making a suggestion which obviously improves our manuscript. Based on the reviewer’s recommendation, we have changed the sentence now to: The presence of outbreak strains in tap water, not including only P. aeruginosa but also other microorganisms, seem to be an important factor in subsequent dispersion and potential disease transmission within a healthcare setting.