Reviewer's report

Title: Comparative cost-efficiency of EVOTECH ECR versus Medivator DSD-201 in a real-world Canadian hospital endoscopy setting.

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Reviewer: Michelle Alfa

Reviewer's report:

This is a clearly written manuscript that addresses very practical aspects of using the EVOTECH or Medivator automated endoscope reprocessors (AERs). The data is useful and will be of great interest to healthcare facilities, however, there are a few issues that need to be clarified (as outlined below).

Major compulsory Revisions:

1. Methods:
It is unclear in the methods section if the Medivator DSD-201 had an automated cleaning cycle that was routinely used in addition to the required manual cleaning. From the supplies listing in Table 5 it would appear that there was a cleaning cycle that was part of the Medivator DSD-201 process since there was detergent costs listed. The following need clarification in the manuscript:
- The cycle parameters of the EVOTECH and the Medivator AERs that were used should be clearly stated.
- The authors should clarify that each scope is run in a separate basin for both the EVOTECH and the Medivator units evaluated.
- The authors should also indicate if the cleaning cycle in the Medivator DSD-201 is optional.

If the cleaning cycle in the Medivator was NOT used and only the manual cleaning was done - what would be the time impact?

2. Table 1: It is unclear from the steps outlined whether the scopes that are manually cleaned were rinsed with tap water after the enzymatic detergent step or not? It seems they were immersed in enzymatic, brushed three times and then enzymatic detergent was flushed through the channels using the automated flushing pumps. However it does not indicate that the scope was then flushed with tap water prior to placing into the Medivator. The North American guidelines for reprocessing of flexible endoscopes all indicate that for manual cleaning there should be immersion in enzymatic detergent, brushing and flushing of the channels and external cleaning of the scope while immersed in the enzymatic detergent. This should be followed by immersion in tap water with channel flushing with tap water prior to performing HLD. The authors need to clarify what the sequence of steps were for the cleaning process that was used. If the manual rinsing with tap water was omitted because the scope was being placed in the...
Medivator that would then use the cleaning cycle this should be clarified. It should be noted that the tap water rinse is an important part of the manual cleaning process that should not be omitted for AERs that require manual cleaning because if the endoscope sits for any length of time before being placed into an automated endoscope reprocessor, the enzyme cleaning solution (enzymes are proteins) will dry on the outside of the scope and may create a “film” on the lenses etc that may be difficult to subsequently remove.

3. Table 3 and Table 7: Currently the difference between the Medisafe and Evotech labour requirements range from 1.54 mins for bronchoscopes to a maximum of 2.61 mins for colonoscopes. However, these times are based on manual cleaning that does not appear to include a tap water rinse (as per steps outlined in Table 1). As such the time differential for labour would certainly be higher if the required manual tap water rinse was included. The authors should include what the time differential would be if the manual cleaning included the labour required to transfer of the scope from enzymatic to perform a thorough tap water rinse of the external surfaces and all the channels. This also needs to be taken into consideration in Table 4 as the data as presented do not include the labour required for the tap water rinse in the manual cleaning process.

4. In Table 4 and in the discussion there is no consideration given to concurrent processing of two scopes at the same time in the Medivator and Evotech units. The average daily reprocessing times given in Table 4 give the impression that the total daily time savings for reprocessing of all scopes would be 6.2 hours. However, what has not been accounted for is that most times two scopes are run concurrently in each AER so the actual saved time would be more like 3.1 hours of actual clinic time. They should be able to determine what percentage of scopes get run concurrently (i.e. two scopes run in the AER at the same time) versus the percentage of scopes that get run sequentially. This would give a more meaningful estimated of actual time savings per clinic day.

Table 5: For the Medivator, Cidex OPA cost is listed. In addition, there is a listing for “Cidex OPA in ultrasonic” as well as “CIDEX”. It is unclear what these last two represent or where in the Medivator cycle they are used. The authors should clarify at what point in the scope reprocessing cycle these are used or whether they are used for decontamination of the Medivator itself??

Table 5: It is unclear how what the "Blue wipes" and "Blue wraps" are used for? The authors should clarify if these are used in the manual cleaning process??

Minor Essential Revisions:
1. Table 4 title: Currently it states "annual" in the title, but there is not data given for annual reprocessing or labour times. The word "annual" should be omitted from the title.

Level of interest: An article of importance in its field
Quality of written English: Acceptable

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

Declaration of competing interests:

In the past five years I have been an invited speaker at conferences etc where travel, accommodation and speaker fees have been sponsored by J&J. I am the recipient of a research contract from J&J that was used to evaluated the cleaning efficacy of the EVOTECH unit. I did not personally receive any monies from this research contract. I do not have stocks or shares and do not stand to gain or lose financially from the publication of this paper now or in the future. I have never received a salary from this company and do not have any other financial or non-financial competing interests in relation to this paper.