

An Evaluation of Bacterial Count in a liner before and after spraying with Peracetic Acid Solution

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Introduction

The milking cluster is a well known source of transmission of mastitis pathogens from cow to cow. Prior scientific research has demonstrated that once an infected cow has been milked, the next 6 to 8 cows milked through that same cluster are at risk of contamination, the first 1 or 2 cows being exposed to a particularly high level of risk.

Sanitisation of the cluster between cows is one effective method of reducing this risk by killing any pathogens present in the cluster before it is re-attached to the next cow. Peracetic acid (PAA) (also commonly referred to as peroxyacetic acid) has been found to be a particularly effective means of cluster sanitisation.

Evaluation Method

An evaluation was undertaken to assess the level of bacterial soiling on the internal surfaces of a liner before and after spraying it with a 0.5% dilute solution of peracetic acid (250 ppm) using a semi-automated Ambic PeraSpray system. Selected liners from 30 cows were swabbed after the cluster was removed from the cow. After swabbing, the liner was subjected to a 3 second spray of disinfectant solution and left to drain for a further 10 seconds before a second swab was collected.

Results

The results of the swab counts before and after treatment with the PeraSpray system are shown in the Tables 1 and 2 below:

Parameter	Pre-Flush	Post-Flush	% change
Total Viable Count (cfu)	30562	268	99.1%
Staphylococcus spp Count (cfu)	996	22	97.8%
Streptococcus spp Count (cfu)	4709	46	99.0%
Coliform Count (cfu)	6	1	83.3%

Table 1 Summary of findings of Pre- and Post disinfection swab counts - mean values

Parameter	Pre-Flush	Post-Flush	% change
Total Viable Count (cfu)	12425	95	99.2%
Staphylococcus spp Count (cfu)	10	0	100.0%
Streptococcus spp Count (cfu)	455	0	100.0%
Coliform Count (cfu)	0	0	-

Table 2 Summary of findings of Pre- and Post disinfection swab counts - median values

The results are also illustrated in Figures 1 and 2 and can be summarized as follows:

- Total Viable Counts were significantly reduced
- Streptococcal (Strep) counts were significantly reduced
- Staphylococcal (Staph) counts were significantly reduced
- Insufficient coliforms were identified to allow meaningful analysis

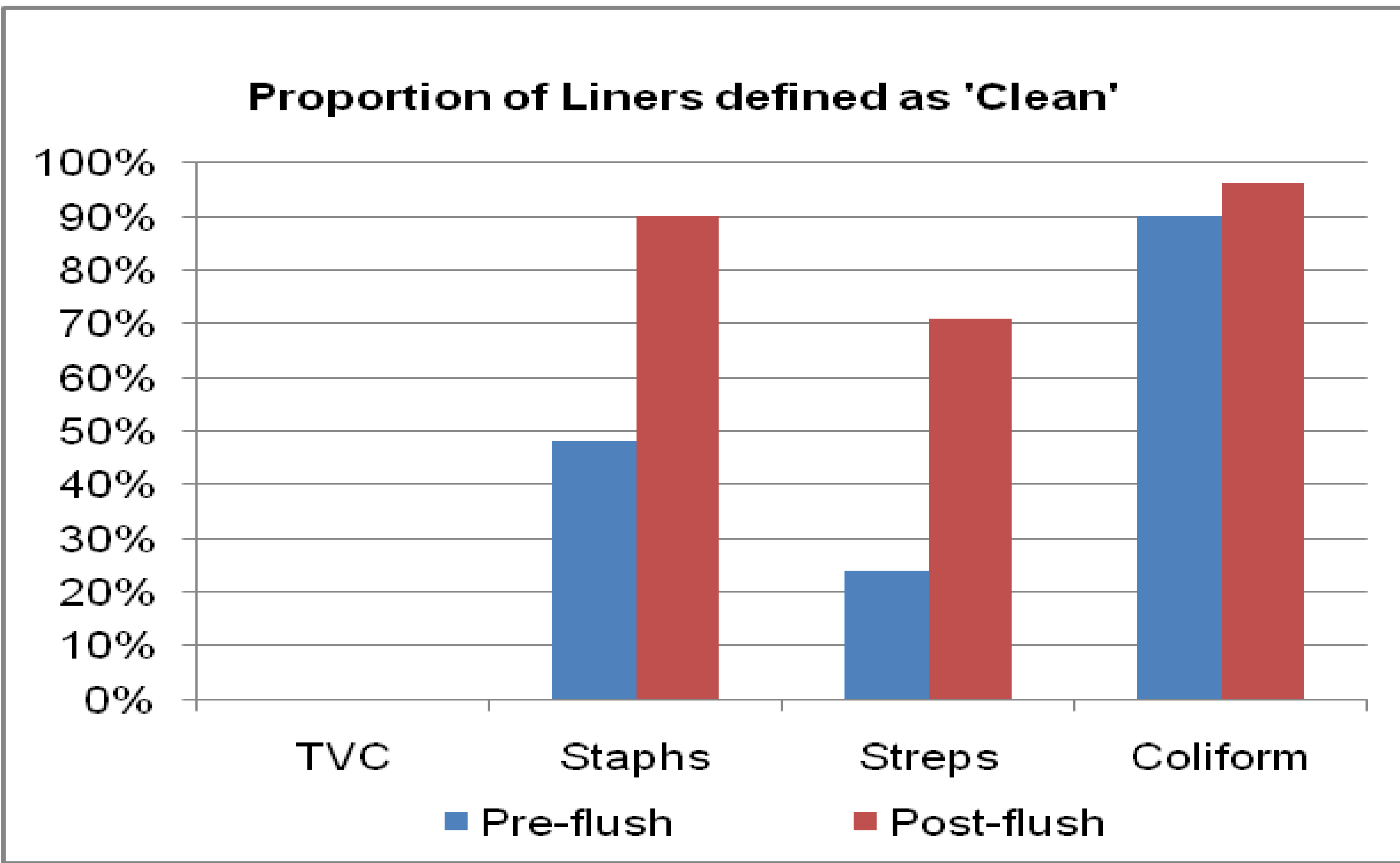


Figure 1 Illustration of the efficacy of the PeraSpray process as measured by a threshold of <10cfu defining clusters as being 'clean'

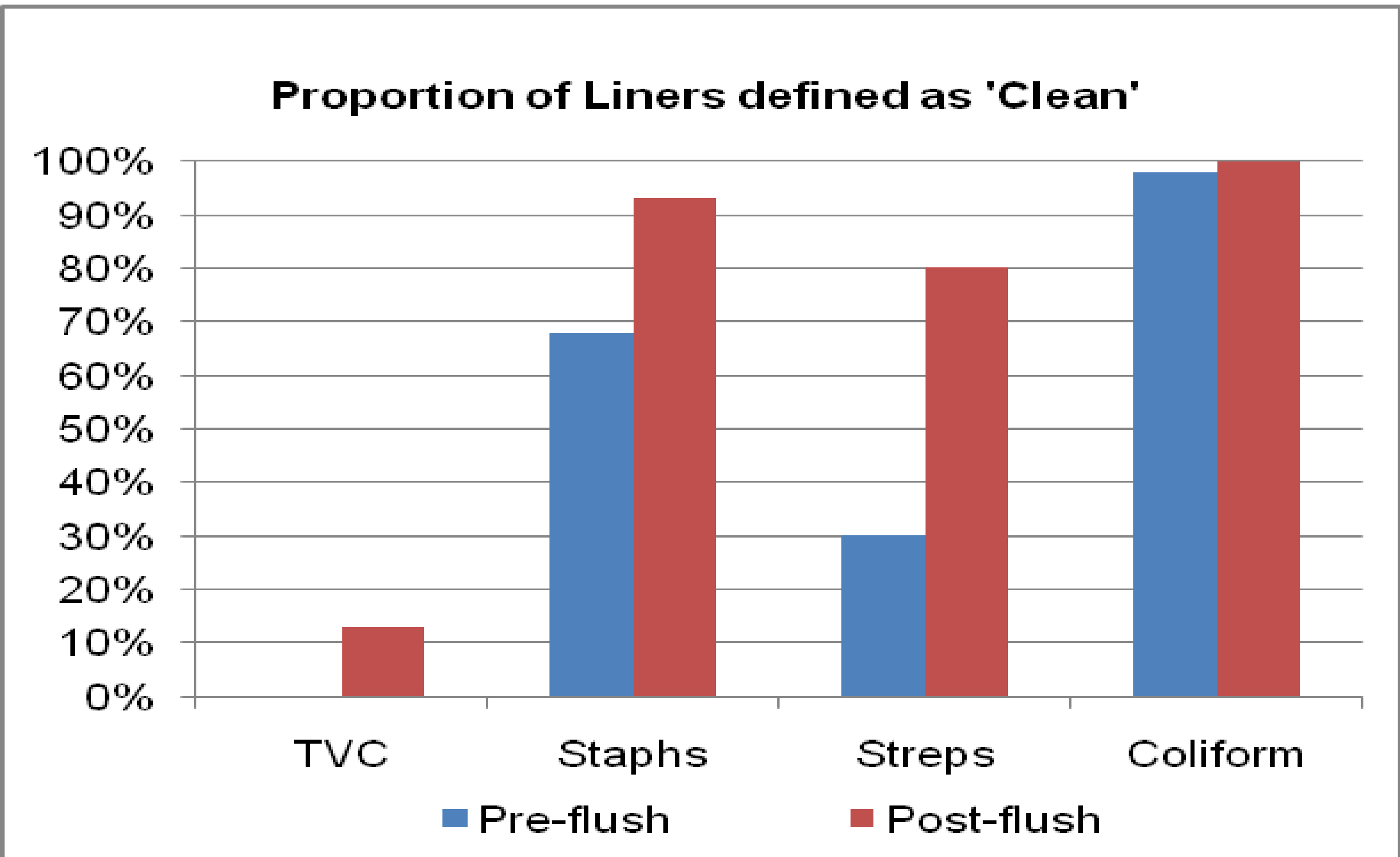


Figure 2 Illustration of the efficacy of the PeraSpray process as measured by a threshold of <100 cfu defining clusters as being 'clean' before disinfection and <50cfu defining clusters as being 'clean'; after disinfection

Conclusion

The PeraSpray system significantly reduced the bacterial count of liners following its use.

While the reduction in bacterial loading may not be as great as seen with fully automated systems, there is a significant cost advantage to be offset against a slight reduction in performance compared with automated systems.

