

# Effective cleaning vs short cycle times

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## Introduction

In the last decade we have experienced a true arms race between washer disinfector manufacturers. With all washer-disinfectors being very similar pieces of equipment, the focus of this race was reducing the cycle time in the name of increasing the throughput of instruments through the department; in other terms, increasing the overall efficiency. While washing cycles became shorter, we observed intensification of manual pre-cleaning and processing of instruments before the automated wash.

## Is this logic flawed?

If we take into consideration the fact that cleaning of surgical instruments is the only part of the decontamination process that physically removes contamination it begs the question whether the current trend is taking us in the right direction.

The question we need to ask ourselves is why do we need to manually pre-clean instruments in the first place? Is it perhaps because our short and efficient automated cycles are not good enough?

## The illusion of fast cycles

What constitutes a cleaning cycle? Should we only be looking at the time instruments spend in the washer disinfector? Is this a true measure of efficiency? If we consider cleaning as the sum of all activities from the moment instruments leave the theatre it becomes obvious that the automated washing is only a fraction of that entire sequence of events. So what is the real cleaning time if a fast 30 min cycle is preceded by 45 min manual preparation of instruments? On top of that we can ask ourselves if this 30min cycle can be considered effective if it requires 45min of manual pre-cleaning.

Without a doubt some manual handling is required as some instruments need to be disassembled, some may require ultrasonication but once that is done should we really focus on manual pre-cleaning just to satisfy the case of having fast automated cycles? Or should we focus on increasing the effectiveness of automated cycles?

## The cost of capacity

There is of course the question of capacity of washer disinfectors in a given department. If it wasn't sufficient it would be the case to consider running very short cycles and keeping a larger number of staff. In this case the good old elbow grease would compensate for the lack of effectiveness of washer-disinfectors. This solution is not sustainable in the long run as staff needs training and continuous improvement. Furthermore, with all the good intentions, mistakes happen due to the nature of manual processes, which often go unnoticed. When costs of capacity are evaluated, all

these elements should be included – cost of human resources, PPE, space, instrument repairs due to incorrect handling etc. When all of it gets added manual reprocessing loses its value.

## Controlling quality

When considering quality control, the success is based on consistently delivering measurable objectives. Automation has this elements of quality control and repeatability hard-coded in as its nature. “What gets measured gets done” automated cycles allow for the variables to be compared, controlled, improved – in one word managed. In contrast to purely qualitative control over manual processes automated cycles can be validated based on data.

In conjunction with measurable processes verification automated cycles can be optimised to deliver effective cleaning at minimal involvement of manual handling. The value of validating a greater proportion of the entire cleaning process is crucial as this is the fundamental principle of ensuring better quality over time.

## Safety margin in cleaning

When we consider how cleaning cycles are released at the moment, we notice that there are no clear rules when it comes to the safety margin that will account for the imperfections of the process itself, variability of instruments, varying incoming water quality and temperature etc. In most cases washers are set to pass the validation test criteria in the shortest possible time. That is partially driven by the push for short cycles. Because during validation we are aborting the cycle before the thermal disinfection stage. It can be argued that disinfection is the additional washing time that can be considered as a safety margin. In practice this time varies depending on the type of the washer. On top of that disinfection is executed without the cleaning chemistry so it should not be considered as a safety margin to the washing process. During sterilisation we are doubling the time of exposure to include the safety margin. Should we not follow similar logic when it comes to cleaning processes?

## Conclusions

“What is the cycle time?” is usually the first question washer disinfectant manufacturers are asked at trade shows. If we consider the manual processes, the measures of quality that are imposed on the outcome and the safety margin we design in the cleaning process should the first question not be how effective your cycle is and what data have you got to prove it?

Yes, effective cycles will be more expensive due to the length of time, use of better chemicals and will be typically longer in – the question is, are they really more expensive than current practices?