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Cost Analysis of Spores
and Class 5 Strips

This cost analysis will review the impact of instrument quarantine on the use of Class 5 integrator strips, demonstrating how spore incubation times affects a significant portion of your costs of instrument reprocessing.

Background

Every sterilizer must be challenged with a Biological Indicator (spore test) each day it is used. This is to ensure that the sterilizer will reliably kill microorganisms. Processed spore vials require a certain time to incubate before indicating results.

Reprocessed instruments must be held in quarantine after sterilization, released only after the results of the spore test are verified.

The incubation time of the spore dictates the duration of quarantine. Long incubation times require longer quarantine times.

The choice of which spore to use is often based on cost, not whether or not it's certified for your particular sterilizer, or how it affects your quarantine time. Long incubation spores are often the least expensive.

You need to use your instruments, not keep them tied up in quarantine. To double or triple your instrument inventory simply because many of them are held in quarantine is not only impractical, it is ridiculous.

Quarantine can be bypassed, before the spore results are known, by placing one Class 5 integrator strip within each sterilized item. Often, this involves dozens of Class 5 strips each day.

Class 5 Integrator Strips

Class 5 strips are considered to be just below Biological Indicators in the hierarchy of reliability of sterilization indicators. They are relatively expensive. A specific Class 5 strip can often be purchased in differing amounts, at differing costs. That is, purchasing a small amount at once is often more expensive per strip, than it would be if you purchased them in bulk.

The initial analysis looks at the costs of reprocessing under the following conditions:

**100 sterilized items,
10 loads of 10 items each (producing the 100 items above),
One sterilizer.**

Class 5 Integrator Strips are purchased in differing amounts, at different costs:

A pack of 200, at a unit price of \$0.33 each, indicated by the red line below,
A pack of 1000, at a unit price of \$0.22 each, indicated by the blue line below (this is a savings of 1/3 the cost).

The spore vials reviewed are:

Maxitest In-Office BI's	24h incubation	\$75/pack of 25	\$3.00 each
3M Attest 1292 Rapid Readout BI	1h incubation	\$326/pack of 50	\$6.52 each



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The formula used is the following:

$$\text{Cost} = (\text{Spore } \$)(\# \text{ of sterilizers}) + (\text{CI 5 } \$)(\# \text{ of items}) + (\text{CI 5 cost})(\# \text{ of loads})$$

The first term accounts for one sterilization mode (wrapped, plastics, etc) and the number of sterilizers you have

The second term accounts for the number of items sterilized per day.

The third term accounts for the PCD required for each load, as the PCD will contain one Class 5 strip

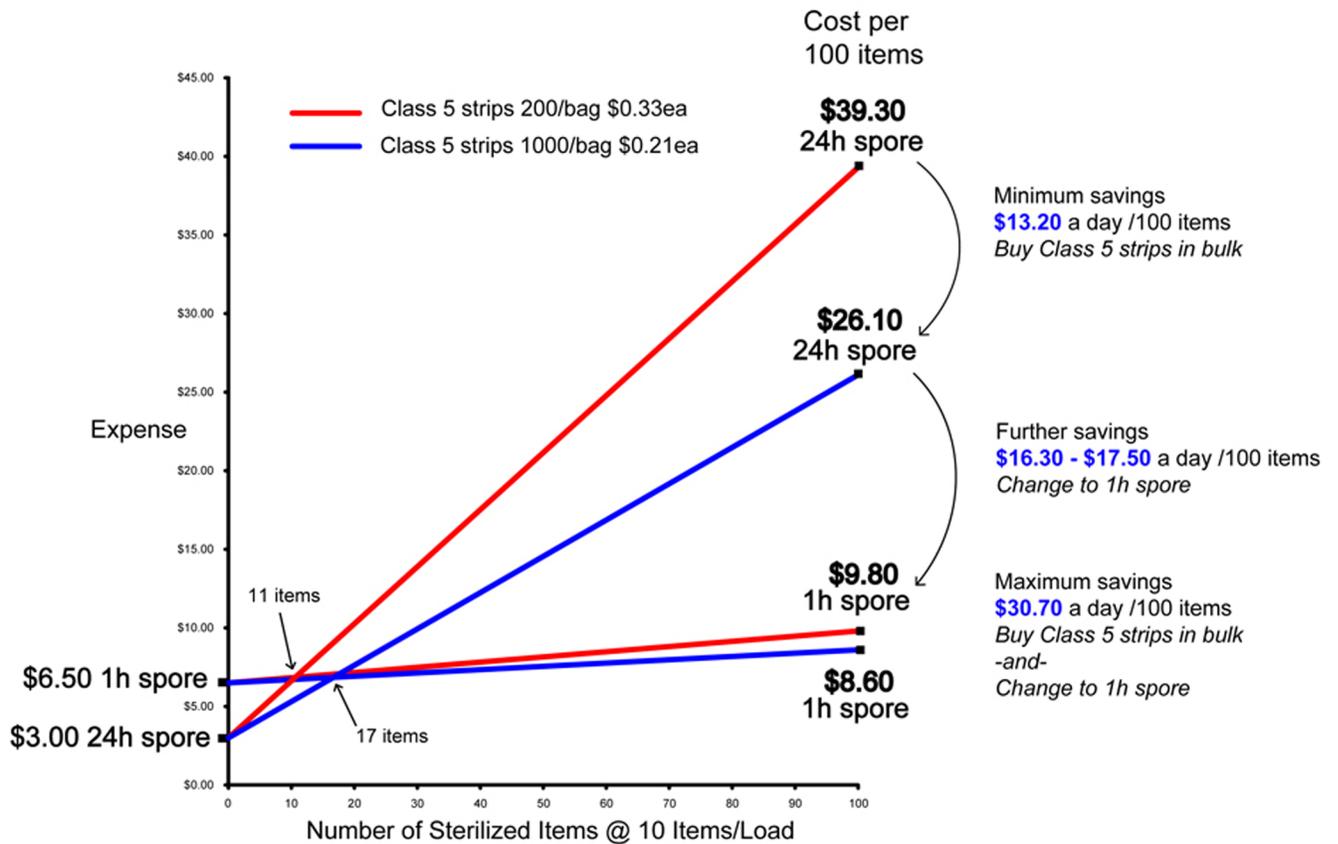
You can see that the costs of reprocessing 100 items may differ greatly, affected by how you purchase your Class 5 strips and which type of spore you use.

The greatest contributing factor to your overall reprocessing costs are your Class 5 strips, not your spore, if you're using a 24h spore.

Your costs will decrease greatly if you change to a short duration spore, which will:

Minimize your quarantine time

Eliminate the need for using one Class 5 strip in each item, cancelling the second term of the above formula.



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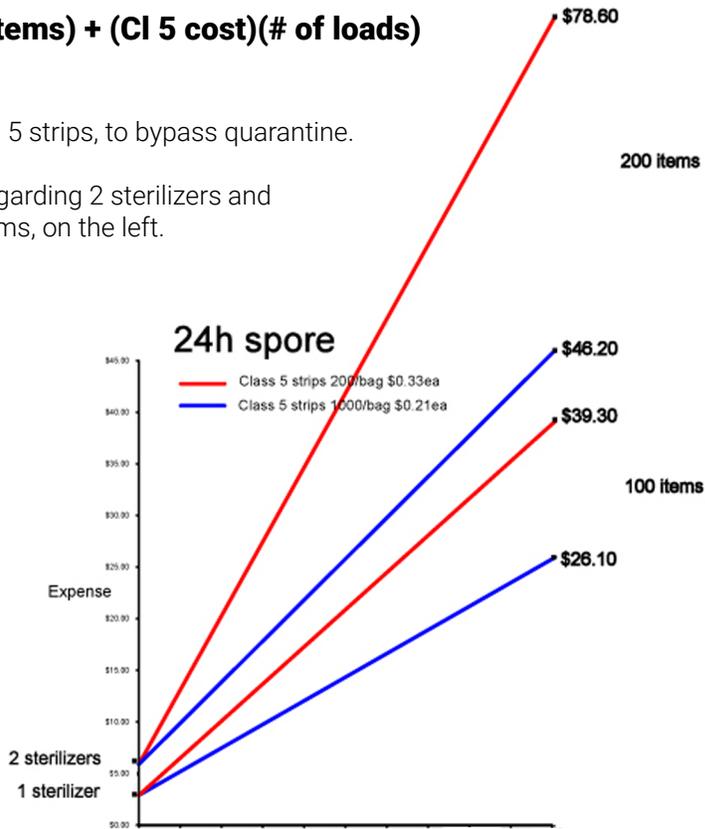
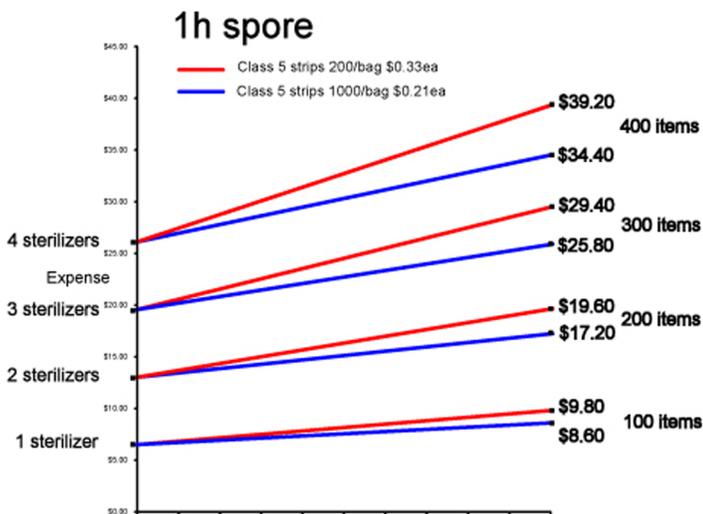
Operating a dental practice often requires more than 100 items reprocessed each day. Using the information here, it is sensible to evaluate the costs of reprocessing under the following conditions:

**More than 100 sterilized items per day,
Multiple sterilizers,
10 loads each.**

$$\text{Cost} = (\text{Spore } \$)(\# \text{ of sterilizers}) + (\text{CI 5 } \$)(\# \text{ of items}) + (\text{CI 5 cost})(\# \text{ of loads})$$

Again, the costs vary greatly depending on your use of Class 5 strips, to bypass quarantine.

Note that the graph on the right only displays information regarding 2 sterilizers and reprocessing 200 items, instead of 4 sterilizers and 400 items, on the left.



		1h Spore		24h Spore	
Items	Loads	200/bag	1000/bag	200/bag	1000/bag
100	10	\$9.80	\$8.60	\$39.30	\$26.10
200	20	\$19.60	\$17.20	\$78.60	\$46.20
300	30	\$29.40	\$25.80	\$117.90	\$78.30
400	40	\$39.20	\$34.40	\$157.20	\$104.40

Conclusions:

You can reduce your costs of instrument reprocessing by:

1. Purchasing Class 5 Integrator strips in **bulk**.
2. Choosing a spore with a **minimum incubation time**, thereby minimizing quarantine time and reducing quarantine volume to one load of instruments, thereby **eliminating the need to place one Class 5 strip in each item**.

