

# Calculating Cost Per Use

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A daily struggle for many textile suppliers and healthcare facilities is finding a way to calculate the actual cost per use of textile items. For healthcare laundries, cost per use is an important factor in deciding what items to purchase and where to price such items in the market. Incorrectly factoring the cost per use of an item can negatively affect the bottom line of any healthcare facility in a very serious way, which is why it is paramount to textile processing facilities to accurately calculate such figures. Cost per use can also be extremely valuable to healthcare facilities as it can help such facilities determine whether disposable or reusable items will provide optimal efficiency.

To make the calculation, there are a few variables you need to know about a product, such as:

1. Price of the product
2. Life expectancy of the product
3. Weight of the product
4. Laundry cost per pound to process the product

$$\begin{aligned} &\text{Cost Per Use Formula:} \\ &(\text{Price} / \text{Life Expectancy}) + \\ &(\text{Weight} \times \text{Laundry Cost Per lb.}) \end{aligned}$$

The formula is relatively simple: first, price is divided by life expectancy, and the weight of the item is multiplied by the laundry cost per pound. Cost per use can then be calculated by adding the two results together. For simplification, you can view the simplified formula in the box at right.

A very quick and short example of the formula in real life is the cost per use of a pillowcase. Below is the data we will use for the calculation:

1. Price of the product: \$1.50 each
2. Life expectancy of the product: 32 uses<sup>1</sup>
3. Weight of the product: 0.24 lbs.
4. Laundry cost per pound to process the product: \$0.41<sup>2</sup>

$$\begin{aligned} &\text{Cost Per Use Formula:} \\ &(\$1.50 / 32) = \$0.047 \\ &+ (0.24 \times 0.41) = 0.098 \\ &\text{Cost Per Use} = \$0.145 \end{aligned}$$

The resulting cost per use is \$ 0.145 every time the product is used.

This formula can be used on any textile item that is laundered. In many cases, finding the variables for the equation can be a challenge. While price and weight are relatively simple (price can be acquired from your supplier and weight is the scale weight of a new item before washing), life expectancy can be

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<sup>1</sup> Phillips and Associates, 2008

<sup>2</sup> Phillips and Associates, 2008

a challenge and I will review that below. The key with the weight calculation is to use the same type of weight measurement for the item you are comparing it to. In other words, if you were comparing pillowcases from two different suppliers, you would obtain the scale weight of both products when new so that you have a fair comparison. However, if you were developing this cost per use for comparison to a disposable item, you may want to use the average weight of the textile item after it has been in use for a while. The reason for this is because when the textile item is supplied to the end user and they are charged on a per-pound basis, it will be for the actual weight of the item in use, which is generally lower than the weight of the item when it is new (unwashed). That will be a more accurate comparison to the cost of a similar disposable item.

As for the laundry cost per pound, that factor is quite simple if you use an outside laundry to process your textiles (it will be the rate you are charged per pound). If you have an on-premise laundry facility, you would utilize your current cost per pound calculation which is based upon your departmental expenses. If you are still uncertain in regards to this calculation, you can consult an independent source. My source is the *2006-2007 North American Edition Comparative Operating Revenues and Expense Profile for the Healthcare Textile Maintenance Industry (by industry segment type)* that is compiled by and available for purchase from Phillips and Associates. In this document the average cost per pound for a laundry processing Customer Owned Goods was \$0.407 in 2007.

As mentioned before, the last piece of data to incorporate is the life expectancy. Life expectancy is a key component in the cost per use calculation as it can have a dramatic effect on the resulting value. For example, many healthcare pillowcases are designed to last at least 200 launderings and some synthetics may last as many as 300 or more. However, those life expectancies do not take product loss into consideration. Loss of product through abuse, theft, incidental disposal, and many other factors can decrease the life expectancy dramatically. Had I used 200 as the life expectancy for the pillowcase, my cost per use would have been \$0.106, which is 37% less than \$0.145; an inaccurate representation. By utilizing results from an inventory, you can ensure appropriate calculation for product loss and thus gain appropriate representation for your cost per use calculation.

The number I used for the life expectancy of an average pillowcase was 32 uses, which was taken from the Phillips report since it is an independent source. However, the best data to use in any cost per use calculation is your own. You can calculate the life expectancy of your key textile items with some basic data and making a few assumptions. To calculate your life expectancies you will need the results from two linen inventories and you will need to know the following two pieces of information:

1. Number of pieces served to your end users over a fixed period of time (such as one year)
2. Number of pieces purchased over the same period of time as the pieces served

***Life Expectancy Formula:***  
*# of pieces used per year /*  
*# of pieces purchased per year*

Let's examine the pillowcases example with the following hospital data:

- The hospital has 200 beds with an average census of 180

- The average usage is 3.2 pillowcases per adjusted patient day or 480
- The number of pillowcases served in a 12 month period is 480 x 365 or 175,200 per year
- During the same time period the average quantity of pillowcases purchased was 24 dozen per month, or 3,456 in total

*Life Expectancy Formula:  
(175,200 / 3,456) = 50.69  
Pillowcase Life Expectancy  
is 51*

The assumption we are making is that the pillowcase inventory level was relatively constant in the hospital during the 12 month time period. For example, if seven par was the normal circulating inventory within the hospital, the total inventory on the pillowcases would be 3,360, which is one par (480) times seven to obtain the seven par (3,360). If the inventory had started at seven but subsequently declined to four par, then the life expectancy would be inflated as the circulating inventory was not sustained. Conversely, if too many pillowcases were purchased and there was an excess of inventory on-hand then the life expectancy would be artificially low. In the end, if this data is not readily available or you are unsure if your data is valid, you can reference and independent source or a textile supplier to provide some industry averages. This information will only provide a starting point, in order to gain accurate information; you will need to conduct an inventory no less than annually.

Laundry consideration is a major factor when evaluating a textile item, and a few of the variables for the laundry are:

- Will the product dry faster?
- Can I increase the speed of my ironers or do I need to slow them down?
- Do I have enough dryer capacity to handle this item?
- Will the product require a different wash process?
- Is the product susceptible to stain more or less?
- How will the weight difference in the product affect hospital cost and laundry revenue?

Cost per use is only one tool available to evaluate products but is the fundamental calculator to build a case for or against a product. Other factors to consider will be end user acceptance of the product in terms of comfort, patient care and ease of use. This calculation should be the key consideration in choosing a product mix, and having the right data to work with is vital to obtaining a valid and useful outcome.

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