Case Study

Title: New Distribution Methodology for Reusable Precaution Gowns

Facility: Multiple Trial Facilities Evaluating the Method
- Case Study Laundry: 25M Pound Laundry
- Case Study Hospital: 400 Bed Hospital

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Case Study Summary: This study reports on a new methodology for handling and dispensing reusable precaution gowns that accomplishes two important goals.

1) Provides method for the precaution gowns to be more conveniently accessible at the point-of-use within the hospital.

2) Provides efficient and cost effective means for laundries to provide reusable precaution gowns to its customers, benefitting both.

BACKGROUND

Hospitals typically receive reusable precaution gowns from their laundry in plastic bags containing an established quantity. The bags are taken to the unit when and where needed, and are commonly stored on the cart. The gowns may be folded or unfolded.

To fold precaution gowns adds laundry time and cost. For a laundry serving customers on cost-for-service basis, this can be problematic. In all cases, handling of this unique item requires special handling within the production environment. While cost effective for hospitals, laundries are not always anxious to provide the item, or at least without added surcharge.

While they are inherently cost-efficient relative to disposable gowns, there has been need for improvement in the means and methods of its handling and distribution with the hospital. And also within the laundry, so large volumes can be cost-efficiently processed and provided.

STRATEGY

New Strategy – Product Design
Standard Textile has designed a reusable dispensing bag to contain reusable precaution gowns and serve three important goals relative to existing systems. Its tunnel bag design and function is:
1) Efficient to load with gowns in the production environment.
2) Easy for the hospital to receive, store and distribute to user areas.
3) Convenient for the end user to obtain a gown at the point-of-use.

The product and supporting methodology was based on the study of Personal Protective Equipment (PPE) distribution and dispensing systems in hospitals, with focus on precaution gowns.

Understanding that physical layout, logistic systems, and that hospital policy, procedure and preferences vary among hospitals; this new product nevertheless offers a new option to a wide audience of potential users. In addition to securing the cost efficacy of reusable gowns, it is inducement for disposable users to consider a new option.

**Design and Function of the New Product**

The product is a patented ComPel barrier quality bag that when filled with up to 20 precaution gowns, assumes a tubular dimension. Long and narrow, it has hook loops enabling it to be hung in one of two basic ways from a door or a wall.

1) An over-the-door hook, placed on the door when needed and removed when not. The soft bag hangs flush to the door, with minimal extension beyond the door frame when the door is closed.
2) Permanent hook(s) affixed to the door or wall. The area’s physical design, and related preferences or practicalities determine the most effective or desired method.

The bag’s top has a flap-over closure, allowing the laundry or linen room to easily load gowns into the bag in loose/bulk form, from a post-dryer work station. The bag’s bottom has an opening controlled by two features.

First, the opening is elasticized, and so substantially constricted when even in its natural state. Second, there is a built-in draw-string with locking mechanism. When pulled tight and locked, the opening can be closed entirely. This is important for loading, and later transport and handling. The gowns are fully contained when they need to be, and later easily accessible when they need to be.

**RESULTS**

**Tunnel Bag in Production at Laundry**
The bags are processed along with the precaution gowns as they are of the same or similar material. The bags are green, appropriate to recycling initiatives it supports, and are easily post-sorted from the yellow gowns.
The laundry in our study devised a stand from which the bags can be vertically hung, while empty. The bag design has two inner fabric loops that are visible when the top flap is in the open position. The bottom drawstring is then tightened and locked. The production worker quickly puts gowns in the bag, without concern for fold, or extra time for awkward steps or handling.

They are literally stuffed into the bag. The process is less awkward than stuffing gowns into plastic bags, which are deliberately flimsy, to control cost and because the end user must be able to easily rip or puncture the bag in order to get to the gowns.

The case study laundry currently processes 4,000 precaution gowns daily and reports the following trial results.

<table>
<thead>
<tr>
<th>Production Method</th>
<th>Production Rate</th>
<th>Current Hours</th>
<th>Projected Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Folded and Bagged</td>
<td>200 per hour</td>
<td>12.5 daily</td>
<td>n/a</td>
</tr>
<tr>
<td>Bulk and Bagged</td>
<td>800 per hour</td>
<td>1.8 daily</td>
<td>n/a</td>
</tr>
<tr>
<td>New Tunnel Bag</td>
<td>800 per hour</td>
<td>n/a</td>
<td>5.0 daily</td>
</tr>
</tbody>
</table>

**Projected savings of 9.3 labor hours daily – 1 Full FTE**

Additional Benefits:
- Eliminate user dissatisfactions with the plastic bags and current method.
  - Bags breaking open and gowns on floor, becoming unusable
  - Awkward and limited space for bags in some hospital storage space
  - Support of reusable initiatives via elimination of plastic bags (98,000/year)
- Opportunity to offer cost saving and appealing option for disposable users
  - Greater laundry revenue and efficiencies.
  - Lowering hospital cost by eliminating disposables.
  - A win-win cost equation.

**Tunnel Bag in Use at Hospital**
The bags have been successfully tested for user convenience, design, and functionality via hospital trial. Internal logistics were confirmed to support implementation of this method. During trial and upon its completion, comments were solicited, observations made, and a written survey done for follow-up.

The design and method advantages of the new method versus the bagged gowns are as follows:
- Bending down to retrieve gowns from cart drawers is eliminated. The gown slides out of the tunnel bag at waist height, convenient for use.
The gowns slide out one at a time, facilitated by the material itself. Gowns loaded and packed tightly release from each other easily when the bottom one is pulled.

The weight of a full bag is balanced between what can be comfortably carried and lifted, and having an efficient quantity loaded.

The bag hanging slightly changes the aesthetic of a hallway, but the shape and size is intended to be as unobtrusive as possible, for the function.

The bags are designed to be easily transported and stored within the hospital. In volume they equal the size of a plastic bag containing the same quantity, but offer shape stability and strength. Plastic bags filled with gowns are often awkward to handle and store, and can break and/or puncture during handling.

Key and summary user survey responses were as follows:

1. **Compare convenience compared to the current (old) method of distributing/using gowns.**
   - Users combined scored rating of convenience was 63 of a possible 70, or 90% positive.

2. **Any difficulties or suggested improvements?**
   - None were cited.

3. **Written comments offered by users:**
   - *This method is much easier than bending down*
   - *Awesome*
   - *Now the gowns don’t spill out on the floor*
   - *Very easy - comes out one at a time.*
   - *Great idea/convenient*
   - *Easier on your back. No more bending over.*
   - *Very easy. Comes out one at a time.*
   - *So much easier to use than the cart. I like it a lot.*
   - *I don’t have to bend very low*
   - *Great invention.*

**CONCLUSION**

**Benefits of the Tunnel Bag Dispenser**
- Efficient and cost effective laundry processing, handling and delivery to hospital.
- Relative to disposable gown systems, likely savings of 10%-40%, depending on disposable acquisition and trash disposal cost.
- A reusable dispensing system that is convenient and easy to use.