



## Mapping the System-of-Use for the Patient Hospital Gown

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Since 2006, fifty-two design patents for hospital or medical gowns have been filed with the United States Patent and Trademark Office. However, there is no evidence supporting the large-scale adoption of a new design by hospitals. The one-size-fits-all approach to the patient gown does not satisfy patients nor healthcare professionals, and both would prefer situation-specific medical attire (Gordon & Guttmann, 2013; Jankovska, 2015; Liu et al., 2016; Park, 2014). Yet, even seemingly simple modifications to the patient gown, such as increasing the size range, has not been achieved.

In most cases, initiatives to design a new patient gown began with supporting patient dignity and functional benefits for medical care. However, as previous studies indicated (Black & Torlei, 2013; Gordon & Guttmann, 2013; Iltanen, 2009), designing a patient gown involves not only understanding the users but also accepting institutional feasibility. There is a complex system of users and institutions that interact with the patient gown, including patients, healthcare professionals, hospital environmental services staff, contract laundry services, trucking and transportation, and federal/state regulations. Until research is conducted to understand the patient gown's system of use, it will be difficult to design a new patient gown that is both impactful and cost-efficient.

The purpose of this research was to create a model of the system-of-use for the patient gown. Previous literature shows how a systems approach can be used in hospital settings to improve supply chain management, specifically the linen supply chain (Furterer, 2011; Hutton & Abdi, 2018). Understanding the supply chain system of hospital linens, which includes the patient gown, can help determine where and how to implement design innovation. A deeper understanding of how the patient gown functions within the system as a whole is necessary. Through a systems approach to the patient gown, access points for change can be identified. Understanding the system will result in a better designed gown for patients and healthcare professionals, as well as an improved system-of-use. This will significantly impact the body of knowledge within apparel and healthcare design in a powerful and unique manner.

### Method

To create a model for the patient gown system of use, literature covering multiple areas of the system impacting the patient gown was explored to provide a basis for the model. First, literature was reviewed to assess patient and healthcare providers' needs and opinions surrounding the patient gown (Baillie, 2009; Edvardsson, 2009; Jha, 2009). This literature justified the need to redesign the patient gown. Next, literature on hospital linens systems was

analyzed (Furterer, 2011; Hutton & Abdi, 2018; Landry & Beaulieu, 2013; Olufson, 2017). The patient gown is considered part of the hospital linen system. Therefore, it is necessary to understand the complexity of the linen system and how the patient gown functions within this system. Tracking systems used internally in hospitals for linens and other supplies were reviewed and analyzed. To build an understanding of how the patient gown interacts with the laundry system, literature and organizational healthcare laundry systems and structures were analyzed (Carre, 2008; Ponder, 2009; The Centers for Disease Control and Prevention, 2003).

Hospitals identified in all reviewed literature were classified by size and type based on the Agency for Healthcare Research and Quality (2008) to compare and contrast organizational structures and linen systems. Finally, local hospital and commercial laundry service websites, job descriptions, and interviews with local personnel provided additional details on other users and systems that interact with the patient gown. Based on the reviewed literature, a model was developed, showing the interaction between laundry systems, transportation systems, and hospital systems regarding the patient gown. The model was drafted, revised, and verified by the environmental services department at a local hospital system with different size facilities and a local laundry and transportation contractor.

## Results

This research mapped how the patient gown travels within the hospital linen organization, sorting and tracking methods during the gown life cycle, transportation to and from a laundry facility to a hospital, and laundry facility operations (Fig. 1). Previous literature has focused on the patient gown through the lens of the patient and healthcare provider. However, the system that encompasses the patient gown plays a critical role in implementing changes. Research has shown that this system is complex but understanding it can aid in the development of the patient gown and improve future innovation and adoption rates of new gowns in healthcare.

Current limitations to the model are that it is based on literature, and one local hospital and commercial laundry organization. Future research includes observations and interviews of key stakeholders of the system as modeled in hospitals of different sizes and settings. Developing and testing a systems model for the patient gown also includes analysis and implications of adding more variety of medical apparel to the system, such as additional sizes or specific products. This system model will help identify where the system needs to be modified in order to make impactful design changes to the patient gown and future medical apparel.

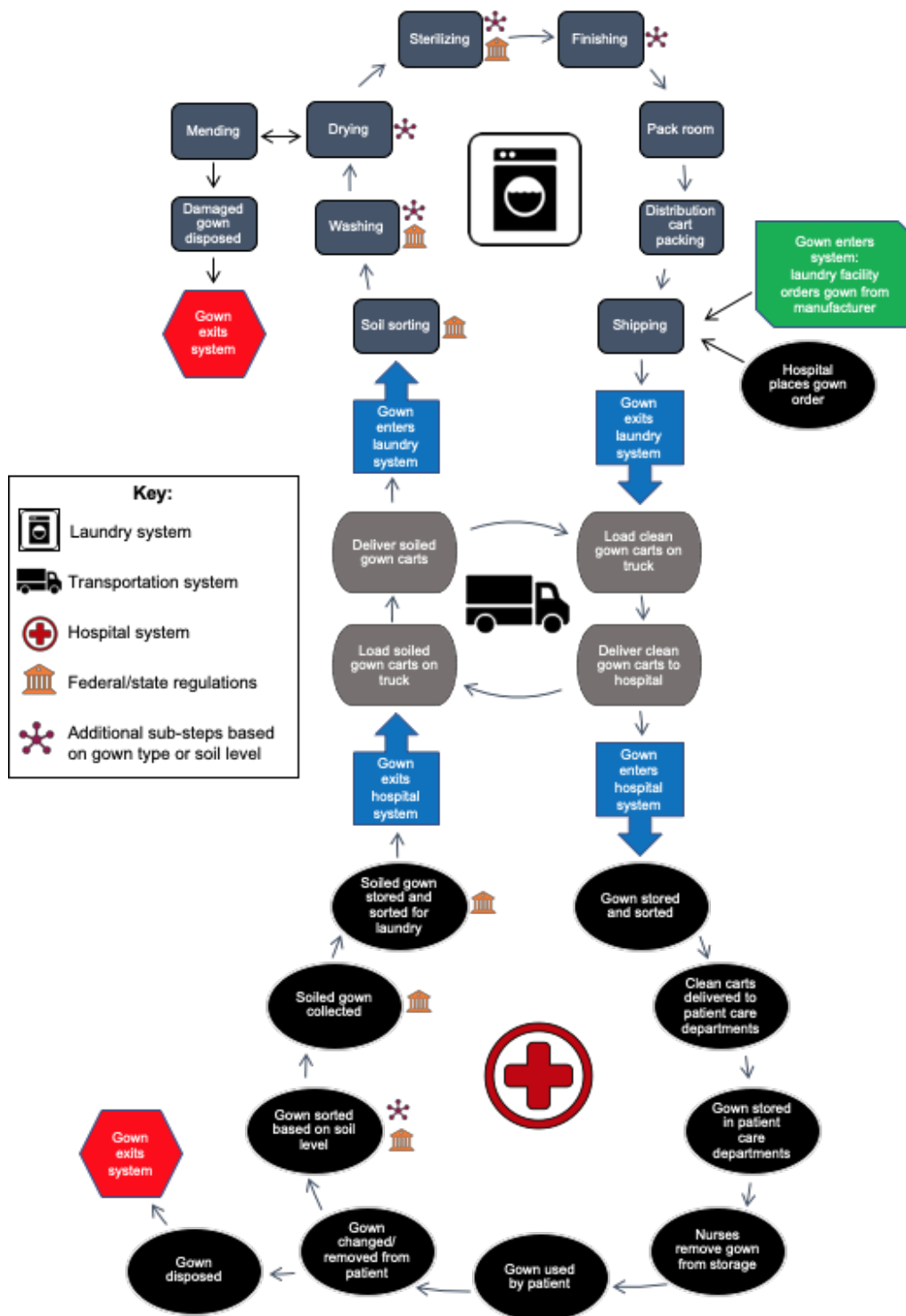


Fig. 1. Patient gown system-of-use model

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