



Reusable vs. Disposable Isolation Gowns

PLAYBOOK



Agenda

-  Summary and Overview
-  Client Personas
-  Fact Check
-  Appendices

Summary

- Reusables and disposable textiles have come a long way in the past decades.
- Technology in surgical barrier (including isolation gowns) has evolved to provide fluid protection, at the same time allowing the textile to breathe.
- Standards have also evolved to level the playing field for reusable and disposable isolation gown barriers.
- Both are readily available in the market today.



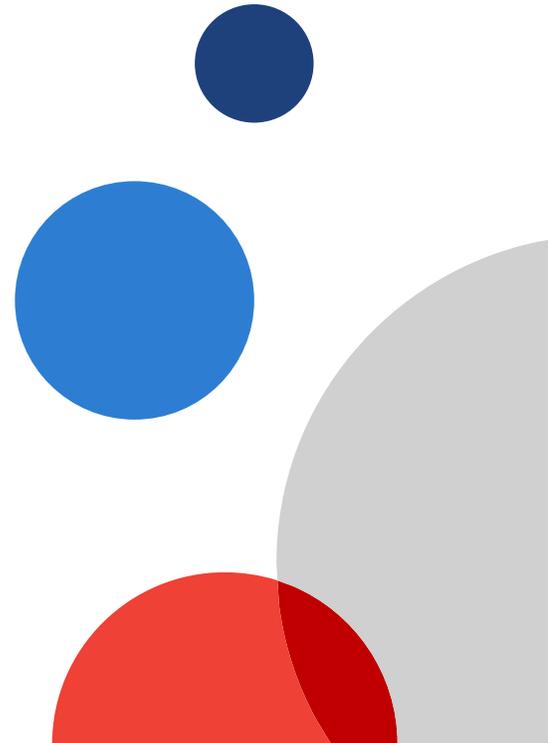
Summary

- Both reusable and disposable provide protection, however when evaluating cost, environmental impact and comfort factors, reusables stand alone.
- Studies demonstrate that reusable textiles are superior to the products of 20 years ago.
- Disposable products end up in a landfill, or are incinerated, while reusables end up back at the Laundry to be washed for additional use > Environmental benefit.

Environmental benefit:

- 28% reduction in natural resource energy consumption
- 30% reduction in greenhouse gas emissions
- 50% reduction in total water consumed.
- 93-99% reduction in solid waste generation at the healthcare facility
- Source: American Journal of Infection Control – Environmental considerations in the selection of isolation gowns: A life cycle assessment of reusable and disposable alternatives (AJIC 46 (2018) 881-6)

Client Personas





TAYLOR

The Influencer

Nursing

Clinicians

WOCN/CAET
(Wounds)

Infection Prevention
and Control

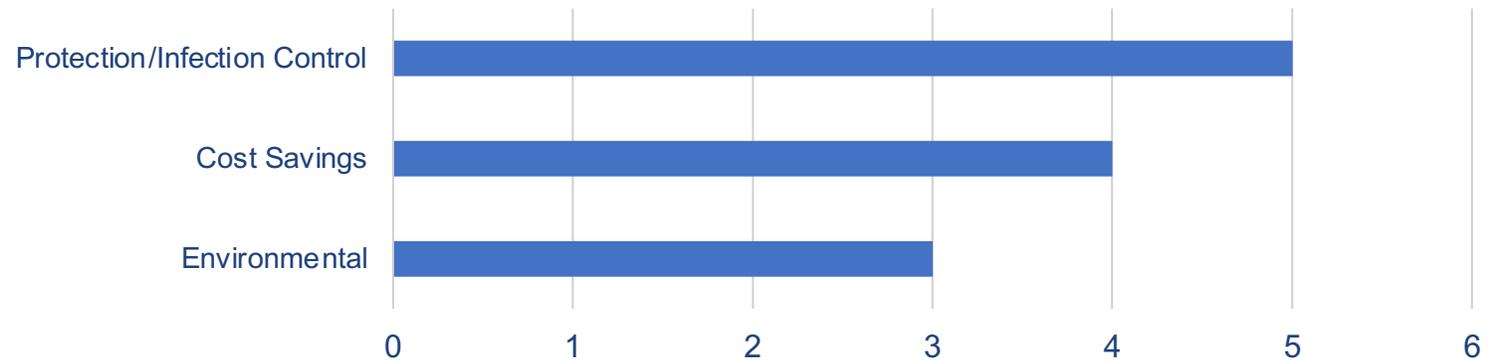
Likes

- Environmental Concerns
- Staff Safety and Protection
- Patient Safety
- Time
- Price
- Infection Prevention and Control

Dislikes

- Staff Protection/Infection Control
- Environmental Concerns
- Cost Savings
- Cleanliness of a Reusable Gown

Main Focus



Talking Points

The Covid-19 pandemic thrust PPE including Isolation Gowns to the forefront of the minds of those providing healthcare to those who need it.



Shortages caused by supply chain breaks, high prices, and failing product performance highlighted the need for a better option to protect our caregivers.

Reusable Isolation Gowns are an option that solves many of the shortfalls inherent with Disposable Gowns.

Fact Check



Reusable Gowns are proven to provide superior protection and safety compared to disposable options.

Taylor's Objection:

Disposables are safer and more effective than reusable gowns.

Fact Check



The use of key environmental components such as energy, blue water, and solid waste are considerably higher with Disposable Isolation Gowns vs. Reusable Isolation Gowns.

Taylor's Objection:

Disposable Isolation Gowns are just as "green" as Reusable Gowns.

Fact Check



Studies prove when all associated costs are added, Reusable Isolation Gowns provide significant savings vs. Disposable Gowns.

Taylor's Objection:

Disposable Gowns are less expensive to use than reusable gowns.

Fact Check



Your laundry provider follows guidelines and standards such as Hygienically Clean (TRSA) and HLAC to remove soil, kill bacteria and completely cleanse the product to make it hygienically clean.

Taylor's Objection:

Disposable Isolation Gowns must be cleaner than a reusable. How do they ever get those clean?



ALEX

The Decision Maker

Environmental Services

Procurement Manager

Materials Management

Administration

Finance

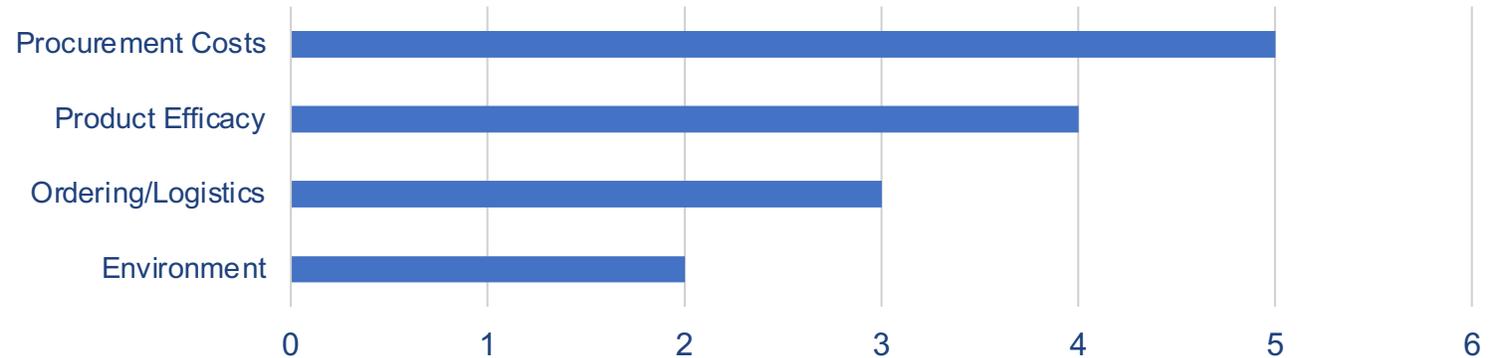
Likes

- Cost Savings
- Product Efficacy
- Supply Chain reliability
- Right Product/Right Use – Customized Care
- Distribution/Storage Optimization
- Ease of handling/logistics
- Workflow Efficiencies
- Environmental Impact

Dislikes

- Ordering Ease/Familiarity
- Staff Protection/Infection Prevention
- Environmental Concerns
- Procurement Price/Cost of Use
- Storage

Main Focus



Talking Points

Your facility may have turned to disposable isolation gowns because they were unaware of improved reusable solution.

Unfortunately, while these are functional, their limited performance came at a high cost.



Reusable isolation gowns are specifically designed to provide superior protection for the patient and caregiver, and solidify the supply chain without the waste and expense of disposables.

Protecting patients, protecting caregivers, protecting budgets, and protecting the environment.

Fact Check



Global supply chain issues severely affect disposable availability. We will determine usages and deliver Reusable Gowns to each area along with regular linen.

Alex's Objection:

Disposable Gowns are so much easier to get... they come with all my other medical supplies.

Fact Check

Alex's Objection:

Disposable Isolation Gowns are “new” every use... they must provide more protection than reusables.



Reusable Isolation Gowns are proven to deliver better protection for your Staff and Patients.

Fact Check

Alex's Objection:

Washing reusable Isolation Gowns must use a lot of water, so the impact on the environment is about the same.



When it comes to doing a fair analysis, it is important to do a total lifecycle comparison. See complete results in the Study.

Fact Check

Alex's Objection:

Reusable Isolation Gowns are uncomfortable to wear.



Surveys show Reusable Isolation Gowns score favorably when tested for comfort, while providing superior protection.

Fact Check



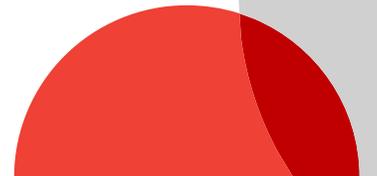
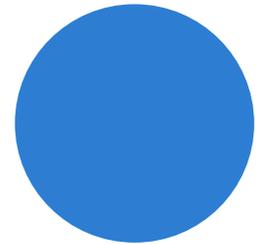
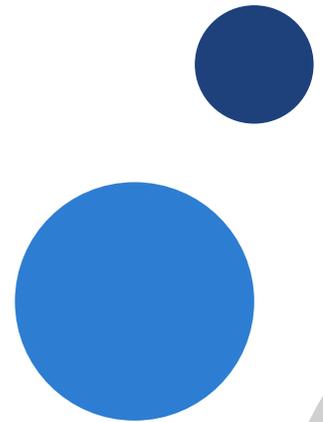
Reusable Isolation Gowns arrive organized on the clean linen carts and can be stored in the linen supply room with ease. No need to store massive amounts of disposables.

Alex's Objection:

Reusable Isolation Gowns require more storage space.

*Ask your laundry provider
for delivery options*

Appendices



References & Links

- **Appendix 1:** https://drive.google.com/file/d/1KLyEuQf_8WoAnS0FIRWIGy5orAX2qx0h/view?usp=drive_link
- **Appendix 2:** https://drive.google.com/file/d/1ZKnAy0PYI0mIUxCYszRwSroluvqLzPdw/view?usp=drive_link
- **Appendix 3:** https://drive.google.com/file/d/1wFi6O31vkCfv_hbF0xGGu4OVG3gEn4SD/view?usp=drive_link
- **Appendix 4:** https://drive.google.com/file/d/19S3sbydnSsR2X3CgKPZfFiHJJdO3f2t8/view?usp=drive_link
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- **Appendix 8:** https://drive.google.com/file/d/1AVRFILLNN9-zGqJszYK9XA6t45APMB0t/view?usp=drive_link
- **Appendix 9:** https://drive.google.com/file/d/1E5_9q8gQudXjOLsDTvzzRqcc_952tCqc/view?usp=drive_link
- **Appendix 10:** https://docs.google.com/spreadsheets/d/1Ua6fET-GN6dXS-TkM3AZPc2VGkww1b3t/edit?usp=drive_link

Appendix 1

Disposable Hospital Gowns
Could Expose Health Workers
to Infection

JULY 5, 2022 | 7 MIN READ

Disposable Hospital Gowns Could Expose Health Workers to Infection

Widely used gowns, intended to protect people, can let too much liquid seep through, new studies suggest

BY [BRETT KELMAN](#) & [KFF HEALTH NEWS](#)



Appendix 2

Environmental considerations in the selection of isolation gowns: A life cycle assessment of reusable and disposable alternatives:

Eric Vozzola BSc*, Michael Overcash PhD, Evan Griffing PhD



Major Article

Disposable versus reusable medical gowns: A performance comparison

Meredith McQuerry PhD^{a,*}, Elizabeth Easter PhD^b, Alex Cao BSc^a

^a Retail Entrepreneurship, Florida State University, Tallahassee, FL

^b Retailing and Tourism Management, University of Kentucky, Lexington, KY



Key Words:
Medical Gown
Medical Textiles
Standards
Protection
Durability

ABSTRACT

Background: Medical gowns are essential personal protective equipment (PPE) that prevents the spread of microorganisms and bodily fluids. During surge capacity situations, such as the COVID-19 pandemic, reusable PPE is often recommended due to shortages.

Methods: This research evaluated the performance of disposable versus reusable medical gowns by assessing their ability to provide adequate protection across their expected service lifespan. Level I, II, and III gowns were tested for water resistance and hydrostatic pressure, along with other durability assessments (breaking, tear, and seam strength, pilling resistance, dimensional stability, and air permeability, colorfastness, and fabric hand) per standard test methods. Data were collected at new for the disposable gowns and after 1, 25, 50, and 75 industrial launderings for the reusable gowns. Results were compared to the Association of the Advancement Instrumentation® (AAMI) PB70 performance specifications.

Results: Level I and II disposable gowns did not meet AAMI performance specifications for impact penetration water resistance. All 3 levels of disposable gowns also failed to meet the American Society for Testing and Materials performance requirements for breaking strength in the crosswise direction.

Conclusions: The adoption of reusable gowns may result in increased protection and significant cost savings due to their superior durability and sustainability when compared to disposable gowns.

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Appendix 3

The Business Case for Reusable Textiles - Novo Case Study



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The Business Case for Reusable Textiles - Novo Case Study



Why Reusable Textiles?

Karl Phillip, CEO Emeritus of Atlanta-based NOVO Health Services, cited the example of a regional hospital system client that realized a 53% savings with a full conversion from disposable isolation gowns to reusable gowns in mid-2020 after its vendor couldn't supply the single use gowns it had used in the past.

NOVO used the provider's actual adjusted patient day (APD) data and expenses for disposable gowns and for the first half of the year compared to the cost of reusable gowns, including processing costs based on 70 washes, during the second half. Hardly a normal year, Phillip said, but the analysis was insightful, nonetheless.

A highlight was the expense savings from the decrease in waste volume and the associated Environmental Services (EVS) expense to remove it.

The hospital system's vice president of vice president of supply chain and facility management said of the conversion. "We have found that

ISOLATION GOWN COSTS SAVINGS REUSABLE VS. DISPOSABLE	
	Per Unit
Disposable Gowns Acquisition Cost	60c
Reusable Gown Acquisition Cost \$9.10 / 70 uses	13c
Reusable Gown Laundry Costs	45c

>53%

Appendix 4

Laundry Standards: TRSA Hygienically Clean



Hygienically Clean

The Quantified, Validated Standard and Measure for Hygienically Clean Textiles in North America Since 2011



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Why Hygienically Clean



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GURTLE
INDUSTRIES, INC.



Application / Renewal

Standards & Policies

Inspections & Tests

Media / Downloads

Find a Local Laundry



Healthcare



When hospitals and other healthcare facilities review linen, uniform and facility services options, every laundry under consideration should be Hygienically Clean Healthcare certified. The certification reflects laundries' commitment to best management practices (BMPs) in laundering as verified by third-



Appendix 5

Capitalizing on a Global Personal Protective Equipment(PPE) Shortage to Design a More Functional and Sustainable Isolation Gown:

LUCY HE MLS(ASCP) CM,
CIC, Inova Health System

Occupational Health and Wellness

OHW-20

Capitalizing on a Global Personal Protective Equipment (PPE) Shortage to Design a More Functional and Sustainable Isolation Gown

LUCY HE MLS(ASCP)CM, CIC, Inova Health System

Background: The COVID-19 pandemic caused a global PPE shortage. Across our health system, the type of disposable isolation gowns we were accustomed to using were not as readily available. As a result, we used new varieties of isolation gowns of inconsistent quality. With isolation gowns being the second most used type of PPE at our organization, we used and disposed of almost 3.1 million single-use isolation gowns, amounting to approximately 213 tons of waste in a year. An opportunity arose to design and implement a consistently high quality and reusable isolation gown that would both be protected from supply chain disruptions and reduce our health system's ecological footprint.

Methods: After trialing several varieties of disposable and reusable gowns, a substantial amount of feedback was gathered over several months from end-users, Infection Prevention, and Supply Chain. This feedback informed the design of a custom reusable isolation gown that resolves identified problems in functionality, particularly barrier effectiveness, comfort, fit, and ease of donning and doffing. The new design meets current healthcare protection clothing standards and specifications.

Appendix 6

Pandemic fuels pivot to sustainable process innovation for Banner Health

By Rick Dana Barlow

Pandemic fuels pivot to sustainable process innovations for Banner Health

by Rick Dana Barlow

Ask Doug Bowen, Vice President, Supply Chain Services, at Phoenix-based Banner Health about the foundational development and success of his award-winning team and he'll attribute it to three process changes that have since become permanent: Migrating toward reusable products from disposables, moving toward local sourcing from global sourcing and shifting to a "more balanced scorecard" from cost savings as the department's measure of success.

Bowen punctuates the decades-long industry debate about reusables versus disposables with data.

During the first pandemic surge in the Spring of 2020, Banner used an entire shipping container of disposable isolation gowns each week, which amounted to 1.3 million gowns per month. "We were at risk of running out, and we were determined to keep our customers, the caregivers, safe," he stated. "So we migrated from disposable to reusable isolation gowns to reduce dependence on single-use, globally sourced products. The project focused on implementing reusable isolation gowns as a permanent solution to safely protect the caregivers while also being sustainable."

In sourcing gowns and material, Banner faced a lack of product, long lead times and product quality not meeting the clinical attributes identified by the team. As a result, they sourced medical grade fabric and partnered with local fabricators to manufacture Banner's gowns, according to Bowen. They also purchased ready-made gowns and altered them to Banner's gown design to maintain consistency and customer trust.

"The reusable gown project team worked closely with end users to design and manufacture a product that met their specifications," Bowen said. "Then they stayed in close contact with the first pilot site hospital end users and leadership to get more feedback. The early feedback was very positive. The nurses felt better protected. So we were thinking at that time that if the rollout to the rest of the hospitals was also positive, we could make this a permanent solution.

"Unprecedented high demand for isolation gowns during the surge highlighted the importance of a solution in a time where inability to provide protection to our caregivers was not an option," he continued. "We saw the national news stories about the nurses in New York wear-

has experienced an average cost savings of 35% with the reusable isolation gowns." In addition, the program extended Banner's days-on-hand inventory to more than 90 days supply from a low of 10 days.

Local versus global sourcing also carries with it considerable volatility in terms of product access, availability, price and security, but the short-term gains can be extended to long-term returns by moving away from a "cost-savings" model exclusively, Bowen emphasizes.

"If the only measure of success for the supply chain is cost savings, the supply chain will likely continue to chase pennies around the globe," he said. "However, if local sourcing, product access and availability, community benefit, agility and resiliency can be added as measures of success – along with cost savings – then the supply chain can succeed with a more balanced scorecard."

Of course, convincing the C-suite to move away from cost savings as the definitive barometer of supply chain success can amount to a major hurdle in and of itself, Bowen recognizes. But he emphasizes one key word – balance.

"I think the key is to promote the additional measures of success along with cost savings to create a new, more balanced scorecard for the supply chain," he asserted. "The additional measures can be added over time at deliberate speed to maintain efficient operations and be more effective by achieving the desired outcome of a more balanced supply chain scorecard."

The pandemic motivated everyone – from the C-suite through Supply Chain Services through the entire organization – to expand thinking beyond the convenient, obvious and typical, Bowen adds.

"During the pandemic, there was no discussion about saving cost," he insisted. "The discussion was all about saving lives. To save lives, we worked to find alternate solutions for products that were not available, and we focused on listening to and caring for our caregivers – and excelled at it. This experience opened our eyes to the need for a more balanced scorecard for supply chain. The journey to a more balanced scorecard is still in front of us. We will continue to promote a more balanced scorecard for supply chain, and it will take time to accomplish the transition."

Appendix 7

Survey of intensive care unit staff views on a newly introduced reusable isolation gown



Survey of intensive care unit staff views on a newly introduced reusable isolation gown

Nikolaos Angelopoulos^{A,*} (MBBS, BS, Hospital Medical Officer), Samantha Angiolella^B (BN, Nurse Unit Manager), Paula Lyons^A (MPH, BN, Nurse Unit Manager), Bryan Ross^C (GradCertMgt, Director of Operations, Health Support Services) and Forbes McGain^D (PhD, FANZCA, CICM, MBBS, Intensivist and Anaesthetist)

For full list of author affiliations and declarations see end of paper

***Correspondence to:**

Nikolaos Angelopoulos
Footscray ICU Western Health,
Melbourne, Vic., Australia
Email:
Nikolaos.Angelopoulos.92@gmail.com

The coronavirus disease 2019 (COVID-19) pandemic has dramatically increased disposable personal protective equipment (PPE) use, contributing to increased medical waste and other environmental concerns.¹ In 2020, healthcare workers worldwide used approximately 44 million non-woven PPE items daily during the COVID-19 pandemic, generating over 13 000 tonnes of waste.² Barrier gowns are the second-most used PPE item.³ Although reusable gowns offer superior barrier performance with lower environmental impacts,³ 80% of US hospitals are using disposable isolation gowns,¹ with anecdotally a similar situation in Australian hospitals. Hurdles to healthcare workers wearing reusable gowns include infection prevention apprehension (despite superior barrier performance), availability, and comfort.¹⁻⁴

We obtained approval for the introduction of reusable isolation gowns in our Intensive Care Units (ICUs) from the Western Health Infectious Diseases/Prevention teams and the Ethics Manager (QA Project Number: QA2022.28). On 4 April 2022, reusable isolation gowns became the default ICU PPE gown. Reusable isolation gowns conformed to an American Association for the Advancement of Medical Instrumentation level 3 standard, were 100% polyester and had a life cycle of 75 washes. From 6 June 2022 to 13 July 2022, we surveyed ICU staff views of such reusable gowns. Surveys were emailed to the two ICU nurse unit managers, then distributed as voluntary paper-based surveys reaching

Appendix 8

Case Study: Reusable
Isolation Gowns

Practice Greenhealth

LESS WASTE

CASE STUDY



REUSABLE ISOLATION GOWNS

Demographic Information

Ronald Reagan UCLA Medical Center is located in West Los Angeles, California. The hospital employs 1,500 full-time physicians and over 2,500 support staff, and provides patient care to over 380,000 people per year in nearly every medical specialty. There are 540 inpatient beds at the facility, which includes Stewart and Lynda Resnick Neuropsychiatric Hospital at UCLA and Mattel Children's Hospital UCLA. The Santa Monica Hospital with 266 beds is also part of the campus. Ronald Reagan UCLA Medical Center ranks as the #1 medical center

Executive Summary

Ronald Reagan UCLA Medical Center began a reusable isolation gown pilot project in May 2012, starting with a liver transplant unit that was using 1,000 disposable isolation gowns per day. During a collaborative six-month trial period, the reusable isolation gown design was finalized and rolled out. The reusable gowns offer more

Appendix 9

Importance of LCAs: Now, in Future (Conclusion)

Importance of LCAs: Now, in Future (Conclusion)



ARTA says its LCA shows the use of reusable surgical gowns reduces environmental footprint compared to disposables. (Photo: ARTA)

[Nancy Jenkins](#) | May 29, 2018

Revelations of cleanroom coverall, isolation and surgical gown life cycle assessments

ARTA-IAHTM Isolation Gown LCA

The study found that choosing reusable isolation gowns instead of disposable alternatives decreases the environmental footprint by:

- 28% lower natural resource energy consumption.
- 30% lower greenhouse gas emissions (CO₂ equivalent).
- 41% lower total water consumed (blue water).
- 93-99% lower solid waste generation at healthcare facility. End users can count these improvements as a credit toward improving their sustainability programs.

In this study, an isolation gown was defined as a single-piece, size extra-large (XL) or one-size-fits-most, long-sleeve, tie-up garment. The functional unit, or basis of comparison, was 1,000 isolation gown uses in a healthcare setting. For the reusable gowns, this was 16.7 new gowns each used for 60 cycles, while for the disposable gowns this was 1,000 new gowns. Two market representative ANSI/AAAMI Level 1 isolation gowns were investigated: a reusable polyester gown and a disposable nonwoven gown.

Appendix 10

Environmental Impact Calculator

LCA Analysis Tools

Calculating Carbon Footprint

	<i>Annual Gown Consumption, units</i>	<i>Wt. / Unit (lbs.)</i>	<i>Total Weight (lbs.)</i>	<i>CO2 Eq (kgs./lb. processed or used)</i>	<i>Total Carbon Footprint (kgs./year)</i>
<i>Reusable Isolation Gown</i>		0.53	0.00	0.41	0.00
<i>Disposable Isolation Gown</i>		0.14	0.00	2.2	0.00
Carbon Footprint Savings Annually					0.00

Calculating Water Savings

	<i>Annual Gown Consumption, units</i>	<i>Wt. / Unit (lbs.)</i>	<i>Total Weight (lbs.)</i>	<i>Water (kgs./lb. processed or used)</i>	<i>Total Water Footprint (kgs./year)</i>
<i>Reusable Isolation Gown</i>	0	0.53	0.00	0.083	0.00
<i>Disposable Isolation Gown</i>	0	0.14	0.00	0.53	0.00
Water Savings Annually					0.00

Calculating Solid Waste Savings

	<i>Annual Gown Consumption, units</i>	<i>Wt. / Unit (lbs.)</i>	<i>Total Weight (lbs.)</i>	<i>Solid waste at hospital, kgs</i>	<i>Total Solid Waste Footprint (kgs./year)</i>
<i>Reusable Isolation Gown</i>	0	0.53	0.00	0.0084	0.00
<i>Disposable Isolation Gown</i>	0	0.14	0.00	0.45	0.00
Solid Waste Savings Annually					0.00