



# Reusable vs. Disposable Underpad

PLAYBOOK



# Agenda

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

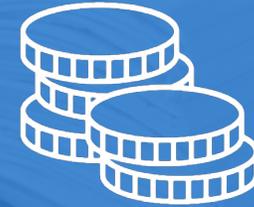
# Summary

- Reusables and disposables have come a long way in the past decades.
  - Both lie flat (no puckering that cause skin irritation), absorb and wick moisture in a similar way
- Both are easy of use: When the pad needs to be changed, the disposable is thrown in the garbage and the reusable is thrown in the laundry bag.
- Both are readily available: one is in a box on a shelf and the other is folded neatly on a linen cart.



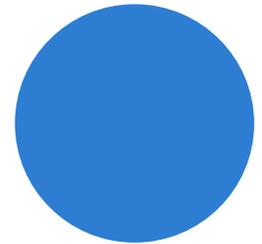
# Summary

- Both have studies to show they are superior to the products of 20 years ago if used as intended.
- With today's technologies, there are no reasons to put more than 1 underpad under the patient.
- Disposable underpads end up in a landfill, while reusables end up back at the Laundry to be washed for additional use > Environmental benefit.



*Given following information, it becomes a financial decision for the hospital. Unit price of a disposable pad is on average \$0.60 to \$1.50 USD, while the reusable pad has been demonstrated to have an average cost per use of \$0.71 (ARTA Publication, Appendix 7).*

# Client Personas





**ALEX**

The Influencer

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Nursing

Clinicians

WOCN/CAET  
(Wounds)

Infection Prevention  
and Control

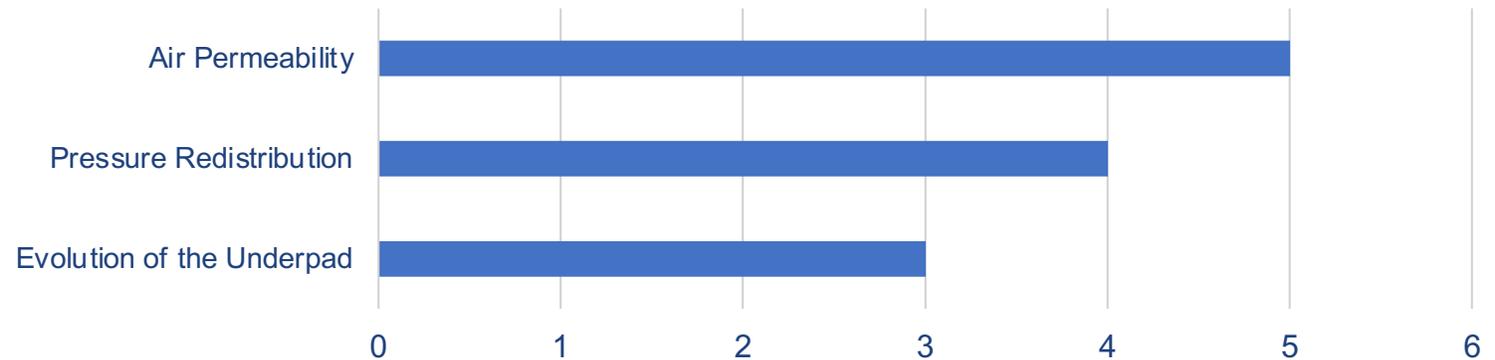
## Likes

- Patient Outcomes
- Skin Integrity
- Patient Dignity
- Time
- Price
- Infection Prevention and Control
- Environmental benefit

## Dislikes

- Labor Requirements
- Procurement Costs
- Consumption (Units used / Proper Use)
- Storage

## Main Focus



# Talking Points

Gone are the days of recommending a cotton reusable pad.

As technology has advanced, low profile pad remains flat under the care recipient to reduce the risk of pressure injuries.

Reusable pads are meant to protect the care recipient and provide superior linen protection without the waste and expense of disposables.

Stay dry surfaces whisk fluid away from the care recipient's skin to maintain the natural microclimate.



# Fact Check

## Alex's Objection:

Reusables should NOT be used on a low airloss mattress



The best practice for a low air loss mattress is to have entirely no linen or layers whatsoever.



All impermeable underpad options do not have air permeability.



Low Air Loss Mattresses represent approximately 10% of beds in a Hospitals.

# Fact Check

## Alex's Objection:

Reusables are more difficult to manage. With disposables, all we have to do is bunch them up and throw them in the garbage!



When changing the bed, your staff can bunch up the reusable underpad **WITH** the linen and throw them in the soiled linen bags instead of having to separate the disposable pad from the linen. This becomes a 1 step process, not 2!

*Ask your laundry provider for their requirements.*

# Fact Check



A traditional cotton pad is old technology that is not appropriate for proper skin care.

## Alex's Objection:

Reusable underpads keep the skin wet after a void, causing skin breakdown.



The use of newer synthetic reusable underpads provide a stay-dry surface that keeps patients on a dry surface at all times.

# Fact Check



Facilities follow 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.

## Alex's Objection:

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

*“Reusables and disposables offer comparable protection against Hospital-Acquired Infections (HAIs). A person has as much chance of getting an infection from textiles as they do being hit by a meteor!”*

Lynne Schulster, PhD., health Scientist, CDC  
Division of Healthcare Quality Promotion

# Fact Check

## Alex's Objection:

Reusables require frequent changing.



Due to its staydry properties and absorbency capacity, a reusable underpad would be changed at the same frequency as its disposable counterpart.

*\*See appendix 5 for best practices guide.*

# Fact Check



Most reusable pads will not create pressure points (appearing in red on pressure mapping). There's a possibility that disposable pads can shift under the patient, whereas a brushed barrier of a reusable pad will "grab" on the bottom sheet. Pressure mappings will not show that, as they are a snap shot that represents a random moment in a 10 minute sequence.

## Alex's Objection:

Reusable pads may ball up or adhere to skin, putting the patient at risk for friction and skin shear.

*Ask your laundry provider  
for their requirements.*



**SUSAN**

The Decision Maker

Environmental Services

Procurement Manager

Materials Management

Administration

Finance

## Likes

Fill Rates

Optimization

Clean Linen & Quality

Ease of handling/logistics

Right Product/Right Use –  
Customized Care

Workflow Efficiencies

Price (LTC Facilities)

Distribution/Storage

## Dislikes

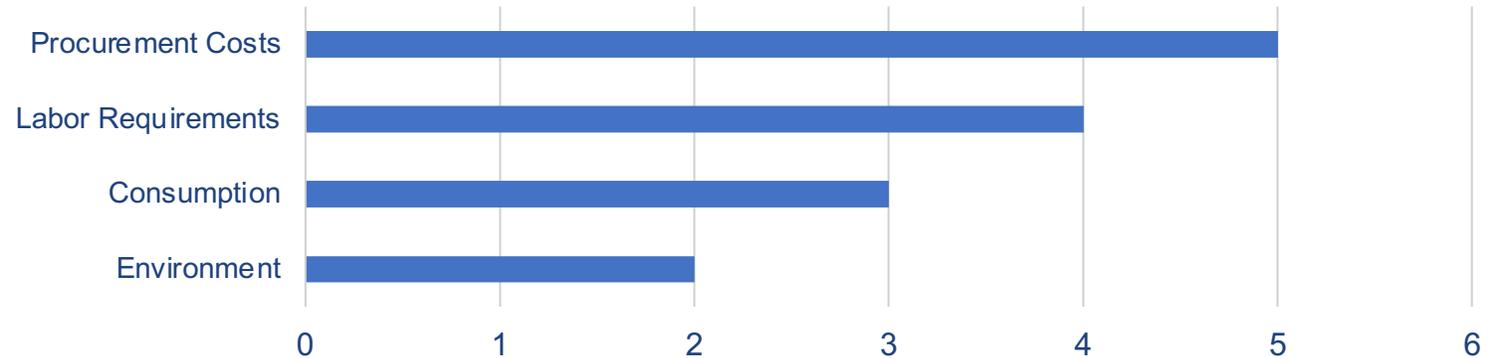
Labor Requirements

Procurement Costs

Consumption (Units used / Proper Use)

Storage

## Main Focus



# Talking Points

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

Disposable underpads are functional, however, their limited performance came at a high cost.



Reusable patient care underpads are specifically designed to protect the patient and provide superior linen protection without the waste and expense of disposables.

Protecting patients, protecting linen, and protecting budgets.

# Fact Check

Susan's Objection:

Reusables are labor intensive.



To make it easier for you, bunch up the linen with the soiled reusable underpad and throw it in the soiled linen bags.

*Ask your laundry provider for their requirements.*

# Fact Check

## Susan's Objection:

For every 1 reusable pad, I would use 1 disposable pad.



Although sizing may not warrant it, it has still been noticed that two disposable pads are used (force of habit?) Multiple disposables are often required for equal coverage to one reusable. Misuse adds up!

# Fact Check

## Susan's Objection:

Washing reusable underpads 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

Susan's Objection:

Reusables are more expensive.

In the long term, reusables will prove to be more economical when considering:



1. Storage Costs
2. Receiving Costs
3. Handling Costs
4. Abusive Usage Costs
5. Disposal Costs

# Fact Check



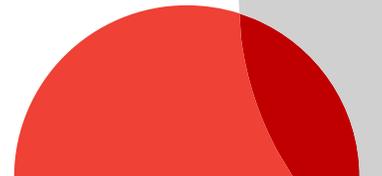
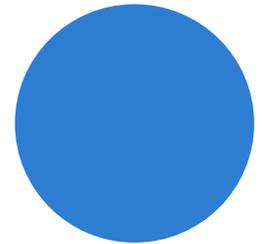
Reusable underpads are delivered already organized on the clean linen carts. They can also be stored in the linen supply room with ease. Laminated construction makes pads thinner and allows larger quantities in the same space.

## Susan's Objection:

Reusable underpads are more work when it comes to storage.

*Ask your laundry provider  
for delivery options.*

# Appendices



# References & Links

- **Appendix 1, 2, 4:** [https://drive.google.com/file/d/1j2V7fsiY2vPK5nt0qkPTU38yVSxVM1NQ/view?usp=drive\\_link](https://drive.google.com/file/d/1j2V7fsiY2vPK5nt0qkPTU38yVSxVM1NQ/view?usp=drive_link)
- **Appendix 3:** [https://drive.google.com/file/d/1MslYRM9gv-I\\_HR8HOFpW34GnlvllJpZV/view?usp=drive\\_link](https://drive.google.com/file/d/1MslYRM9gv-I_HR8HOFpW34GnlvllJpZV/view?usp=drive_link)
- **Appendix 5:** [https://drive.google.com/file/d/1CYQzfgFYVrOa2VKbai6xkI9qd\\_9loNiR/view?usp=drive\\_link](https://drive.google.com/file/d/1CYQzfgFYVrOa2VKbai6xkI9qd_9loNiR/view?usp=drive_link)
- **Appendix 6:** [https://drive.google.com/file/d/1DOyAgBfiwGHzkCwcb7blaebISxmEOVdy/view?usp=drive\\_link](https://drive.google.com/file/d/1DOyAgBfiwGHzkCwcb7blaebISxmEOVdy/view?usp=drive_link)
- **Appendix 7:** [https://drive.google.com/file/d/1bnHAapD39TYaQvIX5ysNF0XnYDpt67TI/view?usp=drive\\_link](https://drive.google.com/file/d/1bnHAapD39TYaQvIX5ysNF0XnYDpt67TI/view?usp=drive_link)
- **Appendix 8:** [https://docs.google.com/spreadsheets/d/1SPd45Mqk171pWbJeK\\_EPS50XhMVzNBfz/edit?usp=drive\\_link&oid=109205303477795881713&rtpof=true&sd=true](https://docs.google.com/spreadsheets/d/1SPd45Mqk171pWbJeK_EPS50XhMVzNBfz/edit?usp=drive_link&oid=109205303477795881713&rtpof=true&sd=true)
- **Appendix 9:** [https://docs.google.com/spreadsheets/d/1uKMGgv26yCq1i6Dq1Q2aAeUKsKbp\\_XcS/edit?usp=drive\\_link&oid=109205303477795881713&rtpof=true&sd=true](https://docs.google.com/spreadsheets/d/1uKMGgv26yCq1i6Dq1Q2aAeUKsKbp_XcS/edit?usp=drive_link&oid=109205303477795881713&rtpof=true&sd=true)
- **Appendix 10:** [https://drive.google.com/file/d/1km9yBoYJgNFwuaWuRYtYIc\\_FfTZjyyTs/view?usp=drive\\_link](https://drive.google.com/file/d/1km9yBoYJgNFwuaWuRYtYIc_FfTZjyyTs/view?usp=drive_link)
- **Appendix 11:** [https://drive.google.com/file/d/1pobfOACn- zs6T22W6c2VVtSaXpj59U9/view?usp=drive\\_link](https://drive.google.com/file/d/1pobfOACn- zs6T22W6c2VVtSaXpj59U9/view?usp=drive_link)
- **Appendix 12:** [https://drive.google.com/file/d/1m7FMM0dXsmwKqR4J5KqrO6hYMCBEKQbT/view?usp=drive\\_link](https://drive.google.com/file/d/1m7FMM0dXsmwKqR4J5KqrO6hYMCBEKQbT/view?usp=drive_link)
- **Appendix 13:** [https://drive.google.com/file/d/1zDGD8R58kP6OaK9bHb7e3eDFdoTTc1Qb/view?usp=drive\\_link](https://drive.google.com/file/d/1zDGD8R58kP6OaK9bHb7e3eDFdoTTc1Qb/view?usp=drive_link)
- **Appendix 14:** [https://drive.google.com/file/d/1tD1GIA\\_HBaXa62mxAaBRq2fjkOD\\_VUrx/view?usp=drive\\_link](https://drive.google.com/file/d/1tD1GIA_HBaXa62mxAaBRq2fjkOD_VUrx/view?usp=drive_link)

# Appendix 1

## Vintex White Paper

### Bed Pads – Breathability Myths and Reality

#### Introduction

A number of options exist when choosing bed pads for incontinence management. Consideration for patient comfort is a key criteria when comparing such options. One such aspect of patient comfort relates to breathability and the bed pad's function in keeping the patient cool and dry. It is therefore desirable to understand the relationship between bed pad construction and breathability and if certain bed pads outperform others in this regard. Pressure mapping tools are also important when determining relative performance of the variety of options available in the market today. This paper sheds light on all of these aspects in order for the end user to make an informed decision.

#### Breathability

Breathability is often considered to be related to moisture vapor transmission which describes a material's ability to allow water vapor to pass through it. A quantitative assessment of this characteristic can be made with reference to the moisture vapour transmission rate (MVTR) which is a measure of the passage of water vapor through a substance. The higher the MVTR the more "breathable" the fabric.

#### Moisture Vapour Transmission Rate (ASTM E96) <sup>1</sup>

There are various methods to measure moisture vapour transmission rate (MVTR) which employ gravimetric techniques to measure the gain or loss of moisture by mass (g/m<sup>2</sup>/day). Test Method ASTM E96 calculates the amount of water vapor that can cross one square meter of fabric in 24 hours. (Figure 1)

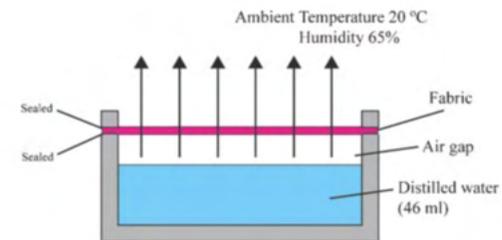


Figure 1  
Gravimetric Test Method Diagram

# Appendix 2

## Vintex White Paper

Using this test method, the graph below compares the relative MVTR levels between disposable and reusable bed pads. A material with higher levels of MVTR is often considered to be more breathable (Figure 2), with fabrics having a value of > 10,000 g/m<sup>2</sup>/24hrs possessing a good level of breathability.

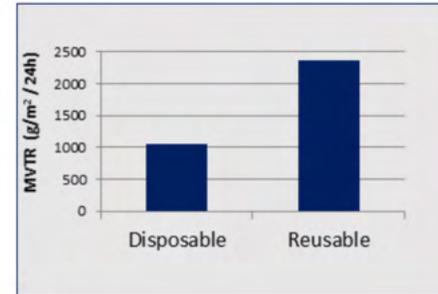


Figure 2  
Comparative MVTR rates

Although reusable bed pads have over double the MVTR than disposables, neither option noted above is considered breathable.

A bed pad is functionally designed to transfer moisture into the face/soaker combination and move moisture away from the body. It then preferentially transfers moisture laterally while the barrier membrane layer remains impervious for linen protection. The primary purpose of the bed pad is to prevent moisture from passing through it. Therefore a bed pad's moisture permeability is not the best indicator of functional performance when it comes to patient care or comfort.

### Launder-ability

In the case of reusable bed pads, it is appropriate to consider the effect of the required, repeated laundering on moisture vapor transfer. All pad configurations exhibit reduced MVTR after laundering. Detergent and laundry products contribute to obstructing microscopic pores in the barrier membrane while pad shrinkage after laundering may also close or contract these barrier pores and hence reduce MVTR.

### Air Permeability

MVTR, which is a measure of moisture permeability, should not be confused with air permeability which is a measure of the transmission of air through a fabric. The standardized test method CAN CGSB-4.2 No 36 measures air permeability in terms of the volume (cm<sup>3</sup>) of air passing through 1cm<sup>2</sup> of fabric per second with an average value obtained from 10 measurements. Considering that all bed pads are specifically designed to provide a liquid impermeable barrier in order to keep bed linens dry, they are by nature not considered air permeable. Functional testing demonstrates that airflow through both disposable and reusable bed pads are equivalently negligible and below the detection limit of less than 0.30 cm<sup>3</sup>/cm<sup>2</sup>.

# Appendix 3

## Reusables are a Safe Choice

### REUSABLE TEXTILES

## REUSABLES ARE A SAFE CHOICE



Reusables and disposables offer comparable protection against Hospital-Acquired Infections (HAIs). A person has as much chance of getting an infection from textiles as they do being hit by a meteor!

### SAFE AGAINST HOSPITAL-ACQUIRED INFECTIONS

Some non-woven textile suppliers present their products as the last line of defense against hospital-acquired infections. But the claim doesn't hold water. The nation's top public health protection agency, regulatory authorities, healthcare industry standards organizations and the evidence provided by some of the nation's top subject matter experts don't support that claim.

Meanwhile, various published, peer-reviewed studies have shown that current industrial laundry processes are effective in interrupting potential patient-to-patient transmission of infectious diseases. The research findings that washable healthcare textiles are as safe as disposables are borne out by hospitals that have used reusable products for decades.

Reusable isolation and surgical gowns comply with both Association for the Advancement of Medical Instrumentation (AAMI) and the Occupational Safety and Health Administration (OSHA) barrier standards.

Regardless of the material used to manufacture surgical gowns and drapes, these products must be resistant to liquid and microbial penetration, according Centers for Disease Control (CDC) guidelines, and surgical gowns and drapes must be registered with Food and Drug Administration to demonstrate their safety and effectiveness.

The CDC's 2003 Guidelines for Environmental Infection Control in Health-Care Facilities, state "Reports of health-care associated diseases linked to contaminated fabrics are so few in number that the overall risk of disease transmission during the laundry process likely is negligible. When the incidence of such events are evaluated in the context of the volume of items laundered in health-care settings (estimated to be 5 billion pounds annually in the United States), existing control measures

are effective in reducing the risk of disease transmission to patients and staff."

Various published, peer-reviewed studies have proven that reusable healthcare textiles (HCTs) that are properly-laundered and handled are as safe as disposables. The research findings are borne out by facilities that have used reusable products for decades.

**Lynne Schulster, PhD.**, a health scientist in the CDC's Division of Healthcare Quality Promotion (formerly the Hospital Infections Program) for 20 years, closely studied the issue. "There appears to be little to no evidence of patient-to-patient transmission of infection attributed to laundered textiles," Schulster wrote in 2015.



Lynne Schulster

Her 2015 review, for the journal *Infection Control & Hospital Epidemiology* (ICHE), was based on findings and recommendations from peer-reviewed studies, as well as industry standards and guidelines. ICHE, the official publication of the Society for Healthcare Epidemiology of America, publishes scientifically authoritative, clinically applicable, peer-reviewed research on the control and evaluation of the transmission of pathogens in healthcare institutions.

Schulster's review found 12 confirmed outbreaks attributed to laundered healthcare textiles worldwide, that effected 350 people, over a period of 43 years from 1972 to 2015. The last incident was in Hong Kong.

Her root cause analysis of those 12 confirmed outbreaks identified inadvertent exposure of clean healthcare textiles to environmental contamination and mechanical problems with laundry equipment as the origins.

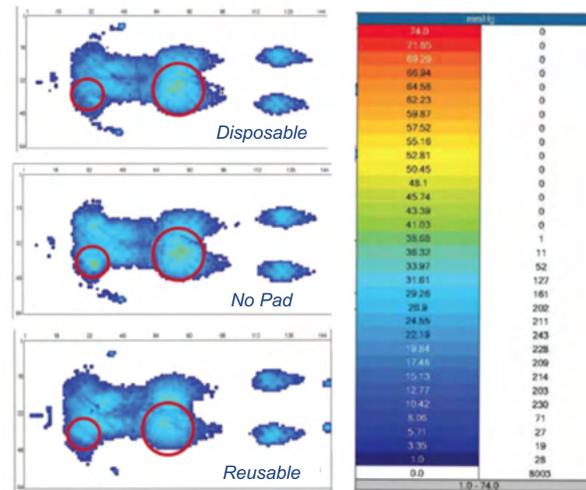
With regard to environmental contamination, she found that 33% of the cases resulted from exposure

# Appendix 4

*To preserve objectivity of playbook, brand names have been removed. Disposable was current offering on market, while reusable represents an innovative 100% synthetic laminated underpad that had been introduced on market during that period. Names are available upon request.*

## Pressure Mapping

Pressure mapping is also a way to assess comfort by determining the therapeutic interface between the patient and the bed surface. A comparative test on a variety of bed pad designs and styles, to measure the influence on pressure points, indicates that only minor differences exist across all options. The properties of a therapeutic mattress are not adversely effected by adding any type of single bed pad.



## Summary

All bed pads have comparable performance in moisture permeability, air permeability and pressure mapping results; however claims that certain bed pad construction technologies are preferred for patient comfort have not been substantiated by independent testing with these standardized test methods.

Phil Martin

Technical Manager, Textile Development

Vintex Inc.

April 2018

1. Groupe CTT Group, Saint-Hyacinthe, QC, CANADA

# Appendix 5

ARTA Webinar –  
[www.arta1.com](http://www.arta1.com)

*\*Recommendation to IAHTM  
Members: More current  
testimonials needed*

## Best Practice Guidelines



- Neither WOCN or NPUAP favor one over the other
- The Agency for Healthcare Research and Quality (AHRQ) has published Clinical Practice Guidelines for Pressure Ulcer Treatment
  - Minimize skin exposure to moisture
    - Assess and treat incontinence at time of occurrence
    - Use an underpad with maximum wicking and absorption
    - Use one only; layering contributes to skin breakdown
  - Minimize shearing or friction
    - Use devices for repositioning, patient lifting, or transfer



# Appendix 6

ARTA Webinar –  
[www.arta1.com](http://www.arta1.com)

*\*Recommendation to IAHTM  
Members: More current  
testimonials needed*

*To preserve objectivity of playbook, brand names have been removed. XXX represents an innovative reusable 100% synthetic laminated underpad that had been introduced on market during that period. Name is available upon request.*

## Clinical Testimonial



“We began using the XXX pad in the last quarter of 2009. We had previously been focusing on a number of interventions to reduce pressure ulcers in our facility. This involved mattress replacement, quarterly prevalence and incidence studies, multidisciplinary pressure ulcer prevention team and inservices on best practice. The WOCN department then focused on the subject of incontinence because we were continuing to see a lot of patients with perineal dermatitis and resulting pressure ulcers.

*After we brought the XXX Pad into the facility, our hospital acquired pressure ulcer rate fell to less than 0.5%.*

The XXX Pad has all but eliminated perineal dermatitis in our facility. Because of the connection with incontinence and pressure ulcers, it has proven itself as a superior product in assisting healthcare professionals provide quality skin care.”

**Rhonda Antonetti, RN,MSN,CWON  
WOCN Department Roper Hospital**

# Appendix 7

ARTA Webinar –  
[www.arta1.com](http://www.arta1.com)

*\*Numbers have been edited to represent current market prices.*

*Disposable purchase price represents an average from market offerings in March 2023*

## Cost Savings Benefits



Cost Savings Example: (USD)

	Reusable	Disposable
Initial purchase price	5.50	1.35
Waste disposal cost		0.02
Estimated number of uses	100	1
<b>Total fixed costs</b>	0.06	1.37
Can capture other potential costs here i.e. storage and distribution		
Cost of laundering	0.65	0.00
<b>Total per use cost</b>	0.71	1.37

# Appendix 8

## Disposable System Cost (USA)

*For demonstration purposes only.*

Download your own document to do your own calculations.

Click [HERE](#) to download

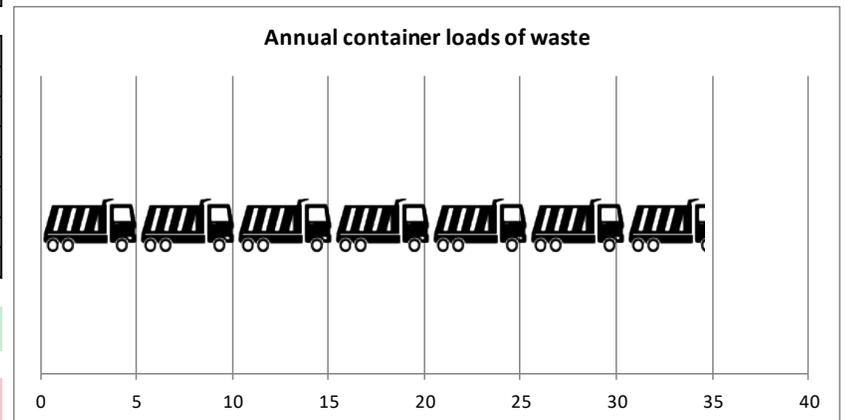
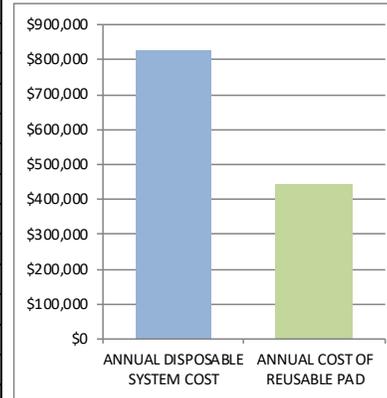
*Disposable purchase price represents an average from market offerings in March 2023*

DISPOSABLE SYSTEM COST (USD)	
Disposable pad cost per piece	\$1.35
Disposable coverage (square inches)	720
Number disposables used (based on coverage)	1.70
<b>ACQUISITION COST PER CHANGE</b>	<b>\$2.30</b>
Weight of disposable pad (pounds)	0.25
Weight of soiled disposable pad (pounds)	0.75
Disposal cost per pound	0.05
<b>DISPOSAL COST PER USE</b>	<b>0.0375</b>
Number of disposable pads purchased annually	1,200,000
Annual disposable pads spend	\$780,000
Annual disposal waste (pounds)	900,000
Annual disposal (waste) cost	\$45,000
<b>ANNUAL DISPOSABLE SYSTEM COST</b>	<b>\$825,000</b>

REUSABLE SYSTEM COST	
Number of reusables per change	1.00
Reusable coverage (square inches)	1224
Reusable pads used annually (based on coverage)	705,882
Weight per piece	0.96
Total Annual Poundage	677,647
Laundry cost per pound	\$0.65
<b>ANNUAL COST OF REUSABLE PAD</b>	<b>\$440,471</b>

**Annual Savings \$384,529**

**Annual container loads of waste 34.6**



# Appendix 9

## Disposable System Cost (Canada)

*For demonstration purposes only.*

Download your own document to do your own calculations.

Click [HERE](#) to download

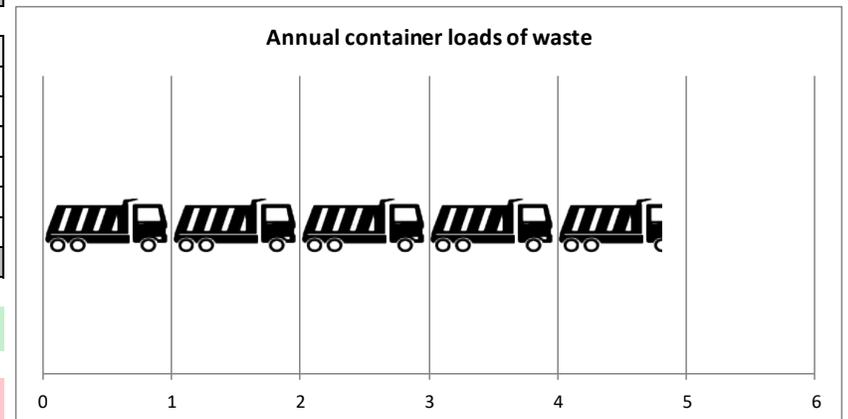
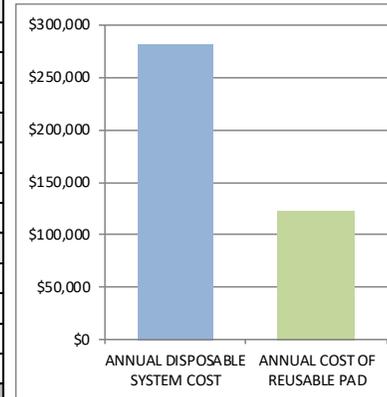
*Disposable purchase price represents an average from market offerings in March 2023 (Currency exchange during that same period – US to CDN)*

DISPOSABLE SYSTEM COST (CAD)	
Disposable pad cost per piece	\$1.80
Disposable coverage (square inches)	720
Number disposables used (based on coverage)	1.70
<b>ACQUISITION COST PER CHANGE</b>	<b>\$3.06</b>
Weight of disposable pad (KG)	0.10
Weight of soiled disposable pad (KG)	0.30
Disposal cost per Kilo	\$0.10
<b>DISPOSAL COST PER USE</b>	<b>\$0.03</b>
Number of disposable pads purchased annually	320,000
Annual disposable pads spend	\$272,000
Annual disposal waste (KG)	96,000
Annual disposal (waste) cost	\$9,600
<b>ANNUAL DISPOSABLE SYSTEM COST</b>	<b>\$281,600</b>

REUSABLE SYSTEM COST	
Number of reusables per change	1.00
Reusable coverage (square inches)	1225
Reusable pads used annually (based on coverage)	188,082
Weight per piece (KG)	0.465
Total Annual Kilos	87,458
Laundry cost per Kilo	\$1.40
<b>ANNUAL COST OF REUSABLE PAD</b>	<b>\$122,441</b>

**Annual Savings \$159,159**

**Annual container loads of waste 4.8**



# Appendix 10

ARTA Webinar –  
[www.arta1.com](http://www.arta1.com)

*\*Recommendation to IAHTM  
Members: More current  
testimonials needed*

## Other Documented Case Studies



### Super absorbent disposables drive costs up!

- 514 bed hospital in Florida
  - Used an average of 11,430 standard reusable pads/month at an average cost of \$5850. After converting to the new technology disposables, usage was 25,550 pads/month at a cost of \$24,800
- 4 hospital system in the Northeast US averaging 242 beds
  - Experienced a 220% increase in draw sheet usage at an average additional cost of \$11,600/hospital
- 300 bed hospital in Texas
  - Experienced a 76% increase in underpad usage and a 22% increase in fitted sheets after converting to the new technology disposables

# Appendix 11

<https://hlacnet.org/standards/>



The screenshot shows the 'Standards' page on the HLAC website. The page features a dark blue header with the HLAC logo and navigation links: HOME, ACCREDITATION, CERTIFIED HYGIENIC TESTING, STANDARDS, ABOUT, RESOURCES, CONTACT, and LAUNDRIES. The main content area has a dark blue background with the title 'Standards' and a paragraph explaining the Accreditation Standards for Processing Reusable Textiles for use in Healthcare Facilities, 2023 Edition. Below this, the section 'HLAC Accreditation Standards' is highlighted, followed by a paragraph about the 2023 revision and a list of key changes. A red button labeled 'Download 2023 Standards' is positioned above two images: the 'HLAC Accreditation Standards 2023 Inspection Process Guide' and the 'Healthcare Laundry Accreditation Council Accreditation Standards 2023 Edition CHECKLIST'.

HOME ACCREDITATION CERTIFIED HYGIENIC TESTING STANDARDS ABOUT RESOURCES CONTACT LAUNDRIES

## Standards

The Accreditation Standards for Processing Reusable Textiles for use in Healthcare Facilities, 2023 Edition, cover the complete textile processing cycle, from handling and transporting soiled healthcare textiles to in-plant processing and delivery back to the customer. The Standards also cover many basic considerations, such as facility layout, personnel training, and customer service.

### HLAC Accreditation Standards

With the 2023 revision, the HLAC board took into consideration all the feedback given in recent years. The new standards reflect HLAC's response to those criticisms about the scope of HLAC work and ensure that HLAC is providing relevant professional inspections and value-added as part of the inspection process. The 2023 Standards represent the best laundry standards in North America with respect to linen and laundry processing and ensuring patient safety.

A few things to expect from the updated standards

- More emphasis on standards impacting hygienically clean linen
- Prominence on functional separation and clean/soil issues
- Less focus on items that do not directly impact hygienically clean linen i.e., eyewash stations
- Flexibility for operators who employ different methods to obtain hygienically clean linen
- Easier to read standards, less duplication, better-referenced standards

The 2023 HLAC Accreditation Standards have been released and went into effect as of January 1, 2023.

The HLAC Accreditation Standards continue to heighten awareness and increase understanding of the infection prevention and safety culture in the laundry personnel for healthcare textiles where programs, policies, procedures, and practices are common concepts and language.

The elements of laundry processing are specific operations involving procedures, facilities, administrative activities, equipment, personnel, quality monitoring, and advanced technologies as appropriate.

HLAC has now accredited around 180 laundries and continues to make progress in raising the bar for healthcare laundries, greatly benefiting patient safety in the process. HLAC looks forward to another great year of partnership with remarkable laundries and their teams!

Download 2023 Standards



# Appendix 12

<http://hygienicallyclean.org/hygienically-clean-healthcare/>

The screenshot shows the 'Hygienically Clean' website. The header includes the logo, navigation links (About Us, Why Hygienically Clean, Why Use a Certified Laundry), and a search bar. The main navigation bar contains 'Certifications', 'Resources', 'Forums', 'News', 'Directory', and 'COVID-19 Guidance'. The 'Healthcare' section features a sidebar with 'Application / Renewal', 'Standards & Policies', 'Inspections & Tests', 'Media / Downloads', and a 'Find a Local Laundry' search button. The main content area includes a video player for 'TRSA's Hygienically Clean Certified', a 'Watch on YouTube' button, and a 'HEALTHCARE' seal. Below the video is a detailed text block explaining the certification process, including a list of essential evidence points and a 'SEAL OF RECOGNITION' from AORN. The footer contains links for 'Advisory Consultants Inspectors', 'FAQs Contact Us', and 'Privacy Policy Terms & Conditions', along with a copyright notice for 2019 and a 'Leave a message' button.

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

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### 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-party inspection and their capability to produce hygienically clean textiles as quantified by ongoing microbial testing. A laundry's dedication to compliance and processing healthcare linens and garments using BMPs as described in its quality assurance documentation (QA) is confirmed. QA is the focus of inspectors' evaluation of critical control points to minimize risk.

The independent, third-party inspection confirms essential evidence that:

- Employees are properly trained and protected
- Managers understand legal requirements
- OSHA compliant
- Physical plant operates effectively

Laundries pass three rounds of outcome-based microbial testing, indicating that their processes are producing Hygienically Clean Healthcare linens and garments and negligible presence of harmful bacteria. To maintain certification, laundry plants must pass quarterly testing to ensure that as laundry conditions change, such as water quality, textile fabric composition and wash chemistry, laundered product quality is consistently maintained.

This process eliminates subjectivity by focusing on outcomes and results that verify textiles cleaned in these facilities meet appropriate hygienically clean standards and BMPs for hospitals, surgery centers, medical offices, nursing homes and other medical facilities.

Hygienically Clean Healthcare certification acknowledges laundries' effectiveness in protecting healthcare operations through testing and inspections that scrutinize quality control procedures in textile services operations related to the handling of textiles containing blood and other potentially infectious materials.

Hygienically Clean Healthcare certified laundries use processes, chemicals and BMPs acknowledged by the federal Centers for Disease Control and Prevention (CDC), Centers for Medicare and Medicaid Services, Association for the Advancement of Medical Instrumentation, American National Standards Institute and others. Introduced in 2012, Hygienically Clean Healthcare brought to North America the international cleanliness standards for healthcare linens and garments used worldwide by the Certification Association for Professional Textile Services and the European Committee for Standardization.

Objective experts in epidemiology, infection control, nursing and other healthcare professions work with laundries to ensure the certification continues to enforce the highest standards for producing clean healthcare textiles.

Processes, chemicals or procedures to achieve BMPs are not stipulated - only that whatever protocols the laundry deems appropriate are documented and practiced. Hygienically Clean healthcare certified laundries are free to practice whatever tactics are needed to meet Minimum Performance Specifications for bacteriological testing. But they must document their tactics including written quality control procedures.

**Quantifying Hygienically Clean Removes All Doubt**

Hygienically Clean is an established threshold that guides the reduction of pathogens on textile products to levels that pose no threat of human illness. The following research provides scientific, quantitative definitions that explicitly establish and validate levels that define hygienically clean; and documents the emerging importance to the U.S. healthcare industry of quantifying and verifying textile hygiene.

Advisory Consultants Inspectors

FAQs Contact Us

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# Appendix 13

## Vintex White Paper

- Uses 75% less energy consumption over the entire life cycle including offsets for heat recovery through disposable pad incineration.
- Uses 80% less raw materials. Oil and natural gas are precursors for synthetic fabrics, soaker material and energy to create hot water for laundry activities.
- Has 75% less land use. This captured the impacts on biodiversity through land occupation and land transformation associated with soaker materials manufacturing and logistics impact of transporting large quantities of material.
- Has 10% higher toxicity potential with laundry chemicals being the most significant contributor followed by fuel emissions from logistics. Disposable pads' toxicity potential is primarily associated with the manufacturing of its soaker material along with fuel emissions.
- Has 90% less risk potential based on analyzing the number of working accidents, fatalities, illnesses and diseases associated to industries across the full life cycle.
- Creates 85% less emissions. Reusable pads were superior in each of the three emission subcategories analyzed:
  - Creates 70% less air emissions with Global Warming Potential and Acidification Potential being the most relevant.
  - Creates 75% less water emissions. Pre-chain materials used to manufacture disposable products generated greater water emissions than reusable pads' laundry activities.
  - Creates 95% less solid waste emissions as reusables generate dramatically less solid waste due to their inherent durability and ability to be reused.

### Life Cycle Costs Assessment

Complementing the environmental assessment in the EEA is a detailed life cycle cost analysis. Labor and material costs for product creation are combined with costs incurred during use (i.e. laundering for the reusable pad) and the cost for disposal or recycling. Figure 5 shows the total cost of ownership for the study's defined customer benefit.

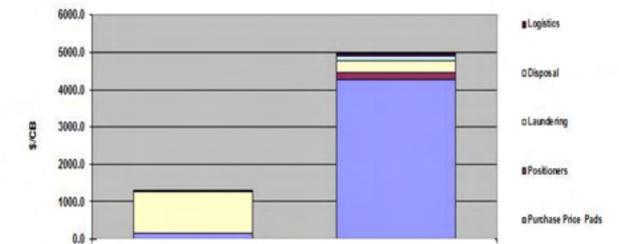


Figure 5: Life Cycle Costs – Modules

Here again reusable loose back pads demonstrated their superiority over standard disposable pads by having significantly lower costs. The actual life cycle cost for a reusable pad is over 70% lower, or 4 times more cost effective, than the disposable alternative.

Clearly, there is a significant financial incentive for healthcare providers to use reusable vinyl incontinence bed pads versus disposable pads.

# Appendix 14

## The ARTA-Environmental Clarity Study



### LIFE CYCLE METRICS

The life cycle assessment (LCA) of reusable incontinence pads was compared to that of disposable incontinence pads on a cradle to end of life basis. The functional unit was 1000 reusable pad uses. Environmental performance metrics used for comparison were:



- (1) Total fossil energy resources
- (2) Fossil resources combusted for energy
- (3) Global warming potential (carbon equivalents)
- (4) Blue water use (water loss) and
- (5) Solid waste generation.

### RESULTS

When compared to disposable pad use, reusable pads were found to result in:

- 71% Fossil resources savings
- 52% Less fossil resources combusted for energy
- 56% Less water loss (blue water savings)
- 61% Less carbon equivalent emissions
- 97% Less solid waste at laundry or healthcare facility



### REUSABLE VS. DISPOSABLE LCA ASSUMPTIONS

	Architecture and materials	Size	Weight	Average number of uses	Average pads per adjusted patient day (ADP)	Number of units, frequency of use	Timeframe and disposal
Reusable Pads	Rayon/polyester absorbent layer, polyester top and bottom layers, and polyurethane or poly-vinyl chloride barrier layer	34" x 36"	433 g/pad	46	0.68 ADP	1/ADP 1,000	Cradle to end of life (83% landfill, 17% incineration)
Disposable Pads	Superabsorbent polymer/cellulose soaker with a polyethylene barrier and non-woven polypropylene top and bottom layers	30" x 36"	144 g/pad	1	1.46 ADP	2.1/ADP 2,120	Cradle to end of life (83% landfill, 17% incineration)

Study funded by the ARTA Incontinence Pad LCA Committee

The American Reusable Textile Association (ARTA) mission is to promote greater appreciation for reusable textiles.  
www.ARTA1.com

