Mastering Laundry Inspections

A Best Practices Checklist for Infection Preventionists

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Strengthening and Promoting the Linen, Uniform and Facility Services Industry

Speakers

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How often do you conduct inspections of your laundry facilities?

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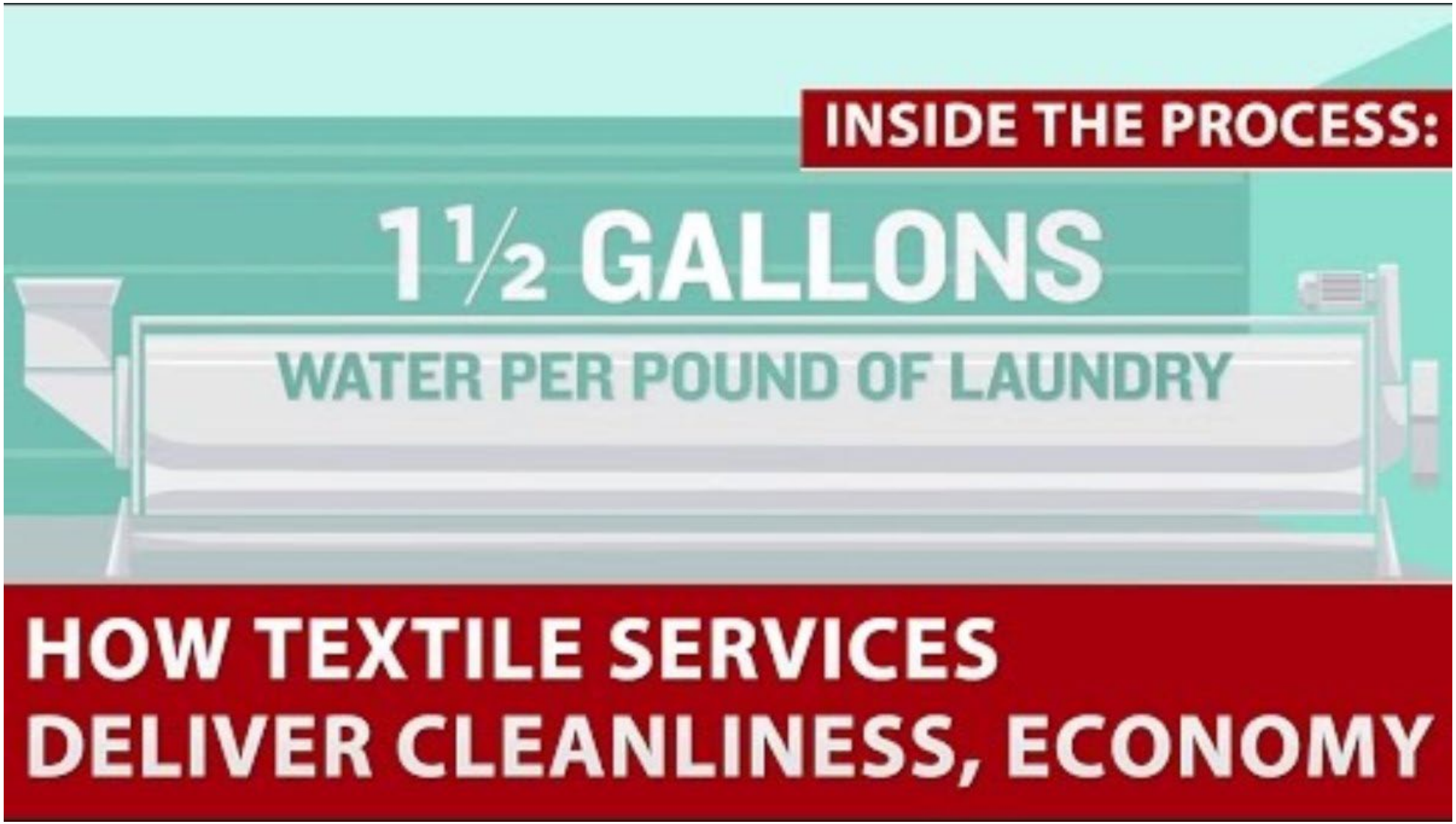
Learning Objectives

- **Understand** the critical role infection preventionists play in ensuring healthcare textiles meet strict infection control standards
- **Describe** key checkpoints, compliance standards, and common pitfalls involved in conducting effective laundry inspections
- **Identify** how laundry facilities implement Universal Precautions and protocols to ensure healthcare textiles are hygienically clean regardless of soil or contamination level
- **Promote** proper handling of soiled textiles by encouraging staff adherence to Universal Precautions and appropriate return of linens for hygienic processing

Welcome

The healthcare laundry should be viewed as an essential extension of the healthcare facility—supporting the mission to deliver safe, high-quality patient care.

To set the stage, let's begin with a short video showcasing a healthcare laundry facility in action:



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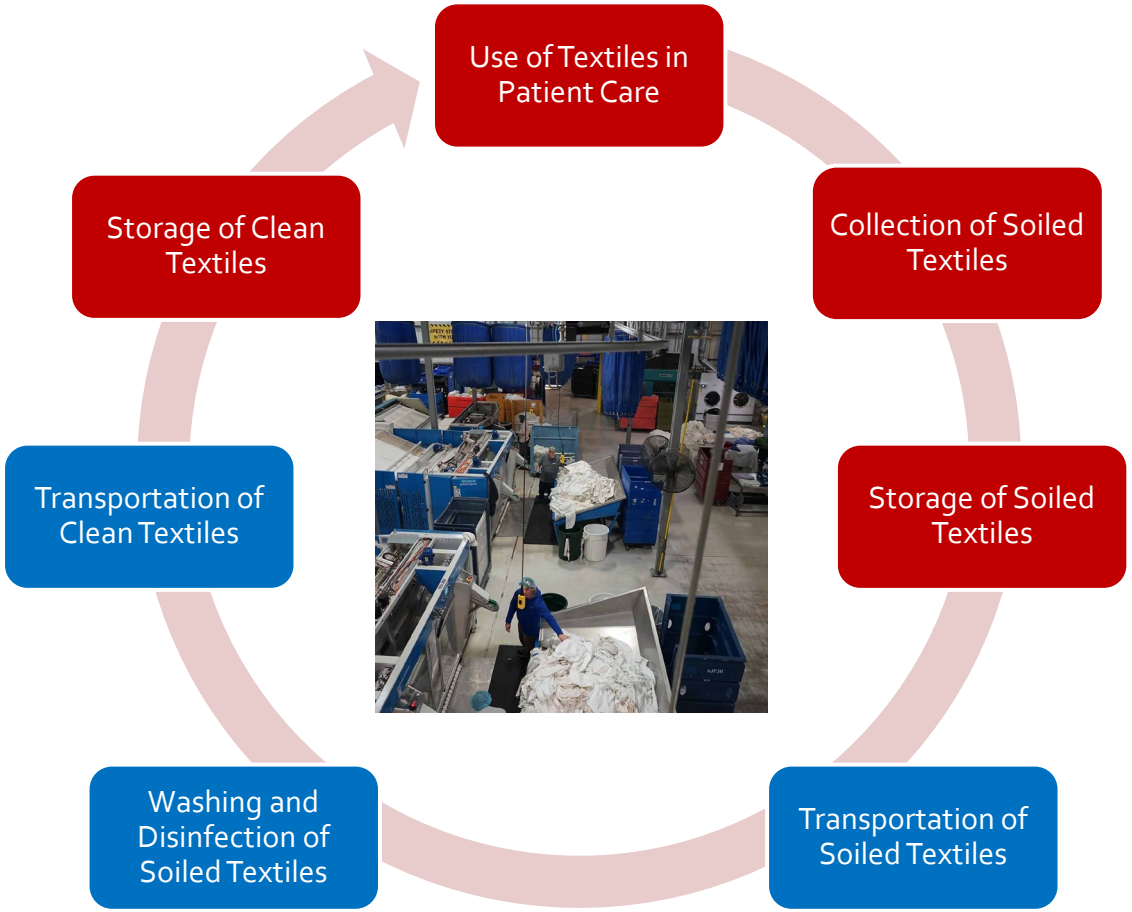


THE LAUNDRY PROCESS

Soiled Linen Handling and Processing

Dan Sanchez

President

Sanchez Advisory Group

SOILED SIDE OF LAUNDRY

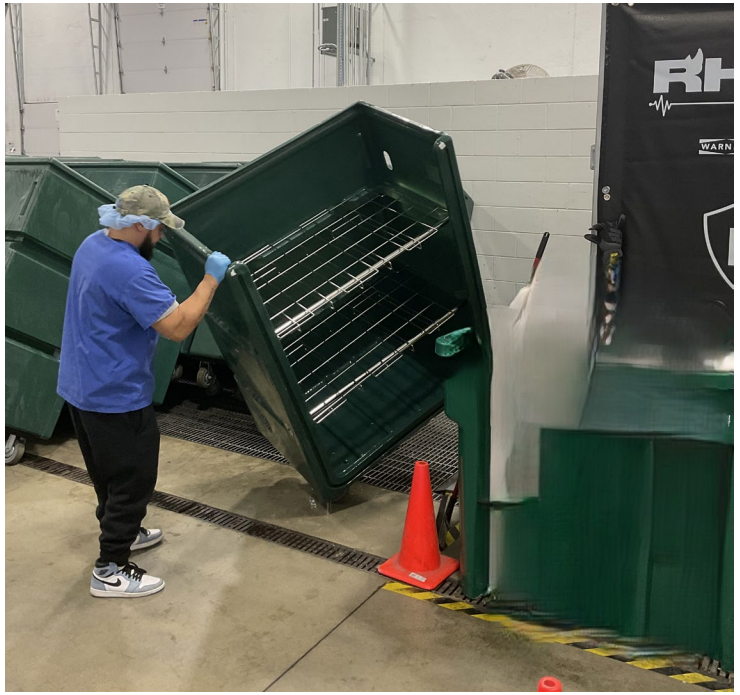
When inspecting the soiled side of a commercial healthcare laundry facility, it's essential to ensure clear separation between soiled and clean areas. Soiled textiles must be handled using Universal Precautions, and the workflow should be designed to prevent any risk of cross-contamination with clean textiles

Universal Precautions Applied

- Universal Precautions
  - Soiled linen is contained in leak resistant bags and containers when picked up from the healthcare facility
  - The laundry utilizes universal precautions when handling soiled linen and treats all textiles as if they are contaminated with bloodborne pathogens
- OSHA Standards and Hazard Assessment
  - Employees are trained on Bloodborne Pathogens and when and how to use PPE available to them
  - Employees are trained on appropriate hand hygiene and handling sharps found in the linen
  - Appropriate PPE is used when handling soiled linen as designated by the laundry

Soil and Clean Separation

- Soiled linen after being sorted is hung in slings or sorted in carts then dropped into washers as long as school buses
- The clean linen after being processed in the washer is ejected on the clean side of the plant
- Ventilation is used to either create negative air pressure pulling area to the soil side or positive air flow pushing air from clean to soil



TRANSPORT CART DISINFECTION

Wash Process

Steve Tinker

Gurtler Industries, Inc.

Sr VP, Research & Development and Marketing

Regulations and Recommendations Concerning the Healthcare Wash Process

- CDC: Guidelines for Environmental Infection Control in Health-Care Facilities (July 2019), Part I, Section G.4. Parameters of the Laundering Process:

"Several studies have demonstrated that lower water temperatures of 71°F–77°F (22°C–25°C) can reduce microbial contamination when the cycling of the washer, the wash detergent, and the amount of laundry additive are carefully monitored and controlled. Low-temperature laundry cycles rely heavily on the presence of chlorine- or oxygen-activated bleach to reduce the levels of microbial contamination...[T]he temperatures reached in drying and especially during ironing provide additional significant microbiocidal action."

Regulations and Recommendations Concerning the Healthcare Wash Process

- California Title 22 - Code of Regs 70825 (a) (4):

Hospital linens shall be washed according to the following method: All linens shall be washed using an effective soap or detergent and thoroughly rinsed to remove soap or detergent and soil. Linens shall be exposed to water at a minimum temperature of 71°C (160°F) for at least 24 minutes during the washing process, or a lower temperature of 60°C (140°F.) for 24 minutes may be utilized if the linens are subsequently passed through a flatwork ironer at 110-115 feet per minute at a temperature of 300°F. or a tumbler dryer at a temperature of 180°F.

Tunnel Washing Process

- A textile tunnel washing process, or continuous batch washer, uses a series of modules to wash and rinse textiles in a continuous flow, offering high-volume, efficient, and automated laundry operations
- Unlike traditional washers with a single chamber, a tunnel washer has multiple chambers or modules, each dedicated to a specific stage of the wash cycle (pre-wash, wash, bleach, rinse, etc.)

Tunnel Washing Process

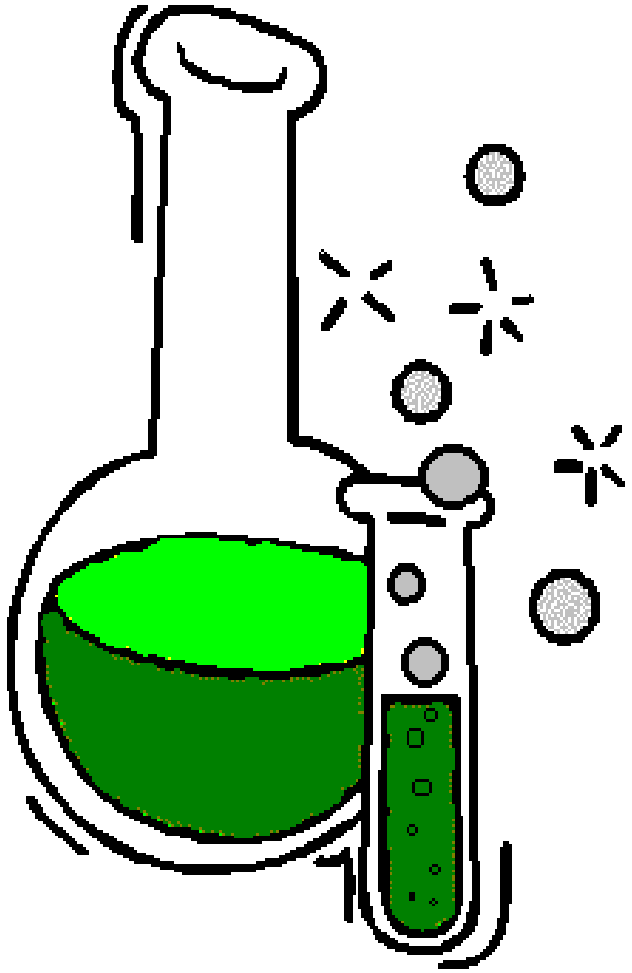
Modules:
The modules are arranged sequentially, and the textiles move continuously through them, ensuring a consistent and efficient wash process.

Process Stages:

- **Pre-wash:** Initial wetting and loosening of soil
- **Wash:** Application of detergent and heat.
- **Bleach**: Stain removal
- **Rinse:** Removal of detergent and residual soil
- **Final Rinse**: Treatment of textiles with softeners, pH adjustment and/or antibacterial agents
- **Extraction:** Removal of excess water, using a press or centrifuge

Traditional Washers

- Traditional washers are also used in the healthcare laundry market
  - These washers are "front-loaders" and can process from 50-900 pounds of textiles, depending on the size of the washer
  - They can be programmed for multiple types of washing formulations, such as light, medium, heavy, or extra-heavy soil loads



Laundry Chemistry - Builders

Alkalis

- Neutralize acidic soils
- Solubilize fatty soils
- Break up microbial cell walls
- Help suspend insoluble soils

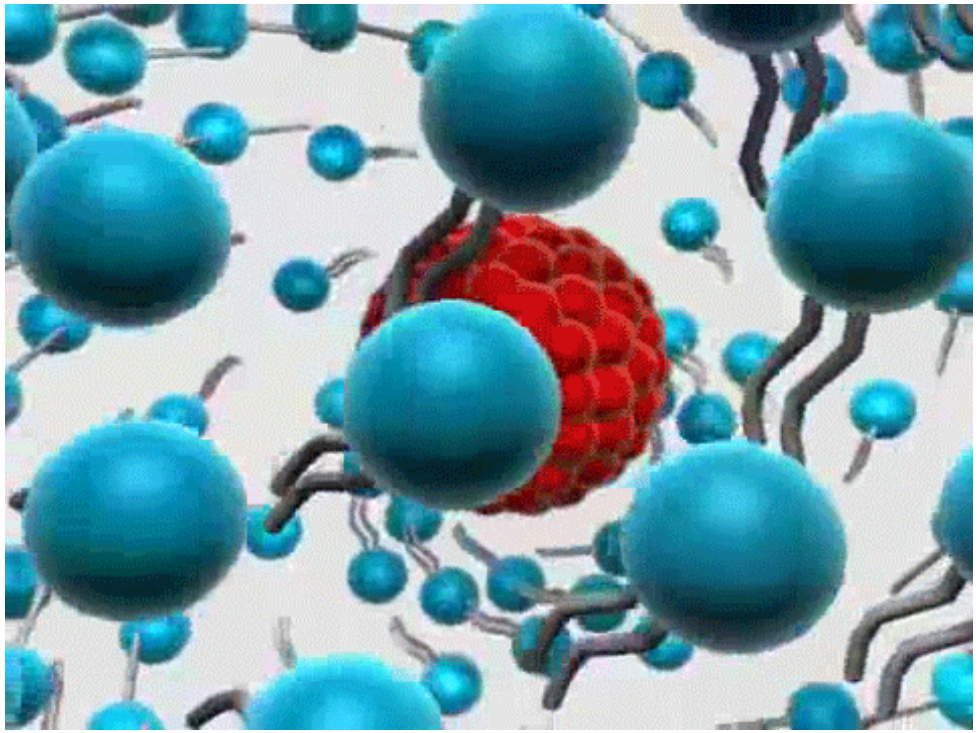
Water Conditioners

- Sequester (isolate) water hardness which can interfere with detergency
- Suspend insoluble soils

Laundry Chemistry - Detergents

Surfactant (Surface Active Agent)

- Makes water "wetter" allowing it to penetrate fabrics quickly
- Lifts and emulsifies oily soils
- Especially important for polyester blended textiles
- Suspends soils



Laundry Chemistry - Bleaches

Stain Removal and Bioburden Deactivation

- Chlorine Bleach
  - Very effective anti-microbial, however…
  - Interacts with residual CHG creating a permanent brown stain
- Hydrogen Peroxide
  - Does not react with CHG, however…
  - Not a good antimicrobial at temps <160°F
- Activated Oxygen Bleaches
  - Peracetic Acid
  - Excellent antimicrobial, and…
  - Does not react with CHG
  - Some versions are EPA registered sanitizer/disinfectants

Laundry Chemicals – Final Rinse

Additives in the Final Rinse are used to assure the textiles are comfortable and hygienically clean

- Soften terry towels and cotton fabrics
- Adjust the pH to that of skin ~ 5.5-6.5
- Optional: Treat textiles with a bacteriostatic finish that can both sanitize and prevent bacterial growth on clean textiles

Hygienically Clean Textiles
The wash process combines several factors that will eliminate and deactivate microbial contamination

- **Dilution:** Several water changes during the cleaning process physically remove and flush away bio-organisms
- **Heat:** Washing at elevated temperatures (>140°F) deactivates much of the common bio-organisms
- **pH:** High pH (>10.5) will "attack" or deactivate bio-organisms. In addition, large swings in pH from neutral (7.0 – 8.0) in the first flushes to alkaline (10.5 – 11.5) during the main wash cycles to acidic conditions (5.5 – 6.5) will adversely affect bio-organisms
- **Oxidation:** Oxidizers are known to deactivate bio-organisms, including difficult organisms, such as C-diff
- **Chemical Sanitizers or Bacteriostats:** Some laundries as an extra precaution will use EPA registered products that will act as sanitizers or disinfectants in the final step of the laundry process
- **Drying:** Drying at temperatures that exceed 180°F on the fabric surface deactivate any potential remaining organisms

Recommended Inspection Checkpoints

- Ask about any quality control measures in use
- Ask for samples of the laundry chemical supplier's service reports:
  - Check on chemical quantities or activities, temperatures, time and loading factors
  - Check the temperature profile in the tunnel to makes sure it meets minimum standards
  - Check on final pH of textiles and/or final rinse
- Ask about fresh-water flow rates
  - How much fresh water is used per pound of textile?
- Ask about water reuse and microbial management of reuse water
- Ask about what kind of antimicrobial additives or oxidizers are in use
  - Chlorine, peroxide, or peracetic acid?
  - Any EPA registered sanitizers or disinfectants in use on textiles?
- Ask about their system management and production monitoring capabilities
  - For example, what is the process for handling alarms for low chemical product injection into the tunnel or washer?
- Ask if they are accredited or Hygienically Clean Certified
  - Do they lab test their textiles for microbial quality?

The Wash Process in today's healthcare laundries can process the toughest, heaviest soils and return the textiles, hygienically clean and ready for every need.

Clean Side Finishing

Liz Remillong

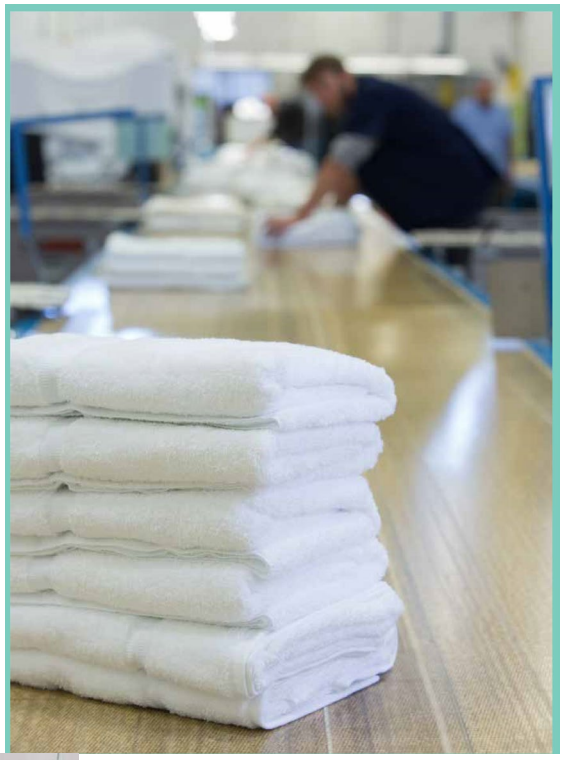
Vice President, Core Linen Services

CLEAN SIDE OF LAUNDRY

When inspecting the clean side of a commercial healthcare laundry facility, you're ensuring that processed linens meet hygienic and quality standards before they're returned to healthcare settings. This area is critical because it's the last point before delivery, and contamination here defeats the entire purpose of cleaning.

Clean Side - Finishing

- ***Environmental Cleanliness & Hygiene***
  - Floors, walls & ceilings
  - Airflow & ventilation
  - No signs of lint accumulation around equipment, floor storage carts
  - Temperature & humidity control
  - Lighting
  - Pest Control
- ***Personnel Hygiene & PPE***
  - Proper attire
  - Hand hygiene facilities
  - No cross-contamination behaviors



Clean Side - Finishing

- ***Linen Handling Practices***
  - Proper storage of clean linen
  - Clean linen not mixed with soiled linen
  - Final product inspection
  - Folding & packaging
- ***Equipment and Surfaces***
  - Clean carts, tables, belts and bins
  - Inspect folders, ironers, conveyors
  - Documentation of cleaning schedules

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Does your Laundry currently have a working Surgical Linen Pack room?

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Surgical Pack Make-Up Room

The pack room is where clean surgical linen is, inspected, folded, and packaged for delivery to healthcare facilities, so it's essential that it maintains high standards of hygiene and workflow efficiency.

- **Overall Cleanliness and Hygiene**
  - Surfaces & equipment
  - Floors & walls
  - Air Quality
  - Pest Control
- **Staff PPE and Hygiene**
  - Access Control
  - Uniforms
  - PPE Compliance
  - Hand Hygiene

Surgical Pack Make-Up Room

- **Packaging Procedures**
  - Correct Inspecting, Folding & Packaging
  - Labeling
- **Workflow & Organization**
  - Efficient Layout
  - Storage
  - FIFO
- **Documentation & Compliance**
  - SOP's
  - Training Records
  - Audit Logs
- **Equipment & Maintenance**
  - Condition of Light Tables, Folding Tables, etc
  - Preventative Maintenance

RED FLAGS

- Plant disorganized, linen on floor, excess lint and overall cleanliness
- Documentation not readily available
- Disregard for proper protocol, policy and procedures
- Unable to correctly answer general IP questions

Trucks and Transportation

Greg Cox

TRSA Auditor

Hygienically Clean Certifications

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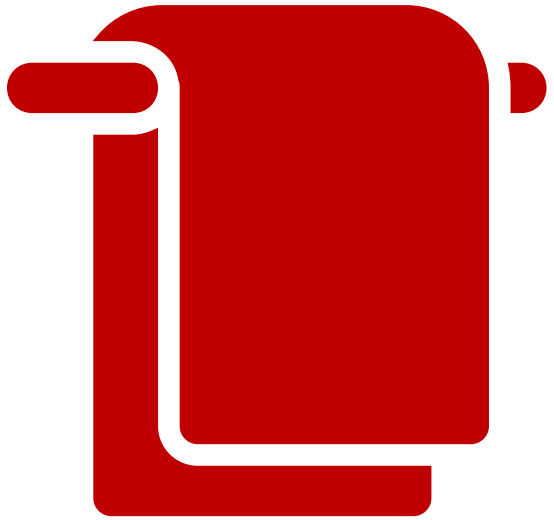
Logistical Guidelines



CDC Best Practices for Management of Clean Linen

- Sort, package, transport, and store clean linens in a manner that prevents risk of contamination by dust, debris, soiled linens or other soiled items
- Each floor/ward should have a designated room for sorting and storing clean linens
- Transport clean linens to patient care areas on designated carts or within designated containers that are regularly (e.g., at least once daily) cleaned with a neutral detergent and warm water solution
- For example, the CDC's guidelines state, "Clean linen should be transported and stored by methods that will ensure its cleanliness."
- According to the ALM, (Association of Linen Management) the carts or hampers that deliver laundered linens must be cleaned prior to accepting processed linens. A clean liner within the cart is acceptable, and the linens should be covered

Similar Guidelines exist from AORN, TJC, ALM, AHCA and NCAL

Hygienically Clean Standard (TRSA Guidelines)

- The process for servicing accounts must be designed and executed to prevent cross contamination
- Items must be covered during transportation to prevent cross contamination. The functional separation concept must continue during the transportation of clean textiles to and from the healthcare customer
- Items shall be transported in designated and covered containers
- Containers and carts used to transport soiled linen must be properly cleaned before they are used to transport clean linen
- The term "properly cleaned means either steam cleaned or cleaned with an EPA-approved cleansing agent/disinfectant and water solution
- Hand sanitizer and gloves must be available in for us in all delivery trucks. Spill kits should also be provided.
- Trucks shall be swept out daily and decontaminated at least twice per month
- Laundries must package, transport, and store clean textiles and fabric by methods that ensure their cleanliness and protect them from dust and soil during inter-facility loading, transport, and unloading

Other HC Laundry Standards include:

The Laundry must maintain functional separation of clean textiles from soiled textiles in carts and/or vehicles at all times during handling, collection, and transportation of soiled textiles.

- Functional separation of clean from soiled textiles must be maintained during transportation
- Transport soiled textiles in fluid-resistant containers/bags
- Anchoring soiled textile containers in the vehicle to prevent spillage from their containers
- Training personnel regarding proper bagging and placement of textiles in the transporting truck; and
- Ensuring that all personnel with this responsibility follow Standard/Universal Precautions when necessary (e.g., when handling loose soiled textiles not contained in bags)

What is the Industry Acceptable Process?

- How Should I Validate?
  - PPE: Is PPE being used by drivers
  - Clean Textile Delivery: Plastic Liner, Plastic Cart Cover, Individually Wrapped- covering clean linens
  - Soiled Textile Delivery: Textiles kept in plastic bags and placed in soil transport cart
  - Does the laundry provider use anchor mechanisms to keep cart secure?
  - Exchange Cart Covers
  - Cleaning of Carts and Trucks:
    - Carts- upon the emptying of soil linen from the cart and prior to being moved to the clean finishing side
    - Trucks predominately done after each return to the plant from customer deliveries, especially with soil loads.
  - Best Practices: Transportation

General Conditions and Documentation

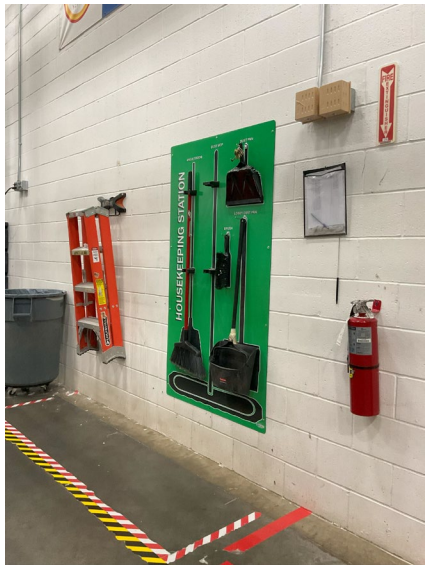
Dan Sanchez

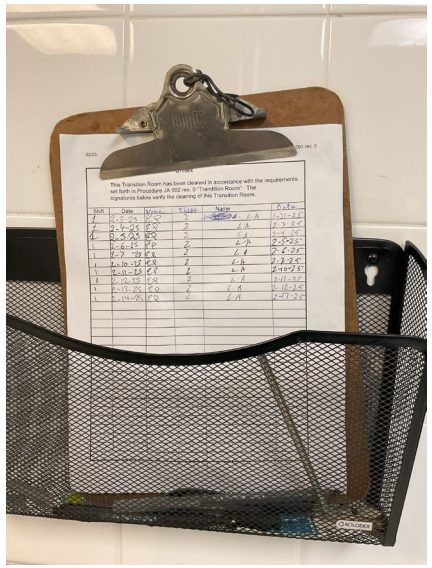
President,

Sanchez Advisory Group

Overall Cleanliness

- Equipment and workstations are cleaned on a regular basis and documented in logs and/or software

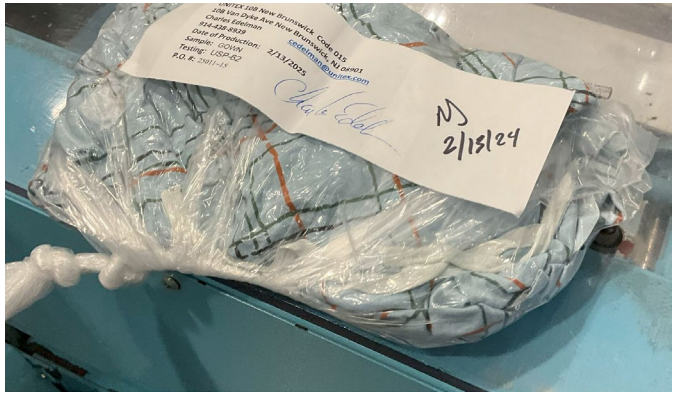


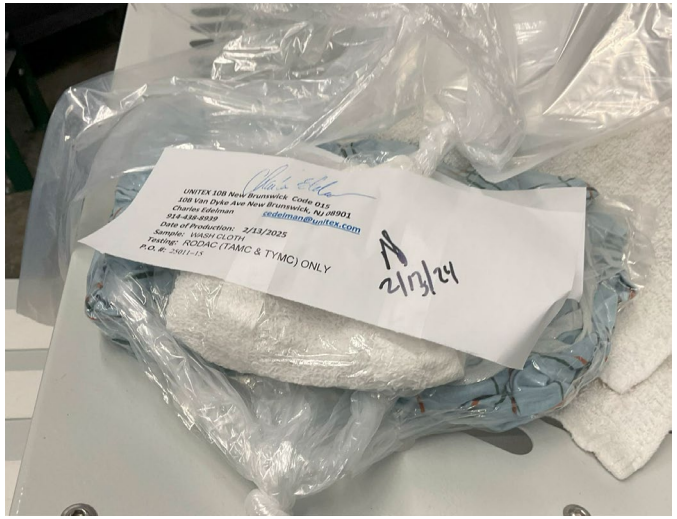


Employee Training & Documentation

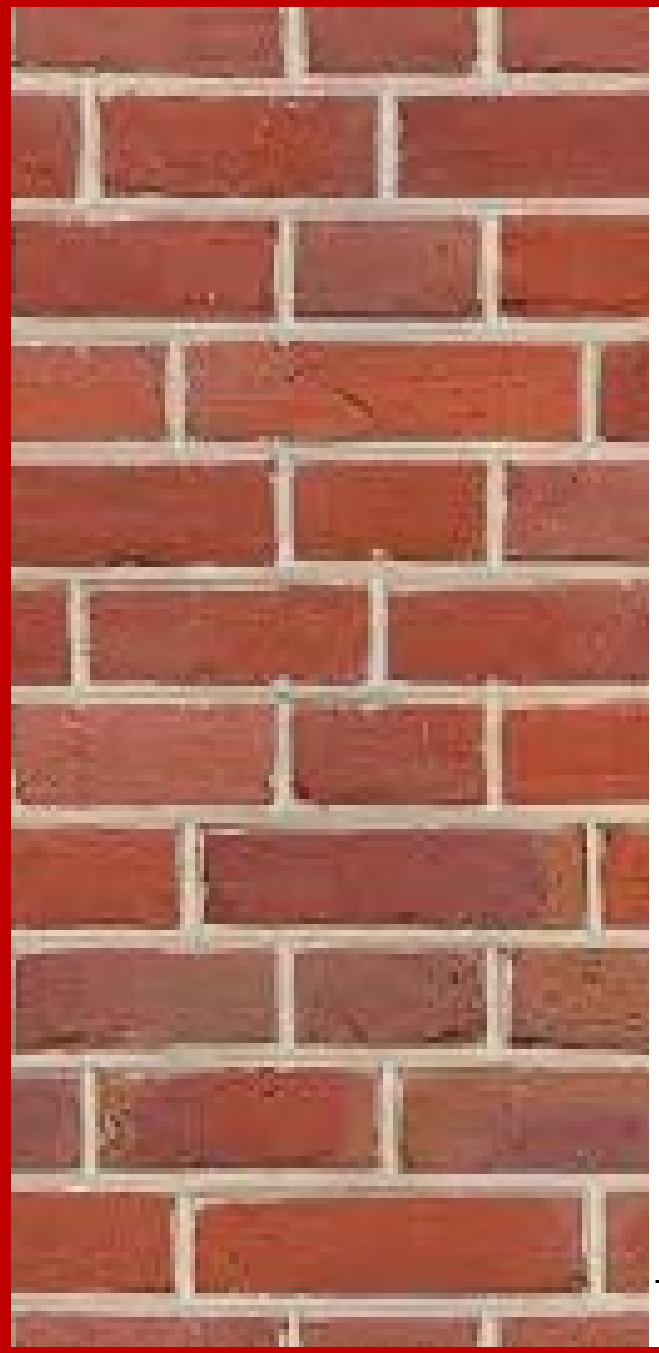
- Employees are trained on:
  - Bloodborne Pathogens
  - Handling regulated waste
  - Complying with OSHA Standards for Hepatitis B
  - Communication of Hazards
  - Documentation is maintained on training cycles and sharps exposure
  - OSHA 1910.1200 is followed for Hazard Communication Practices

Hygienically Clean and Textile Testing





- Textiles are sent to an accredited lab quarterly for Microbiological Testing.
  - RODAC Plate (*Replicate Organism Detection and Counting*)
    - the RODAC test is like a "germ detector" for laundry, helping ensure healthcare textiles are **safe and hygienically clean** (bacteria and yeast and mold counts) before they're used again.
  - USP62 (*United States Pharmacopeia*)
    - It checks **if dangerous microorganisms are present**, such as:
      - **Staphylococcus aureus** (can cause skin infections or worse)
      - **Pseudomonas aeruginosa** (resistant bacteria often found in hospitals)
      - **Escherichia coli** (E. coli)
      - **Candida albicans** (a yeast that can cause infections)
      - **Salmonella species**



Barriers to Following Guidelines for Soiled Healthcare Textiles

Common Barriers Within Facilities

- Lack of Knowledge Staff may not understand risks or procedures
- Lack of Clear Policies – Inconsistent or missing guidelines lead to confusion
- Workplace Culture – "If no one else does it, why should I?"
- Time Constraints – Competing priorities make it hard to follow proper protocols

Improving Understanding & Overcoming Barriers

Educate Staff Regularly

In-service training

Real-life examples

Follow Universal precautions

Clarify & Simplify Policies

Visual SOPs

Translated materials

Posted reminders

Address Culture & Behavior

Tackle "we've always done it this way"

Encourage peer modeling

Foster Functional Communication

Include feedback

Align with Infection Prevention & EVS

Make Time for Compliance

Build safe handling into daily workflow

Prioritize PPE use

Summary

Guidance for Infection Preventionists: Improving Laundry Process Awareness

Apply CDC, TRSA, Joint Commission, if applicable State standards in inspections and policy reviews

- Joint Commission Checklist
- CDC Guidelines
  - Recommendations for laundry handling, washing temperatures, chemical use.
  - Guidance on facility design (e.g., separation of clean and soiled areas)
  - Infection prevention practices such as use of PPE, hand hygiene, and containment
- TRSA Hygienically Clean Standards

Verify outcomes using microbiological tests (e.g., RODAC, USP62) to ensure cleanliness

Laundry Tour Inspection Checklist for Infection Preventionists

Maintaining a safe healthcare environment starts with ensuring that healthcare textiles meet rigorous infection control standards. This comprehensive checklist outlines the essential elements to evaluate during a site visit, including critical steps and compliance requirements throughout the hygienically clean laundry process. Use this as a guide to verify best practices and uphold the highest standards of cleanliness and safety.

Soiled Textiles - Handling & Processing

	YES	NO
1. Are soiled textiles contained in leak-resistant bags to minimize exposure?	☐	☐
2. Are Universal/Standard Precautions being followed - including the use of PPE- when sorting soiled textiles?	☐	☐
3. Is there necessary signage to communicate to employees that Universal/Standard Precautions must be followed?	☐	☐
4. Is a sharps container and non-sharps medical waste container in the soil area?	☐	☐
5. Is there a cart washing process to clean and disinfect carts used for soil transport before loading them with clean textiles?	☐	☐
6. Is the workflow designed to prevent risk of cross-contamination with clean textiles?	☐	☐
7. Are there hand hygiene stations for employees to use, such as sinks with soap and hand sanitizing dispensers?	☐	☐

Laundry Facility & Equipment

1. Is there separation between soil and clean sides, either via a physical or spatial barrier?	☐	☐
2. Is there proper ventilation in the facility, either a negative air flow to pull clean air to the soil side or positive air flow pushing air from the clean side to soil?	☐	☐
3. Is the proper preventative maintenance and calibration performed on the facility equipment according to manufacturer's recommendations?	☐	☐
4. Are wash formulas designed to use the proper chemicals and wash temperatures for the removal of microbiological contaminants?	☐	☐
5. Are wash formulas evaluated according to the chemical vendor's recommendations?	☐	☐

SCAN HERE FOR THE LAUNDRY INSPECTION CHECKLIST

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