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SystemSURE *Plus*

ATP Cleaning Verification System

System Implementation Guide

This guide is designed to assist users in setting up and operating an ATP cleaning verification program using the SystemSURE Plus ATP Cleaning Verification System within healthcare facilities. For instructions on how to operate the SystemSURE Plus, please refer to the operator's manual included with the system or our instructional materials online.

Watch Instructional Demos at:
www.youtube.com/HygienaTV

Find downloadable resources and more information at:
www.hygiena.com/healthcare.html

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Introduction to the SystemSURE Plus ATP Cleaning Verification System

Hygiena's SystemSURE Plus ATP Cleaning Verification System is a tool used to:

- Educate environmental services professionals and other personnel on proper cleaning technique
- Monitor and improve the cleanliness levels of surfaces in healthcare facilities
- Monitor the effects of changes within a cleaning program
- Document and track individual and overall cleaning performance

Healthcare facilities that implement an objective monitoring system experience a 42% increase in cleaning thoroughness.[i] The Centers for Disease Control and Prevention (CDC) encourages all healthcare facilities to develop preventative programs to optimize and monitor the thoroughness of high-touch surface cleaning.[ii]

The SystemSURE Plus ATP Cleaning Verification System enables healthcare organizations to:

- Instantly assess the cleanliness of surfaces, allowing immediate corrective action to be taken
- Reduce or eliminate variation in surface cleaning performance by standardizing acceptable cleaning levels
- Improve and enhance the training of environmental services personnel
- Provide insight into whether current cleaning processes and tools are sufficient or below adequate
- Reduce the use of conventional microbiological testing methods that are slow, labor intensive, and costly
- Record and track test results to identify problem areas, make improvements, and show due diligence to auditors and compliance with regulations
- Enhance environmental cleaning programs which help to prevent the spread of harmful bacteria and viruses that are associated with healthcare associated infections
- Ensure patient safety and increase patient satisfaction by demonstrating a greater commitment to environmental cleanliness

Using Hygiena's SystemSURE Plus ATP Cleaning Verification System, healthcare facilities are able to create a standard by which to measure cleaning effectiveness.

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[i] Carling, P.C., & Bartley, J.M. (2010). Evaluating hygienic cleaning in health care settings: What you do not know can harm your patients. American Journal of Infection Control; 38 : S41
[ii] http://www.cdc.gov/HAI/toolkits/Evaluating-Environmental-Cleaning.html

Components of the SystemSURE Plus ATP Cleaning Verification System

The SystemSURE Plus ATP Cleaning Verification System consists of four parts:
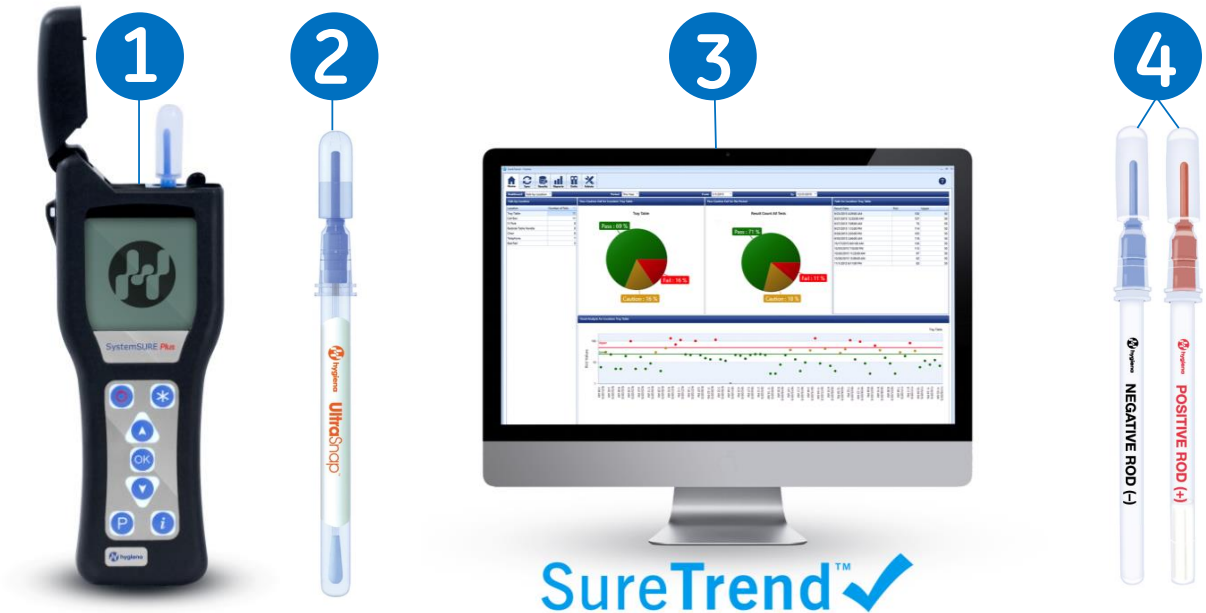
1. **SystemSURE Plus Luminometer** – a user-friendly, handheld, light-reading unit that provides precise, on-site test results. Used with the UltraSnap testing device, extremely low levels of contamination can be detected in just 15 seconds. (Catalog # SS3H)

2. **UltraSnap Testing Device** – a convenient, all-in-one ATP test device. Simply swab, snap, and squeeze, and the test is ready to be measured in the SystemSURE Plus. Packaged 100 tests per box. (Catalog # US2020)

3. **SureTrend Data Analysis Software** – a powerful software program that allows users to upload test results to a database, analyze trends, and generate reports for management and record-keeping. (Included with SystemSURE Plus Luminometer).

4. **Calibration Devices** - optional calibration kit confirms SystemSURE Plus is within specifications. (Catalog # PCD4000) *See section 2.10 Calibration for more details.*

Hygiena's luminometer, testing devices, and software are designed to be easy to use, enabling operation by both technical and non-technical staff.

## Section I: An Overview of ATP Cleaning Verification

The SystemSURE Plus ATP Cleaning Verification System is a rapid cleaning monitoring system used to help hospitals and other healthcare organizations achieve optimal standardized cleaning levels. The system uses bioluminescence technology to identify and measure **adenosine triphosphate**, commonly known as **ATP.**

1.1 What is ATP?

ATP is an energy molecule found in all living cells that allows cellular metabolism to take place. All organic matter contains ATP, including blood, saliva, and bacteria. In healthcare facilities, organic matter such as bodily fluids, blood, and bacteria left on surfaces can become a point of cross-contamination between patients and staff, leading to infections if not properly cleaned. Therefore the detection of ATP on a surface after cleaning is an indication of improper cleaning.

1.2 Measuring ATP with Bioluminescence Technology

UltraSnap ATP surface tests contain an enzyme called luciferase which produces a bioluminescence (light-producing) reaction when it comes into contact with ATP. The light emitted from the reaction is measured and quantified in the SystemSURE Plus luminometer. The graphic below illustrates how ATP on a surface reacts with the enzyme in UltraSnap ATP test devices to emit light.

ATP on a Surface   +   Enzyme in UltraSnap   =   Emitted Light

High-touch point not properly cleaned

Bioluminescence enzyme inside ATP test device
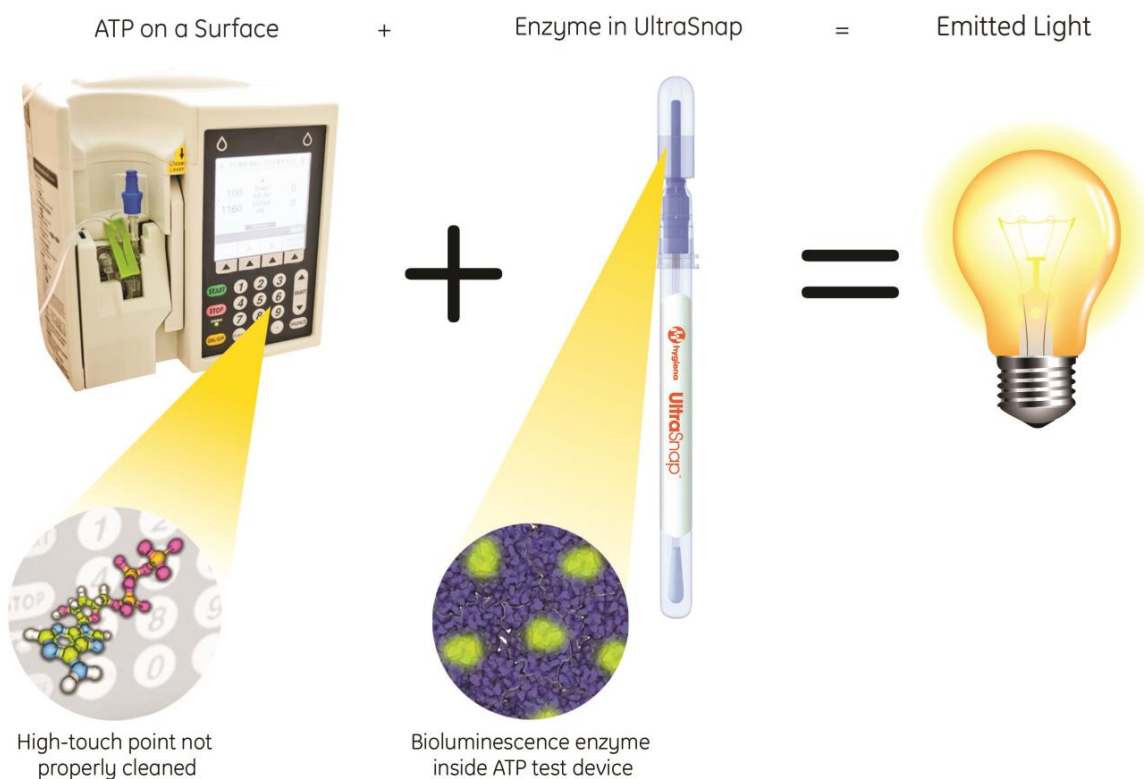
ATP Presence and RLU Measurement
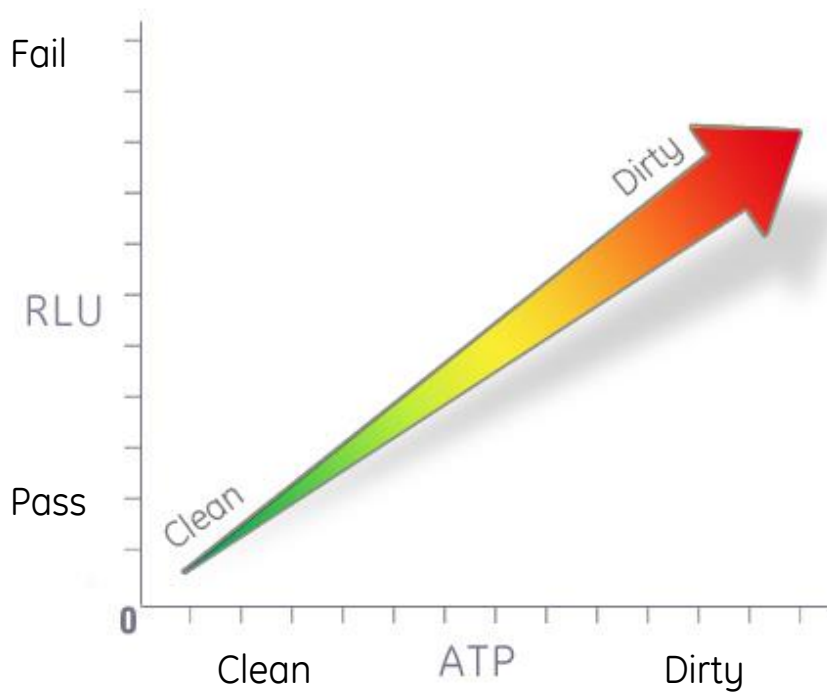
Higher Contamination = Higher RLU

The quantity of light generated by the bioluminescence reaction is directly proportional to the amount of ATP present in the sample. The reaction is immediate, allowing results to be processed in real-time. Results are then expressed numerically on the SystemSURE Plus screen as Relative Light Units (RLU).

1.3 Additional Uses

In addition to routine ATP cleaning verification by Environmental Services (EVS), the SystemSURE Plus ATP Cleaning Verification System can be used for:

Central/Sterile Services & Endoscopy – Used for verifying the cleanliness of flexible endoscopes and other reusable medical devices. Improper cleaning of equipment before sterilization can lead to non-sterile equipment.

Hand Hygiene Compliance – An easy method to measure levels of ATP present on personnel hands before and after hand washing to demonstrate efficacy and thoroughness of hand washing efforts.

Food Service & Cafeteria Food Safety – Verifies food preparation surfaces and dining areas have been cleaned properly as part of a Hazard Analysis and Critical Control Point (HACCP) food safety plan.

Facilities Management – Helpful for monitoring water quality and water treatment effectiveness at point of use. Also commonly used to verify thorough cleanup after new construction and remodeling of patient areas.

For more information about implementing ATP cleaning verification in these and other areas of a hospital, visit www.hygiena.com/healthcare.html

Section 2: Implementing an ATP Cleaning Verification System

2.1 Establishing Test Locations and Limits

The SystemSURE Plus comes with a preset pass limit of 25 RLU and fail limit of 50 RLU. These limits are based on studies conducted in healthcare facilities, and a starting point from which custom limits can be refined.

Pass	<25 RLU
Caution	25-50 RLU
Fail	50+ RLU

This section will guide users through identifying test locations and establishing appropriate pass/fail limits for those locations. To optimize an ATP cleaning verification program, many hospitals choose to set custom limits for test locations. Before testing begins, it is necessary to:

1. Download and install SureTrend software. Visit www.hygiena.com and navigate to Resources> SureTrend Software Download. There you may download SureTrend software, watch instructional videos, and find installation instructions.
2. Identify areas within your facility that will be tested and program SureTrend software accordingly

The CDC and professional organizations such as the Association of Perioperative Registered Nurses (AORN) provide lists of recommended locations to monitor for cleanliness *(see Appendix A on page 19)*. Locations typically tested are high-touch surfaces where the chance of spreading infectious bacteria is high. Monitoring of low-risk surfaces on a less frequent basis is also essential to verifying a facility is being thoroughly cleaned. Prepare the list of locations in a Microsoft Excel® worksheet. *(For an Excel spreadsheet that automatically calculates pass/fail limits, visit the resources section at www.hygiena.com/healthcare.html)*

2.2 Broad Risk Location Categories and Limits

Once locations to be tested have been identified, pass and fail RLU limits for each location can be established by assigning the locations to broad risk categories. Limits for broad–risk categories have been validated by published, peer-reviewed, and third-party studies. For information on these studies, visit www.hygiena.com/rlulimits-hc.html and refer to *Technical Document: Establishing RLU Pass/Fail Limits*. Instructions for establishing custom limits for locations in your facility may be found in the same document.

The general recommended limits below reflect an elimination of the caution zone. For hospitals that wish to use the caution zone, simply double the pass RLU (pass RLU x 2) to determine the fail RLU number.

Application	General Recommended Limits	
	Pass (RLU)	Fail (RLU)

Public Areas
 	
Examples:
    Elevator call buttons
    Hallway handrails
    Waiting room areas
	<50	50+

Patient Rooms
 	
Examples:
    Call button
    Bed rails
    Patient restroom
    Monitor panels
    IV pole
	<25	25+

Food Preparation & Catering	<10	10+
Hand Washing	<60	60+
Sterile Services	<10	10+
Operating Rooms	<10	10+
ICU	<10	10+

2.3 Corrective Action Procedures

Corrective action procedures provide clear instructions for what steps should be taken following pass, caution, or fail results.

Recommended corrective action procedures are as follows:

SYMBOL	TEST RESULT	CORRECTIVE ACTION
✔	**Pass**	The surface has been adequately cleaned. No action required.
!	**Caution** (if applicable)	The surface may not have been adequately cleaned. The area may be recleaned or monitored for future problems. Cleaning personnel may require retraining on proper cleaning procedures.
✗	**Fail**	The surface has not been cleaned to the cleaning standard and must be recleaned and retested. Cleaning personnel should also be retrained on proper cleaning procedures.

2.4 Suggested Cleaning, Testing, and Corrective Action Procedure Flowchart

Clean Area
Room or equipment

Test Location
Specified by sample
or test plan

Pass ✔

Fail ✖

Move to next Location

Re-clean Area
Room or equipment

Retest Location
If retest has failed on
second test, then reclean

2.5 Programming Location Pass/Fail Limits into Software

Once test locations have been identified and Pass/Fail limits determined, they must be entered into the SureTrend software and synced with the SystemSURE Plus luminometer.

For instructions on how to install SureTrend software and add locations, refer to the instructional videos available at www.hygiena.com. Please contact your Hygiena representative for free training and assistance in setting up your program.

Other location information such as Group, Surface, Rank, or any desired custom fields may also be entered in SureTrend at this time.

Below is an example of the location setup in the SureTrend software.

Location Name	Lower	Upper
Bedrail	25	25
Remote Control	25	25
Call Button	25	25
Light Switch	25	25
Sink	25	25
Door Handle	25	25
Tray Table	25	25
Bedside Table	25	25
Bathroom Handrail	25	25
Flush Handle	25	25

2.6 Setting up Test Plans

Once locations and limits have been input into SureTrend software, test plans may then be set up. Test plans are helpful groups of locations that are tested one after another, grouped together, or tested on a specific day. Test plans help to keep testing and data analysis organized. See the instructional videos at www.hygiena.com for instructions on creating test plans.

Here are some examples of test plans with locations:

Nurses' Station
Keyboard
Phone
Countertop
File cabinet handle
Light switch

ICU Patient Room
Ventilator control panel
IV Pole
Monitor cable
Call button
Door handle

Public Areas
Handrail
Door lever
Waiting area chair
Telephone
Water cooler

ER Mobile Workstations
Crash cart
ECG cart
Laceration cart
Bedside cart
Trauma cart
IV cart
IV medication cart
Cast cart

West Wing Patient Room
Bed tray table
Patient phone
Call button
Bed rail
Main light switch
Sink handles
Toilet flush handle
Bathroom light switch
Bathroom handrail
Television remote

Monday
Bedrail
IV Pole
Bedside Table
Remote

2.7 Testing Frequency

Once test plans are programmed into the SureTrend software, sync the SystemSURE Plus with the software and begin testing. The frequency of testing will be determined by:

- Size of facility
- Room turnover rate
- Importance of the cleaning standard
- Desired statistical accuracy of reports (the greater the amount of data generated, the more truly representative the data is of actual hospital cleanliness)

Hygiena offers a quick and easy interactive calculator on our website to determine testing frequency for your hospital. Visit www.hygiena.com/hc-calc to calculate the testing frequency required to monitor the cleanliness of your facility with statistical accuracy. The calculator also provides insight on return on investment by improving EVS effectiveness.

In a 2010 toolkit titled *Options for Evaluating Environmental Cleaning,* The Centers for Disease Control and Prevention (CDC) offers minimum swabbing recommendations for evaluating environmental cleanliness[iii]. The recommendations propose a periodic testing regimen to assess levels of cleanliness and compliance to cleaning processes, to be conducted at least three times per year. While the periodic testing in this recommendation would offer an assessment of cleaning practice, the end user would miss out on the vast benefits of a daily monitoring program.

To experience the full benefits of an ATP cleaning verification program, most hospitals prefer to implement daily monitoring as part of their regular procedures. Daily monitoring only requires a few minutes of testing per day, yet holds EVS staff accountable for achieving an optimal level of cleanliness each and every day. Creating a reward system based on daily results can be a very powerful program to bring staff together and improve overall hospital cleanliness. Utilizing the data generated in SureTrend software is an important tool for providing feedback to personnel. The following section offers more information on using SureTrend Software.


[iii] CDC Toolkit for Evaluating Environmental Cleaning, Appendix C, http://www.cdc.gov/HAI/toolkits/Appendices-Evaluating-Environ-Cleaning.html

2.8 Use SureTrend Software to Maximize a Monitoring Program

One of the greatest byproducts of a daily monitoring program is a robust database of test results to aid in decision making and management of hospital cleanliness programs. By frequently collecting test results, a hospital can build up a database of records to identify trends, assess training opportunities, and compare cleaning performance between departments, shifts, or facilities. Using these reports in regular performance feedback meetings with frontline personnel can be crucial for maintaining environmental cleaning effectiveness. SureTrend comes with dozens of preset reports so little setup is required by the user and reports can be automatically emailed to stakeholders. Visit

www.hygiena.com to download a helpful guide for using SureTrend reports in hospitals: *Quick Start Software Report Guide for the Healthcare Industry.*
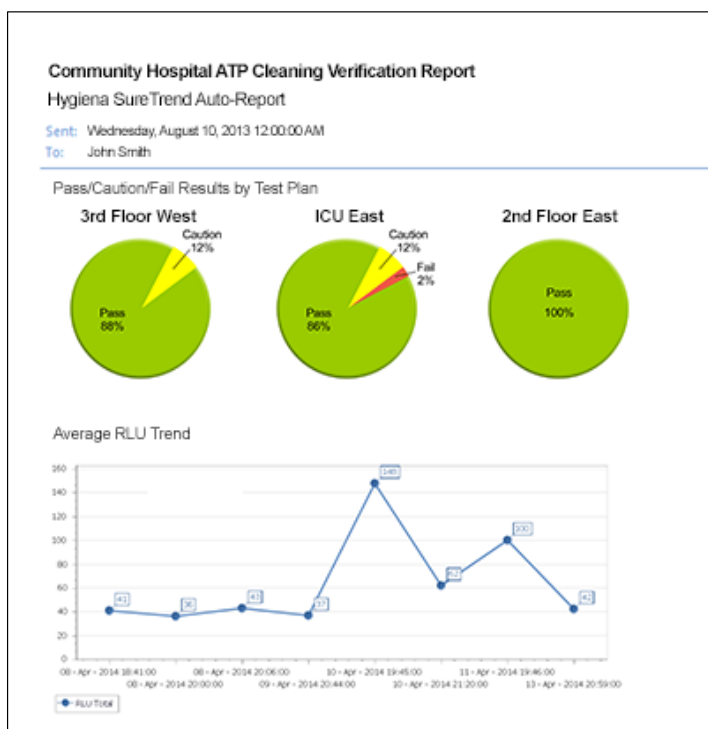
2.9 Additional Resources

Hygiena's website, www.hygiena.com, is home to a vast and growing library of resources designed to aid in the implementation, training, and optimization of your cleaning verification program. For additional support, please contact your Hygiena technical representative. Resources include:

- Downloadable product instructions
- *Quick Start Software Report Guide for the Healthcare Industry*
- SureTrend Version 4 Video Training Series
- *Getting Started Guide* – Quick Tips for Navigating Instrument & Performing Tests
- *Finger Tips* – Portable Tips for Navigating Instrument
- Interactive Swab Usage & ROI Calculator
- Setting RLU Pass & Fail Limits

2.10 Calibration

To verify instrument calibration, Hygiena offers the following calibration verification kit.

Calibration Control Rod Kit (Catalog# PCD4000)

Though Hygiena's ATP Cleaning Verification System automatically checks calibration at startup, it is recommended that calibration is verified with the Calibration Control Kit once per month for record-keeping purposes. Incorporating the Calibration Control Kit into a cleaning verification program will confirm that the instrument is within specifications and operating correctly.

Each kit contains a positive rod and negative rod. The positive rod emits a very low level of constant light output that can be measured in RLUs to verify proper calibration of the unit. The negative rod produces zero (0) RLU and is used to check that background light is not entering the instrument, while ensuring that the light sensor is calibrated correctly.

Appendix A: Recommended Test Locations

Patient Areas

- Airway cart
- Anesthesia cart
- Bathroom door knobs and levers
- Bathroom handrails
- Bathroom light switch
- Bed control
- Bed rails
- Bedpan cleaner
- Bedside chair
- Bedside tables
- BP machine cuff
- Cabinet door handles
- Call button
- Door knobs
- ECG cart
- Flush handle
- IV cart
- IV pole
- IV pump control
- Laceration cart
- Light switch
- Medication cart
- Monitor controls
- Monitor touch screen
- Monitor cables
- Privacy curtain
- Phone
- Sink top
- Sink handles
- Supply cart
- Toilet seat
- Trauma cart
- Tray table
- TV remote
- Ventilator control panel

Endoscopy

- Internal channels
- Exterior surfaces
- Flushed water
- Control head
- Work surfaces

Operating Rooms

- Anesthesia cart
- Anesthesia machine
- IV pole
- IV pump
- Patient monitor
- OR bed
- Reusable table straps
- Bed attachment
- Positioning devices
- Patient transfer devices
- Overhead procedure lights
- Tables
- Boom
- Mayo stands
- Suction regulators
- Medical gas regulators
- Imaging monitors
- Radiology equipment
- Electrosurgical units
- Microscopes
- Robots
- Lasers
- Storage cabinets
- Supply carts
- Light switches
- Door handles
- Push plates
- Telephones
- Computer accessories

Sterile Services

- Autoclave interior
- Tools post-sterilization
- Sterilizer handle

Public Areas

- Drinking fountain button
- Elevator call button
- Hallway hand rail
- Nurses' keyboard
- Nurses' phone
- Vending machine button
- Visitor bathroom light switch
- Visitor bathroom door knob
- Waiting room chair

Laundry

- Linen carts
- Linen trucks
- Storage shelving
- Work surfaces
- Folding stations

Food Preparation:

- Cutlery
- Cutting board
- Dishwasher
- Freezer handles
- Fridge handles
- Knives
- Service trays
- Serving utensils
- Sink
- Sink handles

Hand Hygiene:

- Pre-clean hands
- Post-clean hands
- Scrub sink
- Sink handles
- Soap dispenser

Sources:

CDC Environmental Checklist for Monitoring Terminal Cleaning available at http://www.cdc.gov
AORN Sample Cleaning Checklist available from http://www.aorn.org
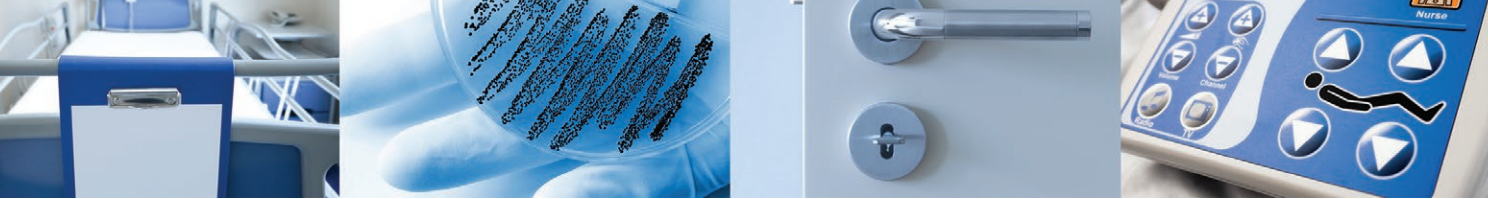
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