



Redefining the Role of Back Table Sterile Drapes in the OR

Beyond Basic Expectations

Using a sterile drape to cover a prepared sterile field in the operating room (OR) is fundamental for maintaining sterility. This white paper examines the role of the Sterile-Z Back Table Cover beyond reducing risk of contamination. End users have redefined the Sterile-Z Back Table Cover as a necessity that has improved their OR environments by reducing staff turnover, managing costs, promoting best practices, providing peace of mind, and more.

Executive Summary

Since its inception, the Sterile-Z Back Table Cover has emerged as a revolutionary advancement in OR equipment. This medical product significantly enhances the ability to maintain sterile fields while adhering to sterile technique recommendations.

Redefining the Role of Back Table Sterile Drapes in the OR aims to assist hospitals and healthcare systems in exploring the Sterile-Z Back Table Cover's benefits beyond sterile technique compliance and reducing the risk of contamination. It should be noted that much of the information shared in this white paper can be understood to apply to the Sterile-Z Mayo Stand Cover as well as to the Sterile-Z Back Table Cover.

Part 1 provides a brief overview of healthcare-associated infections, the evolution of sterile technique guidelines, and TIDI Products' Sterile-Z Back Table Cover; Part 2 focuses on additional benefits of the Sterile-Z Back Table Cover as discovered by end users, including patient safety, quicker turnover, earlier finishes, cost savings, staffing implications, OR preparedness, and peace of mind.

Part 1

Brief Overview

Healthcare-associated Infections

Healthcare-associated infections (HAIs) create a substantial financial burden on the public health system. In the United States, surgical site infections are the costliest HAI type, with an estimated expense of \$3.3 billion each year.¹ Surgical site infections extend hospital length of stay by 9.7 days and increase hospitalization costs by \$20,000 per admission.¹

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Evolving Sterile Technique Guidelines

Over the years, recommendations for maintaining sterile fields have evolved. Research impacting sterile technique practices has been crucial in advancing best practice regarding covering prepared sterile tables in the OR.

The Association of periOperative Registered Nurses (AORN) maintains research-based guidelines related to covering prepared sterile fields (Figure 1). An excerpt from the 2024 AORN guideline recommendations for sterile fields includes the following:²

- Sterile fields should be covered if not used immediately or during increased activity
- Sterile fields should be covered without compromising the table's sterility
- Sterile fields should be covered with two cuffed drapes or a drape designed for this purpose
- Sterile fields should be continually maintained

“Cover the sterile field if it will not be used immediately (e.g., procedural delay, sterile field for closure, multiple tables) or during periods of increased activity (e.g., pre-incision, repositioning). If the sterile field is in use, the portion of the sterile field that will not be immediately used (e.g., implants, instruments not in use) may be covered.”²

- Association of periOperative Registered Nurses

Figure 1. Evolution of AORN Recommendations²

Pre-2013

AORN Guidelines:

- Do not cover prepared sterile tables.
- **“Continually monitor”** the sterile field.

2013–2018 Shifts

AORN Guidelines:

- **May cover** sterile fields during delays or increased OR activity. Change driven by evidence suggesting that covering sterile fields helps reduce contamination over time.³
- Use two cuffed drapes to cover sterile fields.
- **Continually “maintain”** rather than “constantly monitor” the sterile field. Change driven by lack of evidence supporting contamination prevention through physical presence or direct observation.

2019 Expansion

AORN Guidelines:

- Prepared sterile fields should be covered when they are not immediately in use, there is increased activity, or there are unanticipated delays.
- Change driven by evidence indicating that strategically covering parts of an in-use sterile field — such as sections not immediately needed — can lower contamination risks.⁴

2025

Current AORN Guidelines Emphasize:

- Covering sterile fields in a way that **allows for the cover’s removal without risking contamination**
- Covering sterile fields during delays or high activity with two cuffed drapes or drape designed for this purpose
- Continually maintain sterile fields

Sterile-Z Back Table Cover Background

Designed for Sterility and Ease

In 2015, AORN's expanding sterile technique guidelines spurred TIDI Products to offer a product that mitigates the risk of back table instrument contamination. AORN's current guidance of covering a sterile field by using a sterile drape in a manner that allows the cover to be removed without risking contamination underscores the need for the Sterile-Z Back Table Cover in particular.

*"Cover the sterile field with a sterile drape in a manner that allows the cover to be removed without compromising the sterility of the table. The sterile field may be covered with a sterile drape designed for this purpose."*²

- Association of periOperative Registered Nurses

Developed by TIDI Products in collaboration with clinicians, the Sterile-Z Back Table Cover provides a standardized, repeatable method for covering and removing drapes from a prepared sterile field that complies with current AORN guidelines.

The Sterile-Z Back Table Cover, with its innovative, patented Z-fold, quickly emerged as an alternative to using $\frac{3}{4}$ sheets or double-cuff methods. These outdated options carried a high potential for compromising the sterile field as they often slipped from the back table, were not transparent or impermeable, and were challenging to remove without lifting the edges across the sterile field.

So how do Sterile-Z Back Table Covers work?

First, when opened, the Sterile-Z Back Table Cover exposes two sterile impermeable surfaces to the sterile back table, allowing the sterile edges of the cover to unfurl easily over the sterile field (Figure 2).

Once in place, the clear Sterile-Z Cover allows staff to see the sterile instruments beneath it during staff switch or relief (Figure 3).

For removal, the perforated Z-fold allows the cover to separate into two pieces and drop away from the sterile field, eliminating the need to cross over the sterile field and reducing the risk of table surface contamination (Figure 4).



Figure 2. Sterile-Z Application



Figure 3. Sterile-Z Deployed



Figure 4. Sterile-Z Removal

This repeatable and standardized method of applying and removing the Sterile-Z Back Table Cover reduces contamination risk while ensuring AORN compliance. Ease of use and solid compliance with best practices have led staff to ask for Sterile-Z Back Table Covers again and again (see *Choosing Wisely* sidebar). The Sterile-Z Cover soon garnered a reputation as the go-to cover for delay scenarios, but eventually additional uses emerged, including:

- Double-setup procedures (e.g., open heart, spine, ortho revisions, total joint replacements)
- Clean-closure procedures (e.g., abdominal-perineal bowel resections; chemo and cancer; mastectomy and reconstructions)
- Procedures with high traffic
- Unanticipated delays and early prep
- Laminar airflow protection

Headquartered in Neenah, Wisconsin, TIDI Products is a leading manufacturer of clinically differentiated single-use medical solutions designed to reduce the risk of contamination.

CHOOSING WISELY

End users have consistently cited the primary reasons for choosing Sterile-Z Back Table Covers as:⁵



Extending the life of the sterile field during procedure delays

Complying with AORN guidelines for best practices in maintaining a sterile field

Ease of use, functionality

Increased efficiency for staff

Staff requests

Eliminating the need to monitor the back table, thereby freeing up staff

| Part 2

Beyond Basic Expectations: Additional Uses

Initially, Sterile-Z Back Table Cover use focused on protecting sterile fields during periods of non-use, such as delays. Eventually, ingenuity embraced more proactive uses, such as utilizing the Sterile-Z Back Table Cover for early, multiple, or double setups. These strategies ensured that surgical fields always remained protected and ready for use, enhancing OR operational efficiency and preparedness. End users found that the standardized use of the Sterile-Z Cover across various procedures led to increased consistency and efficiency while reducing variability and errors.

Impacting Patient Safety

Yasman Sookram RN, MSN, CNOR-PEDS is an OR Charge RN at Nemours Children's Hospital in Orlando, Florida. Sookram has used Sterile-Z Covers for more than a year and a half to help safeguard her patients. She explains why the Sterile-Z Back Table Cover is a crucial part of their complex pediatric surgical cases.

"The Sterile-Z Drapes have significantly impacted patient safety. As a completely pediatric institution, we handle many complex cases, including colorectal procedures, spinal fusions, major neurosurgeries, major orthopedic procedures, and cases involving neonates. Our patients often include small, delicate babies weighing between 1 kg and 2 kg, which means it can take a considerable amount of time to start an IV, establish an arterial line, or intubate the child. Complications may arise, but we must set up the sterile field well in advance of the baby's or child's arrival in the OR," says Sookram.

"The Sterile-Z Drapes have significantly impacted patient safety."

- Yasman Sookram RN, MSN, CNOR-PEDS

Sookram's challenge was finding a way to protect costly sterile fields from contamination during foreseeable delays, while simultaneously keeping her fragile patients safe. She explains, "The Sterile-Z Drape allows us to cover and uncover the sterile field in a manner that maintains sterility without compromising patient care. It ensures that we are not causing harm from that perspective."

Efficiency: Quicker Turnovers and Earlier Finishes

Maria Candelaria BSN, RN, CURN is a Clinical OR Nurse at BayCare Health System in Florida and has been using Sterile-Z Covers for more than three years.

"Around March 2022," Candelaria recounts, "we introduced the Sterile-Z Back Table Cover at our facility. Initially, we used the covers to set up rooms and cover the back table, allowing the team to take meal breaks between cases."

Candelaria and her team discovered the Sterile-Z advantages almost instantly. "The benefits were immediately apparent, and we began using the Sterile-Z Back Table Cover to set up cases for the on-call team, enabling quicker turnovers and earlier finishes," she says.

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Sookram and her team at Nemours Children’s Hospital were facing a high rate of surgical delays due to their pediatric population and found a way to maintain their efficiency by using Sterile-Z Covers. Sookram states, “The Sterile-Z Drape is an item that we have acquired and continue to use consistently so that if a case is delayed for whatever reason, we are not having to break down and set up, and it affords us a level of efficiency. If a setup can be maintained or utilized for a different kind of case, we will do that.”

Cost Savings

The expanded use of Sterile-Z Back Table Covers has significant implications for cost savings and staffing efficiency. Considering how the time and labor of highly skilled OR personnel are invaluable resources, more efficient OR practices could contribute to improving cost-effectiveness and resource allocation, addressing staffing issues, and optimizing overall facility operations.

Candelaria explains how using the Sterile-Z Back Table Cover is crucial to cost savings at BayCare. “For instance,” she says, “if an on-call team has to stay late to set up a total joint orthopedic surgery, which typically takes 30 to 45 minutes, two team members can set up the room and cover the back table with the Sterile-Z Back Table Cover before leaving for the day. This way, the on-call team can start the case immediately upon arrival, saving the hospital from paying overtime to 2 or 3 team members. The cost of the cover is well worth the savings on overtime pay.”

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Another healthcare professional, a Director of Nursing at an ambulatory surgery center in Texas, tells of her own savings experience with Sterile-Z Covers. “While I was assistant director at one facility, in one week we had a few trauma cases that bumped scheduled cases, and we saved over \$50,000 that week using the Sterile-Z Back Table Cover,” she shares.

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- Director of Nursing at an Ambulatory Surgery Center

Sterile-Z Covers are designed to make covering the surgical back table or the Mayo stand easy and intuitive, while reducing the risk of sterile field contamination. As a result, staff can leave the OR after table setup and before the patient is brought into the room and remain in compliance with AORN guidelines.

Several years ago, while serving at a prominent hospital in California, the Director of Nursing from Texas implemented the Sterile-Z Cover to reduce surgical costs associated with delays. She notes, “An example is a cardiac case that was opened at 7 a.m., and the surgeon was stuck at another facility. The case remained

opened and covered for 8 hours. We were able to use it just prior to expiration, which saved us over \$20,000 in supplies.”

At Nemours Children’s Hospital in Orlando, Sookram knows firsthand that pediatric surgery cases can be expensive and found significant value in the Sterile-Z Cover. “We have a lot of custom packs, especially in pediatrics, and our surgical packs are fairly expensive and probably the highest cost item as far as supplies are concerned — other than implants. So, we can maintain our \$300 or \$400 pack and utilize it for a different case or maintain the integrity of that pack under the Sterile-Z Cover, and that helps us tremendously with cost savings,” Sookram explains.

AORN recognizes that a person in attendance observing a back table does not prevent contamination, but a temporary drape can. AORN recommends individual hospitals weigh the risk versus benefit of direct observation for themselves as to whether staff should directly observe the back table or cover the back table and leave the room unattended to be more productive elsewhere.² The opportunity for cost savings is substantial when considering the number of hours staff spend directly observing back tables in empty ORs, which can now be spent elsewhere.

At her ambulatory surgery center in Texas, the Director of Nursing identified additional cost savings by using Sterile-Z Covers not only to protect sterile fields during delayed scheduled cases but also by replacing scrub techs with the Sterile-Z Cover while awaiting scheduled surgeries. “The time of having a scrub tech with an average pay of \$35 per hour sit in a room to await a case is cost prohibitive,” she says.

Staffing Implications

As part of the streamlined back table procedures at BayCare Health System in Florida, Candelaria found using Sterile-Z Covers allowed their staff to be more effectively allocated to other critical areas or allowed them to take breaks — both of which enhanced job satisfaction. “We utilized Sterile-Z Drapes for complex cases with multiple tables, such as colon bundles and breast reconstructions,” she explains. “The Sterile-Z Back Table Cover gives us the freedom to leave the surgical room, assist other staff, expedite turnovers, provide meal breaks, manage inventory, and set up multiple rooms.”

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Sookram, meanwhile, explains how Sterile-Z Covers have allowed her teaching facility to thrive without compromising sterile OR fields. “Given that pediatrics is a particular population, we have numerous learners in our environment, including medical students, anesthesia students, nursing students, surgical tech students, and residents at every level,” she says. “Therefore, many individuals are present in the OR, especially when caring for neonates and patients undergoing complex spinal and neuro surgeries. Covering the sterile field with the Sterile-Z Drape helps us maintain our sterile environment.”

Enhancing Preparedness and Peace of Mind

The Sterile-Z Back Table Cover significantly enhances preparedness for emergency situations, offering peace of mind to surgical teams during high-stakes scenarios such as C-sections (see *Additional Preparedness Scenarios* sidebar). The reliability of Sterile-Z Back Table Covers in maintaining sterility under pressure ensures that surgical teams are always ready to deliver optimal care.

Candelaria talks about the peace of mind she and her staff at BayCare have experienced using Sterile-Z Back Table Covers. “Previously, someone stayed in the room while the back table was open, but they were often distracted. This could easily lead to unnoticed contamination. However, with the Sterile-Z Back Table Cover in place, contaminants cannot reach the sterile products underneath, ensuring sterility,” Candelaria says.

Addressing Laminar Airflow Concerns

Laminar airflow is a critical aspect of maintaining sterile environments in surgical settings. Back tables can become contaminated in as little as 30 minutes when exposed to OR air.³ In the OR, airflow over the sterile field is greater than over back tables, leaving back tables exposed to less clean air and more microbial burden.³ See Figure 5.

ADDITIONAL PREPAREDNESS SCENARIOS

Cesarean sections necessitate swift interventions, representing scenarios in which the Sterile-Z Back Table Cover can enhance emergency preparedness.

C-Sections

Scenario: In 2022, there were nearly 1.2 million Cesarean (C-section) deliveries in the US.⁶ For emergency C-section deliveries, a target decision-to-incision time of 30 minutes is recommended by the American College of Obstetricians and Gynecologists.⁷ RNs and surgical techs know one of the most time-consuming portions of C-section preparation is setting up the sterile field, especially for an emergency C-section where every second counts. When the baby is in distress or the mother faces complications, even a brief delay in setup can severely risk the baby's health and life.

Solution: To help ensure the best possible outcomes, OR staff can use the Sterile-Z Back Table Cover to have sterile fields at the ready, thus improving response times in critical situations when seconds count.

While overseeing ortho spine surgeries at her ambulatory surgery center in Texas, the aforementioned Director of Nursing uses Sterile-Z Covers to address elevated risks of back table contamination. “My goal with the Sterile-Z Cover is to reduce the amount of contamination with open instrumentation on the back table,” she explains.

The Sterile-Z Back Table Cover provides an effective solution for managing laminar airflow concerns, ensuring that back tables are protected even in challenging conditions.

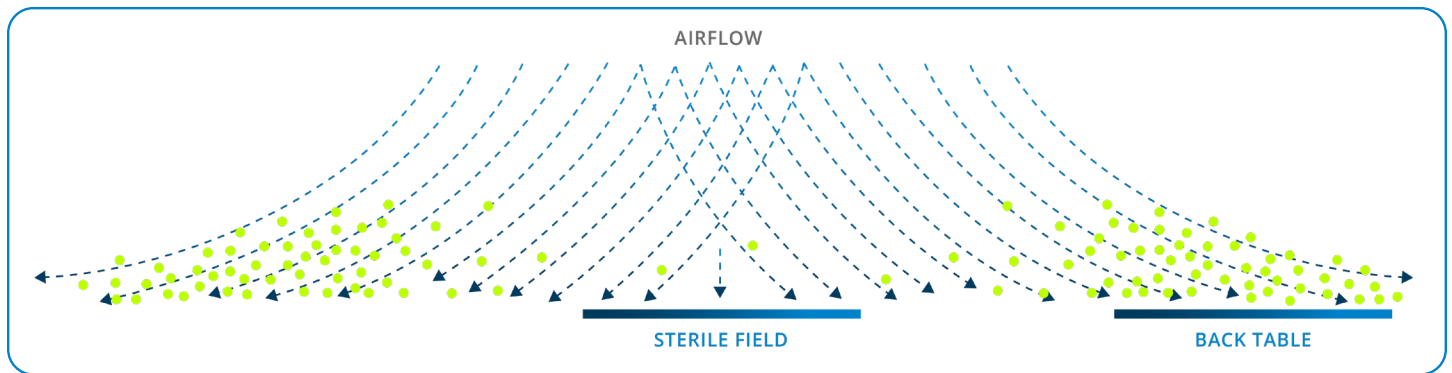


Figure 5. Airflow in the OR

Surgical Volume and Staffing Trends

In the United States, the COVID-19 pandemic led to a significant decline in surgical procedures, resulting in substantial reductions in overall case volumes. When surgical volumes rebounded, staff recruitment and retention remained an ongoing challenge.

Pandemic — Impact of COVID-19 on Surgical Procedures

- A cohort study of more than 13 million US surgical procedures from January 1, 2019, through January 30, 2021, reported that there was a 48% decrease in total surgical procedure volume immediately after the March 2020 recommendation to cancel elective surgical procedures⁸
- The same cohort study reported that US surgical volume returned to 2019 rates in all surgical specialties except otolaryngology, a rate maintained during the COVID-19 peak surge in fall and winter⁸

Post-Pandemic — Ongoing Increase in Surgical Volumes

- 2022 OR Manager Salary/Career Survey: 48% of respondents reported that the volume of surgical procedures in their OR had increased in the 12 months preceding the survey⁹
- 2023 OR Manager Salary/Career Survey: 67% of respondents reported that the volume of surgical procedures in their OR had increased in the 12 months preceding the survey⁹

Recent — Surgical Volumes Continue To Rise

- 2024 OR Manager Salary/Career Survey: 65% of respondents reported that the volume of surgical procedures in their OR had increased in the 12 months preceding the survey⁹

In the 2024 OR Manager survey cited above, 30% of respondents reported an increase in the turnover rate of RNs for the 12 months preceding the survey (down from 44% in the 2023 OR Manager survey), while 33% reported a rise in the turnover rate of surgical technologists for the same period (down from 42% in the 2023 survey).⁹

Also, according to data collected in the same 2024 OR Manager survey, 45% of respondents reported that recruiting experienced OR nurses had been more difficult over the past 12 months (down from 70% in the 2023 survey and 75% in the 2022 survey).⁹

“Surgical volume continues to increase for most organizations. Staffing remains a challenge, although some parameters, such as recruiting and turnover, have improved slightly.”⁹

Meeting Volume Goals Despite Staffing Challenges

Candelaria recalls a particularly challenging set of circumstances at BayCare. “In 2021, our hospital had a full staff of circulating nurses and scrub techs, handling 10 to 16 cases per day,” she says. “By early 2022, about 60% of our staff left for other employment opportunities, including travel and temp positions. This exodus occurred just as our surgery volume was increasing. The remaining team had to work long hours, including on [scheduled] off days and extra on-call shifts, leading to significant burnout. There were many days when I questioned my career choice, especially since we often skipped meal breaks to avoid overburdening the on-call team.”

During this time, the Sterile-Z Back Table Cover played a crucial role in helping Candelaria, and other healthcare facilities, meet their rising volume goals while addressing staffing challenges.

“Despite the challenging times, we got through it together,” Candelaria reflects. “Although we are not yet fully staffed, we are making strides to retain employees. Today, we rely on travel and temporary team members while working to hire and retain permanent staff. Our surgery volume is now much higher than it was.... Instead of 10 to 16 cases, we handle approximately 20 to 22 cases per day. We use the Sterile-Z Back Table Cover in about 90% of our cases, which allows us to complete our daily schedule on time,” she says.

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Efficient management of sterile fields with the Sterile-Z Cover supports operational targets despite staffing shortages. RNs and surgical technicians continue to benefit from reduced workload stress, leading to fewer errors and higher job satisfaction. The provision of breaks and the elimination of back table monitoring further highlight the Sterile-Z Back Table Cover’s influence on workforce stability and retention, thereby favorably impacting volume goals.

| Summary

Each year, surgical settings within hospitals and healthcare systems face multiple challenges:

- Possibility of sterile field contamination jeopardizing patient health
- Costly procedural delays and disruptions
- Managing staff turnover / understaffing
- Complying with best practices

Designed to minimize the risk of surgical back table contamination while adhering to sterile field guidelines, TIDI Products' Sterile-Z Back Table Cover has proven to be much more than a reliable protective measure.

This innovative medical product has enabled end users to identify additional applications that have improved patient safety, reduced staff turnover, led to earlier OR finishes, and enhanced OR preparation, all while providing peace of mind. As a result, the Sterile-Z Back Table Cover has emerged as an invaluable asset for healthcare facilities. Sookram agrees, "Using the Sterile-Z Back Table Cover has elevated our practice."

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