

# Resolving steam sterilizer issues: An SPD leader's perspective

**I'm Dusty Glass, head of a sterile processing department (SPD)** with 7 sterilizers at a hospital in the Midwest. In my years of experience, I've learned that it takes a village to overcome SPD-related issues, and solutions are required as soon as possible to return the sterilization process to normal. Most challenges found in the SPD are not singular—they can occur concurrently along the steam supply chain, in water quality and pressure at each sterilizer, and at filtration, to name a few.

This paper addresses our SPD team's protocol when faced with problems created by rejected sterilized operating room (OR) instrument packs. We anticipated the problem would be multifaceted and would require a multidisciplinary team to resolve it.

## Problem

Our sterile processing was consistently resulting in wet packs, water pooling, and staining in the hospital's 7 sterilizers. This was occurring 4 to 5 times a week.

The implications were clear: not only would these issues cause complaints from the OR, but they would delay surgeries, and rescheduling caused patient dissatisfaction and lost revenue, damaging both our reputation and our bottom line. Most important, they could put patients at risk of surgical-site infection (SSI).

We had to act quickly to diagnose the issue and implement a solution.

## It takes a village

To that end, we brought together a facility-wide team that included SPD, Instrument Quality Control, and Facilities Management, as well as support from STERIS Service.

We initially suspected the issue was related to sterilizer filters, which were 10 years old and already required cleaning every 3 months. But as I mentioned above, and as you probably experience, issues in the SPD rarely emerge one at a time.

## A collaborative diagnosis

The SPD manager, Instrument Quality Control team, and STERIS Service Representative worked together on a comprehensive facility check to determine if sterilizer filtration was in fact the source (and the sole source) of the problem.

Using the STERIS Steam Sterilizer Performance Checklist, we confirmed problems with the sterilizer filtration assembly and discovered issues related to the steam supply chain. These included, but were not limited to, lack of consistent steam pressure at each of the 7 sterilizers; waning steam pressure was occurring frequently at the back end of the steam delivery chain.

As a direct result of using the STERIS Steam Sterilizer Performance Checklist to identify the problem(s), it was decided a collective mitigation management plan involving all teams needed immediate implementation.

## Solutions

Multiple steps were taken to mitigate the problems revealed. Facilities Management evaluated and resolved issues with steam source, distribution, quality, and pressure.

SPD and Instrument Quality Control worked with STERIS to upgrade the aging filtration units, installing the STERIS Clean Flow™ Pro Filtration Assembly at each sterilizer. Its unique features were specifically designed to optimize filtration performance, including:

1. Safeguarding sterilizers from finer particles and contaminants
2. Preventing staining, wet packs, and pooling
3. Improving overall steam quality with innovative 0.1-micron filtration, which removes potential solid and liquid contaminants as small as 0.1 microns to avoid instrument staining and rejected OR sets
4. Using reverse/inverse installation, resulting in removal of condensation in the steam lines
5. Utilizing the full Clean Flow Pro assembly's 7" filter element, designed with a pleated, stainless steel mesh surface, maximizing surface area to capture finer particles through the media, preventing transfer to steam
6. Implementing an insulation jacket that wraps around the steam filter to help maintain temperature for maximum efficiency

The STERIS Clean Flow Pro Filtration Assembly was a key improvement for our SPD, as it enabled us to resolve the challenges and implications of wet packs, staining, rejected OR trays, and the risk of waterborne SSI.

**As a result, we reduced our 4 to 5 per week rejected OR trays to zero, with future rejections being related to sterilizer steam issues.** In addition, we saw improvements in our SPD performance metrics, including OR staff satisfaction, patient safety and satisfaction, delays and rescheduling, revenue for the hospital system at large, and SPD team professional satisfaction and retention.

| Key Challenge                               | Outcomes of Corrective Action  |
|---|--|
| <p><b>4-5 wet packs rejected weekly</b></p> | <p><b>Within 3 months, rejected packs average was reduced to zero. Future rejections were related to sterilizer steam issues.</b></p> <p><b>SPD improvements included:</b></p> <ul style="list-style-type: none"> <li>• Higher performance metrics</li> <li>• Lower maintenance-related expenses</li> <li>• Reduced financial obligations and commitments, which returned to within budget</li> <li>• Greater professional satisfaction and retention</li> </ul> <p><b>OR and Hospital improvements included:</b></p> <ul style="list-style-type: none"> <li>• Mitigation of SSI risk</li> <li>• Greater staff satisfaction</li> <li>• Higher hospital revenue</li> <li>• Fewer delays and less rescheduling, which returned to typical incidences</li> <li>• Greater patient safety and satisfaction</li> </ul> |

**Discussion**

The problem we experienced with wet packs and staining is common in SPDs. Filtration performance, along with inadequate and inconsistent steam quality and pressure, are often direct contributors. If your SPD is experiencing these challenges, look first to the core issues, such as water quality or other problems with the steam supply. A collaborative effort with

other key departments, including Facilities Management and Instrument Quality Control, is central to resolving these issues and supporting patient care, safety, and satisfaction. And if you suspect your current filtration assembly might be a contributor, consider reaching out to your STERIS Equipment Service Technician.

