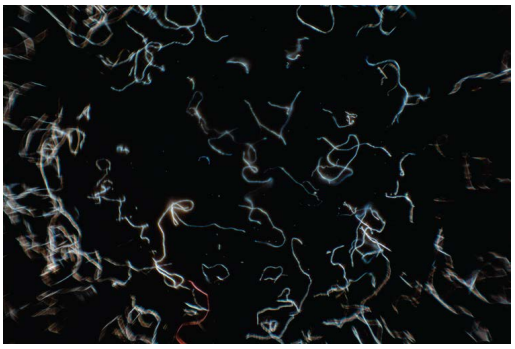
As seen in Outpatient Surgery Magazine's Special Edition: Game Changers, June 2020

# Infections, Adhesions, Blood Clots, Poor Scar Formation

## The Confirmed Role of Lint Fiber

As elective surgeries begin to be scheduled after the Covid-19 shutdown, Hospital, Ambulatory, and Interventional Radiology Surgical sites are preparing for patients. Before operating rooms are scheduled for surgery after surgery, every effort must be made to ensure patient safety. It is the time to make sure every inch of your OR is scrubbed, disinfected and made safe.

We appropriately focus on eliminating environmental microbial contamination while reinforcing practices directed at reducing microbial introduction during invasive procedures. However, some related culprits have been proven time and time again over the last several decades to cause post-surgical complications and yet continue to be insufficiently addressed. These diminutive culprits can be transported on air currents, increasing their presence with growing traffic in the OR. They originate from items such as apparel, surgical towels, drapes, gauze, instrument liners, and patient positioning aids. They land on surgical light fixtures, lopes and instruments, guidewires and catheters, and in the surgical wound. Depending on the type of surgery or other invasive procedure, fiber contamination of the wound can cause or amplify exiting post-surgical complications, including: Surgical site infections, Biofilm formation, Embolisms, Granulomatous peritonitis, Chronic adhesions, Excessive inflammation, Poor wound healing, Ophthalmic injury.



**ABOVE: Tape pull demonstrates typical lint particles found on a typical SPD bundle**

Although each complication can have multiple causes, the role of cellulose fibers from cotton and wood pulp (paper) materials have not been taken seriously in several surgical specialties and many facilities. Cellulose fibers themselves cause pathophysiological responses when present in various human tissues. These responses are amplified by the presence of chemicals, dyes, preservatives, softeners, fire retardants, waterproofing agents, endotoxins, and other agents and organics that are often present on individual fibers that may make up items in the surgical suite. If these coated fibers contaminate the wound, the substances can leach from the fibers over time, potentially causing direct toxic damage and triggering an inflammatory immune response.

Granulomas: Again we see lint fibers and particles as foci triggering the protective "walling-off" strategy to prevent escape of these perceived threats into the rest of the body. Macrophage white blood cells surround foreign object and merge their cell membranes forming a distinct "giant cell" microscopic formation. Many fibers or particles, in the abdominal cavity can result in granulomatous sterile or infectious peritonitis.

A Case Study for us all to remember: Three area hospitals experienced 24 cases of cellulose fiber foreign-body granulomatous reactions. Six patients suffered granulomatous peritonitis, with one mortality. Twenty-two additional surgeries were performed on these patients. An additional 400 days of hospitalization were required to address the complications associated with reactions to cellulose fibers from surgical drapes purchased by all three hospitals.

Reduce post-surgical complication risks for your patient by preventing surgical site contamination by lint fibers.

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# Reprocessing Linens & Towels vs Single-Use Alternatives

## The Confirmed Role of Lint Fiber

When I am performing assessments, merely visiting, or perhaps speaking to an SPD audience, I always ask if the SPD department is processing reusable textiles (linens), and the answer is still interesting. I am almost always told, "No, we do not do linens anymore" yet when I ask further questions or walk through the departments I see linen products in instrument sets, inside house trays or bundled together for positioning (bumps or bundles), and let's not forget the towels upon towels. It's as if these items did not count when they said, "we don't process linens." In most people's minds, when they think of "reusable linens," they are thinking of muslin wrap for instrument sets, which have been almost completely replaced with polypropylene sterilization wrap followed by reusable surgical gowns.

This is concerning as there can be some very serious consequences if linens are not processed correctly by following current guidelines. "ANSI/AAMI ST65:2008/ (R)2013 Processing of reusable surgical textiles for use in health care facilities" is the go-to document to guide users on how to process linens. Some important things to note are that linens must be laundered, delinted, inspected on light tables, and have usage grids marked. This must be done outside of the SPD department and not on the assembly tables, as I often observe. Many facilities can not accommodate these requirements and have found the disposable alternative to be more cost-effective and have stopped using reusable linens. Lint and particulates are as much an enemy as are microorganisms within the SPD.

If reusables must be reprocessed, I urge all who reprocess linens in any capacity to obtain a copy of AAMI ST65 and follow these critical guidelines to do it properly or consider a single-use alternative in the name of patient safety.

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