

An innovation in infection control



THE MEDPRO DEFENSE[®] MICROBE-RESISTING DISPOSABLE CURTAINS

- **Can save time and money** over standard reusable curtains
- **Easy to install** — 20% lighter than other disposable curtains, helping reduce injury risk for staff
- **Kill harmful bacteria on its surface constantly[†]**
- **100% recyclable** good for the environment



Curtains are a challenge for staff and they are everywhere!

Curtains define the patient's environment by providing shelter, privacy and comfort. They act as 'movable walls' that can be manipulated according to the needs of patients and staff, at any time. The result is that curtains are touched frequently to adapt to spatial needs of the moment, and they are considered hightouch surfaces.

"When patients are discharged all hightouch surfaces are cleaned – except privacy curtains"¹

DR. MATTHEW P. MULLER,
CHAIR, PIDAC INFECTION
CONTROL COMMITTEE

Hiding in plain sight!

Since they do not 'look' dirty most of the time it is easy to ignore or forget that they are often contaminated with germs almost immediately after they are put in place². Unlike an instrument or a table top, most people do not realise they have been in contact with the curtains. So they become an unaddressed risk hiding in plain sight, often hanging right in front of our eyes, literally.

Hospital curtains have been shown to be contaminated with a wide variety of germs including bacteria.

- Thirty two curtains were sampled in the hightouch zone frequently handled by visitors and staff. Fifty nine isolations were obtained and 22 (56.4%) were considered clinically relevant (Table 1).³
- Over 20% of curtains were contaminated with *Bacillus subtilis* a spore forming bacteria frequently found in agriculture.

Table 1: Distribution of bacterial isolates from curtains.³

Type of surface	Number of samples per Hospital area	Number of Isolates	Potentially clinically relevant microorganisms						Potentially clinically irrelevant microorganisms	
			Meticillin-resistant <i>Staphylococcus</i> sp.*		Meticillin-sensible <i>Staphylococcus</i> sp.†		Gram-negative rods†		<i>Bacillus</i> sp.	
			<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Curtains (<i>n</i> = 32)	Emergency room (<i>n</i> = 8)	13	4	30,8	6	46,1	1	7,7	2	15,3
	Adult surgical ICU (<i>n</i> = 5)	8	4	50	3	37,5	0	0	1	12,5
	Adult medical ICU (<i>n</i> = 2)	2	1	50	1	50	0	0	0	0
	Adult special care unit (<i>n</i> = 6)	14	3	21,4	4	28,5	1	7,1	6	42,8
	Internal medicine ward (<i>n</i> = 11)	22	6	27,2	7	31,8	6	27,2	3	13,6
Overall	59	18	30,5	21	35,5	8	13,5	12	20,3	

**S. epidermidis*, *S. haemolyticus*, *S. cohnii*, *S. saprophyticus*, *S. hominis*. †*S. epidermidis*, *S. aureus*, *S. cohnii*, *S. hominis*, *S. haemolyticus*, *S. warneri*, *S. sciuri*, *S. saprophyticus*. †*Acinetobacter ursingii*, *Pantoea agglomerans*, *Moraxella* sp., *Pseudomonas oryzihabitans* AMP-C producer, *Sphingomonas paucimobilis*, *Pasteurella multocida*.

1 PIDAC Update: Revised Environmental Cleaning Document. Matthew P. Muller, MD, PhD, FRCPC Medical Director, Infection Prevention and Control, St. Michael's Hospital. Chair, PIDAC Infection Control Committee. Public Health Ontario
 2. MDRO Contamination of Privacy Curtains in Six Skilled Nursing Facilities in Michigan Kristen Gibson, MPH et. al.
 3. Catano JC, Echeverri LM, Szela C, Bacterial contamination of clothes and environmental items in a third-level hospital in Columbia. Interd Persp on Inf Diseases 2012;

Managing and maintaining conventional curtains

Infection control best practices and different ministries prescribe when curtains should be changed but the guidelines are not straightforward. According to PIDAC generally curtains should be changed on a fixed schedule as part of normal cleaning but also...

- When isolation precautions end
- As part of a terminal clean
- When a patient with VRE, MRSA, *C. difficile* or norovirus is transferred or discharged
- When they are damaged
- When they are visibly soiled
- or as needed ⁴

Infection control-focused groups set up best-practices for addressing curtains but they do not necessarily fit into the realities of a busy healthcare center. The process managing curtains requires many steps including:

Washing • Drying • Repairing • Pressing • Folding • Sorting

...And almost immediately after a fresh curtain is put in place it becomes contaminated with microbes some of which can cause pre-mature deterioration or odor:

- Within 1 week of placement 92% of curtains were contaminated ⁵
- Among curtains that showed contamination with bacteria (VRE) at multiple time points, 38% were found to have persisted and 68% were due to re-contamination.⁵
- Healthcare workers' hands become contaminated after handling curtains in hospitals. Among study participants at Mount Sinai Hospital Emergency Department, 50% acquired new types of bacteria onto their hands after handling privacy curtains (curtain-acquired). (Table 2) ⁶

Table 2 Distinct morphotypes of bacteria on health care workers' finger pads⁶

Bacteria isolated from health care workers' finger pads at baseline, after use of alcohol handrub, and after handling curtains, by species.

Species	Baseline	After hand hygiene	After handling curtains
<i>Bacillus</i> spp	35	34	37
<i>Micrococcus</i> spp			
<i>Micrococcus luteus</i>	18	8	9
<i>Staphylococcus</i> spp			
Coagulase negative	51	18	29
<i>Staphylococcus aureus</i>	7*	0	2*
<i>Streptococcus</i> spp			
<i>Streptococcus pneumoniae</i>	1	1	0
Other <i>Streptococcus</i> spp	7	0	0
Other gram-positive bacilli [†]	3	2	2
Gram-negative bacilli [‡]	6	3	2
Gram-negative cocci [§]	2	1	0
Total (n)	130	57	81

*One imprint with methicillin-resistant *S aureus* (baseline). The 2 postcurtain isolates of *S aureus* were from patients who also had *S aureus* on their hands at baseline. [†]*Bifidobacterium* spp (baseline). *Lisreria seeligeri* (baseline, after hand hygiene), *Microbacterium flavescens* (baseline) and *Paenibacillus* spp (after hand hygiene, after touching curtain). [‡]*Acinetobacter ursingii* (baseline), *Aeromonas sobria* (baseline), *Moraxella osloensis* (baseline, after hand hygiene, after touching curtain), and *Sphingomonas spiritivorum* (baseline, after hand hygiene). [§]*Neisseria subftava* (baseline, after hand hygiene).

4 PIDAC Update: Revised Environmental Cleaning Document. Matthew P. Muller, MD, PhD, FRCPC Medical Director, Infection Prevention and Control, St. Michael's Hospital. Chair, PIDAC Infection Control Committee. Public Health Ontario

5. Ohl M, Schweizer M, Graham M, Heilmann K, Boyken L, Diekema D. Hospital privacy curtains are frequently and rapidly contaminated with potentially pathogenic bacteria. *Am J Infect Control* 2012 December; 40(10): 904-6. <https://www.ncbi.nlm.nih.gov/pubmed/22464039>

6. Larocque M, Carver S, Bertand A, McGeer A, Mcleod S, Borgundvaag B, Acquisition of bacteria on health care workers' hands after contact with patient privacy curtains. *Am J Infect Control* 2016; 44:1385-6

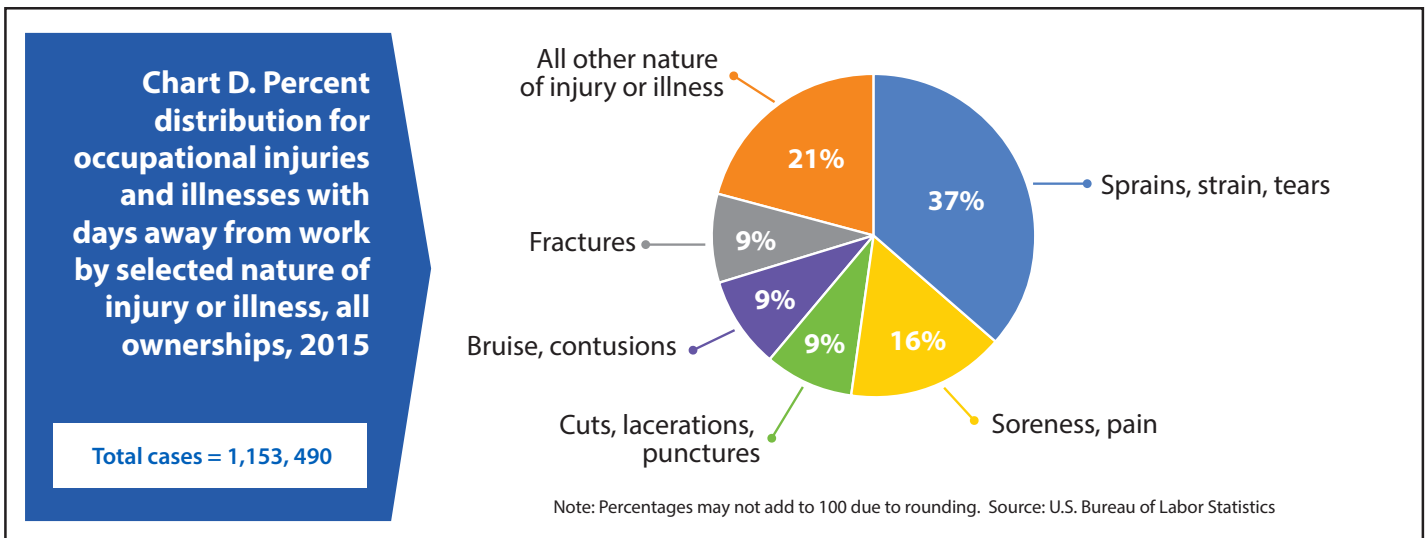
Curtain maintenance is a significant injury risk to staff

The elaborate nature of changing a curtain also undermines staff's ability to manage them. Most of the activity usually takes place 3 to 4 feet in the air while standing on a narrow stool or ladder. Reusable curtains have to be carefully removed to avoid ripping or damage to the track. All in all changing curtains takes more fine manipulation, concentration, time and physical stamina than many other common tasks, like changing bed sheets. These physical requirements increase the risk of workplace accidents which is demonstrated by the fact that musculoskeletal injury makes up the majority of healthcare sector time loss claims in Canada⁷...

MEDPRO DEFENSE
curtains are

20-50% lighter*
which may help reduce the risk of injury

In the UK in 2015/2016 the rate of work related upper limb disorders (WRULDs) in the healthcare industry was 700 per 100,000 employees, 30% higher than the national average.⁸



In the United States musculoskeletal disorders (MSDs) account for 31% of workplace injuries and illnesses in 2015. The leading cause of these injuries was sprains, strains and tars (37%)⁹

7. Yassi A, Gilbert M, Cvitkovich Y. Trends in Injuries, Illnesses, and Policies in Canadian Healthcare Workplaces. Canadian Journal of Public Health: September-October 2005. 333-339.
8. Health and Safety Executive. Work-related Musculoskeletal Disorder related Musculoskeletal Disorder (WRMSDs) Statistics, Great Britain 2016.
9. Bureau of Labors Statistics, 2016 USDL-16-2130. The median days away from work for housekeeping and janitorial staff in the United States for an MSD was between 6 and 21 days.

* 20% lighter than other disposable curtains of same size.



MedPro DEFENSE® Microbe-resisting Disposable Curtains

Can help you **save money** and **save time** while reducing the risk of injuries

Case studies have demonstrated that using **MedPro Defense Curtains** can help reduce curtain-related workforce injury, reduce the cost of changing curtains overall, all while reducing the number of sources of cross-contamination within the healthcare setting.

Assume in a 300-bed hospital, 160 are in wards of 4 beds

Conventional curtains


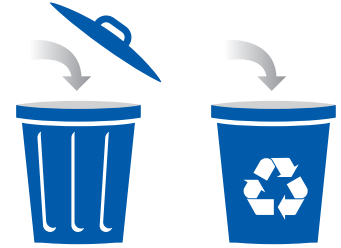
160 beds each requiring 1 curtain	160
Curtain is changed on average 13 times a year, every 4 weeks	13
Takes an employee 10 minutes to remove a curtain and 15 minutes to put one up	25
Contaminated curtain must be transported to the depot or laundry, 5 minutes	5
Laundered , folded and stored - \$4 for supplies, time and energy	\$4.00
An employee gets paid \$18/hr	\$18.00
Cost per year, per curtain location excluding repairs and replacement	\$169.00
Total curtain maintenance costs per year	\$27, 040.00

MedPro Defense curtains

160 beds each requiring 1 curtain	160
Curtain is changed on average 2 times a year on schedule	2
Takes an employee 5 minutes to remove a curtain and 10 minutes to put one up	15
MedPro Defense Curtain disposed of in regular garbage or recycled	0
No laundering cost	\$0.00
An employee gets paid \$18/hr	\$18.00
Cost per year, per curtain location excluding repair replacement	\$9.00
Total curtain maintenance costs per year	\$1,440.00

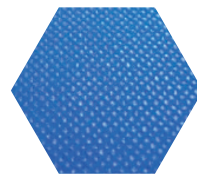
Environmentally responsible 100% recyclable

The MedPro Defense Microbe-resisting curtains can be disposed of as normal hospital waste if not contaminated. Reduces the energy and chemicals required to clean and disinfect curtains.



Compatible with all commonly used curtain tracks, **MedPro Defense Microbe-Resisting curtains** are available with a **track hook, glider systems** or with the **eyelet only**.

6 aesthetically pleasing
colors available



Standard curtains available in **Pacific Blue**.

Additional colours available by special order. Minimum order quantities apply.



Light Blue



Light Green



Summer Blue



Pastel Yellow



White

†Contains an EPA registered antimicrobial agent that prevents microorganisms from degrading the product.