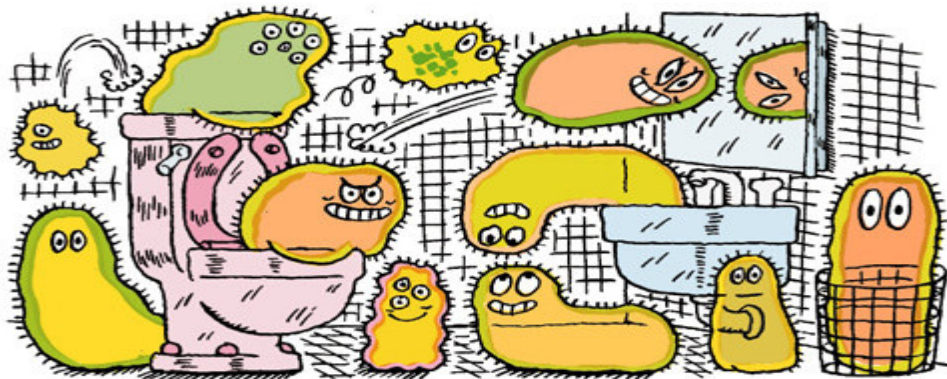




Limpeza do Ambiente e Controle de MRs: Quais são as evidências?



Célia Inês Burgardt

X Coleta positiva para VRE



The Risk of Hand and Glove Contamination after Contact with a VRE (+) Patient Environment

Hayden M, ICAAC, 2001, Chicago, IL.

Centers for Disease Control

- 2006 - Manejo de MRs em Serviços de Saúde (412)
- 2007 – Guia de Precauções (1102)
- 2008 – Guia Desinfecção/Esterilização nos Serviços de Saúde (1035)
- 2009 - Guia de Controle KPC (10)
- 2012 – Guia de Controle KPC “*toolkit*” (10)

Brasil - Paraná - Curitiba

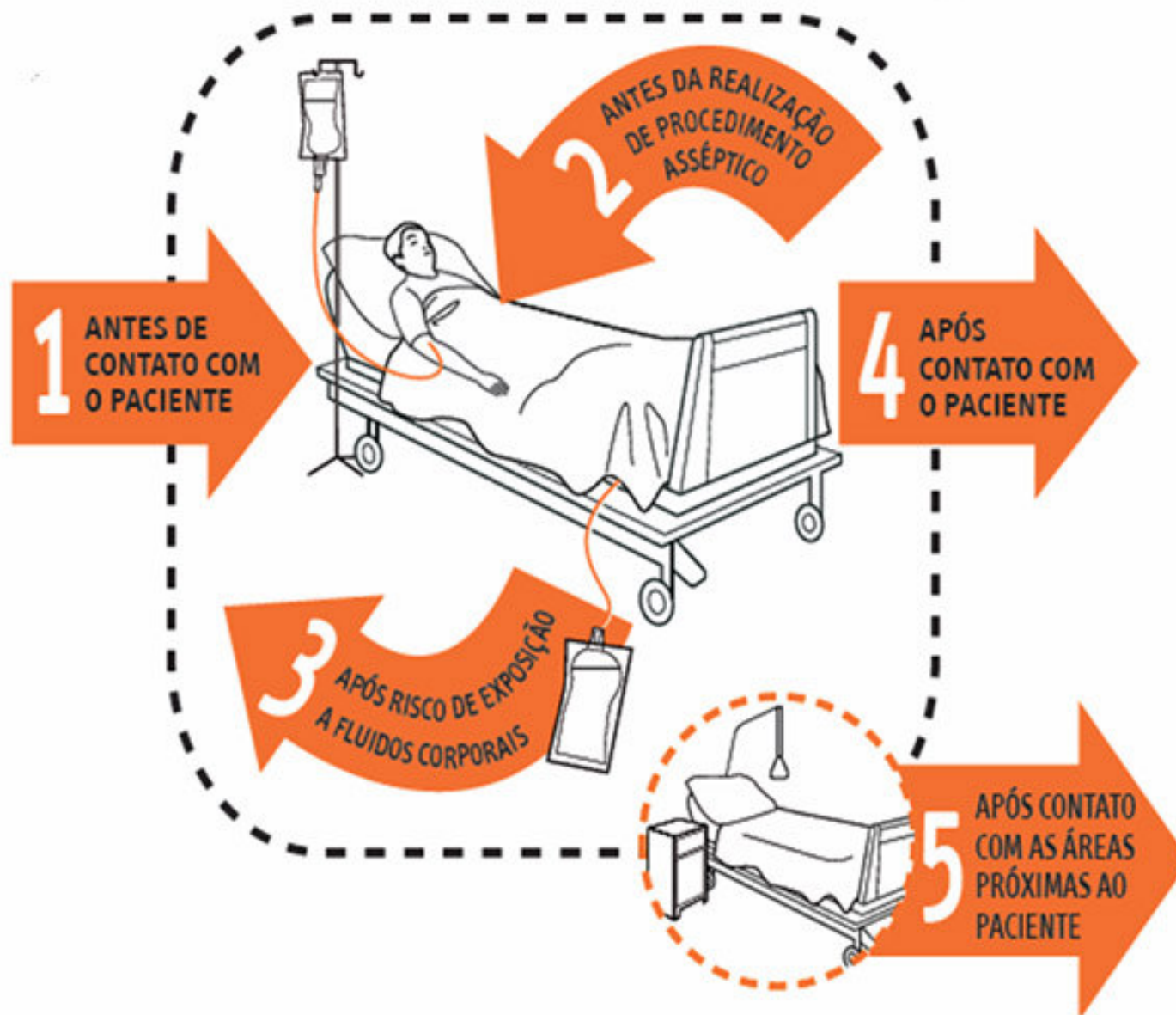
- **Nota Técnica nº1/2010 Medidas para Identificação, prevenção e controle de IRAS por microrganismos multirresistentes (ANVISA)**
- **Resolução SESA nº674/2010 Controle das Bactérias MR e das bactérias de IH e surtos em Serviços de Saúde (PR)**
- **Nota Técnica nº1/2012 Prevenção, Controle de MRs e Manejo de MRs em IRAS (Curitiba)**
- **Plano de Contingência dos Mecanismos de Resistência nas IRAS causadas por Enterobactérias (RS – NDM- 2013)**
- **Nota Técnica nº1/2013 Medidas de prevenção e Controle de Infecções por Enterobactérias Multirresistentes (ANVISA)**
- **2013 - Alertas da NDM**

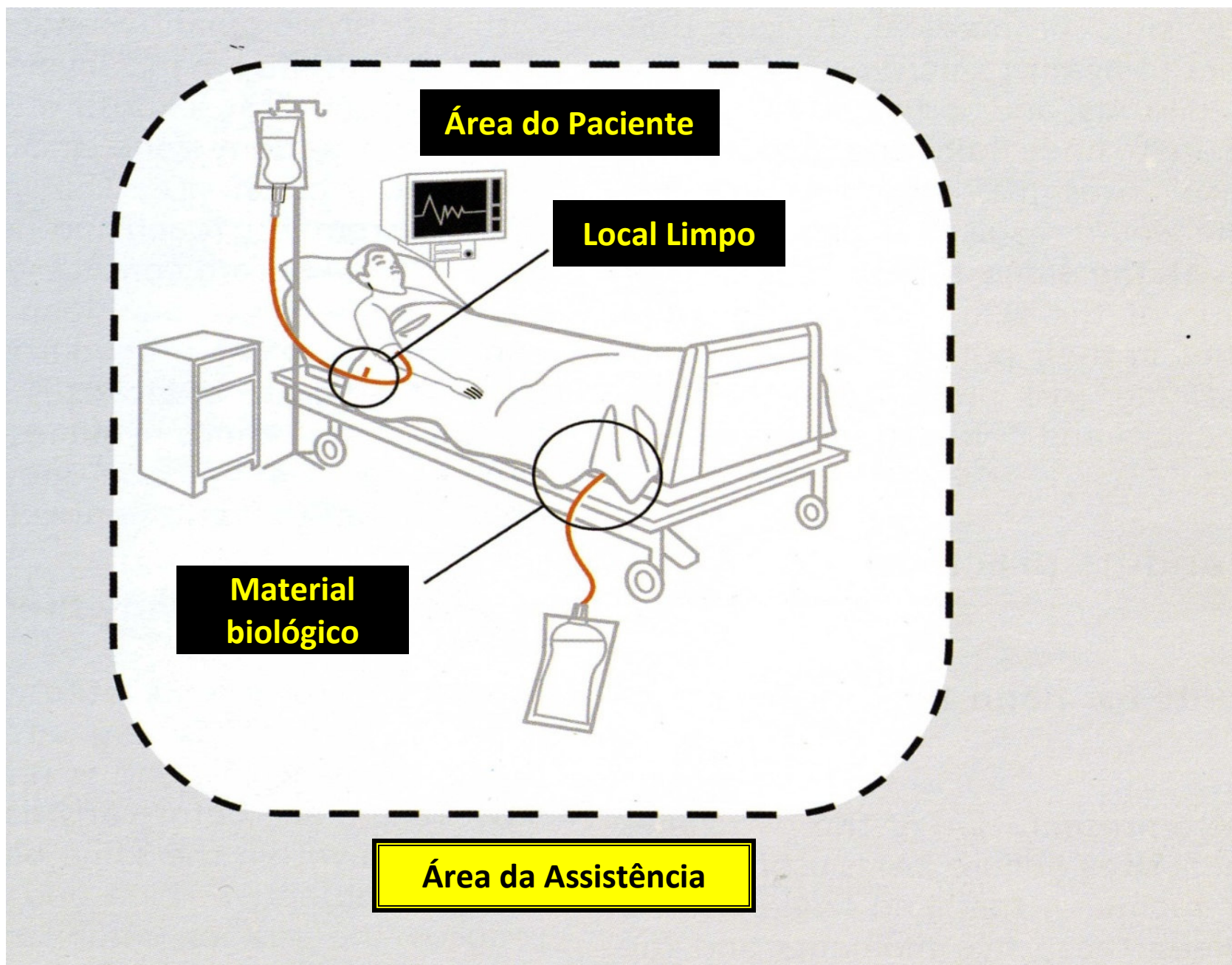
Destaques

- Ampla evidência epidemiológica sugerindo que a transmissão de MRs entre pacientes acontece pelas mãos
- Mãos se contaminam ao tocar paciente ou nas superfícies adjacentes
- Prevenção/Controle dos MRs exige INTERVENÇÕES COMBINADAS



QUANDO? Seus 5 momentos para a higienização das mãos





Survival of hospital pathogens on dry hospital surfaces

Organism	Survival time
<i>Clostridium difficile</i> (spores)	>5 Months
<i>Acinetobacter</i> spp	3 Days to 11 months ⁷⁹
<i>Enterococcus</i> spp including VRE	5 Days to >46 months ³²
<i>Pseudomonas aeruginosa</i>	6 Hours to 16 months
<i>Klebsiella</i> spp	2 Hours to >30 months
<i>Staphylococcus aureus</i> , including MRSA	7 Days to >12 months ⁸⁰
Norovirus (and feline calicivirus)	8 Hours to >2 weeks ⁸¹

NOTE. Adapted from Kramer et al.³¹

Transfer of pathogens from surfaces to the hands of health care personnel

Direct patient contact	Contact with environmental surfaces only
	52% of 44 HCP acquired VRE on their hands or gloves ¹⁰
45% of 50 HCP acquired MRSA on their gloved hands ³⁹	40% of 50 HCP acquired MRSA on their gloved hands ³⁹
50% of 30 HCP acquired <i>Clostridium difficile</i> on their gloved hands ⁴⁰	50% of 30 HCP acquired <i>C difficile</i> on their gloved hands ⁴⁰

MEDIDAS AMBIENTAIS

- **Limpeza e desinfecção de superfícies e equipamentos que possam estar contaminados, especialmente aqueles próximos ao doente e também as superfícies frequentemente tocadas**
- **Priorizar a limpeza do quarto do paciente em Precaução de Contato**

Categoria I B

Fortemente recomendadas para implementação e fundamentadas por alguns estudos experimentais, clínicos e epidemiológicos com forte base teórica

INTRODUCTION

Understanding and Preventing Transmission of Healthcare-Associated Pathogens Due to the Contaminated Hospital Environment

David J. Weber, MD, MPH;¹ William A. Rutala, PhD, MPH¹

Evita IH
no próprio
paciente
e no próximo
paciente !

Table 1. Evidence Supporting the Role of the Contaminated Surface Environment in the Transmission of Several Key Healthcare-Associated Pathogens

The surface environment in rooms of colonized or infected patients is frequently contaminated with the pathogen

The pathogen is capable of surviving on hospital room surfaces and medical equipment for a prolonged period of time

Contact with hospital room surfaces or medical equipment by healthcare personnel frequently leads to contamination of hands and/or gloves

The frequency with which room surfaces are contaminated correlates with the frequency of hand and/or glove contamination of healthcare personnel

Clonal outbreaks of pathogens contaminating the room surfaces of colonized or infected patients are demonstrated to be due to person-to-person transmission or shared medical equipment

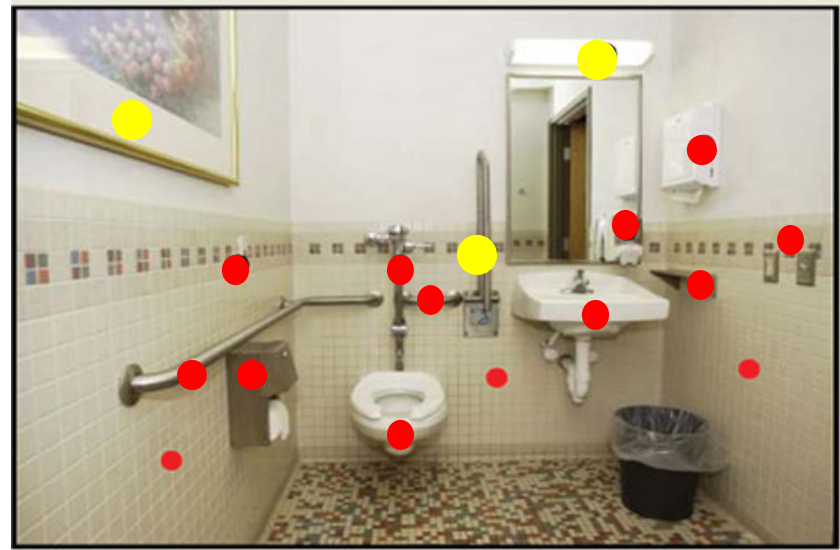
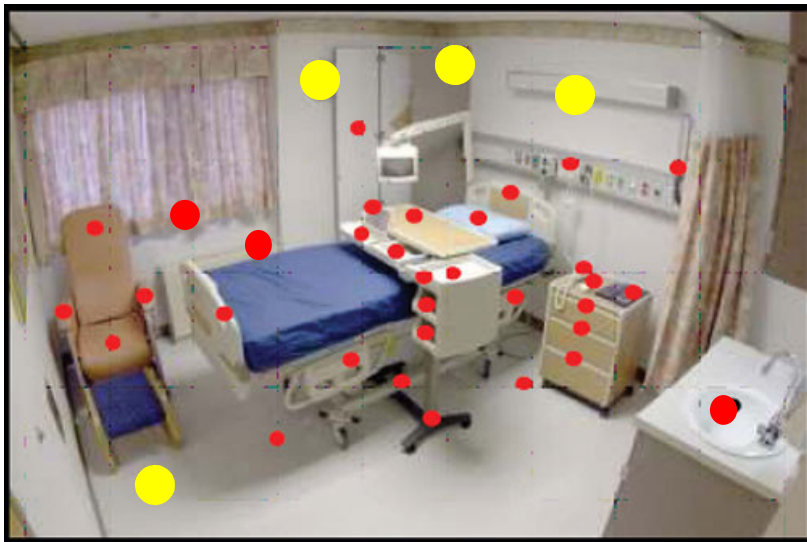
The patient admitted to a room previously occupied by a patient colonized or infected with a pathogen (eg, methicillin-resistant *Staphylococcus aureus*, vancomycin-resistant *Enterococcus*, *Clostridium difficile*, and *Acinetobacter*) has an increased likelihood of developing colonization or infection with that pathogen

Improved terminal cleaning of rooms leads to a decreased rate of infections

Improved terminal disinfection (eg, with vaporized hydrogen peroxide) leads to a decreased rate of infection in patients subsequently admitted to the room in which the prior occupant was colonized or infected

Necessidade de uma auditoria seqüencial de superfícies tocadas pelas mãos no ambiente

- Locais esquecidos ou escondidos
- Diferenças da limpeza domiciliar/hospitalar
- Locais que escapam da Limp/Desinf se tornam possíveis reservatórios de germes



CDC Environmental Checklist for Monitoring Terminal Cleaning¹

Date:	
Unit:	
Room Number:	
Initials of ES staff (optional):²	

Evaluate the following priority sites for each patient room:

High-touch Room Surfaces ³	Cleaned	Not Cleaned	Not Present in Room
Bed rails / controls			
Tray table			
IV pole (grab area)			
Call box / button			
Telephone			
Bedside table handle			
Chair			
Room sink			
Room light switch			
Room inner door knob			
Bathroom inner door knob / plate			
Bathroom light switch			
Bathroom handrails by toilet			
Bathroom sink			
Toilet seat			
Toilet flush handle			
Toilet bedpan cleaner			

Evaluate the following additional sites if these equipment are present in the room:

High-touch Room Surfaces ³	Cleaned	Not Cleaned	Not Present in Room
IV pump control			
Multi-module monitor controls			
Multi-module monitor touch screen			
Multi-module monitor cables			
Ventilator control panel			

Mark the monitoring method used:

- ☐ Direct observation
☐ Swab cultures

☐ Fluorescent gel
☐ ATP system

☐ Agar slide cultures

¹Selection of detergents and disinfectants should be according to institutional policies and procedures

²Hospitals may choose to include identifiers of individual environmental services staff for feedback purposes.

³Sites most frequently contaminated and touched by patients and/or healthcare workers



Em 2004, uma grande revisão sistemática sobre IRAS & Limp/Desinf de superfícies demonstrou que os estudos ainda eram “pobres” e não demonstravam em evidências convincentes desta associação

Na última década as evidências foram crescendo e demonstrando que a Limp/Desinf de ambientes podem prevenir a transmissão de patógenos e reduzir as IRAS

Apesar dos estudos não serem perfeitos, as medidas ambientais se firmam como ESTRATÉGIA DE CONTROLE

As vias de transmissão de germes são complicadas e dificultosas de serem investigadas

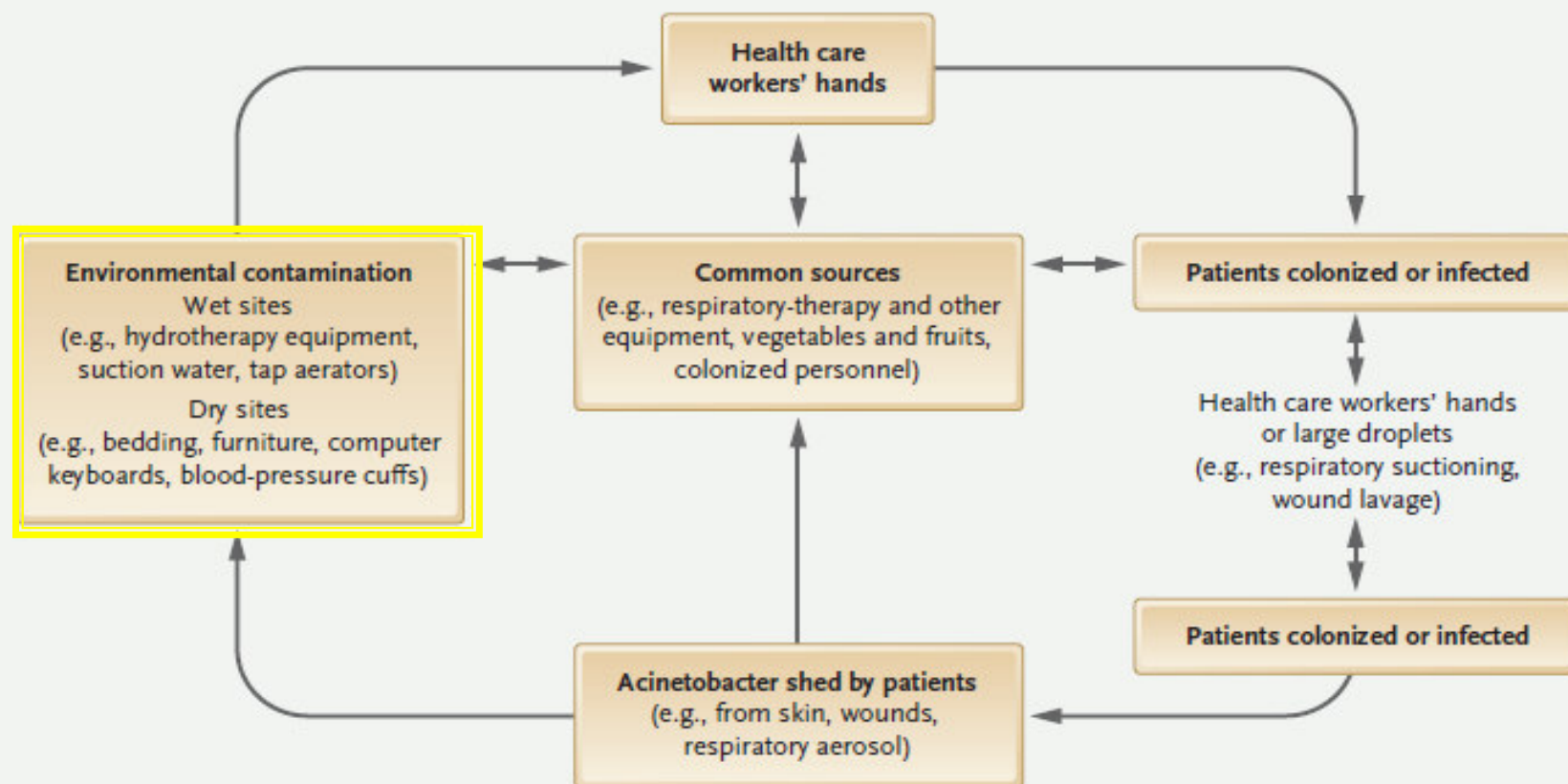
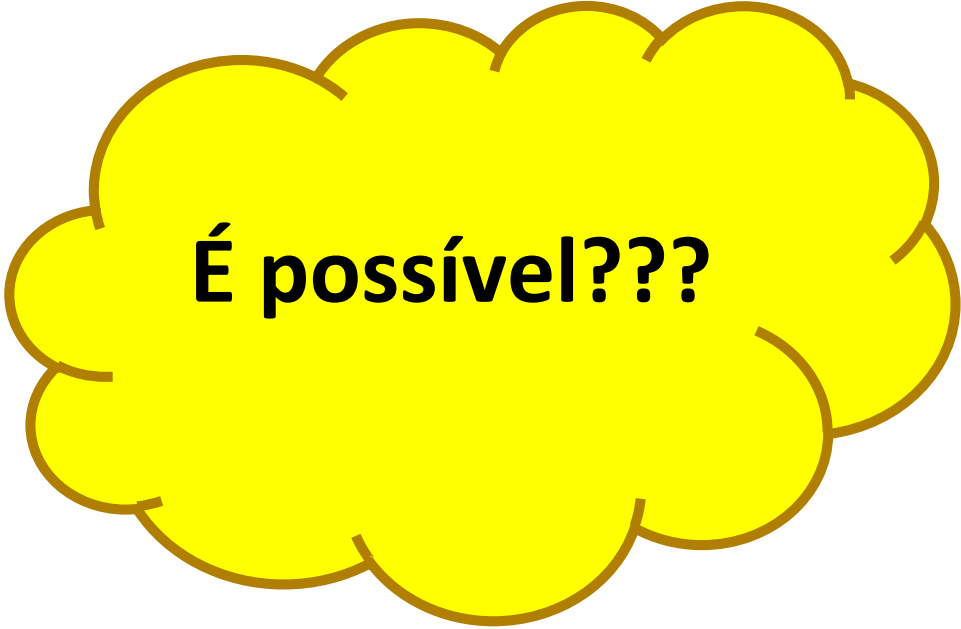


Figure 3. Reservoirs, Sources, and Transmission Patterns for *Acinetobacter* in Health Care Facilities.

Infection-control measures are directed against the major epidemiologic modes of transmission of *acinetobacter*, as determined mostly from outbreaks: common-source contamination, environmental contamination, and cross-infection due to lapses in hand hygiene.²² Although environmental contamination is well documented as a cause of epidemic infections, there are fewer examples of environmental contribution to endemic *acinetobacter*.

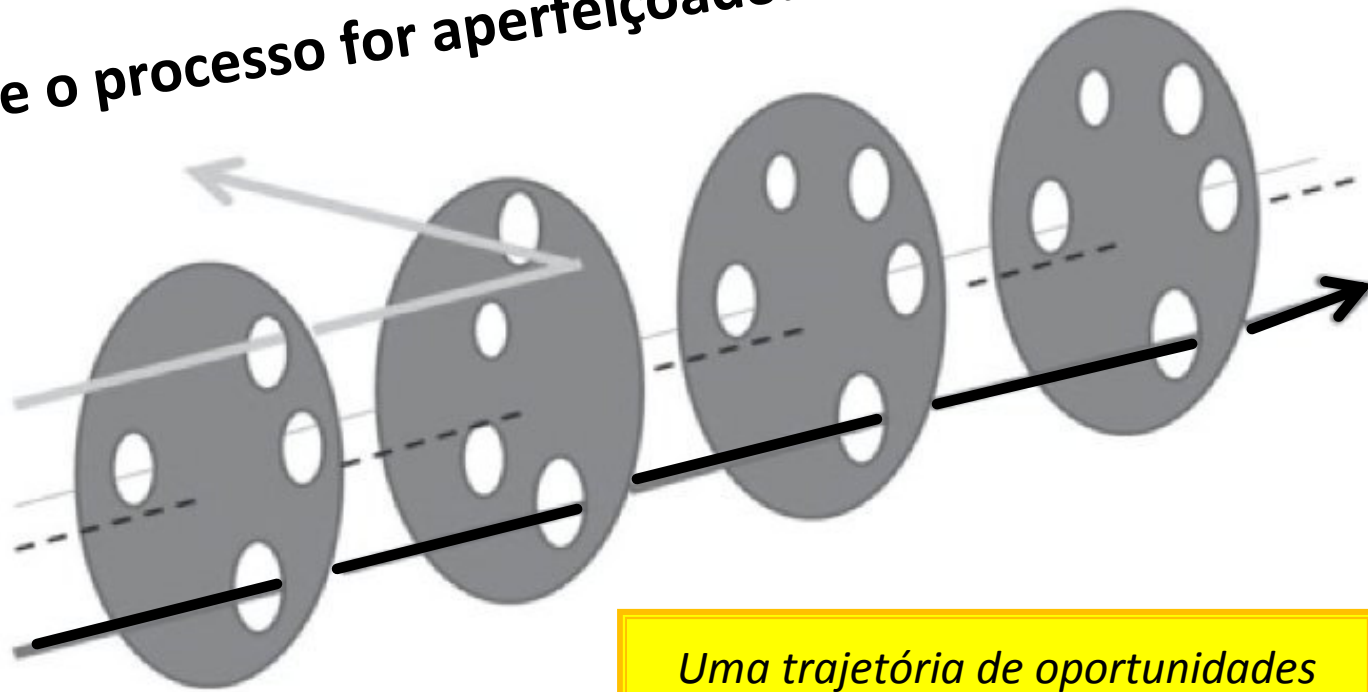
**A melhoria da Limp/Desif de superfícies
reduz a IRAS?**



É possível???

A melhoria da Limp/Desif de superfícies reduz a IRAS?

Se o processo for aperfeiçoado...sim!



*Uma trajetória de oportunidades
para o sucesso...*

A melhoria da Limp/Desif de superfícies reduz a IRAS?

Se o processo for aperfeiçoado...sim!



HIGHLIGHTS

Desinfecção
Terminal

1

**Melhorar a Limp/Desinf
dos ambientes após saída
de pacientes com IRAS**
(reduz o risco para próximo paciente)

Desinfecção
Concorrente

2

**Limp/desinf diária das
superfícies ↑tocadas
para ↓contaminação das
mãos dos profissionais**
(raciocínio similar : banho do paciente)

Desinfecção
Concorrente

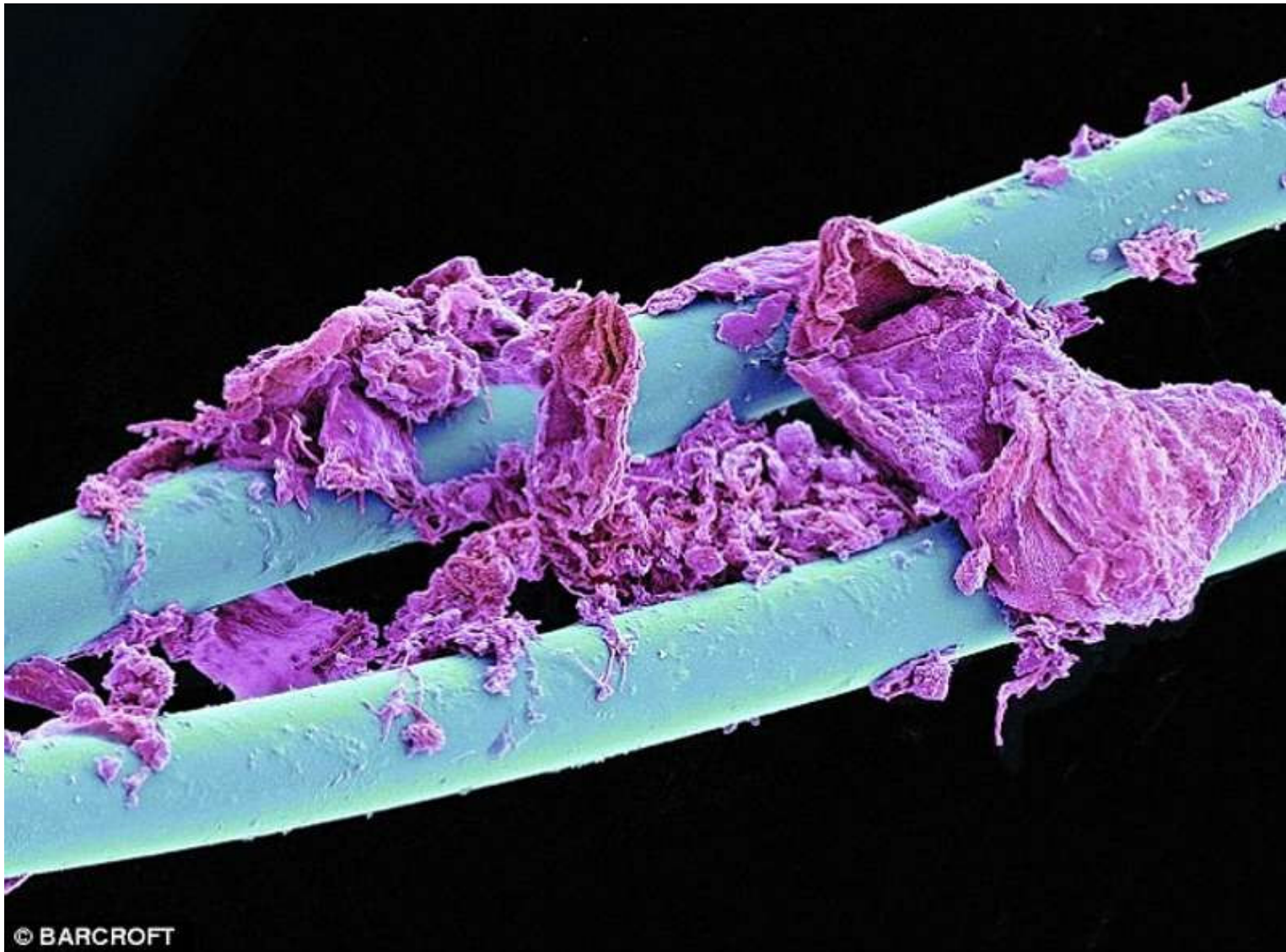
3

**Limp/Desinf de materiais e
equipamentos entre
pacientes ou uso de
descartáveis**
(kit individualizado)

Desinfecção
Padrão

4

**Melhorar a Limp/Desinf
de todos os ambientes ,
não só do paciente
positivo, mas de todos!**
(colonizado não identificado)

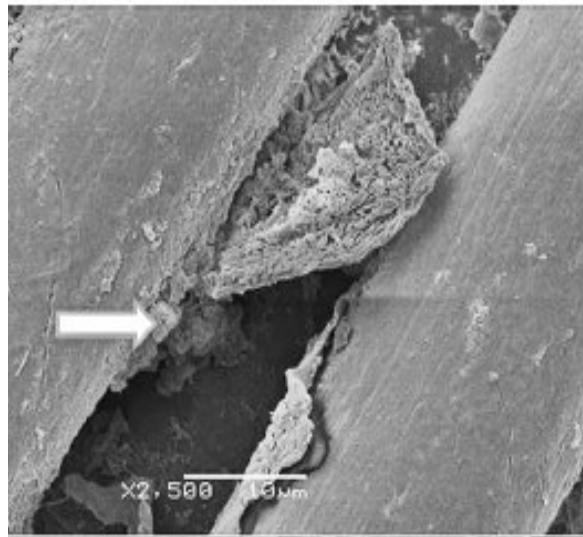


Um segmento de fio dental usado....

(scientific photographer Steve Gschmeissner, from Bedford)

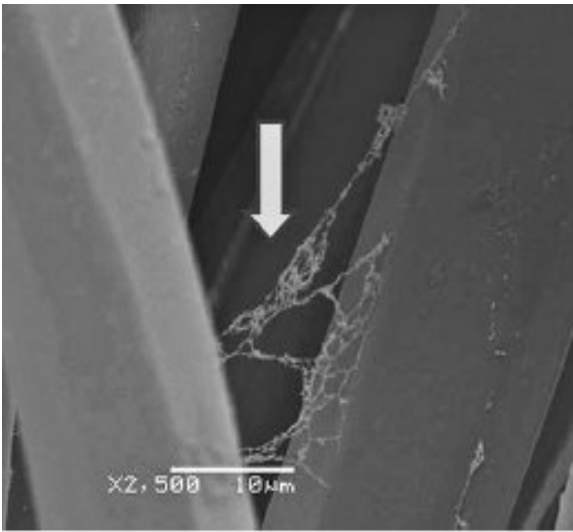
Presença de biofilmes contendo MRs apesar da limpeza das superfícies

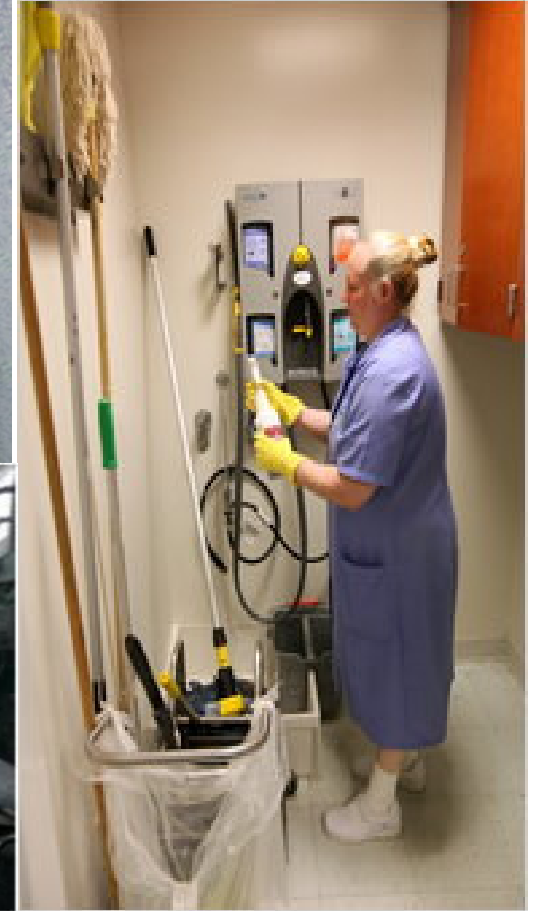
- É uma “comunidade” microbiana organizada, integrada por substâncias exopoliméricas, que protegem o microrganismo
- Uma vez formado o biofilme ele protegeria a bactéria de dessecação e também a protegeria de ser removida apesar da Limp/Desinf terminal
- A bactéria protegida no biofilme pode ser até 1500 vezes mais resistente aos biocidas (100-250 x)
- Hipótese do estudo: a condensação sobre a superfície produzindo uma fina camada de água, ou que a umidade relativa nas UTIs seja alta suficiente para o aparecimento do biofilme



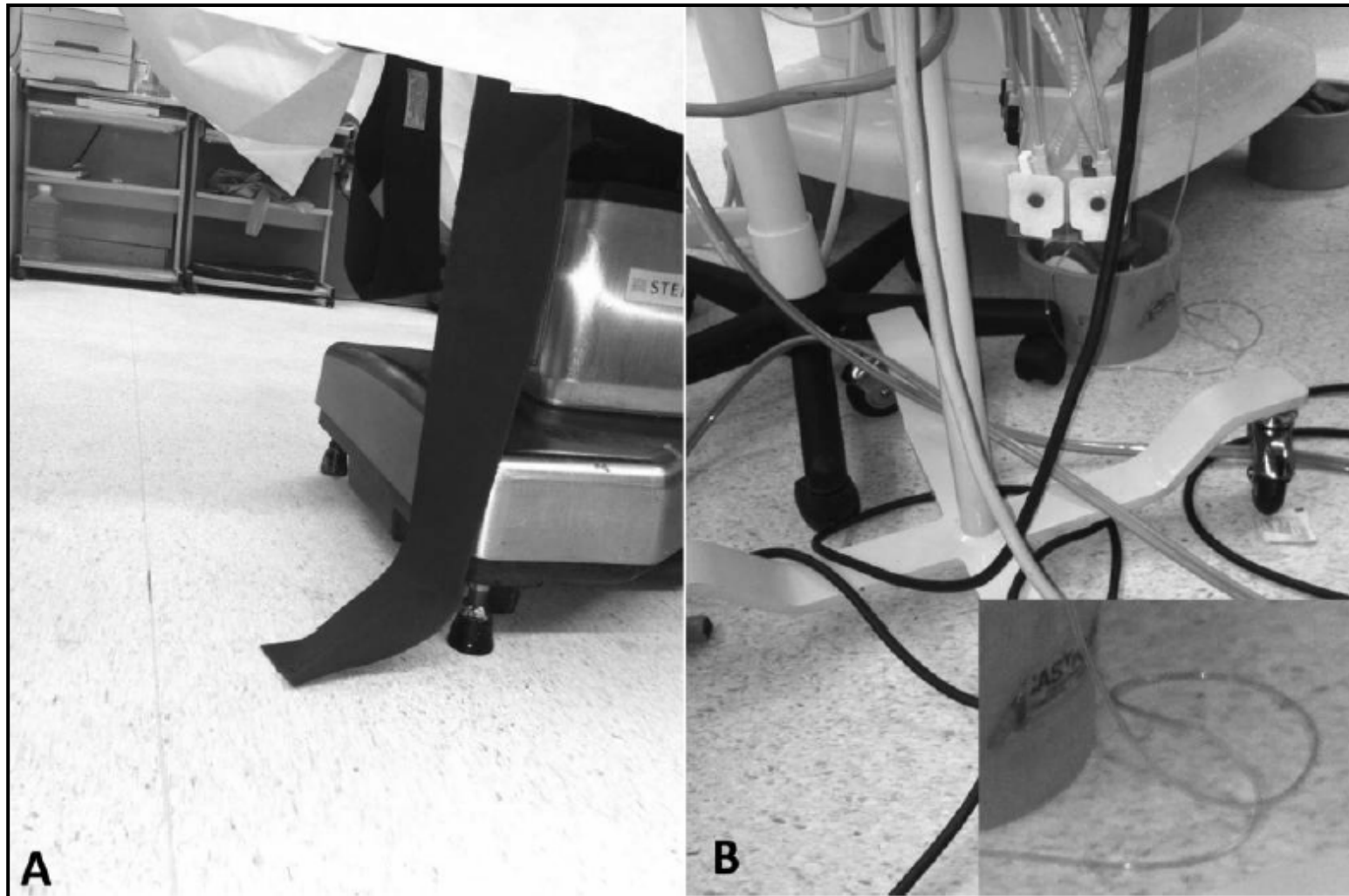
**Puxador da
cortina**

Cortina





Interação entre “objetos” e o piso da sala operatória



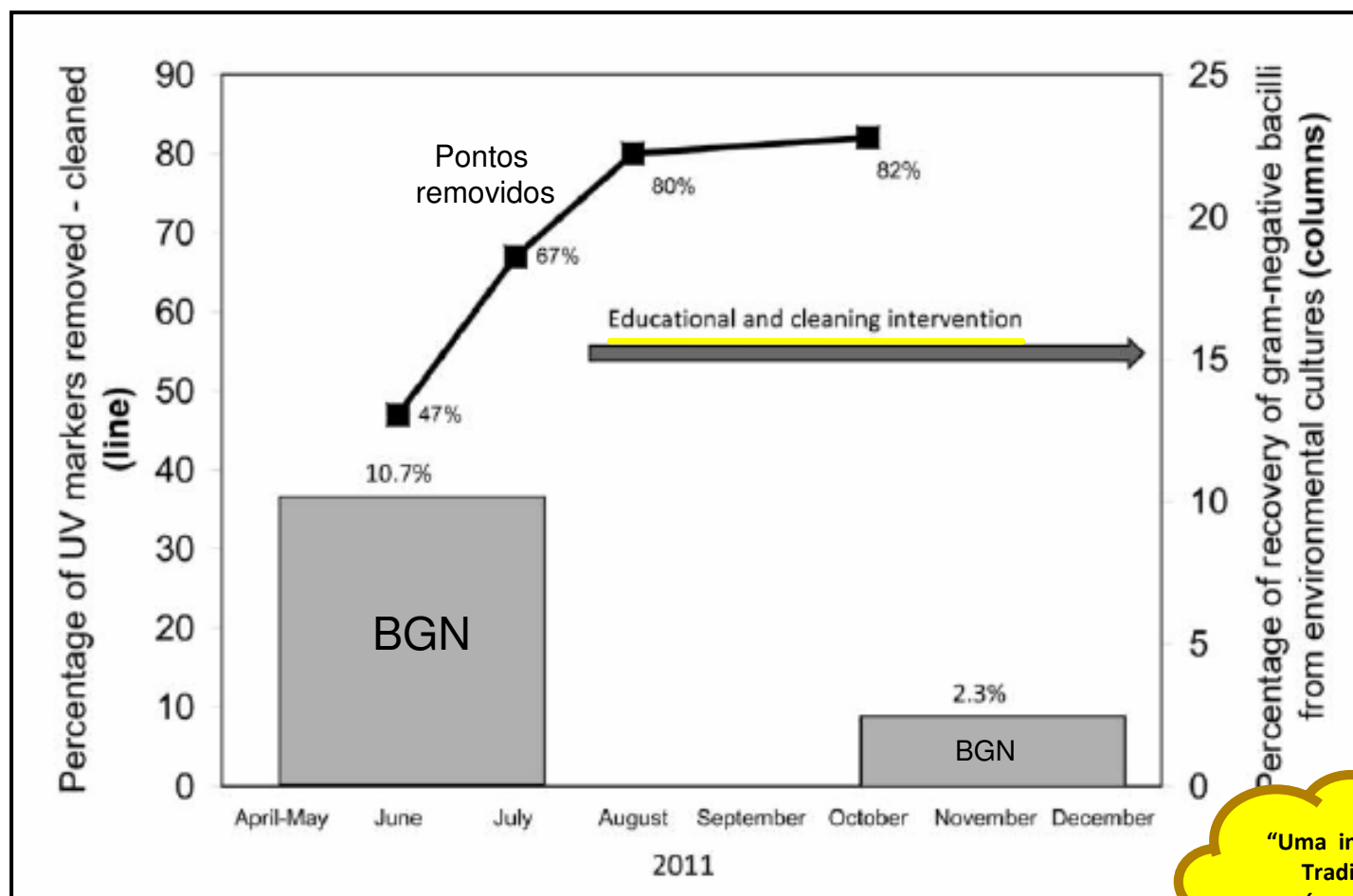


FIGURE 1. Changes in cleaning practices and environmental contamination of the operating rooms. The line indicates the percentage of UV markers removed (cleaned), and the columns indicate the percentage of environmental surface samples from which gram-negative bacilli were recovered.

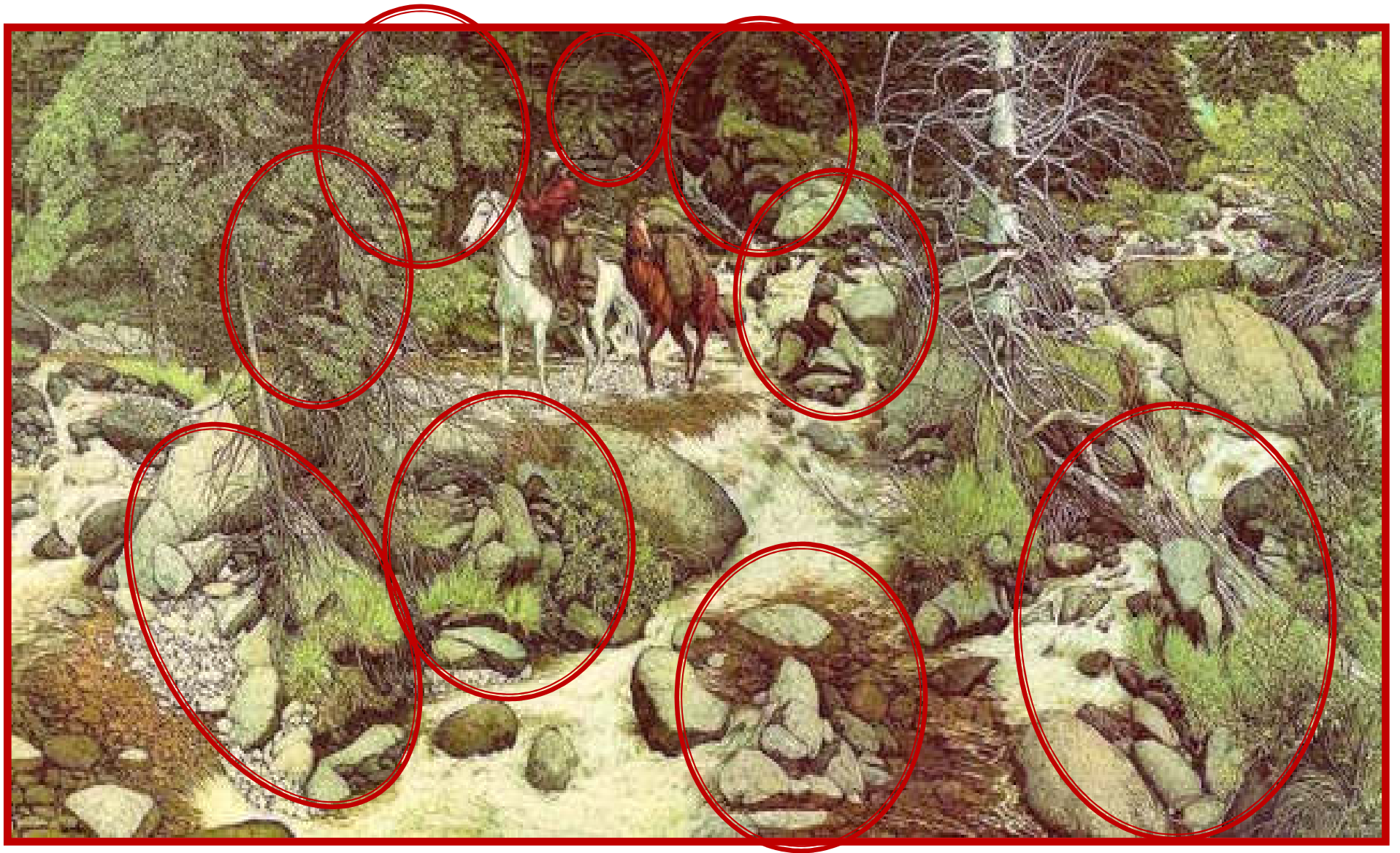


*Quem será que
faz a Limp/Desinf
da mesa e dos equipamentos
de anestesia?*

E também da ... e do ... etc...







Muito Obrigada!

celiamburgardt@gmail.com

