Reducing Hospital Acquired Infections: Value of monitoring cleaning

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Objectives

- Reducing Hospital Acquired Infections:
  - no single magic bullet
- Disinfectant Product:
- Cleaning Practice:
- Monitoring Cleaning Compliance:

All Pictures in this presentation are from Google Free Images

Best Practices for Environmental Cleaning for Prevention and Control of Infections In All Health Care Settings - 2nd edition PIDAC 2012

Evidence Supports:

- *Role of Environment as reservoir for antibiotic resistant organisms (AROs)*
- *Role of Environment in transmission of Hospital Acquired Infections*

Can effective disinfection of the environment reduce HAIs?

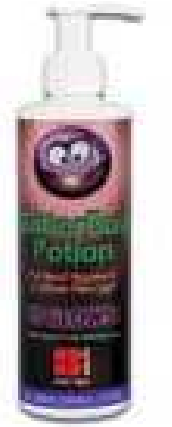
- ***Risk of ARO transmission is highest prior to ARO diagnosis when patient is not yet on isolation precautions***
- ***Guidelines recommend High-touch sites be <u>disinfected</u> not just cleaned***

Can you tell by visual inspection if this toilet has been cleaned & disinfected?

Best Practices for Environmental Cleaning for Prevention and Control of Infections In All Health Care Settings - 2nd edition PIDAC 2012

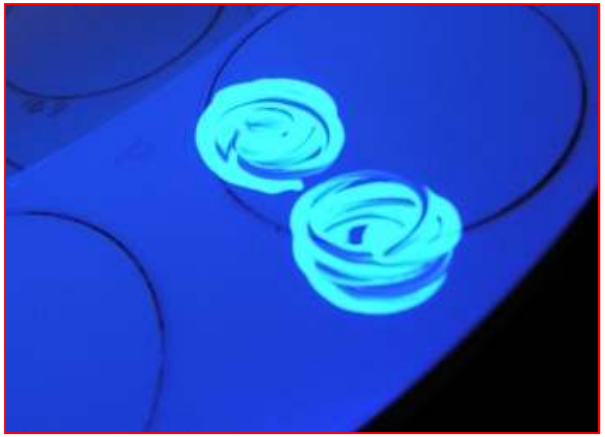
ATP and UV-visible marker:
recommended for monitoring cleaning compliance of Environmental services staff

UV-visible Marker to Monitor Housekeeping

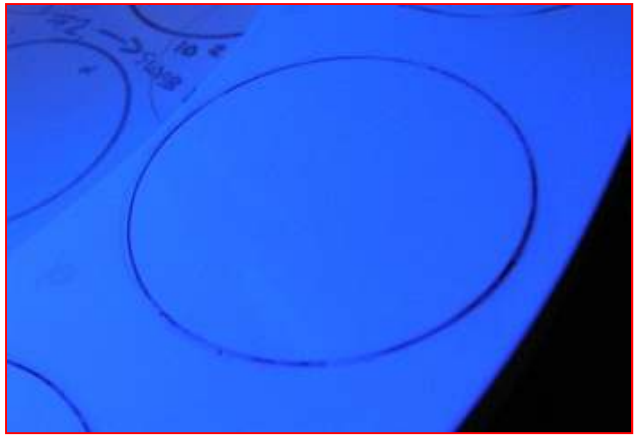


1. UV-marker applied to High touch surfaces

2. After cleaning check with UV light



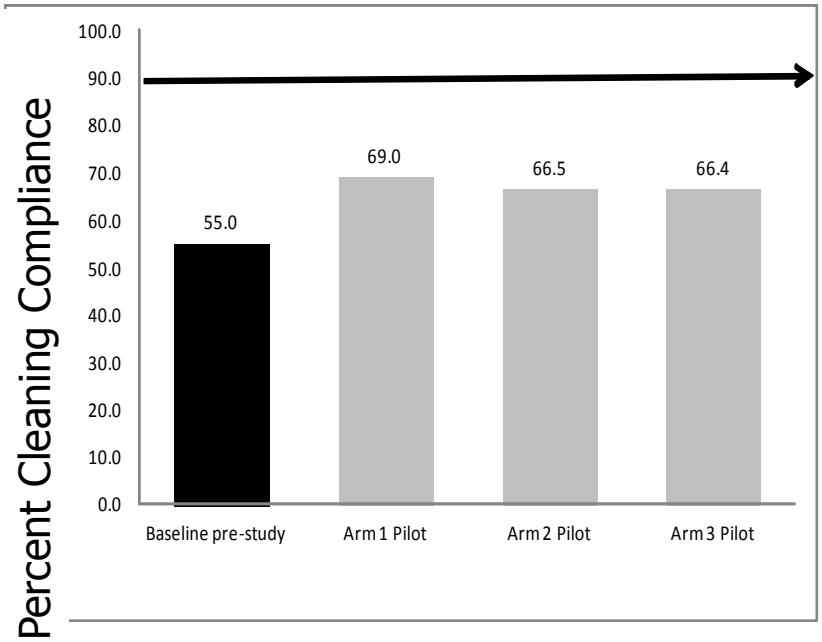
UV-marker visible with UV light



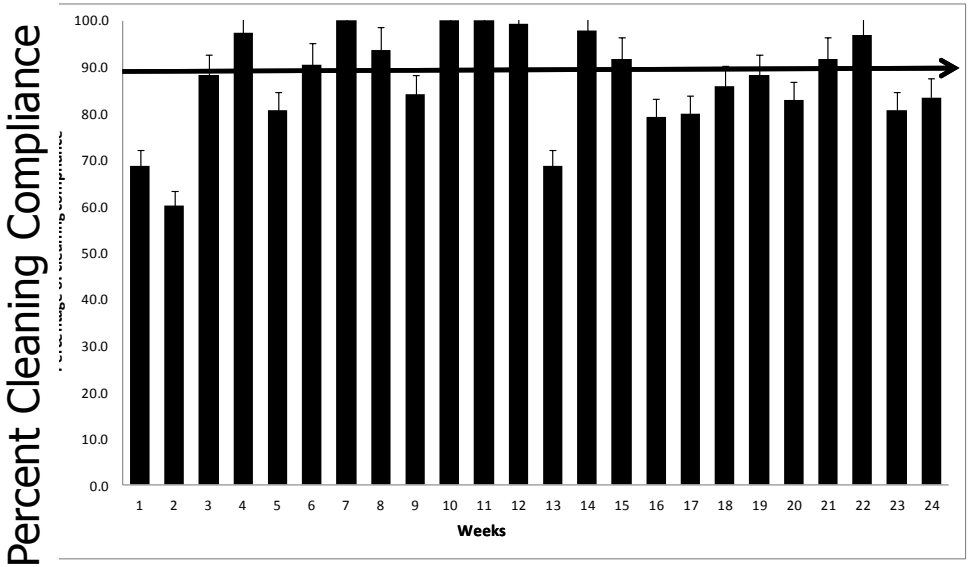
UV-marker removed after cleaning

Compliance with cleaning: Impact of monitoring

Status when cleaning monitoring not previously done



Impact of cleaning monitoring on compliance when routinely monitored and feedback to staff provided



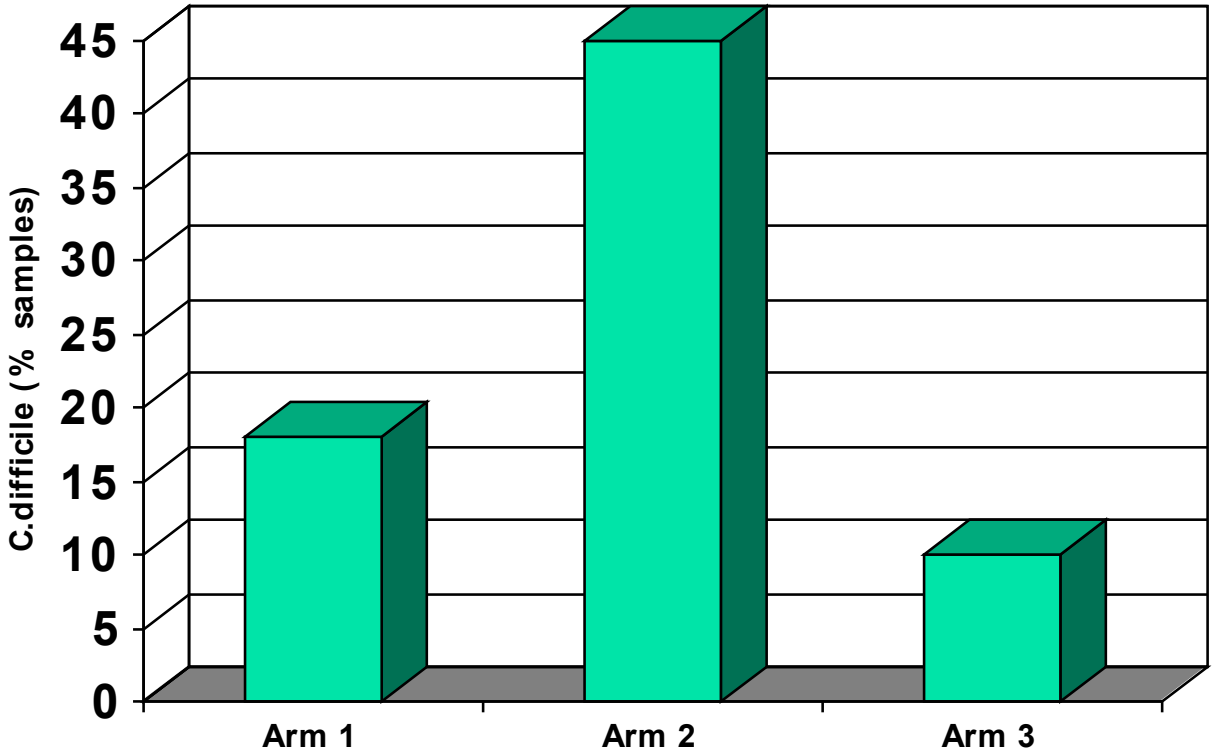
Trajtman AN, Manickam K, Macrae M, Bruning NS, Alfa M. J Hosp Infect 2013 April; 84:166-172.

Important Study Parameters

- **<u>Product:</u> a disinfectant** (bleach alternative) that kills all AROs
- **<u>Practice:</u> Use this disinfectant for routine daily disinfection of all high-touch areas** (including curtains) for both isolation rooms and non-isolation rooms
- **<u>Compliance:</u> Ensure surfaces were wiped** - UV-visible marker to monitor

PRODUCT: Oxivir$_{TB}$ (Accelerated Hydrogen Peroxide) as a bleach alternative

Alfa et al 2010; BMC Infectious Diseases [www.biomedcentral.com]



Arm 1: 50 patients, 133 samples
CDAD, twice daily cleaning, Oxivir$_{TB}$

Arm 2: 68 patients, 254 samples
CDAD, twice daily cleaning, PerDiem

Arm 3: 68 patients, 179 samples
Diarrhea, once daily cleaning, PerDiem

Study Protocol: Nov 2012- Oct 2013

TARGET: General Daily Cleaning/Disinfection

ALL Patient-care areas in hospital:

- use Oxivir$_{TB}$ *wipes* for ALL High-touch surfaces
  (NOTE: Company alternate name: "Accel Intervention")

UV-Marker: Audit housekeeping compliance

- 2 rooms/study ward/week (1664 rooms/year)
- ~ 10 sites/room (bathroom & patient room)
- ≥ 80% compliance considered acceptable

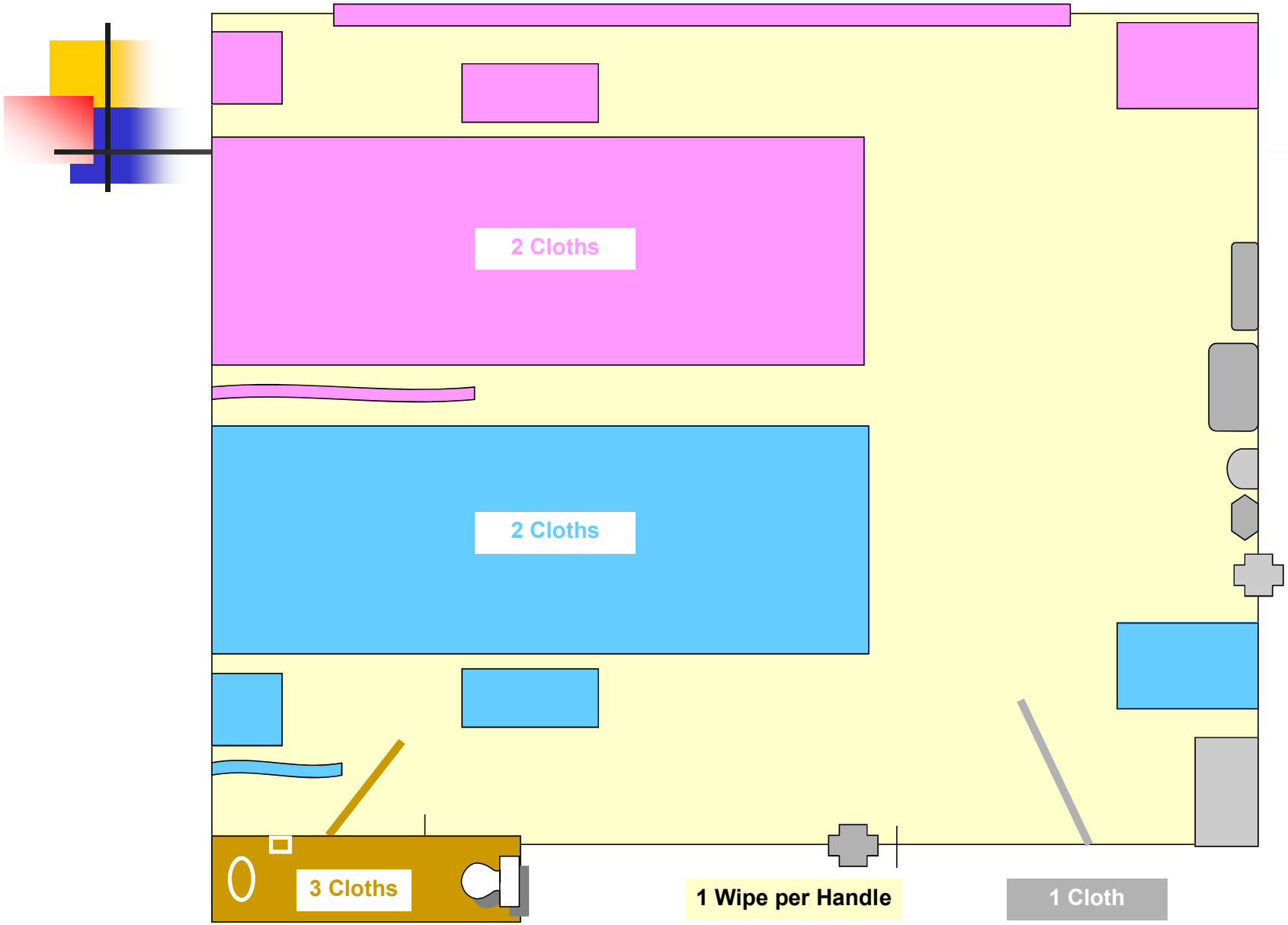
Document impact on Hospital Acquired Infection rates

PRACTICE:

- TRAINING:
  - Dedicated patient room during training
  - Show-back of cleaning by housekeeping staff

- STANDARDIZED CLOTH:
  - Use of containerized-wipe system

Overview of using wipes to clean/disinfect patient-care areas



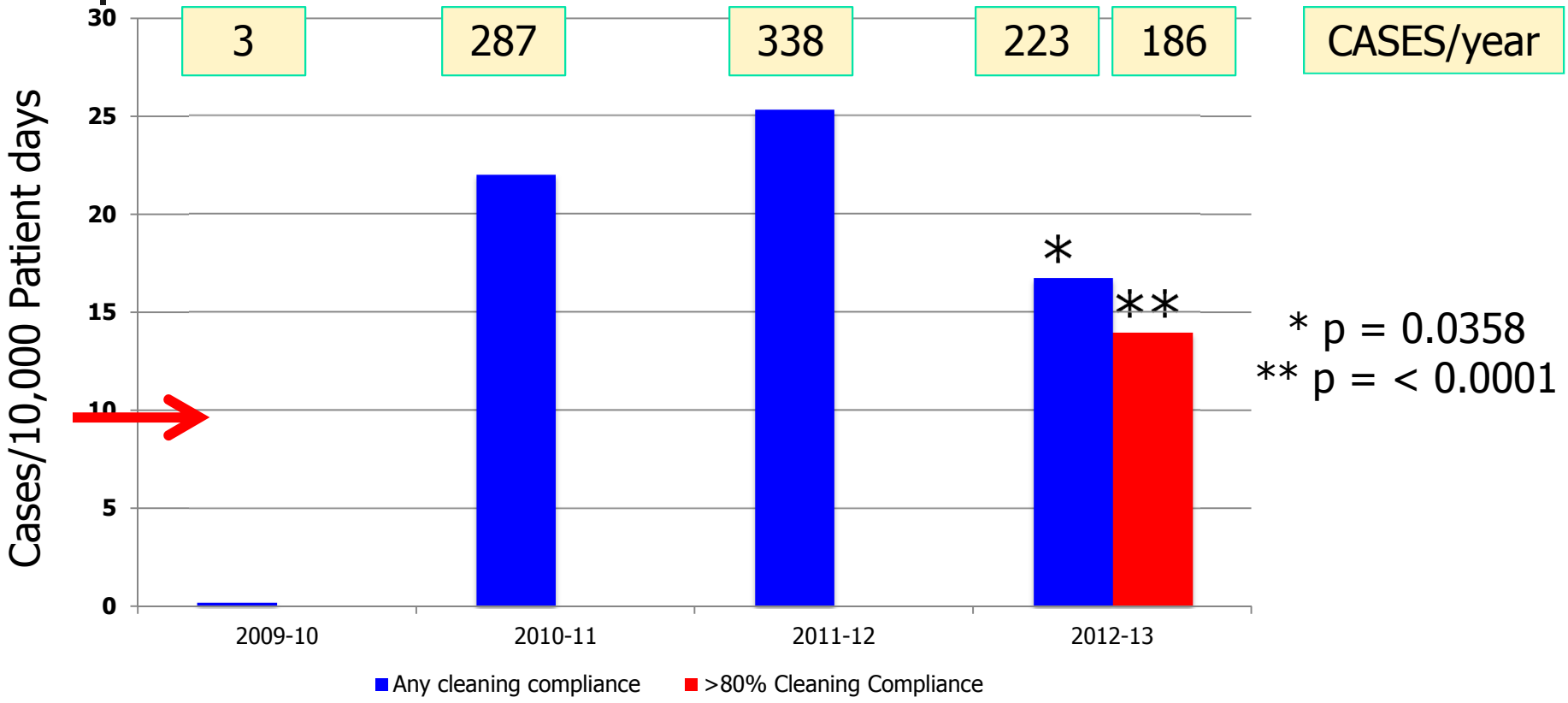
How much of HAI is due to Environmental Reservoir?

- Not truly known: some published studies suggest up to 10% of *C.difficile* cases may arise from environment
- Our hypothesis: If cleaning compliance was $\geq$ 80%, then HAI rate would be decreased by $\geq$ 20%

VRE at SBH

(Nov 1 to Oct 31 each year)

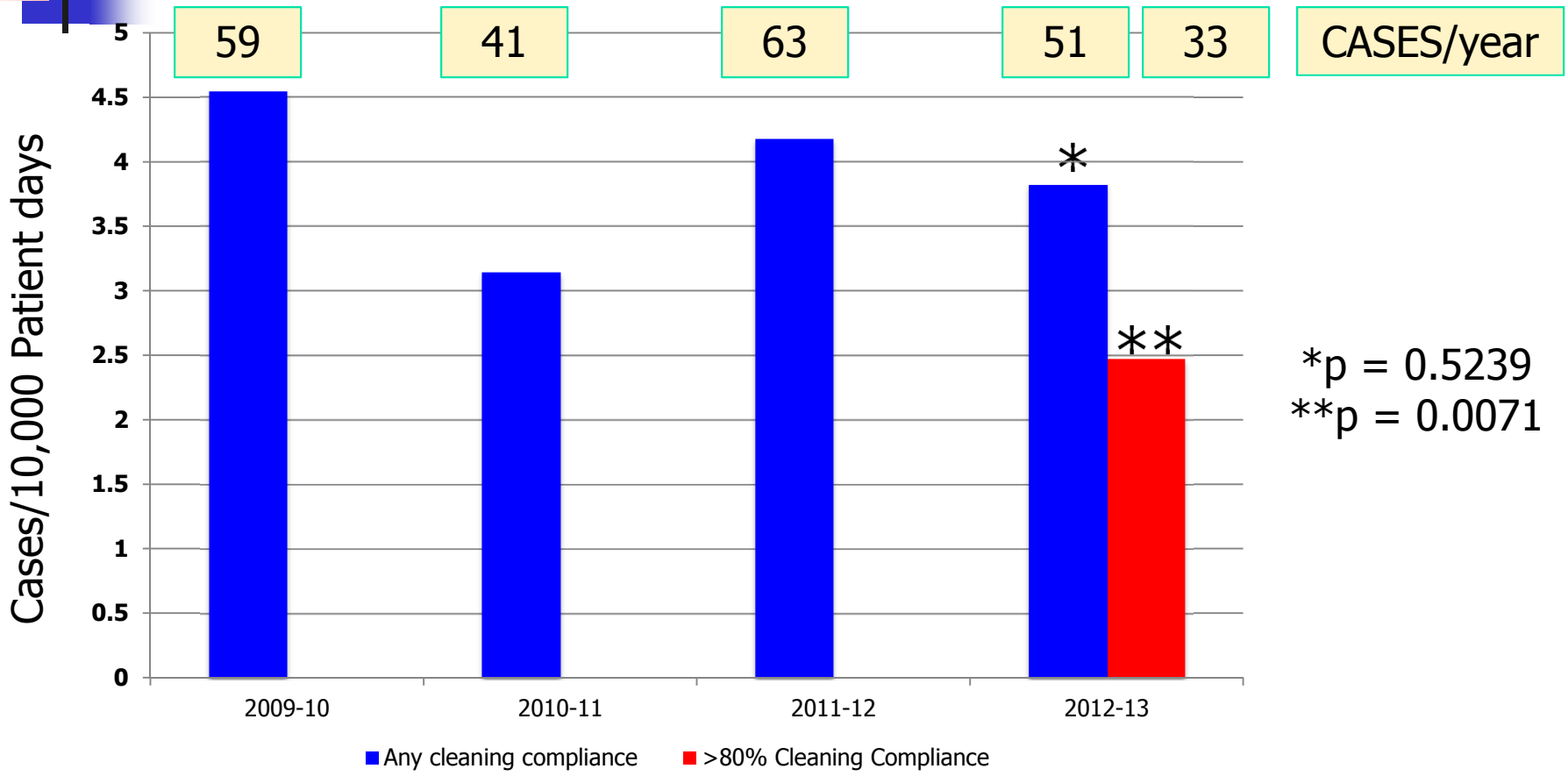
[2011 *CNISP benchmark: 9.4 cases/10,000 PDs*]



MRSA at SBH

(Nov 1 to Oct 31 each year)

[2011 *CNISP benchmark: 11.43 cases/10,000 PDs*]



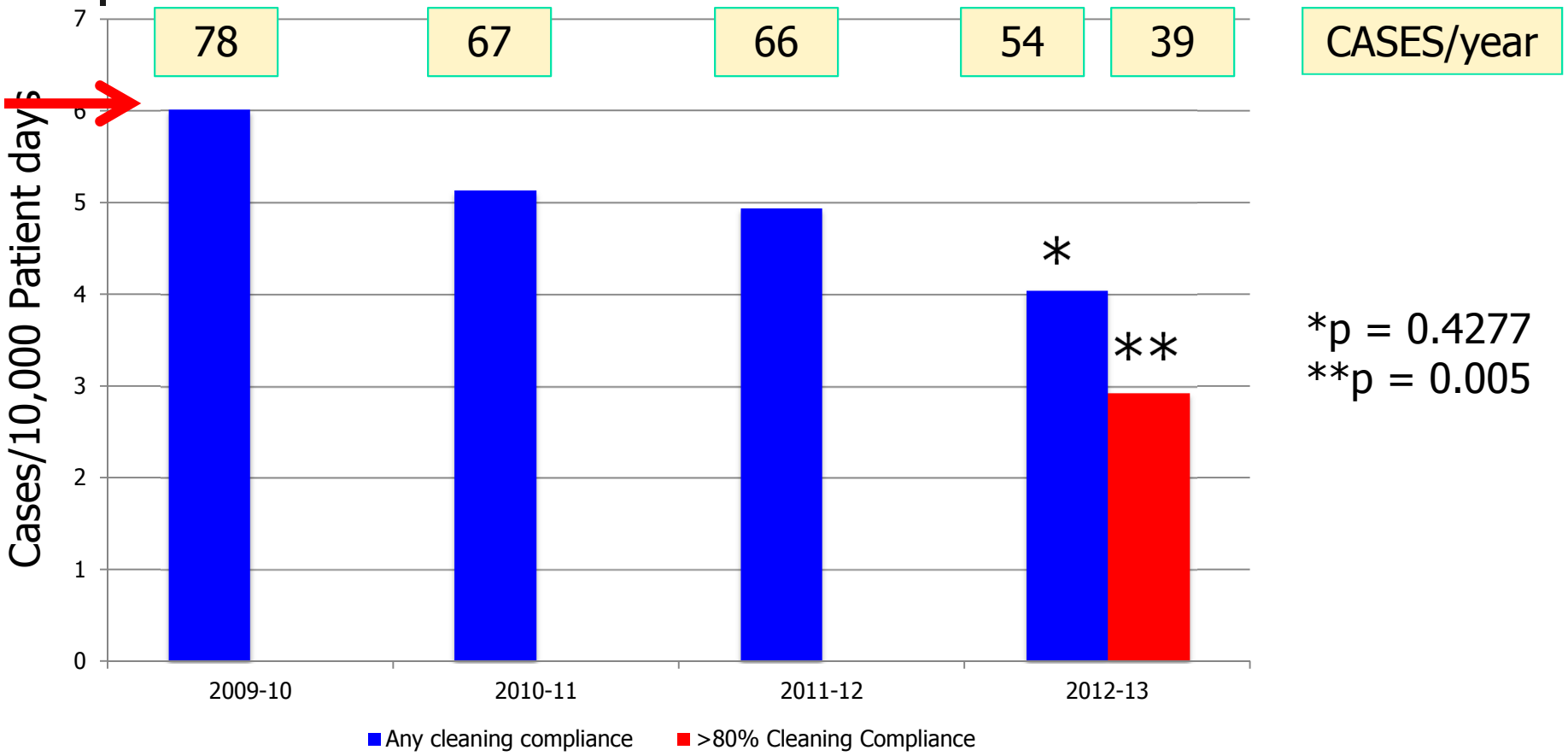
*p = 0.5239

**p = 0.0071

C.difficile at SBH

(Nov 1 to Oct 31 each year)

[2011 *CNISP benchmark: 6.04 cases/10,000 PDs*]



*p = 0.4277
**p = 0.005

Summary of UV Audits: Cleaning compliance

Average compliance for 52 weeks		AVERAGE COMPLIANCE (%)
CARDIAC	A5CM	85.56
	B2IP	82.54
	CR4C	93.34
	ICCS	94.02
	ICMS	91.67
	TOTAL:	89.43
SURGICAL	A4SO (plus stepdown)	86.34
	A7SO	84.26
	A7WE	84.03
	TOTAL:	84.88
MEDICINE	A6ME	84.12
	B5ME	83.67
	E4GM	82.10
	E5ME	82.93
	E6ME	85.78
	4C (Hemodialysis)	NOT DONE
	TOTAL:	83.72
WOMEN/CHILD	A3MC (A3S and B3)	NOT DONE
	B3MC	87.14
	B4GY	84.70
	LDRP	88.38
	NICU	NOT DONE
	TOTAL:	86.74
	OVERALL TOTAL:	86.19

Fluid transfer for Wipes versus Rags as cleaning cloths

Overbed table wiped		Cloths tested 
Condition tested (5 replicates):	**Accel Wipes**	**Cotton Rags**
Liquid absorbed: Avg. grams (SD)	15.34 (0.86)	60.22 (18.05)
Liquid released: Avg. grams (SD)	3.46 (0.38)	2.46 (0.36)
Dry time: Table Avg. mins (SD)	8.78 (2.23)	3.13 (1.12)

Clinical Study

- **Product:** Clean & Disinfect
- **Practice:**
  - training of staff is critical
  - ensure adequate surface wetting and "friction" (rubbing of surface)
- **Compliance:** Monitoring & feedback

Improving environmental cleaning & disinfection can reduce HAIs

Reducing Hospital Acquired Infections

You are NOT ALONE……

Teamwork is the key!

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