Are towelettes effective for surface decontamination in healthcare settings?

Jean-Yves Maillard
Cardiff School of Pharmacy and Pharmaceutical Sciences
Cardiff University

Hosted by Dr. Lynne Sehulster
Prevention and Response Branch
Division of Healthcare Quality Promotion
Centers for Disease Control and Prevention

www.webbertraining.com **April 30, 2015**

OBJECTIVES

- Review the usage of towelettes in healthcare settings, particularly pre-wetted towelettes
- Discuss the role of pre-wetted towelettes in healthcare settings
- Consider the claims made by pre-wetted towelettes' manufacturers in relation to the efficacy tests performed
- Review the efficacy of antimicrobial and detergent pre-wetted towelettes against bacteria, spores (*Clostridium difficile*) and viruses
- Reflect on the appropriate usage of pre-wetted towelettes and evidence that need to be provided by manufacturers to make an meaningful and practical claim
- Discuss potential new practical and regulatory challenges for pre-wetted towelettes

SOME NUMBERS…

- **HCAIs cost the NHS: £1 billion annually (£3,154 per patient)**

  HPA 2012
  Plowman *et al. J Hosp Infect* 2001;47:198-209.
  National Audit Office, *The management and control of hospital acquired infection in acute NHS trusts in England.*, 2009, The Stationary Office: London
  IFIC 2011

- **20-30% of HCAIs could be avoided with better application of existing knowledge and realistic infection control practices**

  National Audit Office 2009

- **Enhanced cleaning practices are reported to save hospitals between £30,000–£70,000**

  Dancer *et al. BMC Med* 2009;7:28.

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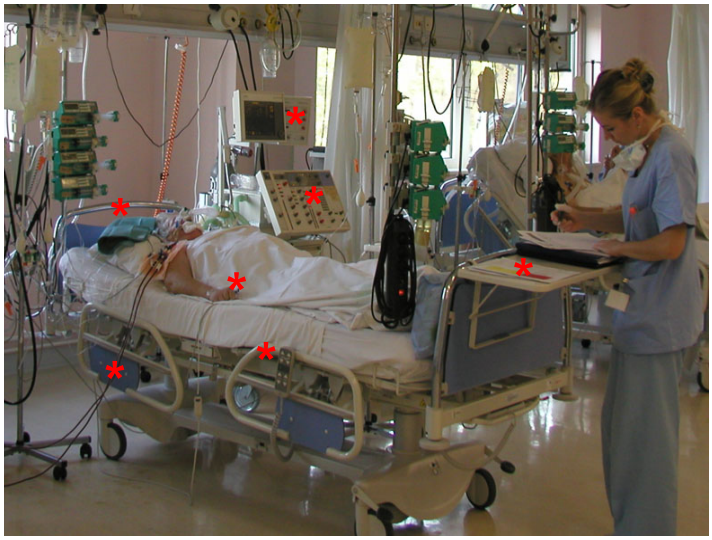
SURFACES AT RISK



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What is the evidence that environmental surface are involved in the transmission of pathogens?

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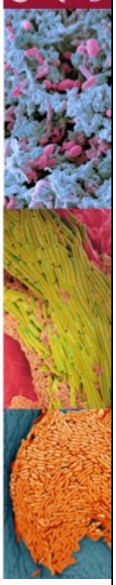
ROLE OF SURFACES IN MICROBIAL TRANSMISSION

- **1970s - 1990s: THE DARK AGES: AN ALMOST COMPLETE DENIAL!**

EVIDENCE

- **Microorganisms survival on surfaces proximal to patients (high-touch surfaces)**
- **Pathogens survival on surfaces at concentrations sufficient for transmission and transference to the hands of healthcare workers** (inc. MRSA, *C. difficile*, norovirus, VRE…)
- **Low infectious dose for some pathogens**

  Otter *et al. ICHE* 2011;32:687-99.
  Lawley *et al. AEM* 2010;76L6895-900.
  Teunis *et al. J Med Virol* 2008;80:1468-76.
- **Ample evidence of the genotypic link between bacteria isolated from patients and surfaces proximal to patients**



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ROLE OF SURFACES IN MICROBIAL TRANSMISSION

MRSA

- Link between inanimate environmental contamination and infected or colonized individuals
- 65% of nursing staff that had directly treated an infected individual contaminated their gowns/uniforms with MRSA
- MRSA contamination of gloves was also observed in 42% of personnel who had no direct contact with the patient, but had touched surfaces in infected patient's rooms Boyce *et al.* *ICHE*1997; 18:622–7.
- Hand contamination from surface Bhalla *et al. ICHE* 2004; 25:164–7.

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ROLE OF SURFACES IN MICROBIAL TRANSMISSION

Prevalence of *Clostridium difficile*

- Floors, commodes, toilets, bed pans, bed frames
  Vonberg *et al.* *Clin Microbiol Infect* 2008; 14: 2-20.
- *C. difficile* spores persistence on surfaces : 5 months
  Kramer *et al. BMC Infect Dis* 2006; 6:130-8.
- *C. difficile* incidence data correlated with the prevalence of environmental spores in 1 ward (out of 2).
  Fawley *et al. Epidemiol Infect* 2001; 126: 343-50.

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ROLE OF SURFACES IN MICROBIAL TRANSMISSION

Cheeseman *et al. J Hosp Infect*, 2009; 72: 319-25.

Observations	Hospital 1	Hospital 2
% observations where staff washed hands	28	20
% observations where staff used alcoholic hand rub	30	9
Of those incidences where no gloves worn, % incidences where staff used alcoholic hand rub	41	14
% staff wearing no gloves and used no AHR, but washed hands	17	19
% staff using no protection/skin sanitisation	19	46
% potential staff to object cross- contamination	**30**	**59**
% potential staff to patient cross-contamination	**4**	**0**
% potential object to object cross- contamination	**70**	**88**
% potential object to patient cross-contamination	**20**	**9**
% potential patient to object cross-contamination	**17**	**9**

Low frequency of hand sanitisation, particularly with use of AHR lead to high incidence of potential cross contamination

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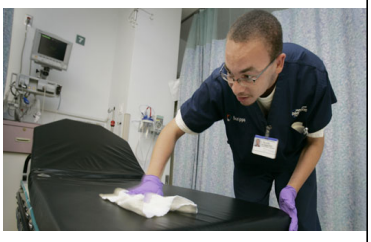
How can decontamination of environmental surfaces be achieved?



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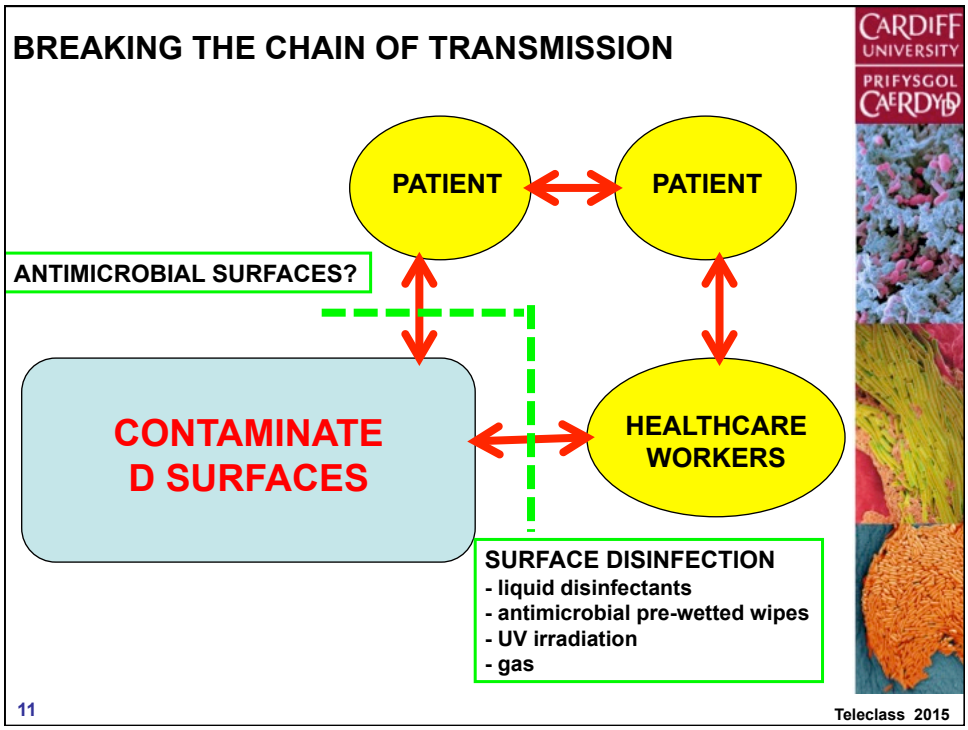
BREAKING THE CHAIN OF TRANSMISSION
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PATIENT
PATIENT
ANTIMICROBIAL SURFACES?
CONTAMINATED SURFACES
HEALTHCARE WORKERS
SURFACE DISINFECTION
- liquid disinfectants
- antimicrobial pre-wetted wipes
- UV irradiation
- gas
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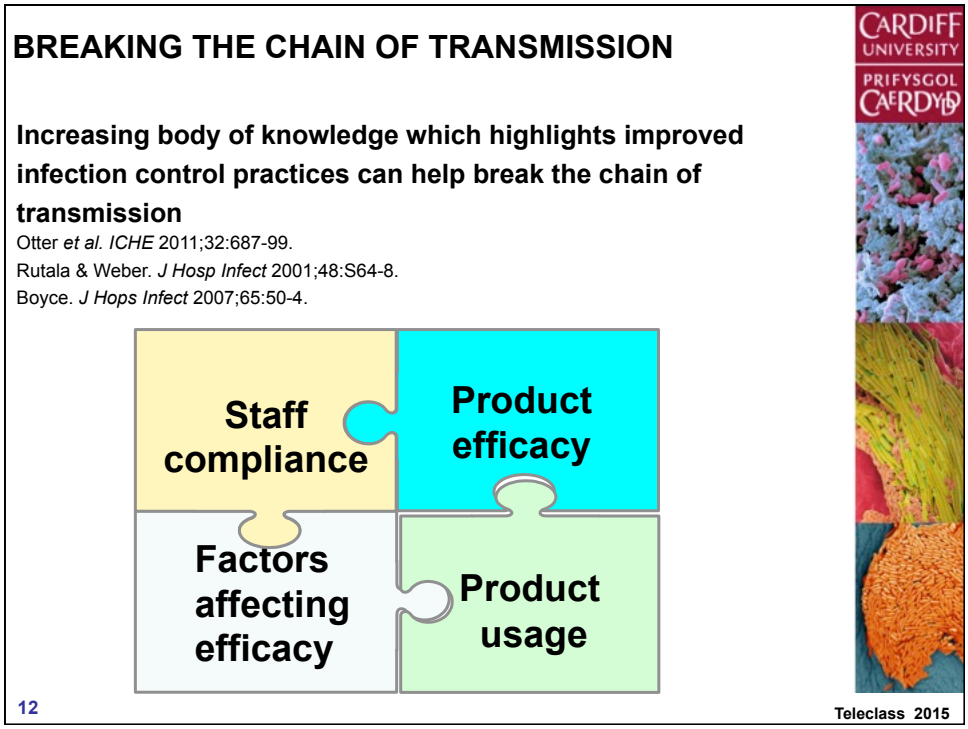
BREAKING THE CHAIN OF TRANSMISSION
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Increasing body of knowledge which highlights improved infection control practices can help break the chain of transmission
Otter et al. ICHE 2011;32:687-99.
Rutala & Weber. J Hosp Infect 2001;48:S64-8.
Boyce. J Hops Infect 2007;65:50-4.
Staff compliance
Product efficacy
Factors affecting efficacy
Product usage
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BREAKING THE CHAIN OF TRANSMISSION

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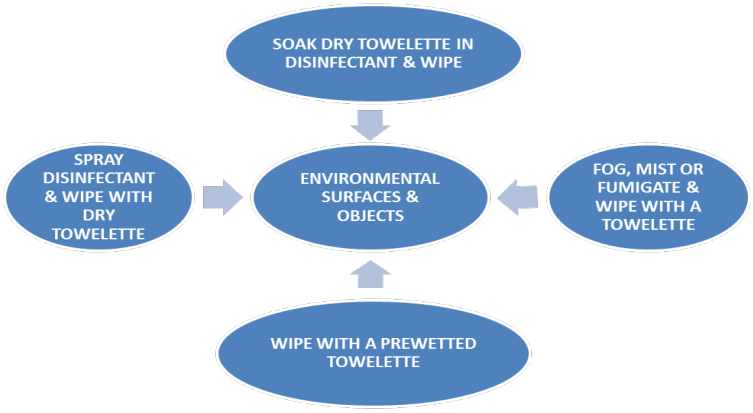
BREAKING THE CHAIN OF TRANSMISSION

Possible scenarios for decontaminating high-touch environmental surfaces by wiping

Sattar and Maillard *AJIC* 2013;41:S97-S104.



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Can manufacturers and end users rely on standard efficacy tests (product claim)?

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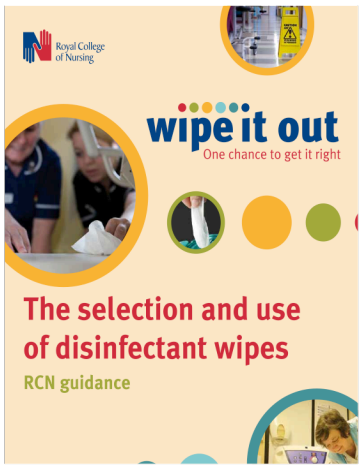
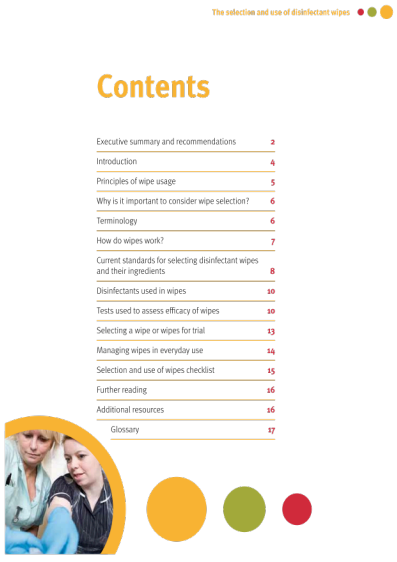
HOW TO DETERMINE WIPE EFFICACY?





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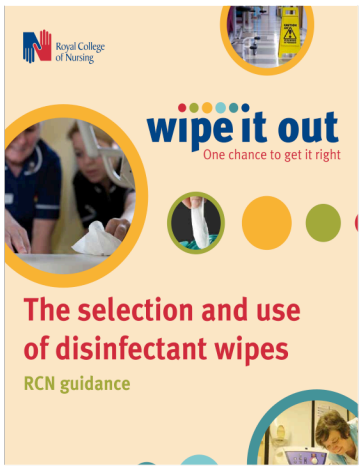
HOW TO DETERMINE WIPE EFFICACY?



"The main purpose of wipes is to remove contamination from surfaces. Additionally, some wipes may provide some antimicrobial activity by the inclusion of a disinfectant although this activity might be limited based on contact time, type of surface and contamination present."

"There are currently no accepted standards to support the selection and purchase of disinfectant wipes in health care."

Support the use of surface test rather than suspension test

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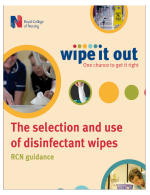
HOW TO DETERMINE WIPE EFFICACY?

Phase 2, step 2 tests: surface tests

- Determine bactericidal, fungicidal, virucidal or sporicidal activity under laboratory conditions that simulate practical conditions.
- Can be used to make a claim (liquid expressed from wipes)
- Application for surface disinfection



e.g. EN14561: Quantitative carrier test for the evaluation of bactericidal activity for instruments used in the medical area
Temperature: 20ºC(4-40ºC); contact time: 5 min (1-60 min) + soiling

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HOW TO DETERMINE WIPE EFFICACY?

Phase 1, step 1 tests: basic activity (suspension test)

- Does my product show some antimicrobial activity (yes/no)
- Not to be used to make a claim

e.g. **(BS)EN14347:** Basic sporicidal activity
Temperature: 20ºC; contact time one of the following 30, 60, 120 min; no soiling (no *C. difficile*)

Phase 2, step 1 tests: suspension test

- Determine bactericidal, fungicidal, virucidal or sporicidal activity under laboratory conditions that simulate practical conditions.

e.g. EN 13727: Bactericidal suspension test
Temperature: 20ºC(4-40ºC); contact time: 5 min (1-60 min) + soiling

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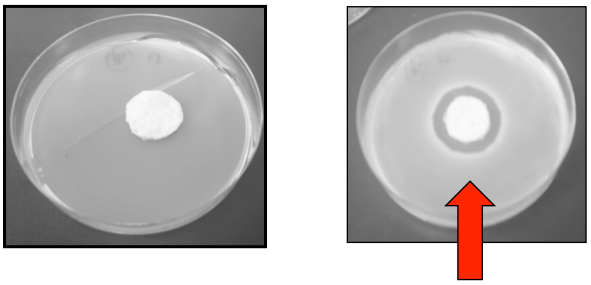
HOW TO DETERMINE WIPE EFFICACY?

Efficacy of "antimicrobial" wipes

Qualitative –agar diffusion test (ISO 20645)

ISO 20645 **CONTROL** **TEST**



Test interpretation: "good antimicrobial effect"

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WIPE USAGE IN PRACTICE

Antimicrobial wipe usage

Williams *et al. J Hosp Infect* 2007; *67: 329-35*

Observation of usage in practice –cleaning staff in ITUs

- use of wipes – surface area
- contact
- rotation

Wipe Number	Surface initially wiped	Time applied (seconds)	Number of consecutive surfaces wiped (other surfaces)
1	Bed Rail	4	5 (bedside table, monitor X2, monitor stand)
2	Steel Trolley	6	2 (both shelves on the trolley wiped)
1	Monitor	4	5 (monitors, two keypads, monitor stand)
2	Bed rail	7	4 (table, monitor, keypad)
3	Bedside table	10	4 (folder, two bed rails)

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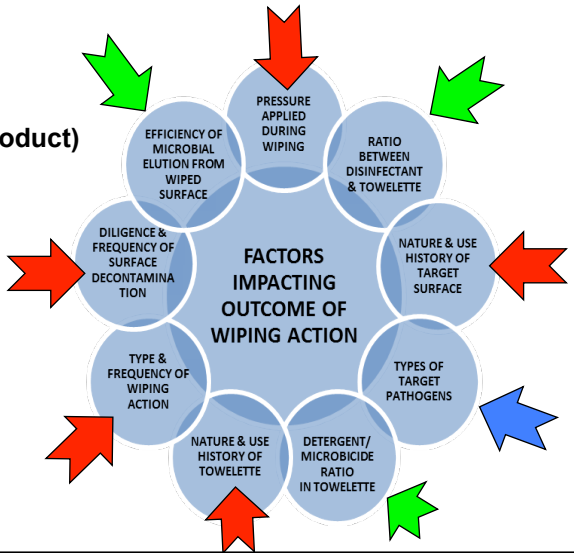
WIPE USAGE IN PRACTICE

Factors impacting on the efficacy of wipes.

Sattar and Maillard *AJIC* 2013;41:S97-S104.

- Usage
- Formulation (product)
- pathogen



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WIPE TESTS

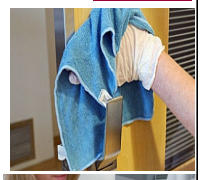
Sattar and Maillard. *Am J Infect Control* 2013; 41:S97-S104

WIPING NOT CONTROLLED

- AOAC International 961.02
- EN 4-Field test (phase 2, step 2)
- ASTM International E2362
- US EPA (virucidal efficacy, mycobactericidal efficacy)
- US EPA; Draft Interim Guidance for Non-Residual Sanitization of Hard Inanimate Food Contact Surfaces Using Pre-Saturated Towelettes
- US EPA Method for Disinfection Using Pre-Saturated Towelettes

CONTACT TIME INAPPROPRIATE

- AOAC International 961.02
- US EPA Method for Disinfection Using Pre-Saturated wipes



DO NOT REFLECT PRODUCT USAGE

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3-STEP TEST – A NEW ASTM Intl. STANDARD (04-15)

✓ Remove bioburden from a surface

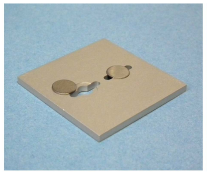
Stage 1 – bacterial removal
How good are the wipes in removing microbial contaminants? (not killing effect)

✓ Prevent transfer of bioburden from the wipe to other surfaces

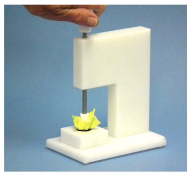
Stage 2 – bacterial transfer "adpression tests"
Can the wipes transfer survivors to other surfaces (i.e. cross-contaminate)?

✓ Where antimicrobial is present – kill the microbial bioburden

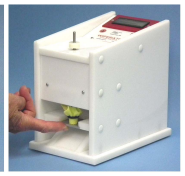
Stage 3 – Antimicrobial activity
Can the wipes kill the bacteria they remove?



Sample Carrier with two 10-mm dia stainless steel disks



Loading a wipe onto a Boss using the Wipe Loader



The Wiperator wipes sample disks with an orbital motion

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EVIDENCE THAT PRE-WETTED ANTIMICROBIAL/DETERGENT WIPES WORK

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LITERATURE USING THE 3-STEP TEST

Williams GJ, Denyer SP, Hosein IK, Hill DW and Maillard J-Y. (2007) The development of a new three-step protocol to determine the efficacy of disinfectant wipes on surfaces contaminated with *Staphylococcus aureus*. *Journal of Hospital Infection* **67**(4): 329-335

-*S. aureus* and methicillin-resistant *S. aureus*: one wipe

Panousi MN, Williams GJ, Girdlestone S and Maillard J-Y. (2009) Use of alcoholic wipes during aseptic manufacturing. *Letters in Applied Microbiology* **48**, 648-651.

-methicillin-resistant *S. aureus*, *B. subtilis*, *S. epidermidis* : alcohol impregnated *vs.* alcohol spray on wipe

Williams GJ, Denyer SP, Hosein IK, Hill DW and Maillard J-Y. (2009) Limitations of the efficacy of surface disinfection in the healthcare settings. *Infection Control and Hospital Epidemiology*, **30**(6); 570-573.

-*S. aureus* and methicillin-resistant *S. aureus*: multiple wipes

Siani H, Cooper CJ and Maillard J-Y. (2011) Efficacy of 'sporicidal' wipes against *Clostridium difficile*. *American Journal of Infection Control*, **39**(3), 212-218.

- *C. difficile*: multiple wipes

Sattar S.A. and Maillard J.-Y. (2013) The Crucial Role of Wiping in Decontamination of High-Touch Environmental Surfaces: Review of Current Status and Directions for the Future. *American Journal of Infection Control,* **41**; S97-S104. - review

Ram L, Wesgate R, Siani S and Maillard J-Y (2015) Pathogen transfer and high variability in pathogen removal by detergent wipes. *American Journal of Infection Control*, *in press*

-*S. aureus, A. baumanii, C. difficile* (spores): multiple wipes

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DO ANTIMICROBIAL WIPES WORK?

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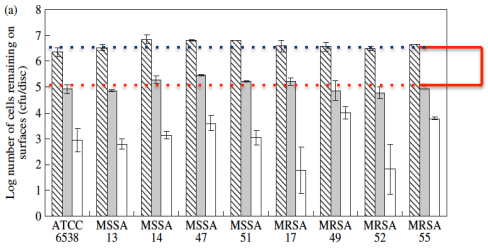
Williams *et al. J Hosp Infect* 2007; *67: 329-35*

REMOVAL

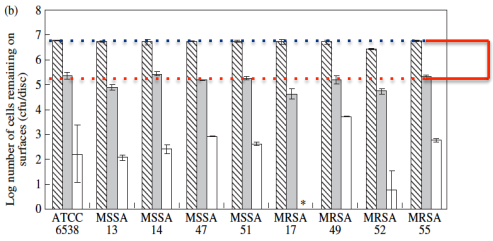
Log_{10} number of *S. aureus* cells remaining on surfaces following 10 s applications of control and test wipes. Striped bars: inocula; grey bars: control wipes; white bars: test wipe

(a) Dirty



1 log_{10} reduction (90%)

(b) clean



1 log_{10} reduction (90%)

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DO ANTIMICROBIAL WIPES WORK?

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Williams *et al. J Hosp Infect* 2007; *67: 329-35*

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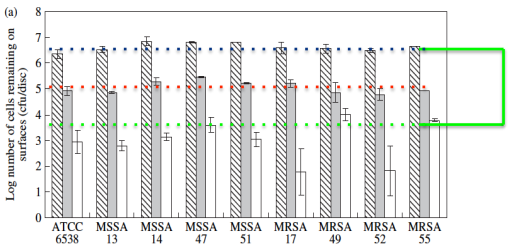
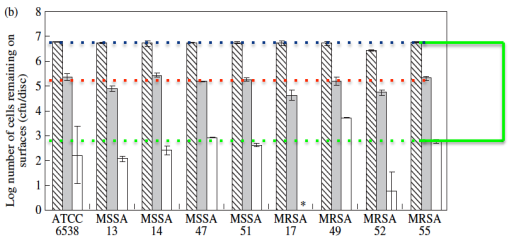


3 log_{10} reduction (99.9%)

(b) clean



4 log_{10} reduction (99.99%)

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DO ANTIMICROBIAL WIPES WORK?

Williams *et al. J Hosp Infect* 2007; *67: 329-35*

REMOVAL

Log_{10} number of *S. aureus* cells remaining on surfaces following 10 s applications of control and test wipes. Striped bars: inocula; grey bars: control wipes; white bars: test wipe

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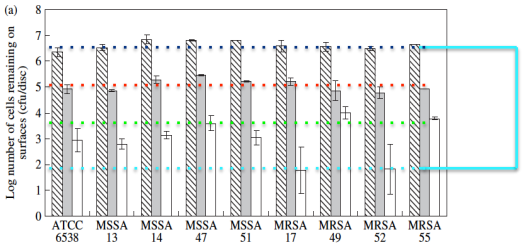
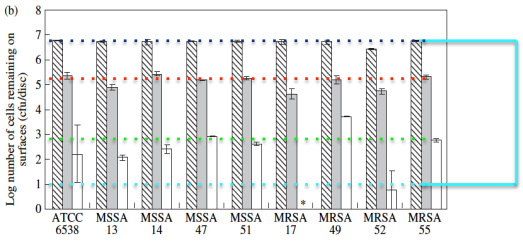


5 log_{10} reduction (99.999%)

(b) clean



6 log_{10} reduction (99.9999%)

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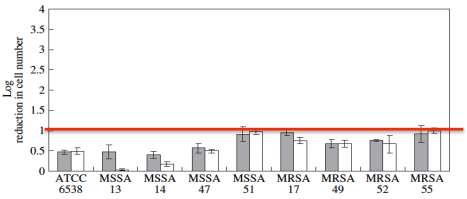
DO ANTIMICROBIAL WIPES WORK?

Williams *et al. J Hosp Infect* 2007; *67: 329-35*

KILLING

The bactericidal effect of 10 s exposures of *S. aureus* strains to a grapefruit extract containing wipe.

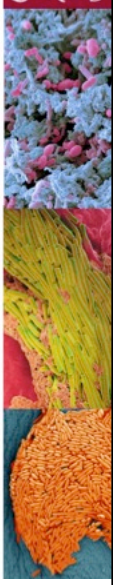


1 log_{10} reduction (90%)

Table I A summary of the results obtained using the ISO 20645 agar diffusion test[11] and the novel three-step method

Method	Organic load	Antimicrobial wipes	Control wipes
ISO 20645 method	NA	Good effect	Low effect
The three-step method:			
1. Bacterial removal (log_{10} cfu/disc)	Present	2.55–4.66	1.35–1.74
	Absent	3–6.73	1.28–2.10
2. Bacterial transfer	Present	8 consecutive transfers	8 consecutive transfers
	Absent	8 consecutive transfers	8 consecutive transfers
3. Bactericidal effect (log_{10} reduction)	Present	0.68 ± 0.07	NA
	Absent	0.58 ± 0.11	NA

NA, not applicable.



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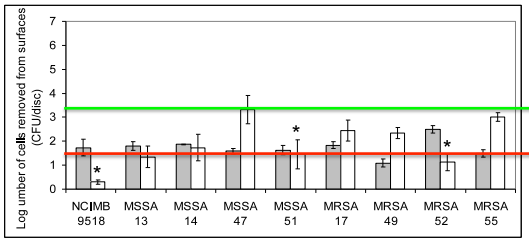
DO ANTIMICROBIAL WIPES WORK?

Williams *et al. Infect Control Hosp Epidemiol* 2009;30:570-3

REMOVAL

Log_{10} number of *S. aureus* cells removed from surfaces following 10 s applications of two disinfectant wipes.

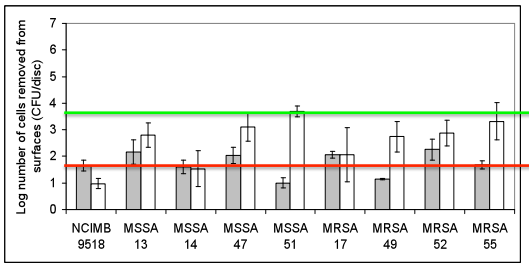
(a) Dirty



99.9-%

90%

(b) clean



99.9-99.99%

90-99%

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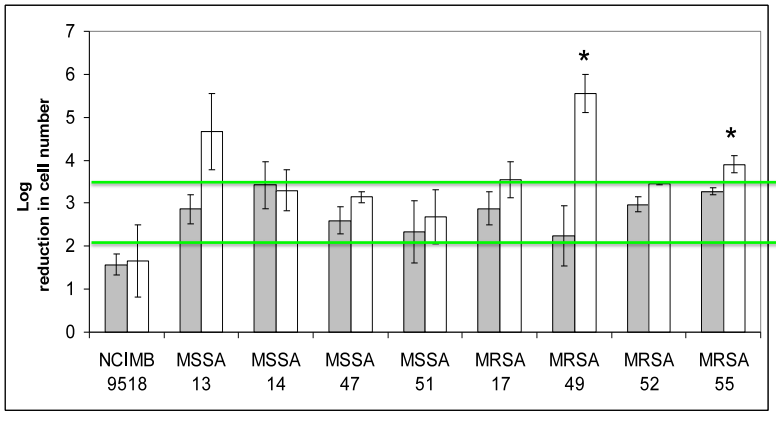
DO ANTIMICROBIAL WIPES WORK?

Williams *et al. Infect Control Hosp Epidemiol* 2009;30:570-3

KILLING

The bactericidal effect of 10 s exposures of *S. aureus* to a disinfectant wipe. Inocula were prepared to simulate dirty (grey bars) and clean (white bars) conditions



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DO ANTIMICROBIAL WIPES WORK?

Panousi *et al. Lett Appl Microbiol* 2009; *48:648-51*

Comparison of efficacy between an alcohol impregnated wipe and a non-impregnated sprayed with ethanol 70% v/v wipe.

	Impregnated wipe			Non-impregnated wipe sprayed with ethanol 70% v/v		
	Spores of *B. subtilis*	*Staph. epidermidis*	MRSA	Spores of *B. subtilis*	*Staph. epidermidis*	MRSA
Efficacy to remove bioburden from surfaces						
Log_{10} ± SD cfu/spores inoculated	1.92 ± 0.01	1.96 ± 0.01	1.89 ± 0.01	2.17 ± 0.00	2.04 ± 0.00	1.90 ± 0.01
Log_{10} ± SD cfu/spores remaining on the surface following wipping	0.00 ± 0.00*	1.77 ± 0.03	0.53 ± 0.12	2.02 ± 0.02	1.89 ± 0.01	1.71 ± 0.03
Efficacy of wipes to kill inoculum						
Log_{10} ± SD reduction in viable cell	1.05 ± 0.01	0.78 ± 0.10	0.90 ± 0.0	0.68 ± 0.03	0.55 ± 0.04	0.78 ± 0.0
Ability of wipes to transfer bioburden						
Number of consecutive transfer showing growth	0	2	0	4	3	4

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DO ANTIMICROBIAL WIPES WORK?

Panousi *et al. Lett Appl Microbiol* 2009; *48:648-51*

Comparison of efficacy between an alcohol impregnated wipe and a non-impregnated sprayed with ethanol 70% v/v wipe.

	Impregnated wipe			Non-impregnated wipe sprayed with ethanol 70% v/v		
	Spores of *B. subtilis*	*Staph. epidermidis*	MRSA	Spores of *B. subtilis*	*Staph. epidermidis*	MRSA
Efficacy to remove bioburden from surfaces						
Log_{10} ± SD cfu/spores inoculated	1.92 ± 0.01	1.96 ± 0.01	1.89 ± 0.01	2.17 ± 0.00	2.04 ± 0.00	1.90 ± 0.01
Log_{10} ± SD cfu/spores remaining on the surface following wipping	0.00 ± 0.00*	1.77 ± 0.03	0.53 ± 0.12	2.02 ± 0.02	1.89 ± 0.01	1.71 ± 0.03
Efficacy of wipes to kill inoculum						
Log_{10} ± SD reduction in viable cell	1.05 ± 0.01	0.78 ± 0.10	0.90 ± 0.0	0.68 ± 0.03	0.55 ± 0.04	0.78 ± 0.0
Ability of wipes to transfer bioburden						
Number of consecutive transfer showing growth	0	2	0	4	3	4

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DO ANTIMICROBIAL WIPES WORK?

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REMOVAL

SPORICIDAL CLAIM – efficacy testing against *C. difficile* NCTC12727

Siani *et al. AJIC* 2011; 39(3):212-8.

Wipes	Bacterial Removal (log_{10} cfu/disk ± SD) 500 g surface pressure	Bacterial transfer following 10 s wiping time at 500 g surface pressure
Negative control	1.13 (± 0.36)	5 consecutive transfers. TNTC
Hypochlorite soaked wipe	2.02 (± 0.21)	5 consecutive transfers. TNTC
Clinell® sporicidal wipe	4.09 (± 0.79)	No spore transferred
TriGene Advance	0.22 (± 0.07)	**5 consecutive transfers. From 0 to TNTC**
AzoMaxActive™	1.30 (± 0.33)	**5 consecutive transfers. From 0 to TNTC**
Sani-Cloth® Rapid	0.57 (± 0.07)	**5 consecutive transfers. From 1 to TNTC**
Activ8™	+0.08 (± 0.08)	5 consecutive transfers. TNTC
SuperNova®	1.14 (± 0.65)	5 consecutive transfers. From 83 to TNTC
Tuffie	0.67 (± 0.11)	5 consecutive transfers of ≤43 bacteria
Enduro Patient wipes	0.88 (± 0.13)	5 consecutive transfers. From 2 to TNTC
NewGenn	0.84 (± 0.66)	5 consecutive transfers. From 40 to TNTC

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DO ANTIMICROBIAL WIPES WORK?

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KILLING

SPORICIDAL CLAIM – efficacy testing against *C. difficile* NCTC12727

Siani *et al. AJIC* 2011; 39(3):212-8.

Wipes	Claim on label	Sporicidal effect (log_{10} reduction ±SD)	
		10 s contact time	5 min contact time
Clinell® sporicidal wipe	Sporicidal	0.11 (± 0.15)	1.54 (± 0.84)
TriGene Advance	Sporicidal	0.04 (± 0.05)	+0.84 (± 0.03)
AzoMaxActive™	Bactericidal claim and claim against *Clostridium difficile* on label	1.41 (± 0.14)	+0.92 (± 0.15)
Sani-Cloth® Rapid	Sporicidal	1.77 (± 0.27)	0.01 (± 0.44)
Activ8™	Sporicidal	0.99 (± 0.14)	+0.70 (± 0.15)
SuperNova®	Sporicidal	1.96 (± 0.09)	+0.66 (± 0.13)
Tuffie	Sporicidal	0.37 (± 0.23)	+0.50 (± 0.19)
Enduro Patient wipes	Sporicidal	0.41 (± 0.10)	+0.66 (± 0.10)
NewGenn	No sporicidal claim on label	0.31 (± 0.15)	+0.82 (± 0.14)
Hypochlorite soaked wipe	5000 ppm	+0.14 (± 0.49)	5.39 (± 0.00)

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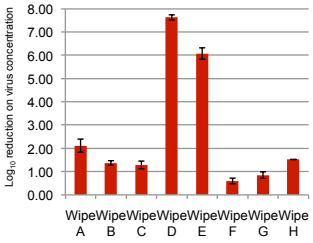
DO ANTIMICROBIAL WIPES WORK?

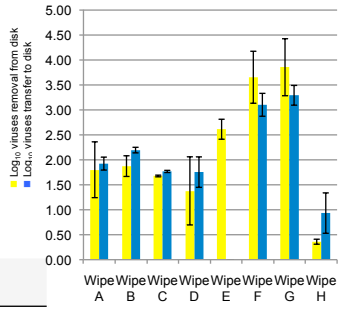
EFFICACY OF ANTIMICROBIAL WIPES AGAINST VIRUSES

Remove, transfer and kill MS2 phage, a surrogate virus for small non-enveloped mammalian viruses.

Virucidal activity of expressed wipe solutions (n=3)



Virus removal from disks and virus transfer from wipes to disks. (n=3)



	Mean removal	Range
'Universal' wipes	1.68 $\log_{10}$	1.37–1.87 $\log_{10}$
Sporicidal wipes	3.13 $\log_{10}$	2.61- 3.65 $\log_{10}$
Detergent wipes	2.11 $\log_{10}$	0.36- 3.85 $\log_{10}$

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DO DETERGENT WIPES WORK?

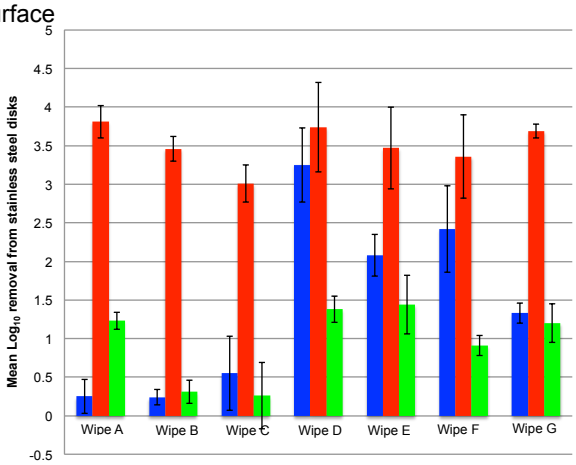
REMOVAL

EFFICACY OF DETERGENT WIPES

Bacterial/spore removal from surface

- *S. aureus*
- *A. baumannii*
- *C. difficile*

Wesgate *et al. AJIC; in press*



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DO DETERGENT WIPES WORK?

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TRANSFER

EFFICACY OF DETERGENT WIPES

Wesgate *et al. AJIC; in press*

CFU and % transfer in *S. aureus, A. baumannii* and *C. difficile* onto three consecutive surfaces.

Wipes	CFU/spores on wipes*	Transfer 1st surface	Transfer 2nd surface	Transfer 3rd surface	Total % transferred
		% microbial/spore transfer			
S. aureus					
A	66890	66.43	82.28	64.74	213.45
B	3633282	11.01	9.75	13.14	33.90
C	5078282	8.58	66.05	44.83	119.46
D	4941786	0.04	0.03	0.04	0.11
E	14537759	0.43	0.39	0.37	1.20
F	13388894	0.09	0.07	0.21	0.37
G	16705056	0.00	0.00	0.00	0.00
A. baumannii					
A	13388894	0.02	0.01	0.01	0.04
B	1505426	0.02	0.01	0.02	0.05
C	3442779	8.00	0.03	0.02	8.05
D	1505426	0.01	0.01	0.01	0.03
E	507976	0.03	0.02	0.03	0.08
F	507804	0.02	0.02	0.02	0.06
G	777048	0.00	0.00	0.00	0.00
C. difficile					
A	92684	2.88	13.10	11.68	27.66
B	24111	2.89	7.18	2.69	12.76
C	29907	114.95	71.78	36.52	223.25
D	25275	8.16	20.88	1.76	30.80
E	5928	5.34	3.09	2.53	10.96
F	5360	16.61	20.42	31.10	68.13
G	9070	5.33	6.43	1.29	13.05

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DO ANTIMICROBIAL WIPES WORK?

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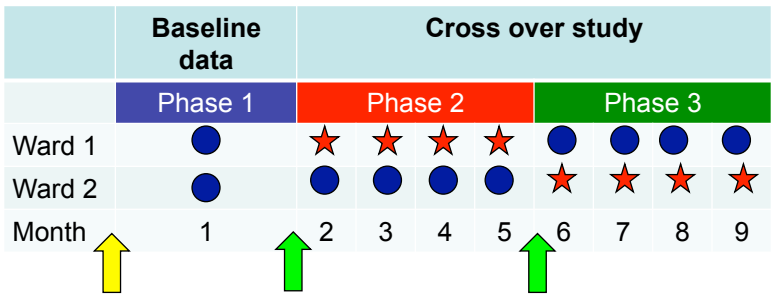
➢ TESTING WIPES EFFICACY: FIELD TRIAL

- Cross-over study in two gastro/surgery wards (1 and 2) with similar patient mix, design and layout (number of bedded-bay and bedded-side room)
- Cleaned using the current wipe regimen (detergent and chlorine) ● or a sporicidal wipe ★ for a period of 9 months.



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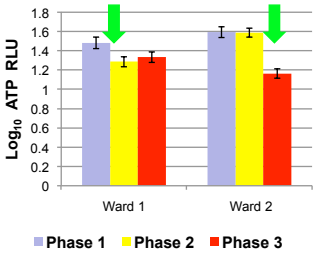
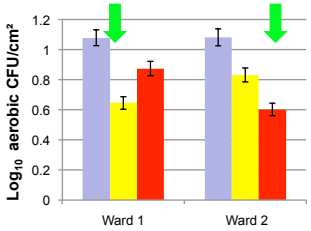
➢ TESTING WIPES EFFICACY: FIELD TRIAL

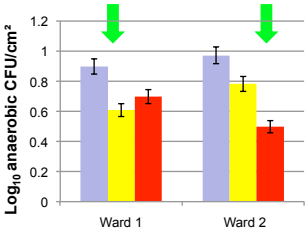
LRU measurement – bioburden on surfaces



Total aerobic counts



Total anaerobic count



Siani *et al.* unpublished data.

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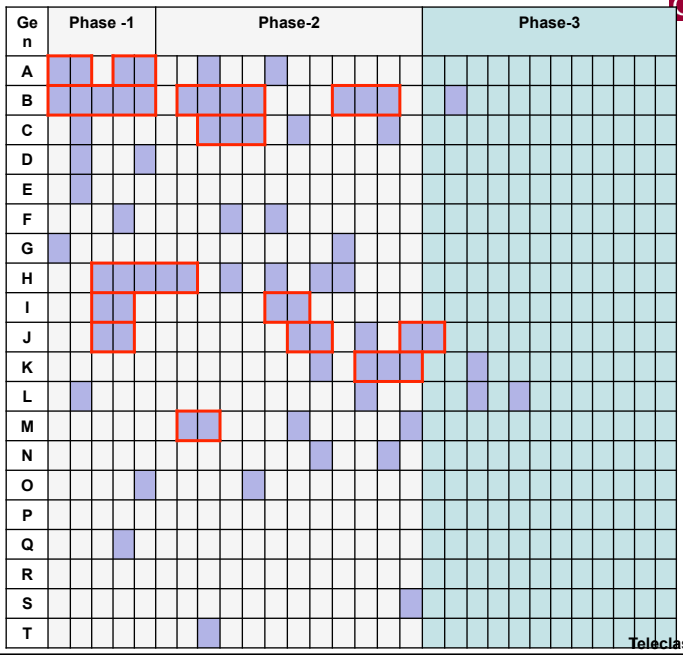
Staphylococci
Ward-2



Siani *et al.* unpublished data.

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Education & Training

EDUCATION AND TRAINING

- **Integral to infection control and prevention**

NHS personnel (medical and non-medical staff) and NHS users (patients and visitors).

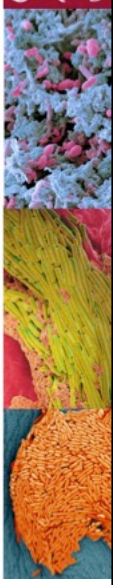
- **Evidence that they can contribute to reductions in HCAIs.**

Siani & Maillard. *Eur J Clin Microbiol Infect Dis* 2015: DOI: 10.1007/s10096-014-2205-9.

- **Disparity in training**

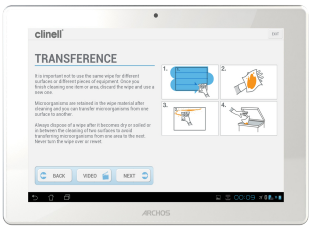
Nurses and healthcare assistants were provided with induction training on infection control in 90% of NHS Trusts, whilst only 16% of senior doctors received training.

National Audit Office, *The management and control of hospital acquired infection in acute NHS trusts in England.*, 2009, The Stationary Office: London



EDUCATION AND TRAINING

From wipe manufacturers – Training tools & Audit



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A way forward

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A WAY FORWARD

Auditing product efficacy and usage – manufacturers' responsibility

- The choice of disinfectant will depend on its intended use, thus the manufacturer's instructions should be followed to ensure correct application Maillard & McDonald. *In Pract* 2012;34: 292-9.
- Procurement – include auditing as part of product package

Education of end users

- Joint manufacturers and NHS provider responsibilities
- Procurement - include product training, educational material (poster etc.)

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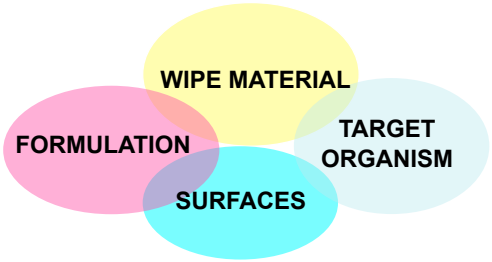
A WAY FORWARD

BETTER UNDERSTANDING



Key criteria

-Mechanical effect

-Formulation: correct balance of surfactants

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A WAY FORWARD

BIOCIDES ARE IMPORTANT!

PREVENTION, PREVENTION PREVENTION

COMPLIANCE (only 30% surface disinfected)

ANTIMICROBIAL WIPES

Removal of bioburden from surfaces

Added value – vegetative bacteria –
kill within the contact time (10 sec)
- spores - ? – wipes safe to dispose of.

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A WAY FORWARD

BIOCIDES ARE IMPORTANT!

PREVENTION, PREVENTION PREVENTION

COMPLIANCE (only 30% surface disinfected)

BETTER PRODUCTS
Understanding formulation efficacy

APPROPRIATE EFFICACY TEST
Product development
Ensuring efficacy in real conditions

EDUCATION
Better understanding
Better usage
Better information

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THANK YOU

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May 5 *(Free WHO Teleclass - Europe)*
10 YEARS OF WHO CLEAN CARE IS SAFER CARE: WHY YOU SHOULD BE A PART OF THE SOCIAL PANDEMIC THAT IS SAVE LIVES: CLEAN YOUR HANDS
Prof. Didier Pittet, World Health Organization, Geneva

May 7 **VACCINATION OF HEALTHCARE PROVIDERS: A CRITICAL STEP TOWARD PATIENT SAFETY**
Dr. Helena Maltezou, Hellenic Center for Disease Control and Prevention, Greece

May 13 *(Free WHO Teleclass – Europe)*
UNDERSTANDING CONSUMER PERCEPTIONS OF HAI AND HAND HYGIENE THROUGH A GLOBAL SURVEY
Claire Kilpatrick, WHO, and Dr. Maryanne McGuckin, McGuckin Methods International

May 21 *(Free Teleclass)*
IS YOUR PHONE BUGGED? THE ROLE OF MOBILE TECHNOLOGY IN INFECTION CONTROL

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