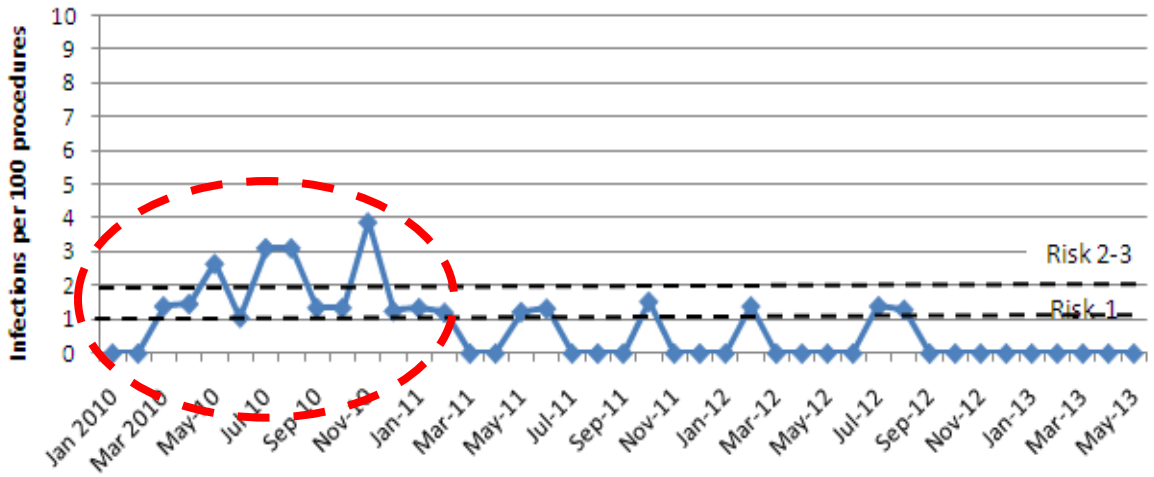
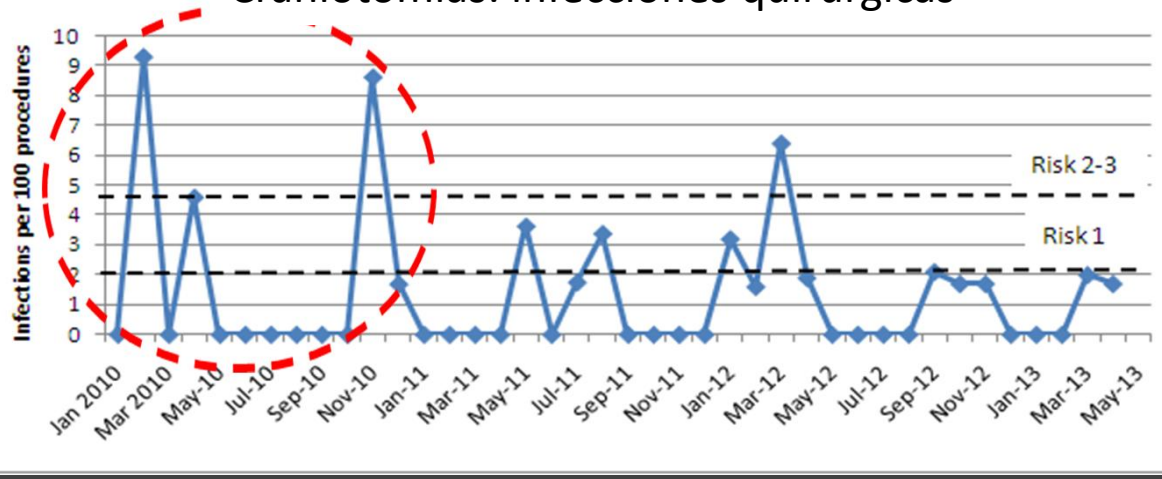
Patina Fecal en la Sala de Operaciones

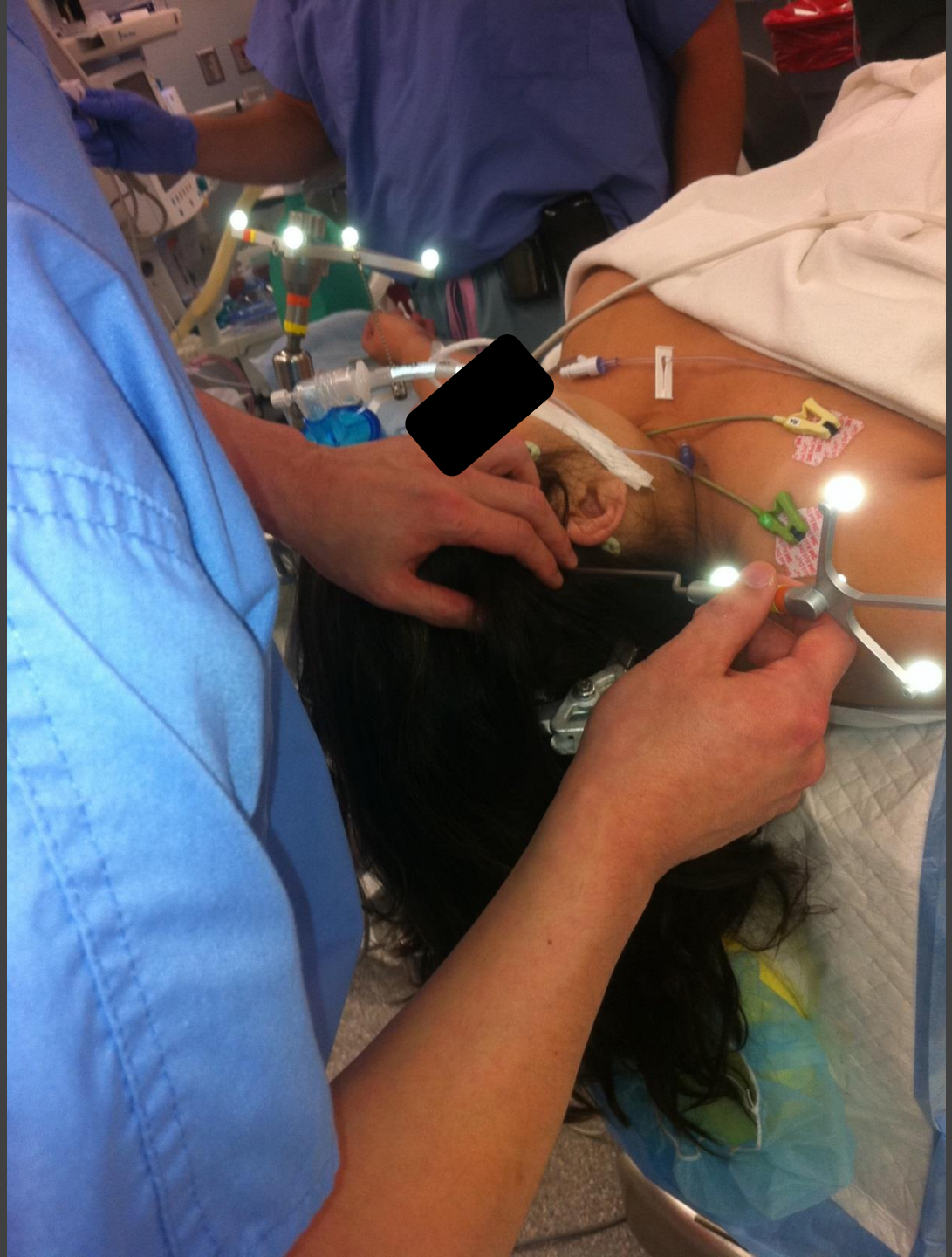
L. Silvia Munoz-Price, M.D., Ph.D.
Enterprise Epidemiologist – Froedtert Hospital
Associate Professor of Medicine
Medical College of Wisconsin

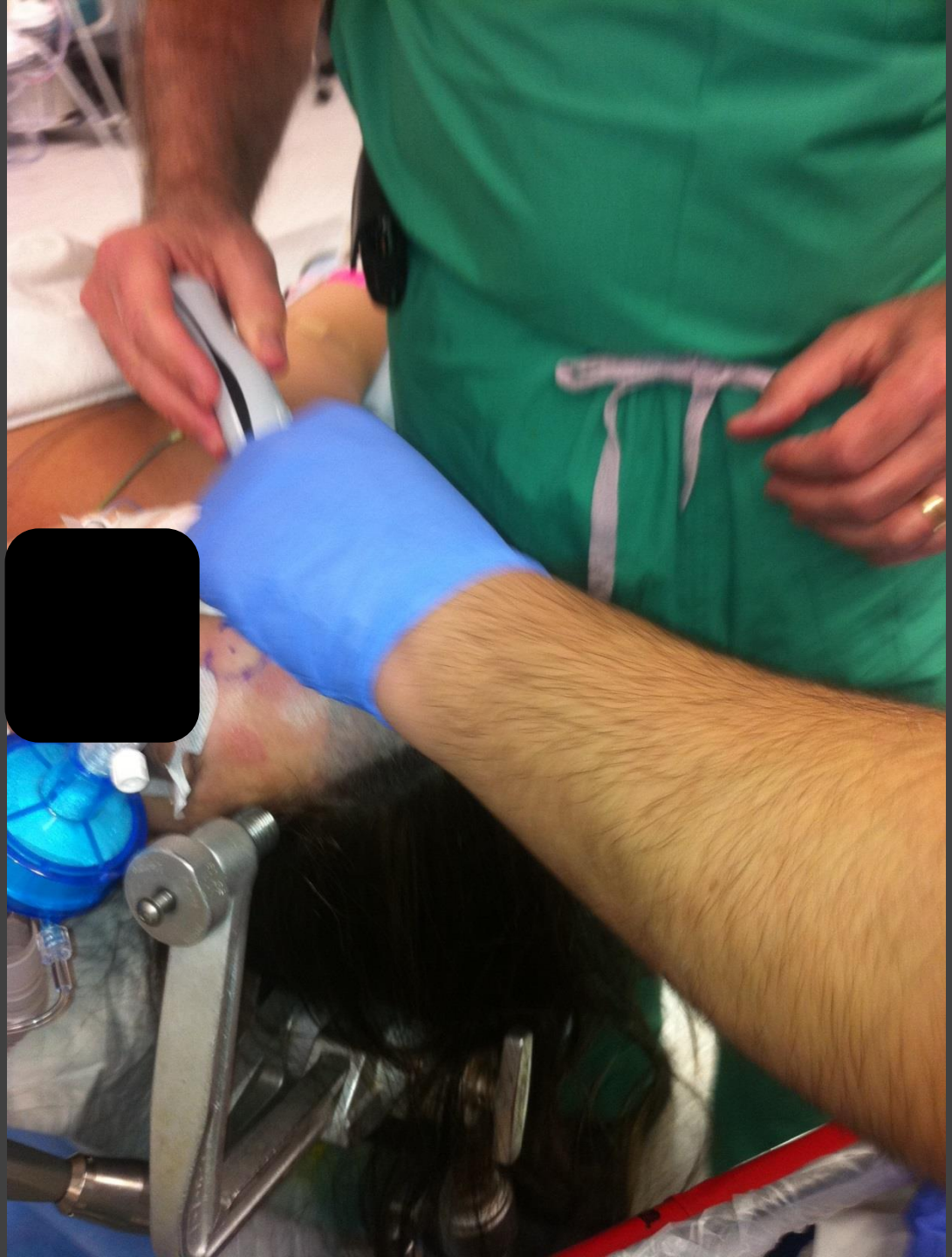
Laminectomías: infecciones quirúrgicas



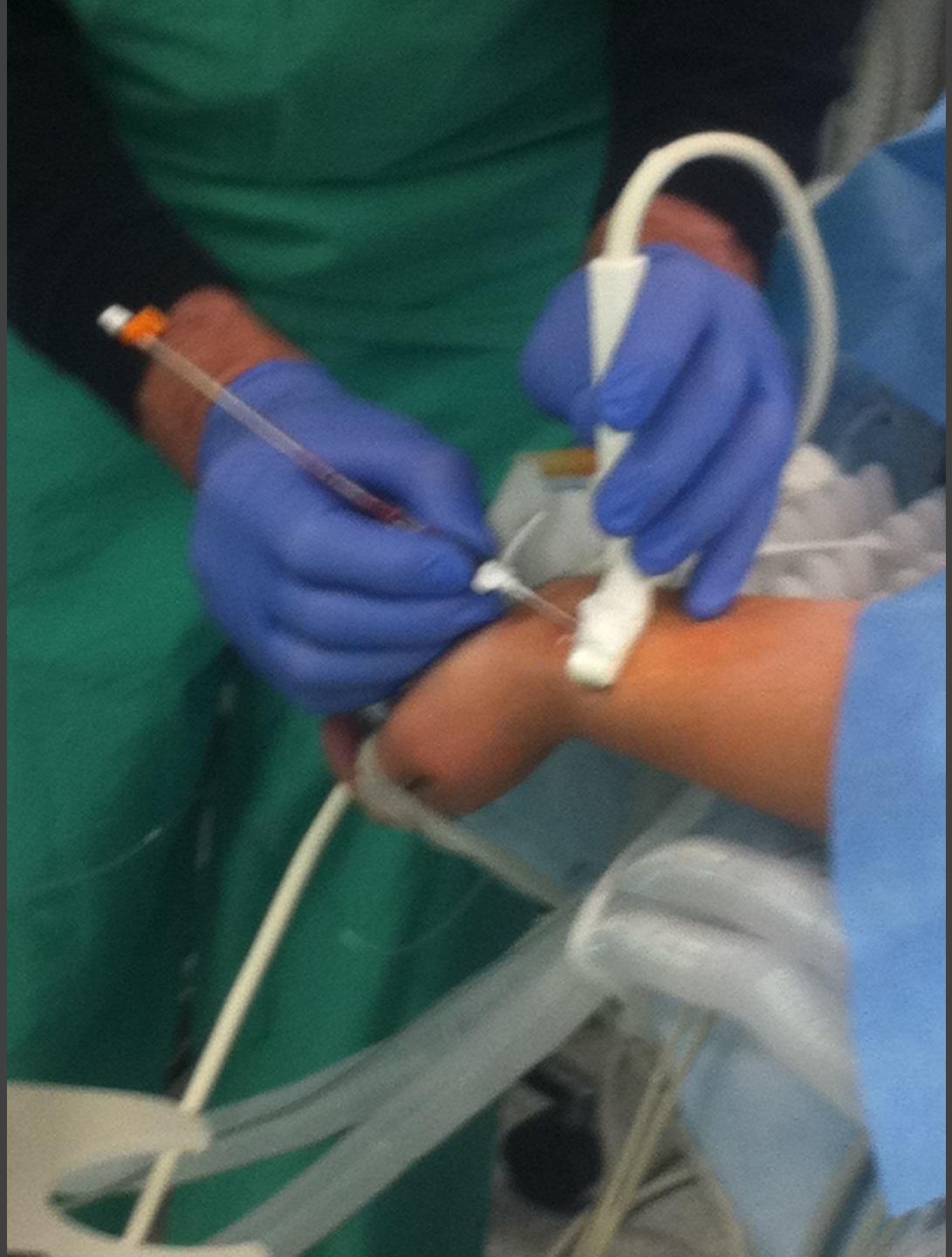
Craniotomías: infecciones quirúrgicas

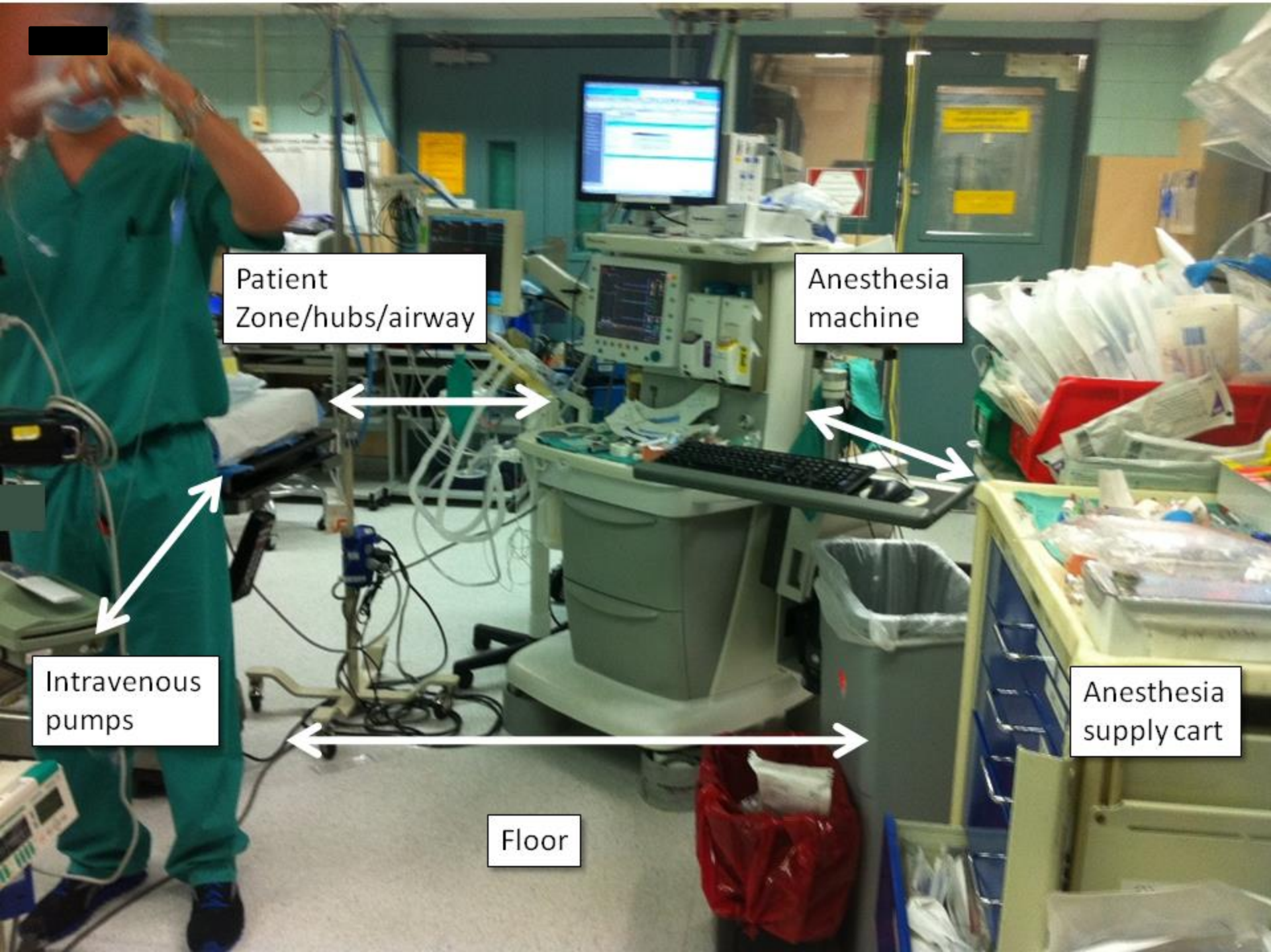







Baxter
INFU-SURE
Ethox




Patient Zone/hubs/airway
Anesthesia machine
Intravenous pumps
Anesthesia supply cart
Floor

American Journal of Infection Control 41 (2013) 922-4

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American Journal of Infection Control

journal homepage: www.ajicjournal.org

Brief report

Interacciones entre los anestesiólogo(a)s y su entorno mientras dan anestesia en la sala de operaciones

L. Silvia Munoz-Price MD [a,b,c,d,*], David A. Lubarsky MD, MBA [b], Kristopher L. Arheart EdD [c], Guillermo Prado PhD [c], Timothy Cleary PhD [e], Yovanit Fajardo-Aquino MD [d], Dennise DePascale MT [d], Scott Eber MD [b], Philip Carling MD [f], David J. Birnbach MD, MPH [b,c]

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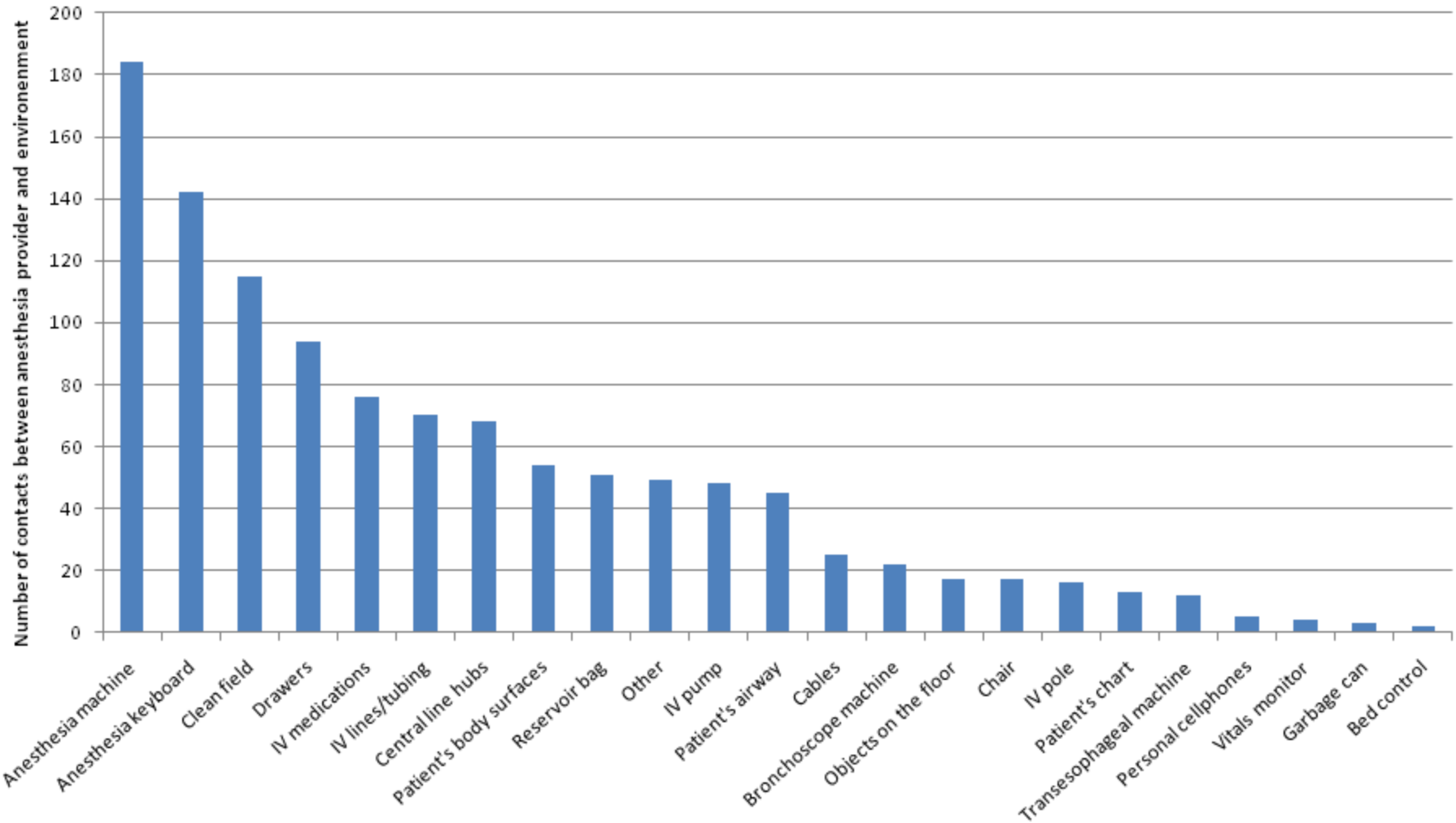
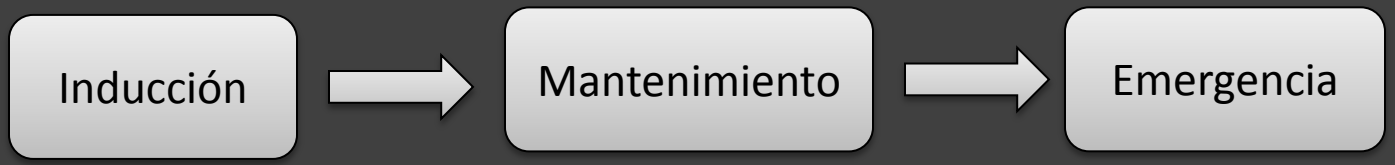
[f] *Department of Medicine, Boston University School of Medicine, Boston, MA*

- 8 horas de observación
- 7 procedimiento quirúrgicos
- 1132 objectos tocados y solamente 13 higiene de manos
- 2 intubaciones
- Llaves endovenosas: 66 manipulaciones y solo 10 llaves desinfectadas
- Cuatro lineas endovenosas: ninguna precedida por limpieza de manos


Number of contacts between anesthesia provider and environenment
200
180
160
140
120
100
80
60
40
20
0
Anesthesia machine
Anesthesia keyboard
Clean field
Drawers
IV medications
IV lines/tubing
Central line hubs
Patient's body surfaces
Reservoir bag
Other
IV pump
Patient's airway
Cables
Bronchoscope machine
Objects on the floor
Chair
IV pole
Patient's chart
Transesophageal machine
Personal cellphones
Vitals monitor
Garbage can
Bed control


Inducción
Mantenimiento
Emergencia

Inducción vs. Mantenimiento

INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY AUGUST 2014, VOL. 35, NO. 8

CONCISE COMMUNICATION

Frecuencia de interacciones y higiene de manos en anestesiólogo(a)s mientras dan anestesia: inducción vs. mantenimiento

L. Silvia Munoz-Price, MD, PhD;[1,2,3] Bobbie Riley, MD;[2]
Shawn Banks, MD;[2] Scott Eber, MD;[2]
Kristopher Arheart, EdD;[3,4]
David A. Lubarsky, MD, MBA;[2]
David J. Birnbach, MD, MPH[2,3]

18,000 surgical procedures a year. The observations were performed in the main general ORs ($n = 30$), where daily anesthesia care is provided by both anesthesiology house staff and certified nurse anesthetists under the direct supervision of attending anesthesiologists. During a surgical procedure, we observed only the "primary anesthesia provider," who was defined as the person who remained in the OR throughout the case. This study was reviewed and approved by the University of Miami's institutional review board, which waived informed consent.

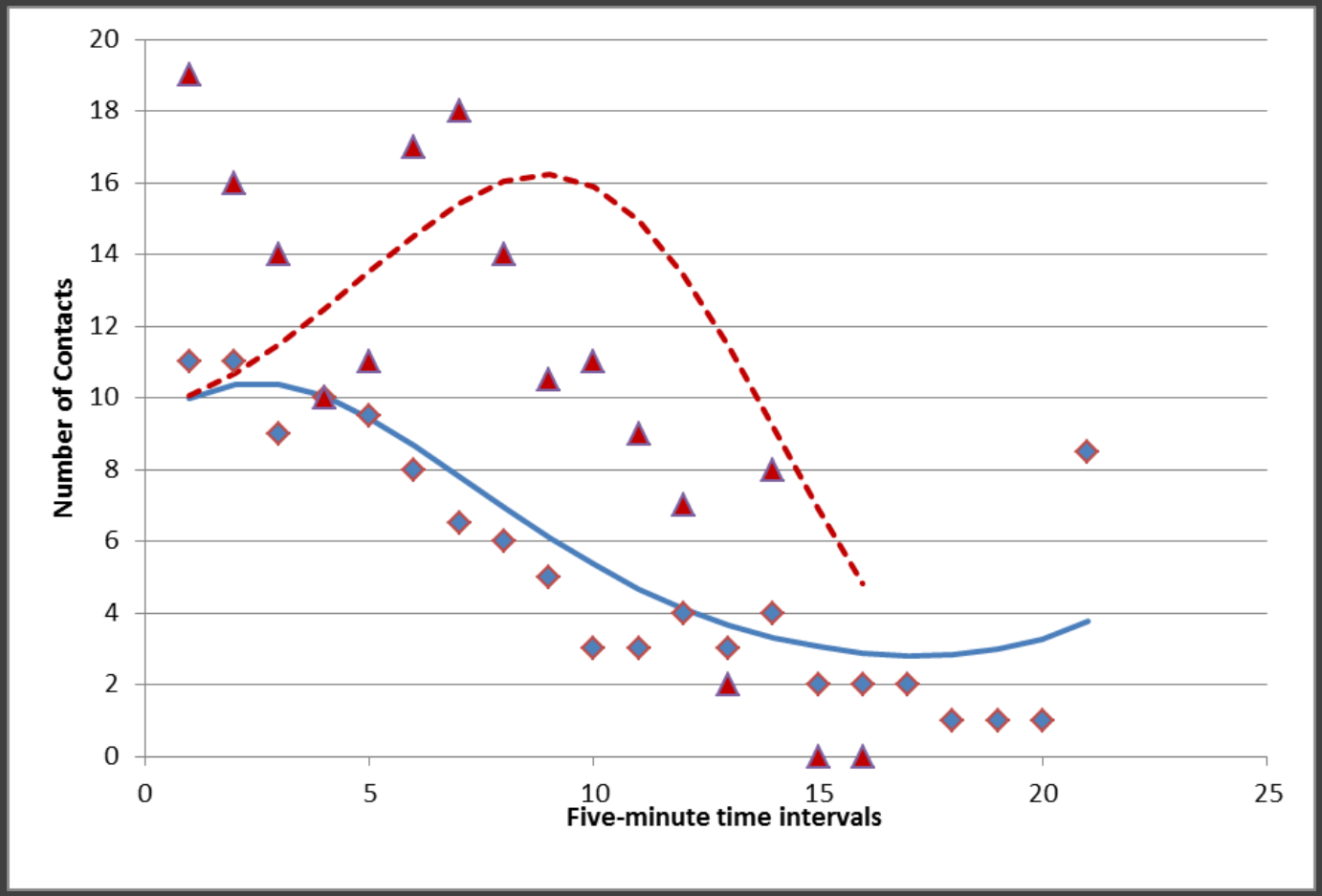
Using simple randomization, an OR was selected among those scheduled that day. If the primary anesthesia provider in the OR selected had been previously observed, randomization was repeated until a provider not previously observed

Inducción vs. Mantenimiento

- Resultados:
  - 30 anesthesiólogo(a)s
  - El 40% inicial del procedimiento quirúrgico (rango: 16%-100%)

Table 2. Least square means of environmental contacts and hand hygiene by anesthesia period

	Induction	Maintenance	T value	p
Environmental contacts (number per hour)	154.8 ± 7.7	60 ± 3.1	-31.5	<0.0001
Hand hygiene events (events per hour)	1.8 ± 0.27	1.19 ± 0.27	-2.4	0.0176



Predicted contacts per 5-minute intervals was obtained using Poisson regression and third-degree polynomials.
Number of contacts are depicted in 5-minute intervals. Onset for induction was entry to the operating room. Onset for maintenance was "anesthesia ready" time.
Observed number of contacts during induction (triangles). Predicted number of contacts during induction (dashed line).
Observed number of contacts during maintenance (rhomboids). Predicted number of contacts during maintenance (solid line).

Intervención

Estudio randomizado para la evaluación del efecto de un envase portable de alcohol para los anestesiólogos en la sala de operaciones

INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY JUNE 2014, VOL. 35, NO. 6

CONCISE COMMUNICATION

L. Silvia Munoz-Price, MD, PhD;[1,2,3,4] Zalak Patel, MD;[2] Shawn Banks, MD;[2] Kristopher Arheart, EdD;[3,5] Scott Eber, MD;[2] David A. Lubarsky, MD, MBA;[2] David J. Birnbach, MD, MPH[2,3]

Forty anesthesia providers were evaluated with and without hand sanitizer dispensers present on the anesthesia machine. Having a

the case. This project was approved by the Institutional Review Board.

Randomization and blinding. This study randomized subjects to either the intervention (using a hand sanitizer dispenser on the anesthesia machine in addition to the standard wall-mounted dispensers) or the control (presence of wall-mounted hand sanitizer dispensers only). Within 30 days, the same subjects were evaluated again in the opposite allocation. Before the
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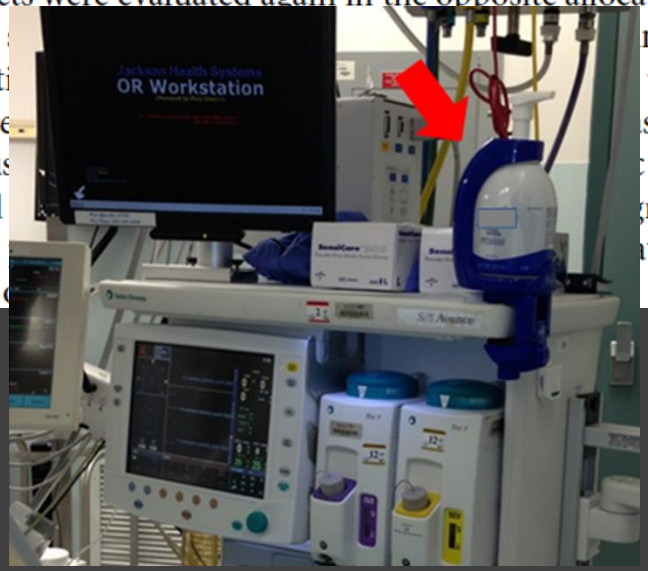

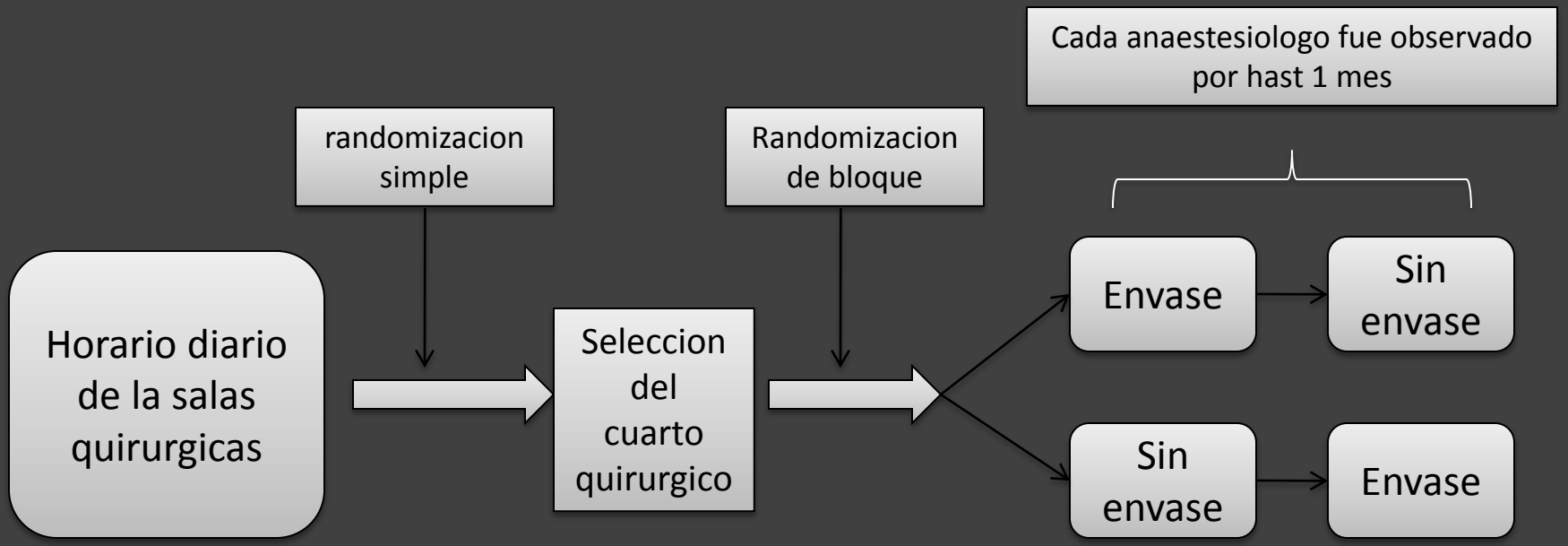
Cada anaestesiologo fue observado por hast 1 mes
randomizacion simple
Randomizacion de bloque
Horario diario de la salas quirurgicas
Seleccion del cuarto quirurgico
Envase
Sin envase
Sin envase
Envase

El envase con alcohol incremento la frecuencia de lavado de manos de 0.5 veces por hora a 0.8 veces por hora (p=0.01)

INFECTION CONTROL & HOSPITAL EPIDEMIOLOGY

RESEARCH BRIEF

Recordatorios visuales de lavado de manos en la zona de anestesiología

Hand hygiene decreases the incidence of healthcare–associated infections.[1] As a specialty, anesthesiology has made important strides in improving patient safety during the perioperative period, but hand hygiene practices of anesthesia providers in the operating room remain inadequate.[2,3] Among medical specialists, anesthesiologists may be among the worst performers in hand hygiene.[4] Loftus et al[5] recently demonstrated that bacterial transmission in the anesthesia work

placed on the anesthesia machine. With the goal of maintaining a similar task density, the surgical cases were limited to elective upper and lower extremity orthopedic surgeries with an American Society of Anesthesiologists' physical status score of 1–3.

Statistical Analysis

We used a generalized linear mixed model to analyze a 2×2 crossover design. We began with a Poisson model using total hand hygiene as the outcome with group (ie, reminder first vs reminder second), time (1 vs 2), and their interaction as fixed effects. The random term was the subject nested within group. A heterogeneous compound symmetric covariance matrix was

David Rodriguez-Aldrete, MD;[1]
Eellan Sivanesan, MD;[1]
Shawn Banks, MD;[1]
Ana Mavarez, MD;[1]
Kristopher Arheart, EdD;[2,3]
Scott Eber, MD;[1]
L. Silvia Munoz-Price, MD, PhD[4]

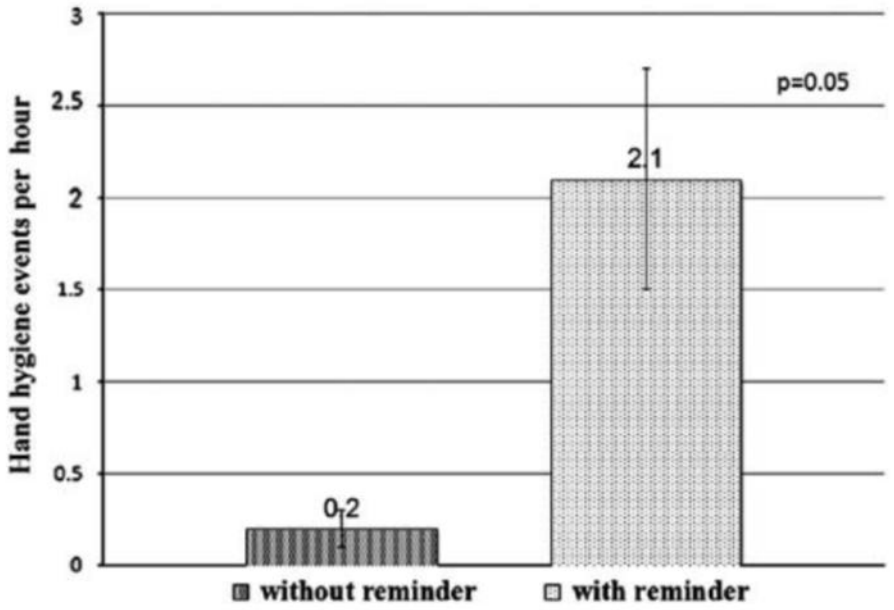

FIGURE 1. Hand hygiene events per hour performed by anesthesia residents in the intervention group, ie, no reminder followed by a simple, periodic, visual hand-hygiene reminder.

TABLE 1. Total Number of Hand Hygiene Events Performed by Anesthesia Residents With or Without a Visual Reminder Recorded During 10 Hours of Observation

	Observation 1 (1 hour)	Observation 2 (1 hour)	Total No. of Hand Hygiene Events
Group 1 (n = 10)	No Reminder	Reminder	
No. of hand hygiene events	2	21	23
Group 2 (n = 10)	Reminder	No Reminder	
No. of hand hygiene events	23	21	44

El uso de tecnología novedosa para el estudio de la transmición de patógenos en la sala de operaciones

David J. Birnbach, MD, MPH,*|| Lisa F. Rosen, MA,† Maureen Fitzpatrick, MSN, ARNP-BC,† Philip Carling, MD, MPH,‡ and L. Silvia Munoz-Price, MD§‖¶

Pathogenic organisms have been found in the intraoperative environment, potentially posing a risk of infection that could cause morbidity and mortality. In an effort to understand how a patient's bacteria can be spread throughout the operating room with the anesthesia provider as a vector, we conducted a study using recently developed experimental technology in a simulated operating room environment with a high-fidelity human patient simulator. (Anesth Analg 2014;XXX:00–00)

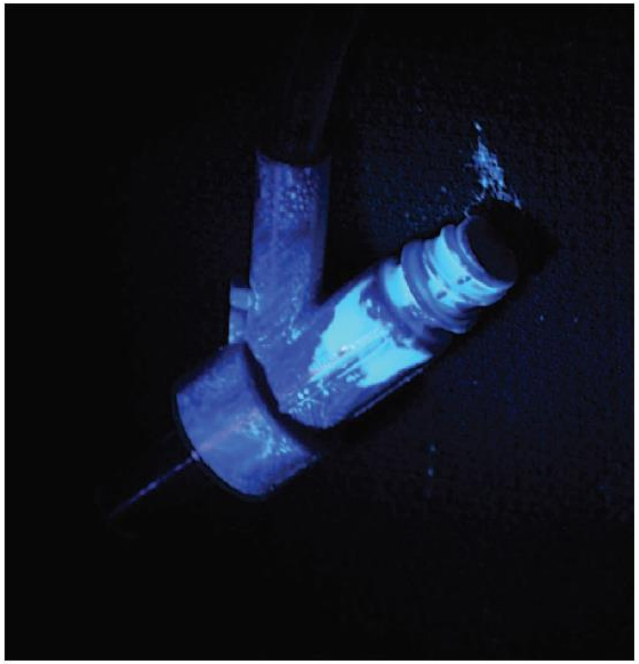

Figure 1. Contamination of IV hub.

Figure 2. Fluorescence on mannequin's face after scenario.

Figure 1. Sites of operating room contamination after simulation.

Doble guantes: un ensayo randomizado para la disminución de la contaminación bacteriana en la sala de operaciones

David J. Birnbach, MD, MPH,*† Lisa F. Rosen, MA,* Maureen Fitzpatrick, MSN, ARNP-BC,*
Philip Carling, MD, MPH,‡ Kristopher L. Arheart, EdD,† and L. Silvia Munoz-Price, MD, PhD*†

BACKGROUND: Oral flora, blood-borne pathogens, and bacterial contamination pose a direct

ure 2. Contamination of laryngoscope handle and towel after intubation and placement of laryngoscope on clean towel.

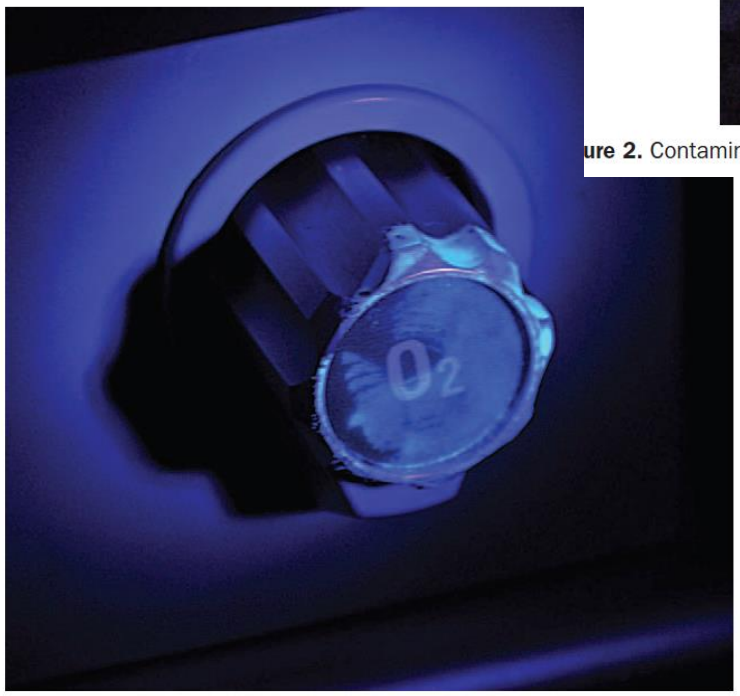

Figure 3. Fluorescence on oxygen flow control knob showing partial fingerprint.

Table 1. Presence of Ultraviolet Markers Based on the Use of Single Versus Double Gloves at the Time of Intubation

	Single glove, *n* = 11		Double gloves, *n* = 11		
Location	**UV positive**	**%**	**UV positive**	**%**	***P***
Towel on anesth mach	11	100	2	18.2	<0.001
Reservoir bag	9	81.8	1	9.1	0.002
Suction tubing	8	72.7	0	0	0.001
Oxygen valve	7	63.6	1	9.1	0.024
Stethoscope	6	54.6	0	0	0.012
IV hub	5	45.5	0	0	0.035
Volatile agent gauge	4	36.4	0	0	0.090
Keyboard	4	36.4	0	0	0.090
Box of gloves	3	27.3	0	0	0.214
OR door handle	3	27.3	0	0	0.214

P values < 0.01 are considered to be statistically significant.
UV = ultraviolet marker.

Public Comment Periods Open: Guideline for Hand Hygiene and Guideline for Energy Devices

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Public Comment Period: Guideline for Hand Hygiene

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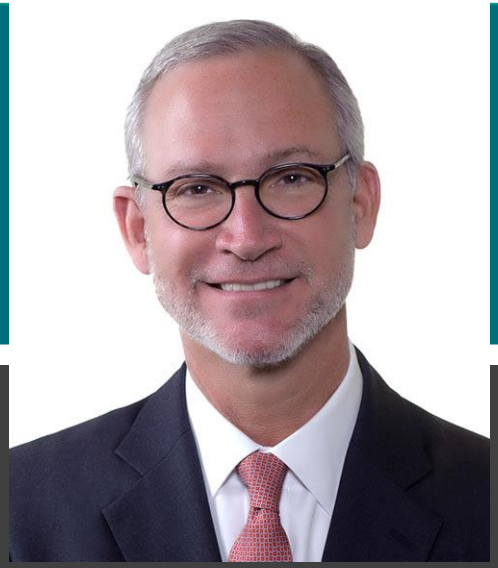
Public Comment Period, Guideline for Hand Hygiene



Una nueva modalidad para disminuir la transmisión de patógenos en la sala de operaciones: Cubrimiento del laringoscopio después de la intubación

David J. Birnbach, MD, MPH,* Lisa F. Rosen, MA,* Maureen Fitzpatrick, MSN, ARNP-BC,*
Philip Carling, MD,† Kristopher L. Arheart, EdD,‡ and L. Silvia Munoz-Price, MD, PhD§

Anesthesia & Analgesia 2015 Jul 23. [Epub ahead of print]

Table 2. Percents with 95% Clopper-Pearson Confidence Intervals for Contamination of Sites for Each Gloving Type

	Double gloves					
	No sheathing		Sheathing		Control	
Site	%	95% confidence interval	%	95% confidence interval	%	95% confidence interval
IV hub	80.0	51.9–95.7	0.0	0.0–21.8	93.3	68.1–99.8
Face	80.0	51.9–95.7	33.3	11.8–61.6	100.0	78.2–100.0
Chest	6.7	0.2–31.9	0.0	0.0–21.8	86.7	59.5–98.3
Ear	33.3	11.8–61.6	0.0	0.0–21.8	66.7	38.4–88.2
Neck	33.3	11.8–61.6	0.0	0.0–21.8	100.0	78.2–100.0
Left shoulder	6.7	0.2–31.9	0.0	0.0–21.8	73.3	44.9–92.2
Left arm	0.0	0.0–21.8	0.0	0.0–21.8	60.0	32.3–83.7
Head of bed	46.7	21.3–73.4	13.3	1.7–40.5	100.0	78.2–100.0
Ether	20.0	4.3–48.1	0.0	0.0–21.8	93.3	68.1–99.8
Anesthesia circuit	6.7	0.2–31.9	0.0	0.0–21.8	86.7	59.5–98.3
Bag	40.0	16.3–67.7	6.7	0.2–31.9	93.3	68.1–99.8
Towel	60.0	32.3–83.7	6.7	0.2–31.9	93.3	68.1–99.8
Syringes	93.3	68.1–99.8	0.0	0.0–21.8	93.3	68.1–99.8
Blade	20.0	4.3–48.1	26.7	7.8–55.1	53.3	26.6–78.7
Machine	0.0	0.0–21.8	0.0	0.0–21.8	60.0	32.3–83.7
Tubing	0.0	0.0–21.8	6.7	0.2–31.9	80.0	51.9–95.7
Cart	0.0	0.0–21.8	0.0	0.0–21.8	66.7	38.4–88.2
Box gloves	0.0	0.0–21.8	0.0	0.0–21.8	40.0	16.3–67.7
Monitor	0.0	0.0–21.8	0.0	0.0–21.8	66.7	38.4–88.2
IV bag	0.0	0.0–21.8	6.7	0.2–31.9	86.7	59.5–98.3
IV pole	0.0	0.0–21.8	0.0	0.0–21.8	60.0	32.3–83.7
Keyboard	6.7	0.2–31.9	0.0	0.0–21.8	73.3	44.9–92.2
Door	0.0	0.0–21.8	0.0	0.0–21.8	66.7	38.4–88.2
Gauge	6.7	0.2–31.9	0.0	0.0–21.8	80.0	51.9–95.7
Stethoscope	6.7	0.2–31.9	0.0	0.0–21.8	80.0	51.9–95.7

Comparisons of gloving types for IV Hub: overall $P < 0.001$; control versus double with no sheathing: $P = 1.000$; control versus double with sheathing: $P < 0.001$; double with no sheathing versus with sheathing: $P < 0.001$. P values for the pairwise comparisons are Bonferroni adjusted.

Anesthesia & Analgesia 2015 Jul 23. [Epub ahead of print]

Creen que las salas de operaciones son realmente limpiadas entre casos quirúrgicos?

Una técnica nueva para mejorar la desinfección del ambiente intra-operatorio

JULIE JEFFERSON, MPH, RN, CIC; **RITA WHELAN,** RN; **BRIAN DICK,** MPH, MT (ASCP), CIC; **PHILIP CARLING,** MD

358 | AORN Journal • March 2011 Vol 93 No 3

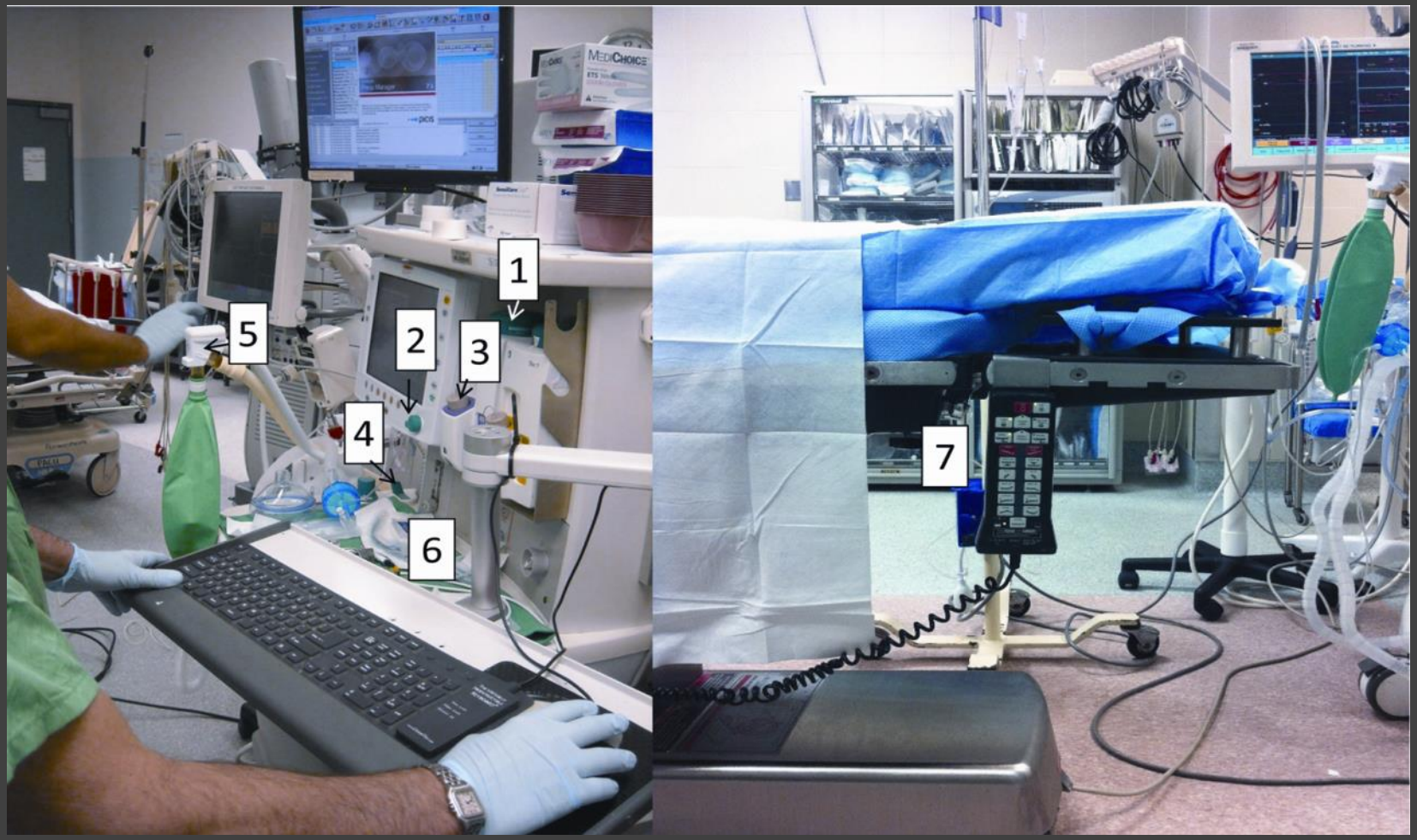
Figure 1. OR light with ultraviolet-light illuminated target.

TABLE 1. Basis for Choosing OR Surfaces to Evaluate

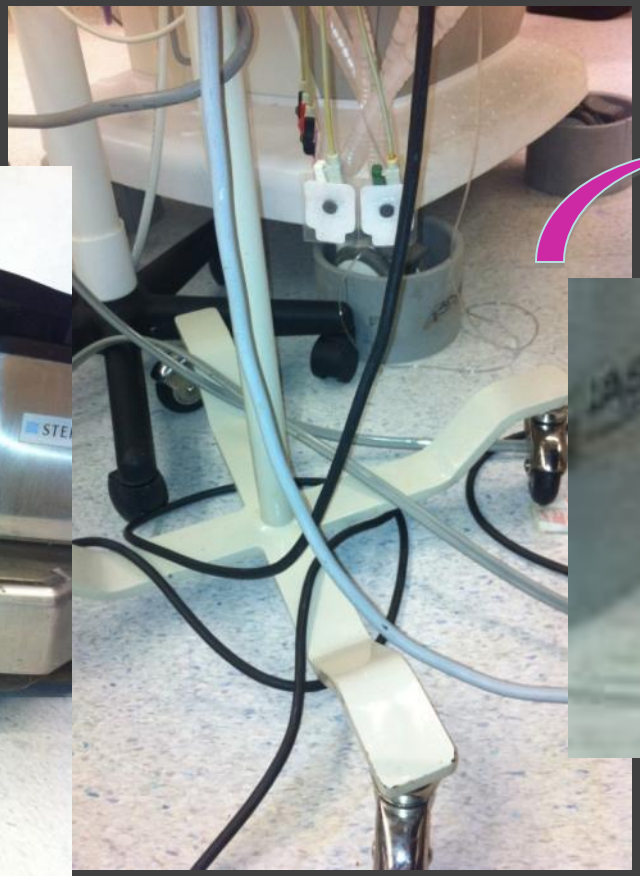
Recommended objects	Chosen study objects
Overhead lights[1-3]	Main and second over-table lights
Doors (ie, push plates)[1-3]	Main and second OR doors
Furniture, room equipment, horizontal equipment[1-3]	Bovie control panel and radiology equipment
Anesthesia equipment surfaces[4]	Anesthesia machine and anesthesia cart
Light switches[4]	Main OR light switch
Handles on cabinets[1-3]	Storage cabinet handle
Other surfaces that have been touched during patient care[4]	All of the above

TABLE 2. Thoroughness of Cleaning

Object	Mean proportion cleaned (%)	Lowest proportion cleaned (%)	Highest proportion cleaned (%)	Standard deviation	95% CI
Main door	34.3	0	72	30.5	2.3 to 66
Main field light	33	0	65	23	9 to 56
Telephone	29.8	13	50	16	13 to 46
Anesthesia machine	28	10	50	17	7.5 to 49
Bovie control	22	0	67	26	0 to 54
Second OR door	21.7	5	65	22	1 to 44
Anesthesia cart	20.6	0	73	31	0 to 59
Main light switch	14.5	3	20	7	7.3 to 22
Second field light	14.2	0	27	12	1 to 34
Storage cabinet handle	5.6	0	17	8	1 to 15
Mean	**24.9**	**9**	**50**	**15**	**9.3 to 40**



Infect Control Hosp Epidemiol. 2012 Sep;33(9):897-904.

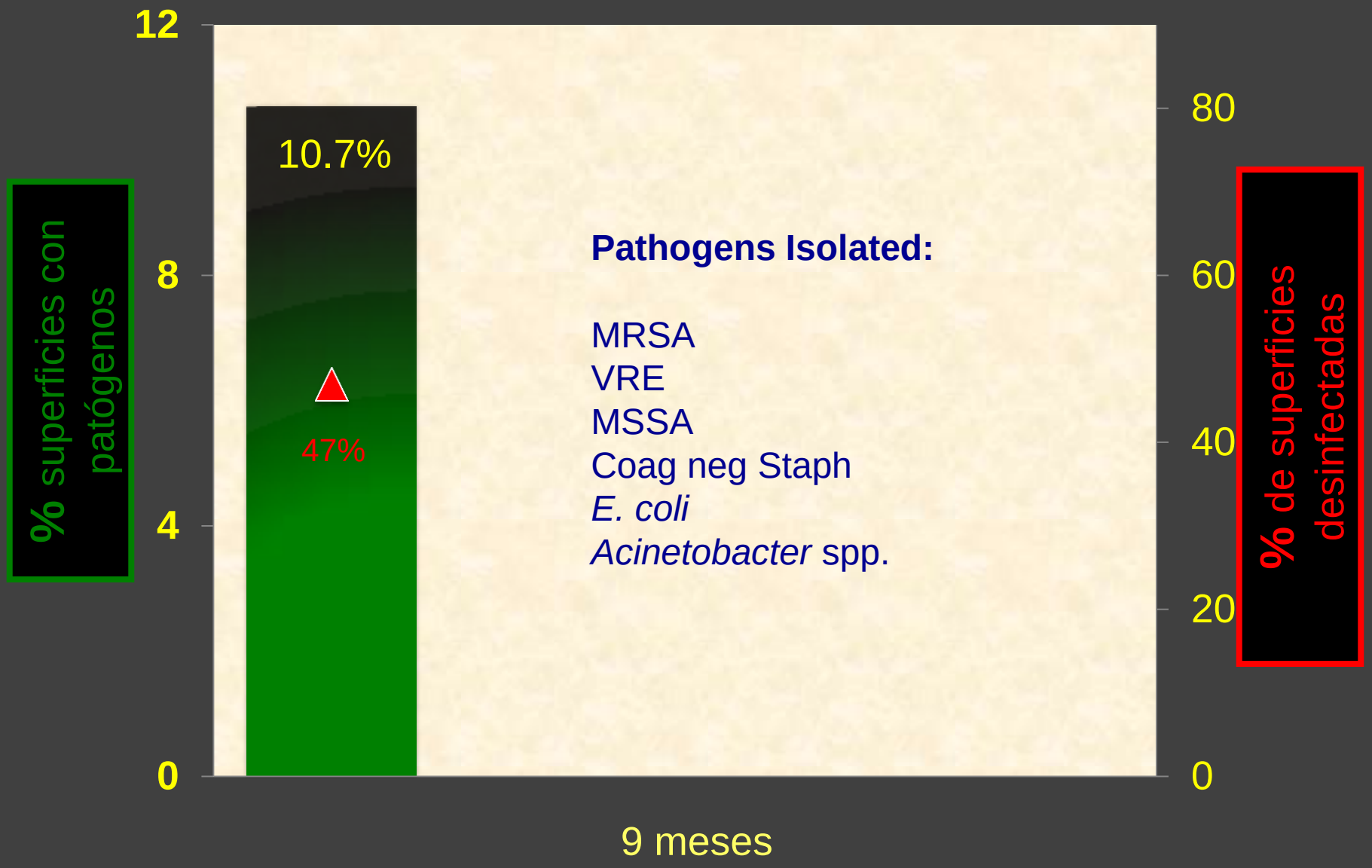


Por que los pisos son importantes?

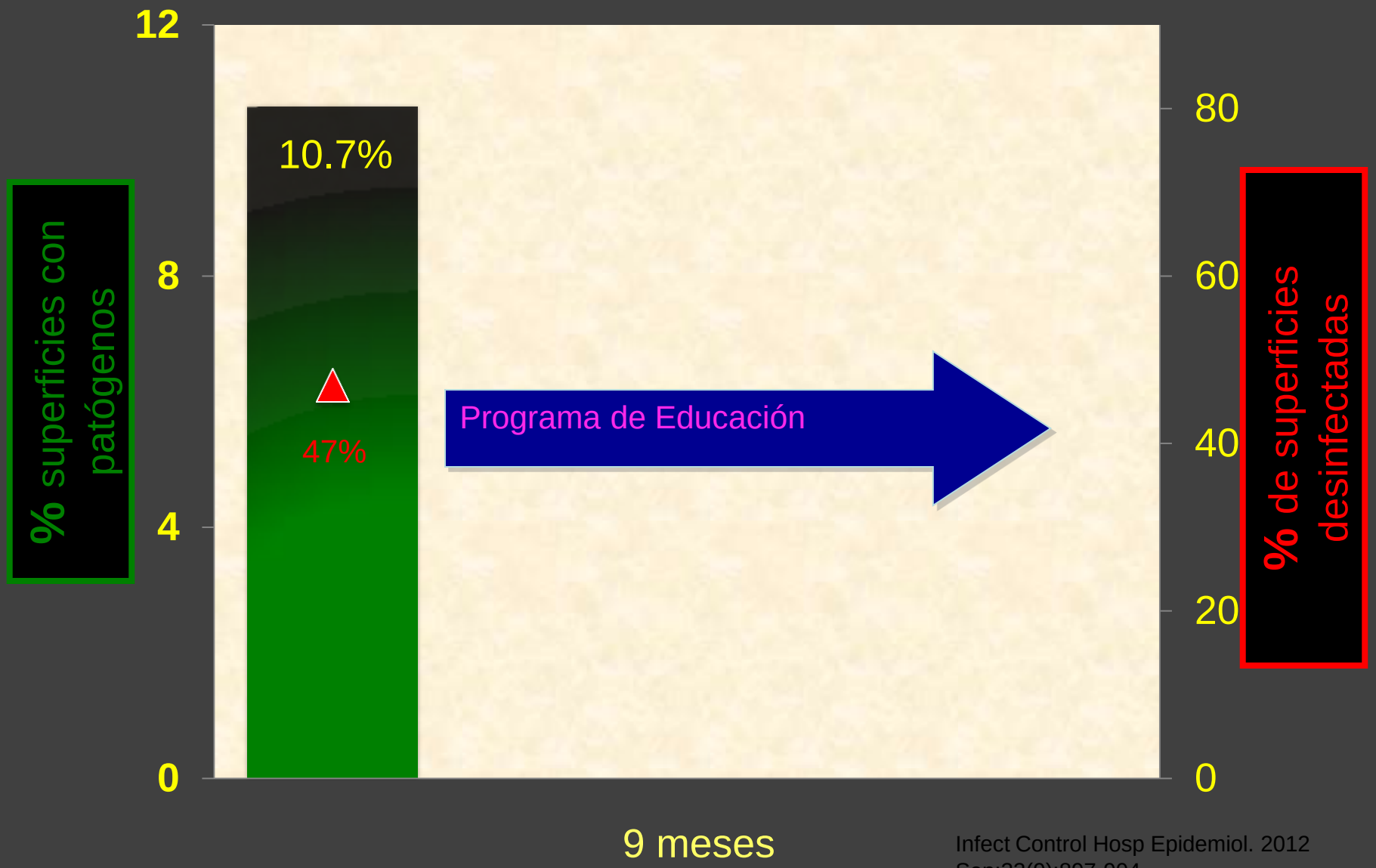
Mejora de la desinfección de la sala quirúrgica con DAZO

Infect Control Hosp Epidemiol. 2012 Sep;33(9):897-904.

Mejora de la desinfección de la sala quirúrgica con DAZO

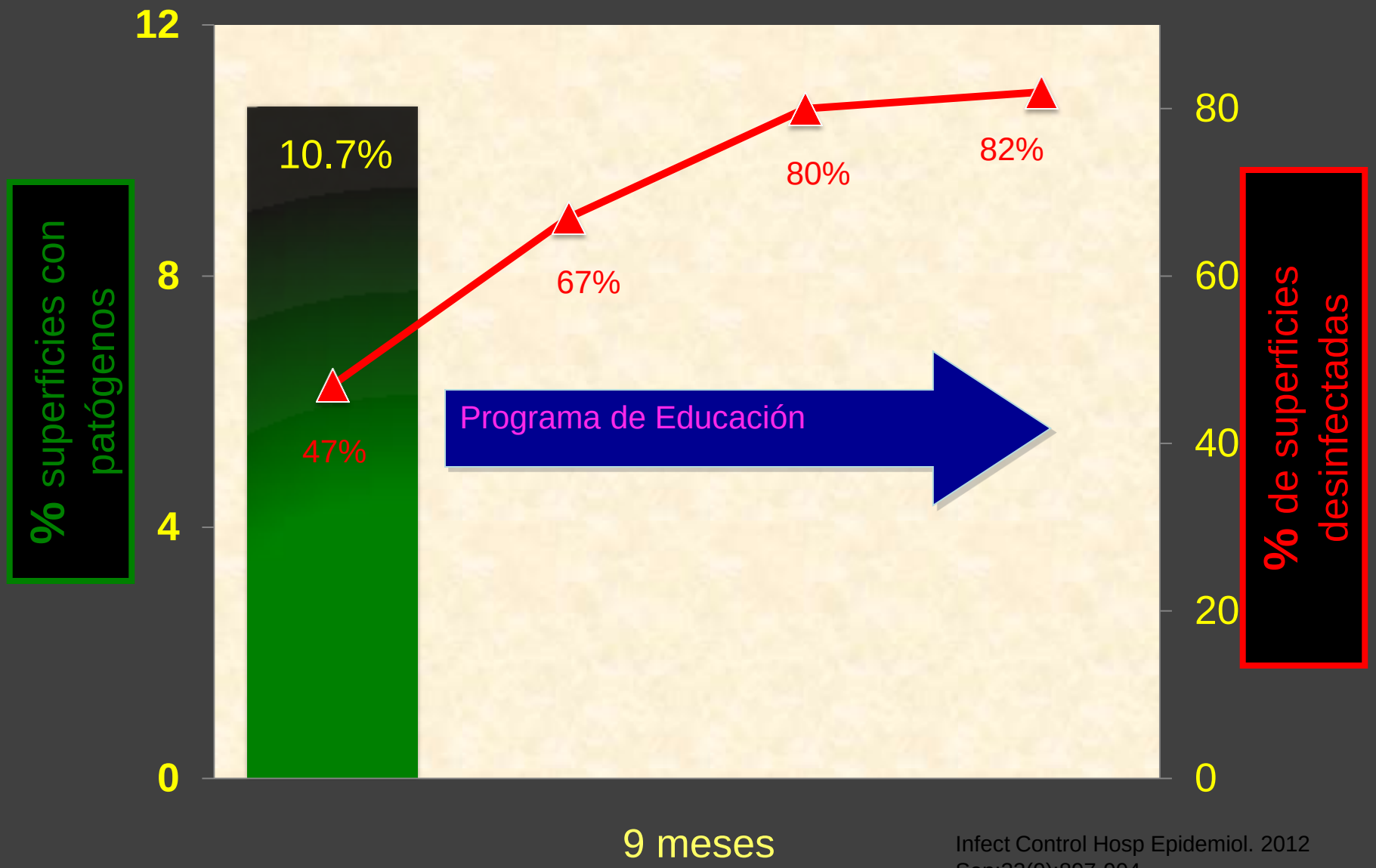


Mejora de la desinfección de la sala quirúrgica con DAZO



Infect Control Hosp Epidemiol. 2012 Sep;33(9):897-904.

Mejora de la desinfección de la sala quirúrgica con DAZO



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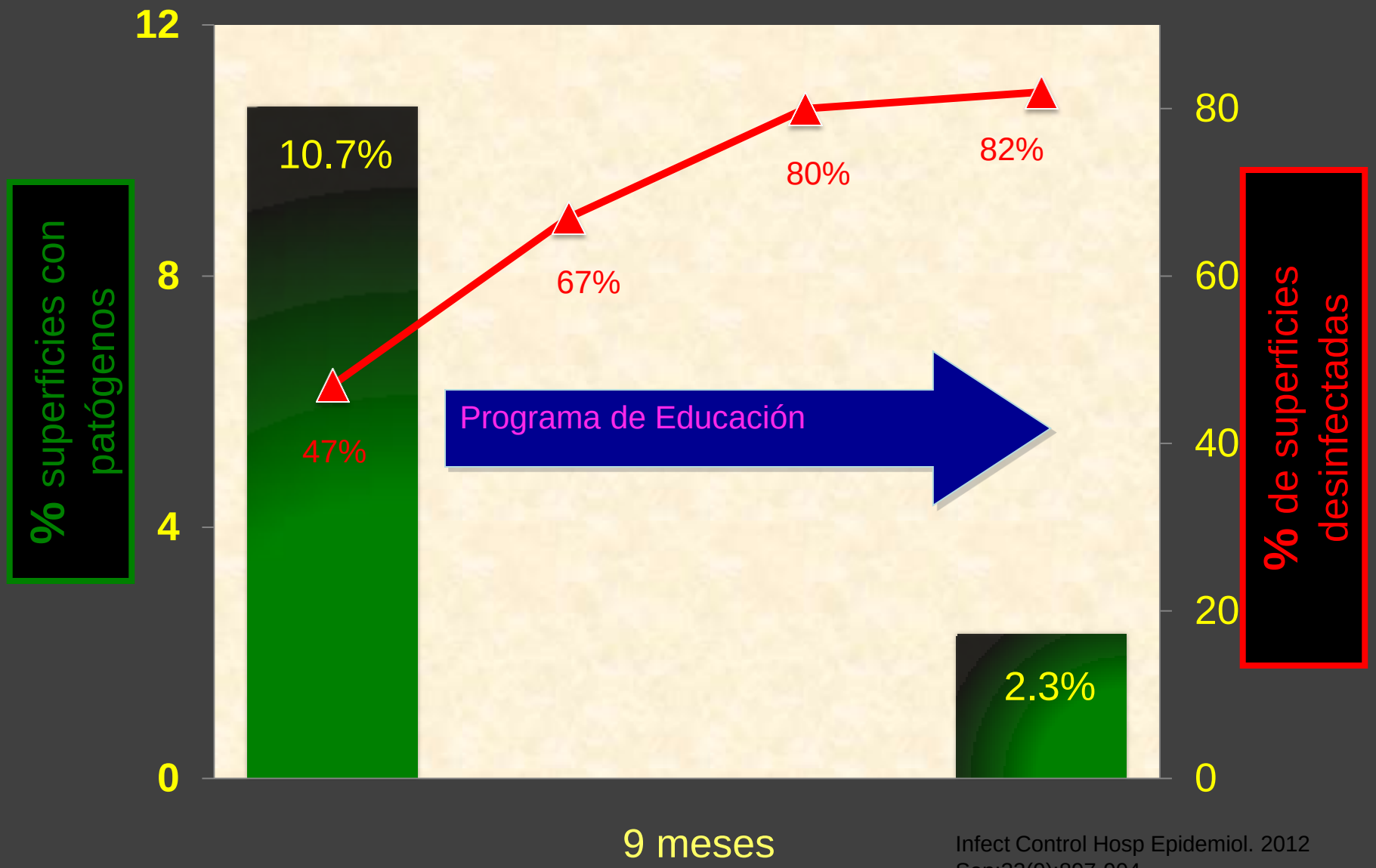
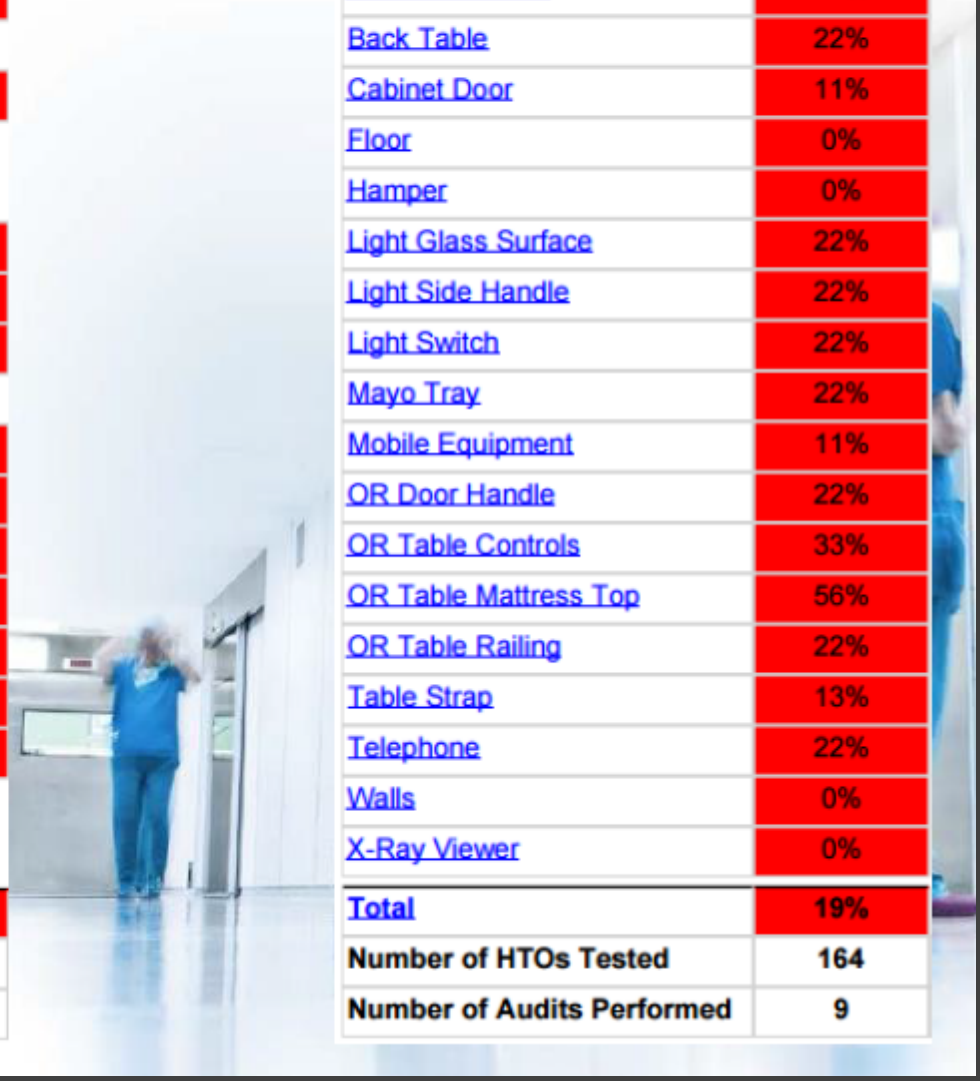
Mejora de la desinfección de la sala quirúrgica con DAZO



Infect Control Hosp Epidemiol. 2012 Sep;33(9):897-904.

Limpieza entre casos

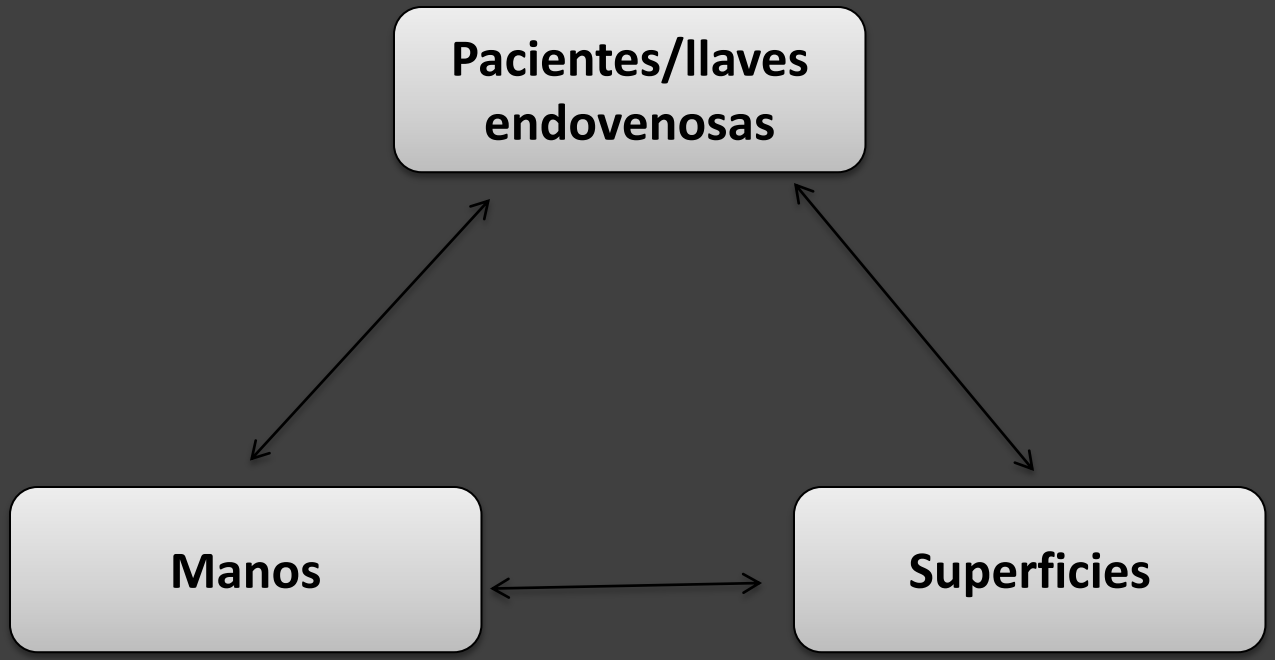
High Touch Object	Baseline
Anesthesia Cart	28%
Anesthesia Pole	16%
Back Table	
Cabinet Door	0%
Floor	
Hamper	
Light Glass Surface	8%
Light Side Handle	20%
Light Switch	4%
Mayo Tray	
Mobile Equipment	0%
OR Door Handle	12%
OR Table Controls	17%
OR Table Mattress Top	38%
OR Table Railing	13%
Table Strap	10%
Telephone	32%
Walls	
X-Ray Viewer	
Total	**15%**
Number of HTOs Tested	**318**
Number of Audits Performed	**25**



Limpieza terminal

High Touch Object	Baseline
Anesthesia Cart	22%
Anesthesia Pole	22%
Back Table	22%
Cabinet Door	11%
Floor	0%
Hamper	0%
Light Glass Surface	22%
Light Side Handle	22%
Light Switch	22%
Mayo Tray	22%
Mobile Equipment	11%
OR Door Handle	22%
OR Table Controls	33%
OR Table Mattress Top	56%
OR Table Railing	22%
Table Strap	13%
Telephone	22%
Walls	0%
X-Ray Viewer	0%
Total	**19%**
Number of HTOs Tested	**164**
Number of Audits Performed	**9**

Contaminación de pacientes y superficies en la sala de operaciones


Pacientes/llaves endovenosas
Manos
Superficies

Anesthesiology 2008; 109:399–407

Transmisión de patógenos en el area de anestesiología

Randy W. Loftus, M.D., Matthew D. Koff, M.D.,† Corey C. Burchman, M.D.,‡ Joseph D. Schwartzman, M.D.,§ Valerie Thorum, M.T. (A.S.C.P.),‖ Megan E. Read, M.T. (A.S.C.P.),‖ Tammara A. Wood, M.T., (A.M.T.),‖ Michael L. Beach, M.D., Ph.D.#*

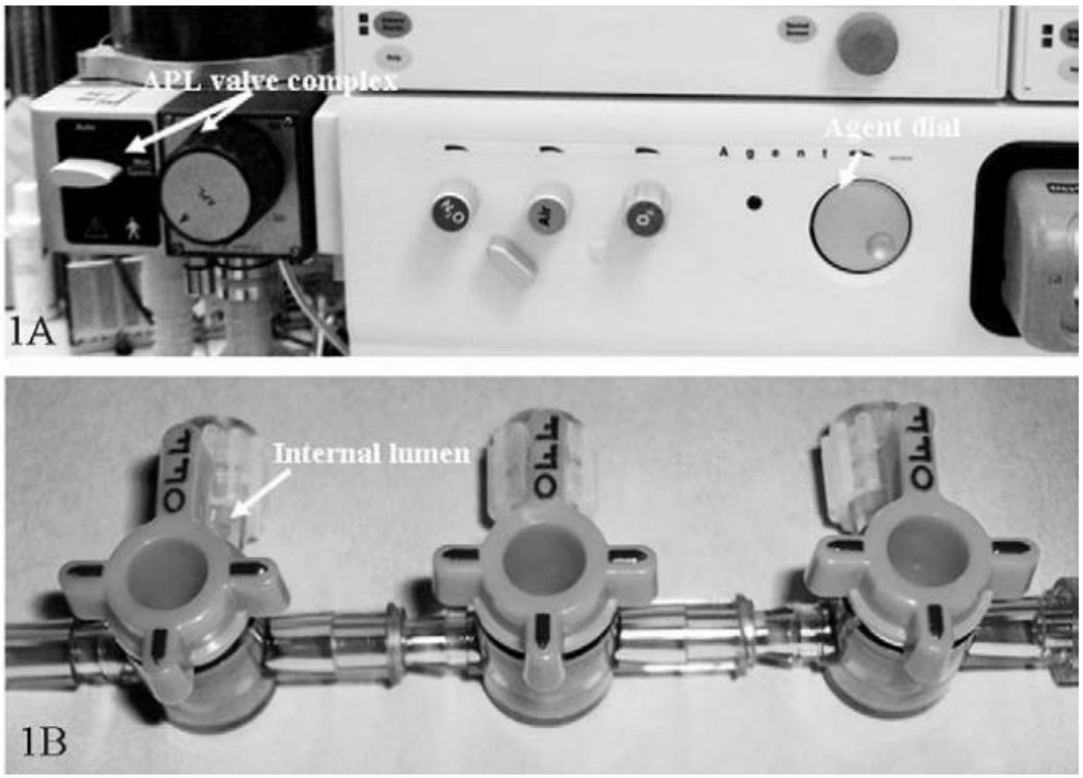
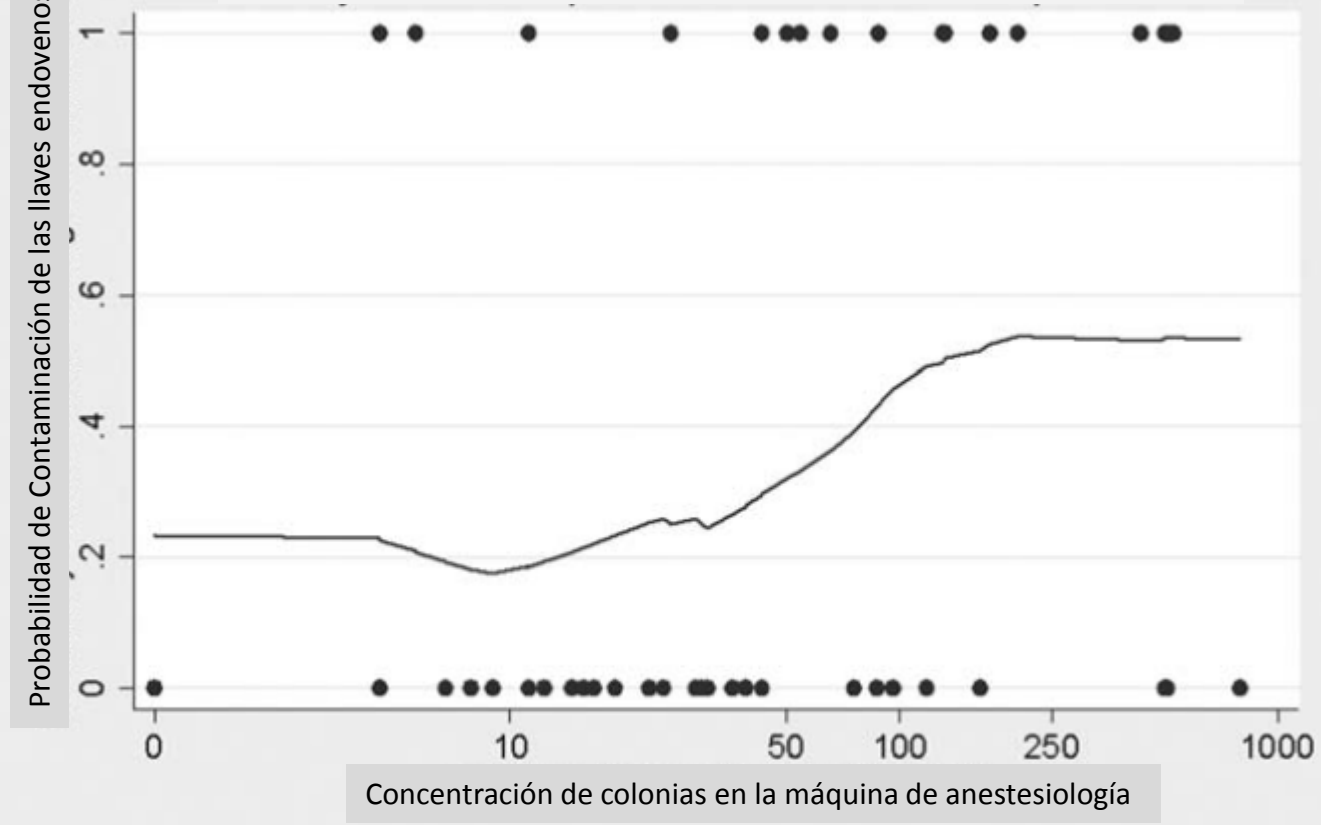


Fig. 1. (*A* and *B*) Sites where the anesthesia machine and the stopcock set were sampled. APL valve = adjustable pressure-limiting valve.

Probabilidad de contaminación de las llaves endovenosas y las máquina de anestesiología



Anesthesia Patient Safety Foundation

Section Editor: **Sorin J. Brull**

Contaminación de manos de anestesiólogos es un factor importante en la transmisión de bacterias en la zona de anestesiología

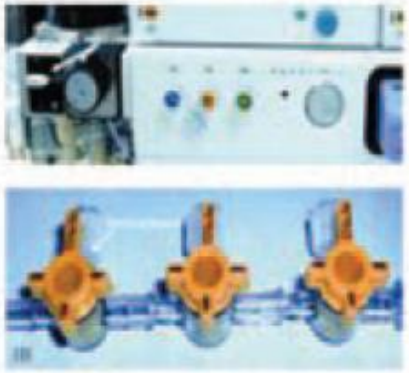
Randy W. Loftus, MD,* Matthew K. Muffly, MD,* Jeremiah R. Brown, PhD, MS,*
Michael L. Beach MD, PhD,* Matthew D. Koff, MD,* Howard L. Corwin, MD,*
Stephen D. Surgenor, MD,* Kathryn B. Kirkland, MD,* and Mark P. Yeager, MD*

(Anesth Analg 2011;112:98–105)

Provider Hand, Operative Case 1 and Case 2 Environmental (Adjustable Pressure-Limiting Valve and Agent Dial), and Patient Intravenous Tubing Cultures Obtained Sequentially (A→F)

A

Case 1 Antes de la Operación



B

Manos del Anestesiólogo/a

C

Case 1 Post - Operación

D

Case 2 Antes de la Operación

E

Manos del Anestesiólogo/a

F

Case 2 Post - Operación

(Anesth Analg 2011;112:98–105)

66% de las manos de anesthesiólogos fueron contaminadas con uno o mas patógenos: staphylococo methicilino resistente, enterococo resistente a vancomicina, staphylococo methicilino susceptible, y bacterias entéricas

(Anesth Analg 2011;112:98–105)

Table 2. Baseline Provider Hand Contamination[a]

Organism	Providers *N*/total (%)
MRSA	12/164 (7%)
MSSA	18/164 (11%)
VRE	4/164 (2%)
Enterococcus (non-VRE)	1/164 (0.6%)
Staph other	164/164 (100%)
Micrococcus	110/64 (67%)
Corynobacterium	14/164 (9%)
Streptococcus	128/164 (78%)
Gram negative[b]	81/164 (49%)

MRSA = methicillin-resistant Staphylococcus aureus; MSSA = methicillin-sensitive Staphylococcus aureus; VRE = vancomycin-resistant Enterococcus.

[a] Samples taken upon entry to the patient environment but before patient contact and after an opportunity to perform hand hygiene.

[b] E. coli, Klebsiella, Serratia, Pseudomonas, and Acinetobacter.

(Anesth Analg 2011;112:98–105)

Contaminación de la máquina de anestesia ocurrió en 146/164 (89%) de los cases, y anestesiólogos fueron los vectores en 12 % (17/146) de instancias.

(Anesth Analg 2011;112:98–105)

Table 3. Evidence for Intraoperative Transmission of Bacterial Pathogens from Anesthesia Provider Hands to the Anesthesia Environment and Patient IV Catheters

	Case 1			Case 2			
	Before case 1	End case 1		Before case 2		End case 2	
	Provider hands (site B)	Stopcock	Machine APL/D	Machine APL/D	Provider hands (site E)	Stopcock	Machine APL/D
Direction of transmission →							
Organism							
Micro	Attending		X				
S. epi	Attending	X					
S. hae	Attending	X					
S. epi	Attending	X					
S. epi	Attending				Attending[a]		
S. epi	Attending		X			X	X
Micro	Attending		X			X	
S. epi	Attending		X	X			X
Strep	Resident	X					X
Pseudo	Attending						
Pseudo	Resident		X				X
Micro	Resident	X		X		X	X
MRSA	Resident		X	X	Attending[a]		X
MSSA	Resident		X				X
S. auric	CRNA		X	X			
Micro	CRNA			X	Attending[a]		X
S. epi	CRNA			X			
Micro					CRNA[a]	X	X

(Anesth Analg 2011;112:98–105)

Anesthesia Patient Safety Foundation

Section Editor: Sorin J. Brull

CME

Multiples reservorios contribuyen a la transmisión bacteriana en la zona quirúrgica

Randy W. Loftus, MD,* Jeremiah R. Brown, PhD, MS,† Matthew D. Koff, MD, MS,* Sundara Reddy, MD,† Stephen O. Heard, MD,§ Hetal M. Patel, BS, MLT,* Patrick G. Fernandez, MD,* Michael L. Beach, MD,* Howard L. Corwin, MD,‖ Jens T. Jensen, MS,* David Kispert, BA,* Bridget Huysman, BA,* Thomas M. Dodds, MD,* Kathryn L. Ruoff, PhD,¶ and Mark P. Yeager, MD*

(Anesth Analg 2012;114:1236–48)

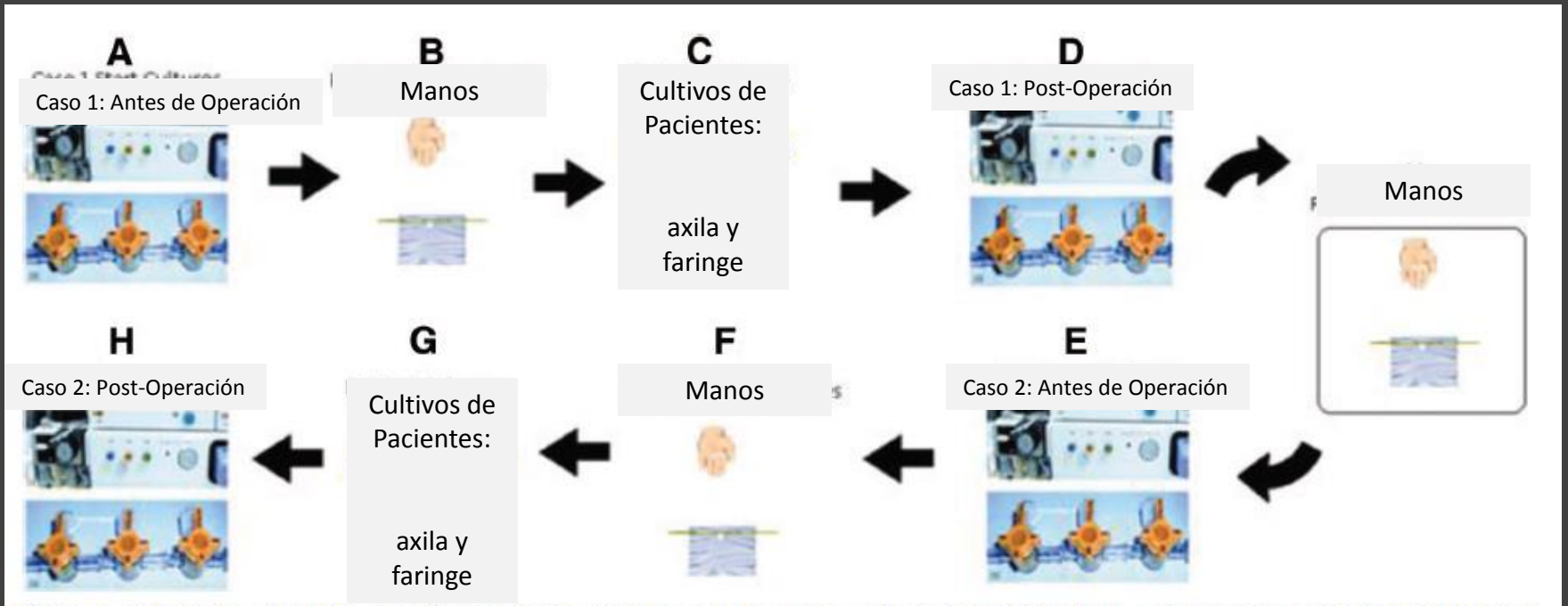


Figure 1. Schematic of culture sampling sequence. Culture samples were collected sequentially (A→ H) from the operative environment (adjustable pressure limiting valve and agent dial), patient IV tubing, provider hands, and the patient nasopharynx/axilla. Provider hands were cultured at case start before patient care, intermittently throughout patient care, at case end, and upon provider return to the operating room after an absence during the case (X).

(Anesth Analg 2012;114:1236–48)

Table 2. Intraoperative Between-Case Transmission to IV Stopcock (n = 14)

	Caso 1							Caso 2						
	Pre			During	Post			Pre			During	Post		
Organism	OE	Provider	Patient	Provider	OE	Provider	SC	OE	Provider	Patient	Provider	OE	Provider	SC
Pseudo	*A/D	Attending			A/D			A	Attending				A/D	X
Serratia	*D				A				CRNA					X
S. epi	*A				A			D	Attending					X
S. epi	*A	Resident												X
Micro	*D							A						X
S. epi	*D				*D		x						CRNA	X
S.epi					*A			D						X
S. hae					*A							A/D		X
S. epi					*A			D						X
S. epi		*Attending		Resident	D			A	Resident			A/D	Resident	X
S. epi, S.warneri		*Attending				Other			Attending					X
Micrococcus		*Attending												
S. epi			*Ax											X
S. aureus			*Ax	Attending						Ax		A/D		X
Transmission sequence	→													

CRNA = certified registered nurse anesthetist, other = anesthesia technologist; OE = operative environment; SC = IV stopcock; A = anesthesia machine APL valve; D = anesthesia machine dial; Ax = patient axilla; N = patient nasopharynx; X = stopcock transmission event; Pseudo = pseudomonas; Serratia = *Serratia marcescens*; S. epi = *Staphylococcus epidermidis*; Micro = micrococcus; S. hae = *Staphylococcus haemolyticus*; S. aureus = *Staphylococcus aureus*.

*Denotes origin of bacterial contamination.

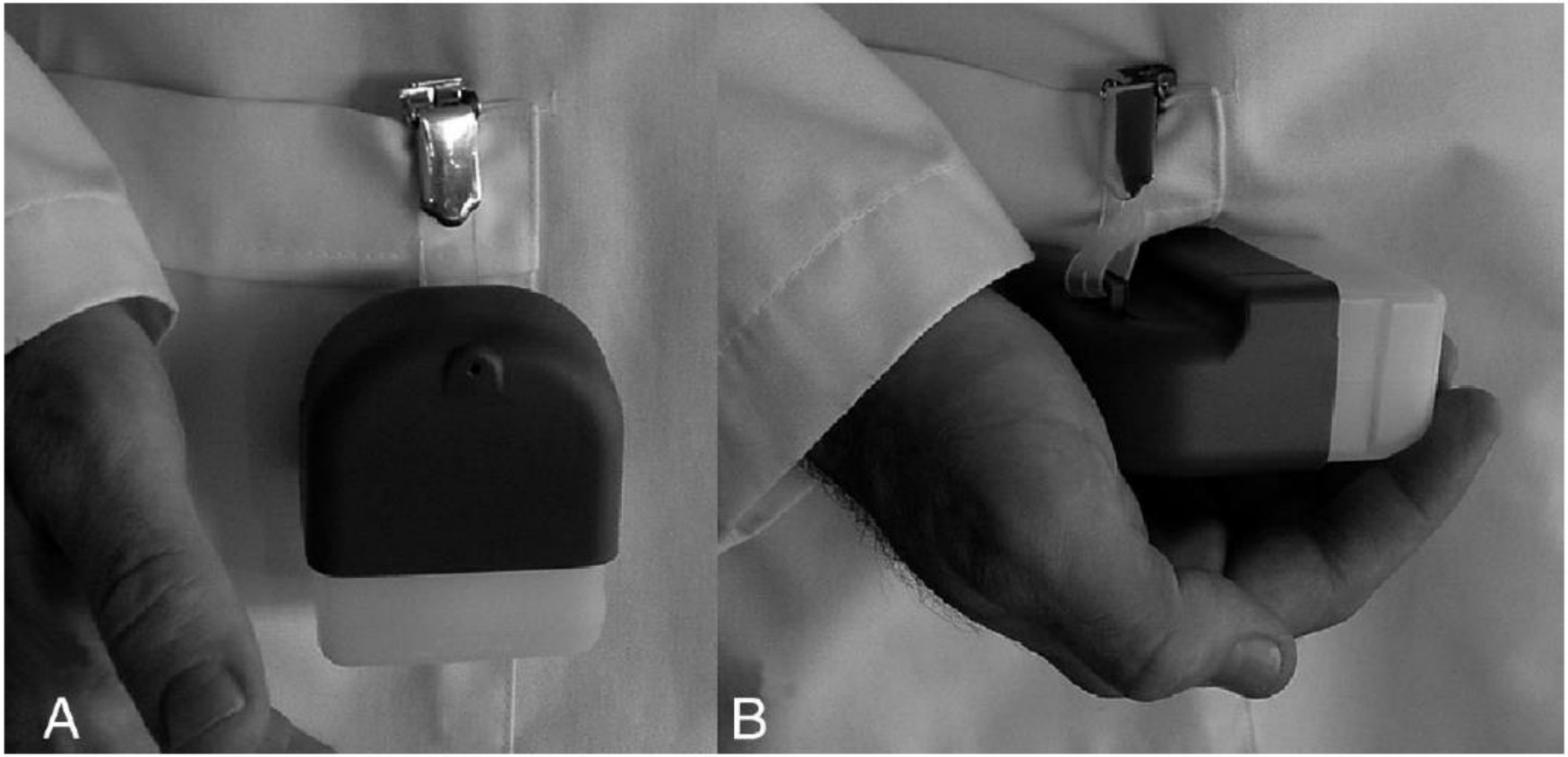
(Anesth Analg 2012;114:1236–48)

Anesthesiology 2009; 110:978–85

Reducción de contaminación bacteriana con el uso de un envase portátil

Matthew D. Koff, M.D., Randy W. Loftus, M.D.,† Corey C. Burchman, M.D.,‡ Joseph D. Schwartzman, M.D.,§ Megan E. Read, M.T. (A.S.C.P.),‖ Elliot S. Henry, B.S.,# Michael L. Beach, M.D., Ph.D.***

Anesthesiology, V 110, No 5, May 2009



Anesthesiology, V 110, No 5, May 2009

Table 2. Comparison of the Hourly Hand-decontamination Events of the Observational Study with the Device Group

	Device		Control		Comparison		
	Mean (SD)	n	Mean (SD)	n	Difference	95% CI	*P* Value
Attending physicians	7.1 (1.4)	52	0.15 (0.05)	17	6.9 (2.51)	(1.9 to 11.0)	0.008*
Other providers	8.7 (2.0)	45	0.38 (0.12)	29	8.3 (2.5)	(3.3 to 13.4)	0.002*

Anesthesiology, V 110, No 5, May 2009

Table 3. Outcomes

	Device Group, n = 53		Control Group, n = 58		Comparison		
Continuous Variables	Mean, Median	SD, IQR	Mean, Median	SD, IQR	Mean Difference	95% CI of Mean	*P* Value
CPSS baseline (n = 52‡)	33.6	106.7	19.8	69.7	13.8	(−20.8 to 48.4)	0.43
	3	1–75	4.5	1–10			0.17
CPSS T_E (n = 51‡)	54.3	100.4	132	201.6	−77.7*	(−137.3 to 18.1)	0.01
	13	2–66	28.5	9–129			0.15
Binary Variables	Percent	Count	Percent	Count	Odds Ratio	95% CI	*P* Value
Contaminación de llaves	7.5	4	32.8	20	0.17	(0.06 to 0.51)	< 0.01
Nosocomial infection	3.8	2	17.2	10	0.19*	(0.00 to 0.81)	0.02
Death	0.0	0	3.4	2	0.00	(0.00 to 2.09)	0.17
Postoperative location							
Same-day surgery	84.9	45	82.8	48	1.17	(0.44 to 3.15)	0.76
Hospital ward	9.4	5	10.3	6	0.9	(0.27 to 2.99)	0.87
Intensive care unit	5.7	3	6.9	4	0.81	(0.19 to 3.42)	0.79

*Statistically significant. ‡Because of missing data, denominators were slightly different in the treatment group and are listed in parentheses.

CI = confidence interval; CPSS = cells per surface sampled; IQR = interquartile range; T_E = end of surgery.

Anesthesiology, V 110, No 5, May 2009

“Es una linea endovenosa nueva…está limpia!”

RESEARCH BRIEFS

Contaminación de las llaves endovenosas de catéteres periféricos insertados en la zona quirúrgica

colonies from all plates was determined using Vitek 2 (bioMérieux) and matrix-assisted laser desorption/ionization time-of-flight analysis (Shimadsu and bioMérieux).

The 2-sample *t* test was used to assess for a relationship between the microbial growth in stopcocks or manifold lumens and duration of surgery or the number of times medications

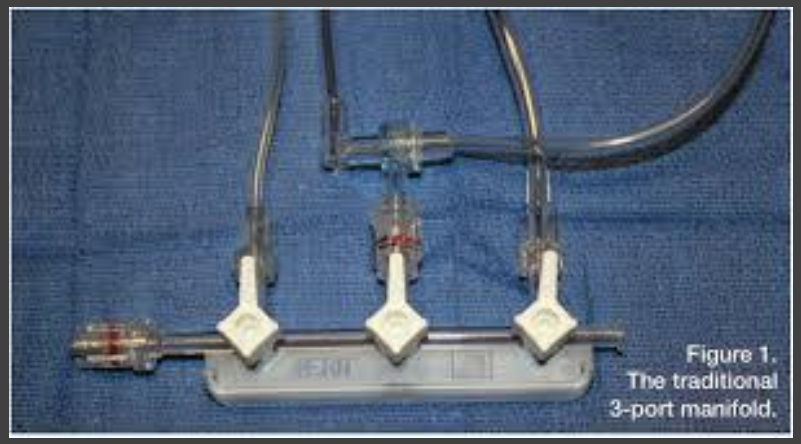


Figure 1. The traditional 3-port manifold.

Mermel, et al. ICHE Sep 2014

- 24 pacientes
- 24 manifolds
- 70 llaves endovenosas

- 12 (17%) de las 70 llaves endovenosas tuvieron cultivos positivos

Mermel, et al. ICHE Sep 2014

Contaminación de las medicinas durante su adminstración en la zona quirúrgica

Derryn A. Gargiulo, M.Pharm.Clin., Reg.Pharm.N.Z., Simon J. Mitchell, Ph.D., F.A.N.Z.C.A.,
Janie Sheridan, Ph.D., Reg.Pharm.N.Z., F.R.Pharm.S., Timothy G. Short, M.B.Ch.B., M.D., F.A.N.Z.C.A.,
Simon Swift, Ph.D., Jane Torrie, M.B.Ch.B., F.A.N.Z.C.A., Craig S. Webster, Ph.D.,
Alan F. Merry, M.B.Ch.B., F.F.P.M.A.N.Z.C.A., F.R.C.A., F.A.N.Z.C.A.

(ANESTHESIOLOGY 2016; 124:785-94)

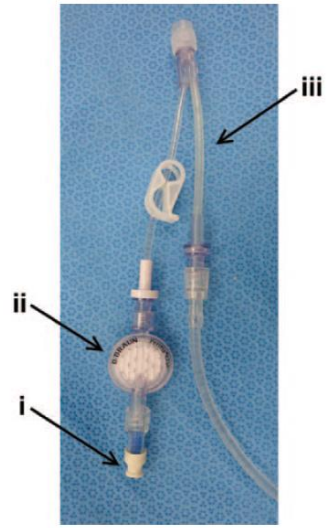


Fig. 1. Clinical setup for the injection port (i), filter unit (ii), and two-way extension line (iii).

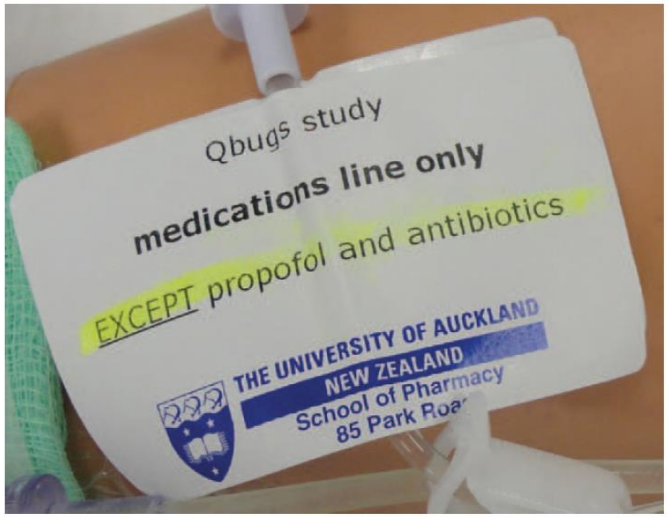


Fig. 2. Label attached to the filter arm of the two-way extension line.

REVIEW ARTICLE

La dinámica de la transmisión bacteriana en la zona de anestesiología

Randy W. Loftus, MD,* Matthew D. Koff, MS, MD,* and David J. Birnbach, MD, MPH†

Health care–associated infections are a hospital-wide concern associated with a significant increase in patient morbidity, mortality, and health care costs. Bacterial transmission in the anesthesia work area of the operating room environment is a root cause of 30-day postoperative infections affecting as many as 16% of patients undergoing surgery. A better understanding of anesthesia-related bacterial transmission dynamics may help to generate improvements in intraoperative infection control and improve patient safety. (Anesth Analg 2015;120:853–60)

Patina Fecal en la Zona de Anestesiología

L. Silvia Munoz-Price, MD, PhD,* and Robert A. Weinstein, MD†

Since the 1970s, we have gained increasing knowledge about the transmission of multidrug-resistant pathogens in hospitals and about the spread of bacteria from patients to health care workers' hands and to the hospital environment (Fig. 1). T
interventions that have
antibiotic-resistant org
care-associated infectic
Studies on vanco
established the importa

Patients

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THE AMERICAN SOCIETY OF ANESTHESIOLOGISTS, INC.
VIGILANCE
FOUNDED 1905
INCORPORATED NEW YORK 1936

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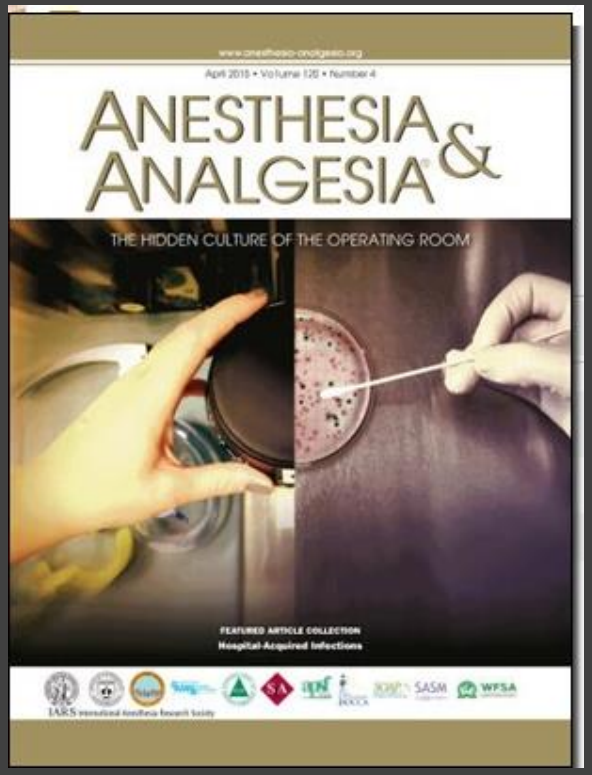

Conclusiones

- La sala de operaciones no es estéril
- La sala de operaciones no es desinfectada frecuentemente
- Hay una asociación entre la contaminación de la máquina de anestesia y los catéteres endovenosos
- Todavía no es claro si es que hay una asociación entre el lavado de manos y mortalidad/infecciones
- Tenemos que encontrar una forma de incrementar la desinfeccion de la zala de operaciones sin incrementar el tiempo entre los casos