Prevención y profilaxis de infecciones relacionadas con la cirugía cardiaca

Miguel Pere
FEA Anestesia . Reanimación cardiaca . Xerencia Xestión Integra
V

SECTCV
Sociedad Española de Cirugía Torácica - Cardiovascular

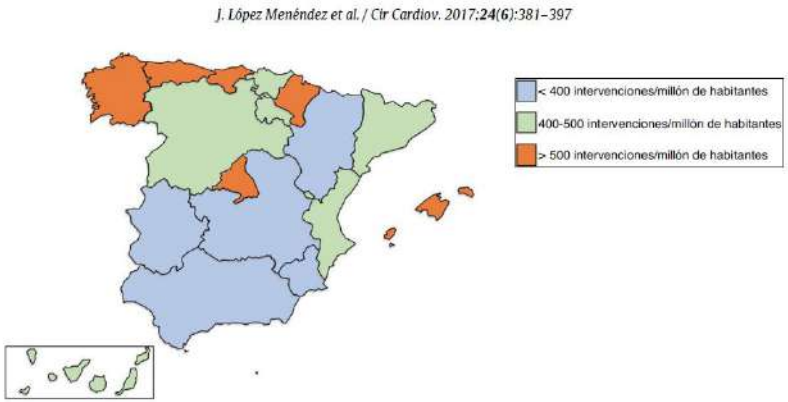
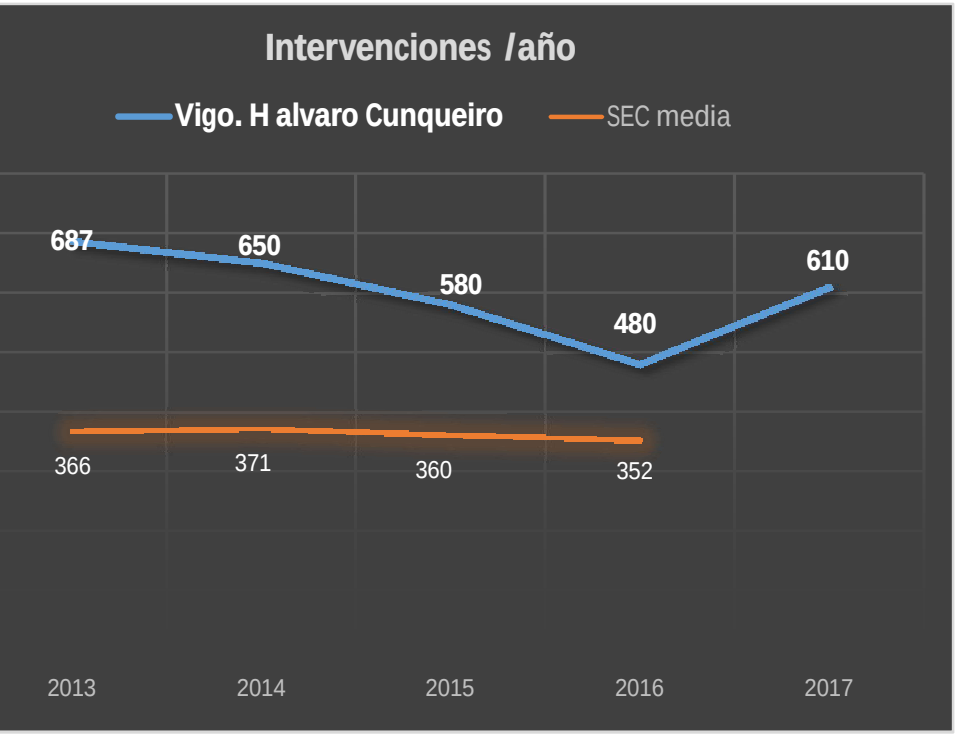


Figura 13. Distribución de la media de intervenciones cardiacas mayores por millón de habitantes, estratificadas por comunida



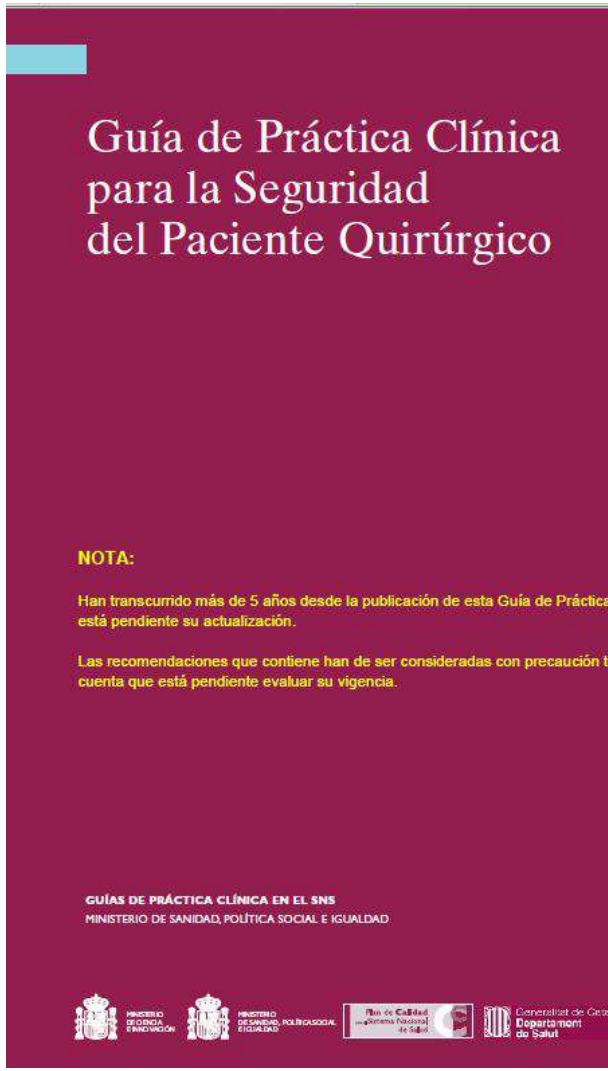
http://sectcv.es

SERVIZO GALEGO de SAÚDE | Xerencia de Xestió de Vigo Vigo

Área referencia 894.000 habitantes

Vigo	N
Total (camas)	1100
Nuevo Hospital VIGO. **H. Álvaro - Cunqueiro**	880
Meixoeiro	250
Quirófanos	34 2 Cirugía CC 1 hibrido C. Vascular
IQ	3 CC /día
REA (camas)	15 camas
Microbiología	Hasta 22 h.

http://sergas.es



- Multidisciplinar…..
- Todos colaborando….

VII CONGRESO SEICAV
Sociedad Española de Infecciones Cardiovasculares
SEVILLA 16 Y 17 DE NOVIEMBRE DE 2018

La unión hace la fuerza……..

VII CONGRESO SEICAV Sociedad Española de Infecciones Cardiovasculares
SEVILLA 16 Y 17 DE NOVIEMBRE DE 2018

Prevención y profilaxis de infecciones relacionadas con la cirugía cardiaca en perioperatorio

Preoperatorias :

Screening SAMS .

Medidas higiénicas

Intraoperatorias :

tipo de Cirugía , técnicas mínimamente invasiva.

Manejo intraoperatorio anestésico

Posoperatorias :

Programas de disminución de infección nosocomial.

NAV , ESGI007,ESGI008.ESGI009. terapia anticipada. SDD,

BACTERIEMIA . sellado de catéteres .

Prevención de infección en herida quirúrgica.(sistemas de VAC)

Medios y resultados. Nuestro centro **.**

Conclusiones

ntion of Sternal Wound Infection in tric Cardiac Surgery: A Protocolized oach

World Journal for Pediatric and Congenital Heart Surgery
3(4) 463-469
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DOI: 10.1177/2150135112454145
http://pch.sagepub.com
SAGE

Woodward, DNP, RN[1], Minnette Son, MD[1],
Taylor, MD, MS[1] and S. Adil Husain, MD[2]

Sternal wound infections (SWIs) are a costly complication for children after cardiac surgery, increasing morbidity, nd financial cost. There are no pediatric guidelines to reduce the incidence of SWI in this vulnerable population. quality improvement, multidisciplinary team was formed, and a protocol to prevent SWI was developed. A prospective atients who underwent pediatric cardiac surgery was conducted over a two-year period to follow adherence to the d incidence of SWI. The Centers for Disease Control definitions for surgical site infections were used to determine nd presence of infection. *Results*: Three hundred and eight children <18 years of age had sternotomies during the study re was a reduction in all SWI between the first and second years of the study (odds ratio [OR] = 0.35; confidence | 95% 0.12-1.01; $P = .059$). Delayed sternal closure (DSC) was associated with increased risk of SWI (OR = 5.4; CI 4.9; $P \leq .001$). Institution of a protocol in patients with DSC was associated with decreased infections during the sec-rst year: n = 7 (14%), second year: n = 2 (4%), $P = .14$). *Conclusions*: Institution of a protocol was associated with a umber of infections in children. A multicenter study of a bundled protocol approach to SWI prevention is needed. th DSC had a significantly higher risk of developing a wound infection. Initiating strategies to reduce SWI with a focus with DSC may result in improved overall infection rates.

Timing	Intervention	References	Notes
Preoperative	1. Nares screened for methacillin resistant *Staphylococcus aureus*.	a	CHG to be used on chil >1,500 g with no evid
	2. Soap and water bath, night before surgery.	a	allergy. Wipe skin for
	3. Two preoperative baths with 2% chlorhexidine gluconate (CHG) wipes with emphasis on anterior thorax. On night before surgery after soap and water bath and on the morning of surgery. Place child in clean hospital gown after first CHG bath.	7	seconds and allow to 30 seconds before dre clean gown.
	4. Place disposable telemetry leads on chest after first CHG bath.	8	
Intraoperative	1. Timing of preoperative antibiotics. Cefuroxime given 60 minutes prior to skin incision. Vancomycin started between 60 and 120 minutes prior to skin incision.	9	
	2. CHG used for skin preparation for children >1,500 g.	a	
Postoperative	Sternum closed		
	1. Hand washing for all persons entering and exiting patient room.	7	
	2. Stethoscopes to be cleaned with unit stocked disinfectant wipes prior to use.	a	
	3. Avoid draping telemetry leads or other equipment across sternotomy.	a	
	4. Postoperative antibiotics discontinued within 48 hours of surgery.	10,11	
	5. Sterile dressing applied in surgery and removed by surgery team within 48 hours of surgery.	7	
	6. Chest tube drain sites covered with occlusive dressing and changed if wet, soiled or loose.	a	
	7. Electrocardiograph technicians clean 12-lead cables with disinfectant wipes prior to being placed on bed.	a	
	8. Sterile gel used by technician or cardiologist for postoperative echocardiography.	a	
	Sternum open—additional interventions	a	
	1. An individual stethoscope for exclusive use on that patient will be placed in room.	a	
	2. Daily CHG baths for children >1,500 g	a	
	3. Sign placed on door of patient's room to declare "sternal wound infection precautions."	a	
	4. During sternal closure procedure, the doors of the patient's room remain to be closed with minimal traffic in and out of room.	7	
	5. All staff in room during closure will wear a mask and cap. Surgical personnel wear sterile gowns, gloves, caps, and masks.		

«Global guidelines for the prevention of surgical site infection».

"…El *European Centre for Disease Prevention and Control* (ECDC) publicó datos de la vigilancia epidemiológica de IHQ para el periodo 2010-2011[2], y el segundo procedimiento en cuanto a incidencia acumulada de IHQ era la cirugía coronaria, solo por detrás de la cirugía del colon, con una incidencia acumulada de infección del 3,5% por cada 100 intervenciones (no aporta datos de nuestro país).

Los microorganismos más frecuentemente implicados son *Staphylococcus aureus* (30,4%), *Staphylococcus* coagulasa negativos (11,7%), *Escherichia coli* (9,4%) y *Enterococcus faecalis* (5,9%)…"

«Global guidelines for the prevention of surgical site infection».

”…El *European Centre for Disease Prevention and Control* (ECDC) publicó datos de la vigilancia epidemiológica de IHQ para el periodo 2010-2011[2], y el **segundo procedimiento** en cuanto a **incidencia** acumulada de IHQ era **la cirugía coronaria**, solo por detrás de la cirugía del colon, con una incidencia acumulada de infección del 3,5% por cada 100 intervenciones (no aporta datos de nuestro país).

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VII CONGRESO SEICAV

European Centre for Disease Prevention and Control (ECDC)
2010-2011

Organización Mundial de la Salud (OMS)
2016

Systematic Review of Surgical Site I
in Cardiac and Orthopaedic Surgery
12 August 2016

Sociedad Española de Cirugía Torácica-Cardiovascular (SECTCV)
2018

isión Recomendaciones basadas en la evidencia para la prevención de la infección de herida quirúrgica en cirugía cardiovascular Jose Lópeza,∗,et al. Cir Cardiov. 2018;**25(1)**:31–35

Preoperatorio

Pre – Screening SAMS

- Disminución de infección (Ia) OR: 0,46; IC 95%: 0,31-0,69

Se recomienda que los pacientes que van a ser intervenidos de cirugía cardiaca, y sean portadores conocidos de Staphylococcus aureus, deben recibir en el perioperatorio aplicaciones nasales de mupirocina al 2%

Al menos 24 horas antes , 2 veces al día durante 5 días

Aritculo de portador JTC 2007 N 1432 2002 – 2004 15,9 %portador (15.5% SAMS 0,4%MRSA) Mediastinitis 1,2 % (3,95% colinizados vs 0,66% no colonizados). SAMS distinto clon pero el mismo en herida MARSA minmo clon.	

) Routine Mupirocin administration is recommended for all patients undergoing cardiac surgery procedures in the
bsence of documented negative PCR testing for staphylococcal colonization. (Ia)

Logistica de consulta de anestesia …., cultivo ….

ón Recomendaciones basadas en la evidencia para la prevención de la infección de herida quirúrgica en cirugía cardiovascular Jose López,∗,et al. Cir Cardiov. 2018;**25(1)**:31–35
RT CONSENSUS REVIEW: PERIOPERATIVE MANAGEMENT Prevention and management of sternal wound infections Lazar, MD,Journal of Thoracic and Cardiovascular Surgery c October

- Estado Nutricional :
  - Alb < 2.5 g/ml , perdida de peso > 10% en 6 meses
  - Suplementos enterales – 7- 10 días.

- Control glucémico
  - Glucemia < 200 mg/dl . HbAlc < 7.5
  - Intraop < 180 mg/dl

- Tabaco :
  - Suspender 30 días antes
  - Fisioterapia intensa.

Revisión Recomendaciones basadas en la evidencia para la prevención de la infección de herida quirúrgica en cirugía cardiovascular Jose Lópeza,∗,et al. Cir Cardiov. 2018;**25(1)**:31–35

Medidas higiénicas

- *Se sugiere el baño previo a la intervención, bien con jabón no con jabón antiséptico* (recomendación condicional-fuerte, evidencia moderada).
- se recomienda el baño la noche anterior y el mismo día antes de la intervención (evidencia moderada).

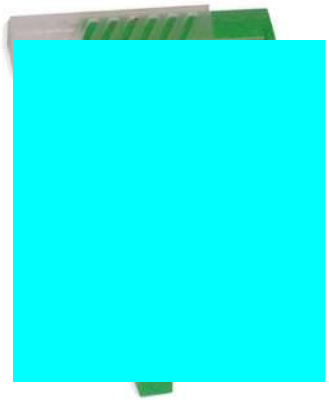
Dar hoja informativa de paciente y dar jabon.... ....

Revisión Recomendaciones basadas en la evidencia para la prevención de la infección de herida quirúrgica en cirugía cardiovascular Jose López,∗,et al. Cir Cardiov. 2018;**25(1)**:31–35

Rasurado

maquinilla eléctrica, con cabezal desechable

Se recomienda que los pacientes, previamente a cualquier tipo de intervención quirúrgica, no se rasuren, o, si es estrictamente necesario, que se haga exclusivamente con maquinilla eléctrica, con cabezal desechable.
El afeitado de la piel debe ser evitado tanto en el preoperatorio como en quirófano



Revisión Recomendaciones basadas en la evidencia para la prevención de la infección de herida quirúrgica en cirugía cardiovascular Jose Lópeza,*,et al. Cir Cardiov. 2018;**25(1)**:31–35

Intraoperatorio

- Profilaxis :
  - Cefa 1ª
  - 60 min (Vanco 60-120 min)
    - 2 x vida media - > 4 horas – CEC > 120 min
    - > 2 litros perdida.

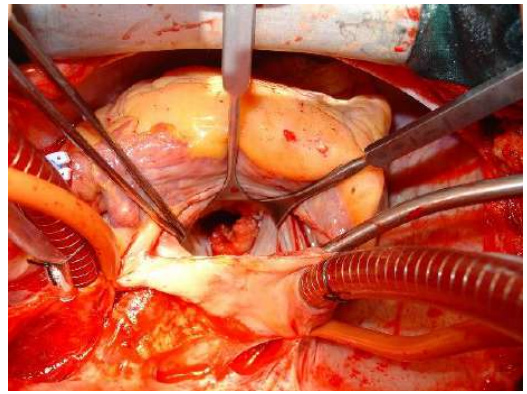
- Lavado quirúrgico:
  - Clorhexidina 4 %

base alcohólica son más eficaces para prevenir la IHQ que las de base acuosa

y os fe AATS guidelines for the prevention and management of sternal wound infections. Indian Journal of Thoracic and Cardiopulmonar Surgery. March 2018

Intraoperatorio – Manejo

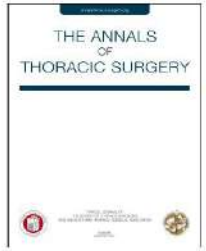
- una **FiO2 del 80%** durante la intervención, y 2-6 h postoperatorias (recomendación fuerte, evidencia moderada)
- Control glucemias < 150 mg/dl . (180 mg /dl [1.])
- Control de **Tª , mantas termicas**
- Paños .No plásticos, no Adhesivos.
- **Dispositivos de aspiración continua** sobre herida cerrada .



ez et al. Recomendaciones basadas en la evidencia para la prevención de la infección de herida quirúrgica en cirugía cardiovascular . Cir Cardiov. 2018;25(1):3

view os fe AATS guidelines for the prevention and management of sternal wound infections. Lazer et al . Indian Journal of Thoracic and Cardiopulmonar Surgery. March 2018

Mínimamente invasiva….



mally Invasive Approaches to Surgical Aortic Valve Replacement: A Meta-
lysis

olyn Chang, BS, Sajjad Raza, MD, Salah E. Altarabsheh, MD, Sarah Delozier,
, Umesh M. Sharma, MD MBA, Aisha Zia, MD, Mandy Neudecker, MS, Alan H.
kowitz, MD, Joseph F. Sabik, III, MD, Salil V. Deo, MD

Cir Cardiov. 2018;25(1):36–37

o

de Manouguian a través de miniesternotomía: reporte de
experiencia quirúrgica

CrossMark

ilippa*, German J. Chaud, Ezequiel Wainscheinker, Moisés A. Martinez Colombres
no G. Paladini

ía Cardiovascular, Hospital Privado Universitario de Córdoba, Córdoba, Argentina

Minimally Invasive Versus Conventional Open Mitral Valv
Surgery

A Meta-Analysis and Systematic Review

Davy C. H. Cheng, MD, Janet Martin, PharmD, MSc (HTA&M),*† Avtar Lal, MD, PhD,**
Anno Diegeler, MD, PhD,‡ Thierry A. Folliguet, MD,§ L. Wiley Nifong, MD,‖ Patrick Perier, M
*Ehud Raanani, MD,¶ J. Michael Smith, MD,# Joerg Seeburger, MD,** and Volkmar Falk, MD*

ABC GALICIA

CARDIOLOGÍA

Vigo realiza la cuarta intervención en el mundo de endoprótesis de válvula tricúspide

- La paciente, una mujer de 81 años para la que se desaconsejaba la cirugía convencional, fue operada el 22 de agos
realiza una vida normal

Frequent Door Openings During Cardiac Surgery are Associated with Increased Risk for Surgical Site Infection: A Prospective Observational Study

Jan A. Roth, MD;[1,2,3]* Fabrice Juchler, MD;[1,2]* Marc Dangel, MPH;[1,2] Friedrich S. Eckstein,

- N 688 año 2016
- 301. 594 aperturas
  - 87 676 herida expuesta
- Incidencia 3,5 % SSI
- 39 veces /h.

— Mean number of OR door openings per hour, mean (95% CI)			
—— Internal OR doors	17.4 (17.1–17.8)	19.7 (18.1–21.3)	17.4 (17.1–17.8)
—— External OR doors	14.9 (14.6–15.3)	17.4 (17.0–17.7)	14.9 (14.6–15.3)
—— All OR doors	32.3 (31.8–32.8)	35.5 (33.3–37.7)	32.4 (31.9–32.9)

Basel,

sions: Frequent door openings during cardiac surgery were independently associated with
eased risk for surgical site infection: This finding warrants further study to establish a
lly causal relationship between OR door openings and the occurrence of SSI.

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Mediastinitis

- 0,5-5% - > España 1-2%
- FR :
  - Comobilidades : **EPOC ,Obesidad,DM ,Irenal ,** FEVI <45%, mujer, vasculopatía, estancia prolongada hospitalaria, cirugía emergente.
  - Técnicas : Tiempo, doble mamaria, numero bypass, re-op.> 4 CH, plaquetas e infeciones previas. , re-op
- 2017 : CDC :
  - Pre: medidas higienicas piel y rasurado, descolonización SAM
  - Intra: Cierre en 8

ar Yet al. European Association for Cardio-Thoracic Surgery expert consensus statement on the prevention and management of mediastinitis. Eur J Cardiothorac Surg 2017;51:10–2
an Putte BP, Kloppenburg GTL, Prevention of deep sternal wound infection in cardiac surgery, review of literature, *Journal of Hospital Infection* (2018),.

ología de las infecciones del sitio quirúrgico en pacientes intervenidos cirugía cardiaca

a Múñez[a], Antonio Ramos[a,*], Teresa Álvarez de Espejo[a], Josep Vaqué[b], Evaristo Castedo[c], Martínez-Hernández[d], Vicente Pastor[e] y Ángel Asensio[f]

o de Medicina Interna, Unidad de Infecciosas, Hospital Universitario Puerta de Hierro, Majadahonda, Madrid, España
o de Medicina Preventiva, Hospital Vall d'Hebron, Barcelona, España
o de Cirugía Cardíaca, Hospital Universitario Puerta de Hierro, Majadahonda, Madrid, España
o de Medicina Preventiva, Hospital Carlos III, Madrid, España
o de Medicina Preventiva, Hospital Universitario de La Princesa, Madrid, España
o de Medicina Preventiva, Hospital Universitario Puerta de Hierro, Majadahonda, Madrid, España

Etiologia	%
SCN	37
SAMS	15,5
MARSA	6,6
Enterococo	6,1
BGN	14,1

(EPINE) durante el período 1999-2006.

189 casos de ISQ

ción de la intervención en pacientes que desarrollaron infección nosocomial irugía cardiaca

ración de la intervención[a]	n	%
0 min	6	3,2
-120 min	17	9
1–180 min	32	16,9
80 min	124	65,6

n 10 casos (5,2%) no se recogió la duración de la intervención.

es de riesgo en pacientes sometidos a cirugía cardiaca que desarrollaron infec- osocomial

	n	%
res de riesgo extrínseco		
abetes mellitus	65	34,4
fermedad pulmonar crónica	49	25,9
esidad	41	21,7
uficiencia renal	36	19
snutrición	16	8,5
ma	16	8,5
munodeficiencia	2	1,1
res de riesgo extrínseco		
téter central	97	51,3
nda urinaria	64	33,9
nda nasogástrica	41	21,7
ntilación mecánica	32	16,9
trición parenteral	20	10,6
rmacos inmunosupresores	9	4,8
dación farmacológica	4	2,1

Etiología de las infecciones quirúrgicas en pacientes sometidos a cirugía valvular y de revascularización coronaria

	Cirugía valvular (n = 86)		Bypass coronario (n = 94)		p
	Frecuencia	%	Frecuencia	%	
Cocos grampositivos					
SASM	14	16,3	14	14,7	0,797
SARM	4	4,7	8	8,4	0,299
SCN	34	39,5	33	34,7	0,539
Streptococcus grupo *viridans*	0	0	1	1,1	0,522
Streptococcus spp.	1	1,2	1	1,1	0,949
Enterococcus faecalis	5	5,8	4	4,2	0,631
Enterococcus spp.	0	0	2	2,1	0,271
Bacilos grampositivos					
Propionibacterium spp.	0	0	1	1,1	0,522
Corynebacterium spp.	1	1,2	4	4,2	0,213
Cocos gramnegativos, enterobacterias					
Escherichia coli	6	7	3	3,2	0,206
Klebsiella pneumoniae	2	2,3	1	1,1	0,466
Enterobacter aerogenes	1	1,2	0		
Enterobacter cloacae	4	4,7	5		
Proteus mirabilis	1	1,2	1		
Citrobacter freundii	1	1,2	0		
Serratia marcescens	3	3,5	5		
Serratia spp.	1	1,2	1		
Morganella morgagni	1	1,2	1		
Bacilos gramnegativos, no enterobacterias					
Pseudomonas aeruginosa	3	3,5	3		
Acinetobacter baumannii	1	1,2	2		
Acinetobacter spp.	1	1,2	1		
Bacilos anaeróbicos					
Bacteroides grupo *fragilis*	1	1,2	0		
Prevotella spp.	0	0	1		
Otras bacterias	1	1,2	2	2,1	0,533

SARM: *Staphylococcus aureus* resistente a meticilina; SASM: *S. aureus* sensible a meticilina; SCN: estafilococo coagulasa negativo.

Conclusiones

Los pacientes con infecciones del sitio quirúrgico tra cardiaca presentaron factores de riesgo como edad avanzad dad, diabetes y dispositivos invasores (catéter central y so cal) en una proporción elevada. El 30% de las capas de *S. au* ladas eran resistentes a meticilina. El 30% de las infeccione causadas por bacilos gramnegativos, lo que indica la nece

cobertura antibiótica empírica de estos microorganismos a conocer los resultados microbiológicos. Ni el tipo de cirugía naria versus valvular) ni la profundidad de la infección relacionado con diferencias en la microbiología de las ISQ.

E. Mú˜nez et al / Cir Cardiov. 2013;20(3):139–143

Contents lists available at ScienceDirect

American Journal of Infection Control

journal homepage: www.ajicjournal.org

article

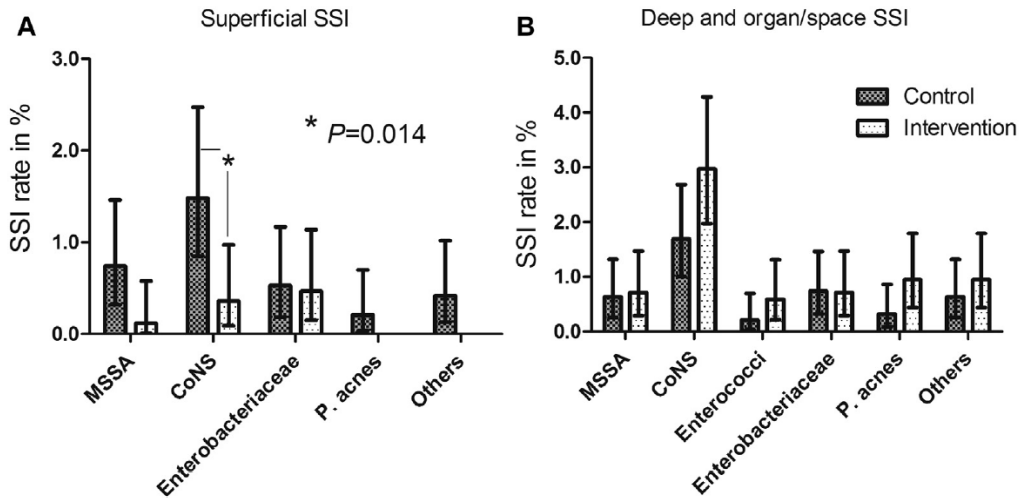
ct of perioperative mupirocin and antiseptic body wash
nfection rate and causative pathogens in patients
ergoing cardiac surgery

p Kohler MD[a,*], Rami Sommerstein MD[a], Felix Schönrath MD[b],
ne Ajdler-Schäffler MD[a], Alexia Anagnostopoulos MD[a], Sandra Tschirky[a],
nar Falk MD[b], Stefan P. Kuster MD, MSc[a], Hugo Sax MD[a]

N 1787 año 2012
SSI 7,8 %
Gluconato de Chlorhexidina 4% or octenidine
+ mupirocin

Crude number and rate of surgical site infections (SSIs) in patients without treatment (A) and in those with treatment initiation before (B) and after (C) surgery

	A (n = 1,141)	B (n = 553)	C (n = 93)	*P* value
Total SSI	102 (8.9)	32 (5.8)	5 (5.4)	.05
Deep incisional and organ space SSI	46 (4.0)	23 (4.2)	4 (4.3)	.99
Superficial incisional SSI	56 (4.9)	9 (1.6)	1 (1.1)	**.001**



Solo efetivas para descenso de SSI Superficial . No profunda ni órgano/espacio
En profunda SCN la mas frecuente .
methicillin-resistante SCN de 69%

Lavado de herida quirúrgica

rrigación de povidona en heridas limpias o limpias contaminadas. Se sugiere que no se debe irrigar la herida con antibióticos tópicos para prevenir la IHQ

J. López et al. Recomendaciones basadas en la evidencia para la prevención de la infección de herida quirúrgica en cirugía cardiovascular . Cir Cardiov. 2018;25(1):31–35

Topical antibiotics (vancomycin) should be applied to the cut edges of the sternum on opening and before closing in all cardiac surgical procedures [1)]involving a median sternotomy (Class I Recommendation; Level of Evidence B).

Lazar, MD et al . EXPERT CONSENSUS REVIEW: Prevention and management of sternal wound infections .,The Journal of Thoracic and Cardiovascular Surgery c October 2016

Esponjas de colageno impregnadas con Gentamicina

Vos RJ, et al , Prevention of deep sternal wound infection in cardiac surgery, review of literature, *Journal of Hospital Infection* (2018)

Otras medidas

Abandono de Cera

Aposito no plástico, ni absorbente

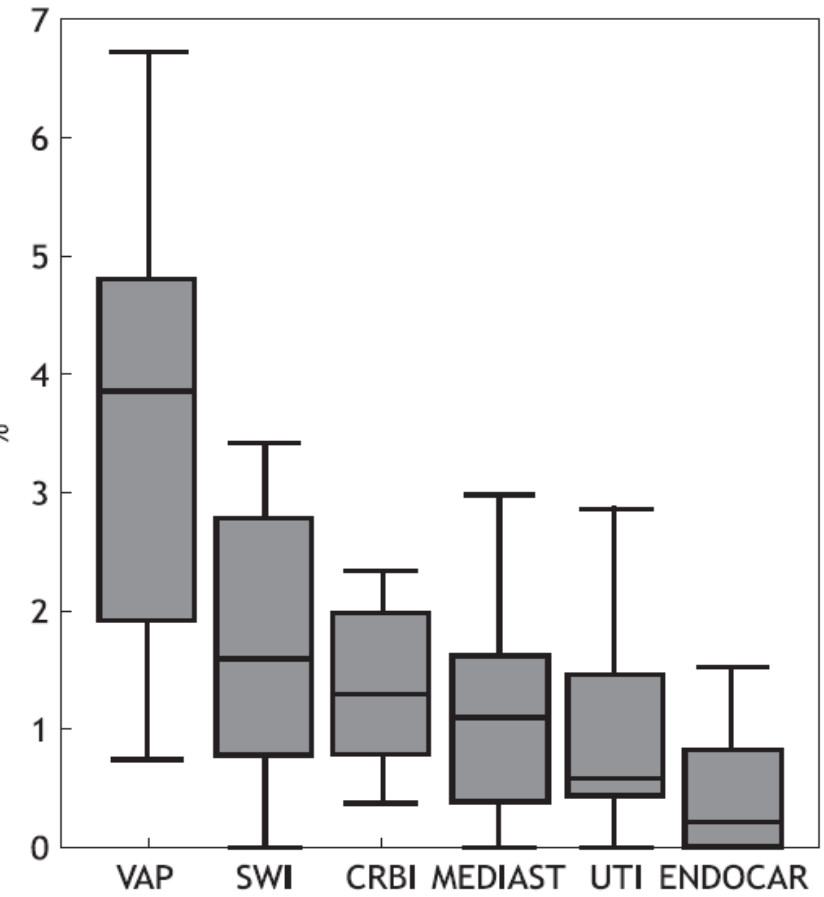
Faja

J. López et al. Recomendaciones basadas en la evidencia para la prevención de la infección de herida quirúrgica en cirugía cardiovascul
Cir Cardiov. 2018;25(1):31–35

Posoperatorio

ENVIN HELICS

Prevalencia



THE JOURNAL OF HOSPITAL INFECTION
The Official Journal of the Healthcare In

Infections following major heart surgery in European intensive care units: there is room for improvement (ESGNI 007 Study)

E. Bouza [a], J. Hortal [b,*], P. Muñoz [a], M.J. Pérez [b], M.J. Riesgo [b], M. Hiesmayr [c] on behalf of the European Study Group on Nosocomial Infections and the European Workgroup of Cardiothoracic Intensivists

- N 11 915 Año 2001
- Nosocomial 9,9 % (37-45%)
- VAP 3,8%;SWI 1,6%, CRB 1,3 %, Mediastinitis 1,1, ITU 0,6 , Endocarditis 0,2 %
- Media Medico 0,3 – Enfermer@ 0,8
- Respueta rapida > 71%
- Mortalidad 22% de las muertes
- Existencia de protocolos clínicos - PROA

E. Bouza et al.Journal of Hospital Infection (2006) 63, 399e405

fección respiratoria

N 321 Prevalencia año 2002

VM 51 %

Nosocomial 26.8%

Table III Relative frequencies of different nosocomial infections

	N	% of all patients	% of all infections
Lower respiratory tract infection (total)	49	15.3	57
Ventilator-associated pneumonia	24	7.5	27.9
Tracheobronchitis	25	7.8	29.1
Catheter-related bloodstream infection	9	2.8	10.5
Surgical site infection	7	2.2	8.2
Urinary tract infection	6	1.9	7
Mediastinitis	3	0.9	3.5
Nosocomial endocarditis	2	0.6	2.3
Other infections	10	3.1	11.5
Total	86	26.8	100

THE JOURNAL OF HOSPITAL INFECTION
The Official Journal of the Healthcare Infection Society

Postoperative infections after major heart surgery and prevention of ventilator-associa pneumonia: a one-day European prevalence study (ESGNI-008)☆

E. Bouza [a], J. Hortal [b,*], P. Muñoz [a], J. Pascau [c], M.J. Pérez [b], M. Hiesmayr [d] on behalf of the European Study Group on Nosoc Infections and the European Workgroup of Cardiothoracic Inter

Table II Compliance with recommended strategies for preventing ventilator-associated pneumonia

Variables	Number of patients	%
Postural oscillation	100	61.0

Journal of Hospital Infection (2006) 64, 224e230

Impact of four sequential measures on the prevention of ventilator-associated pneumonia in cardiac surgery patients

María Jesús Pérez-Granda[1,2,5*], José María Barrio[1,2], Patricia Muñoz[2,3,4,5*], Javier Hortal[1,2], Cristina Rincón[1] and Emilio Bouza[2,3,4]

CRITICAL CARE

N 401 + 1534 año 2014

9 meses – Bundle – 35 meses.

Medidas :

- Programa
- Aspiración subglótica
- Posición semiincorporado- inclinometro
- Higiene oral clorhexdina

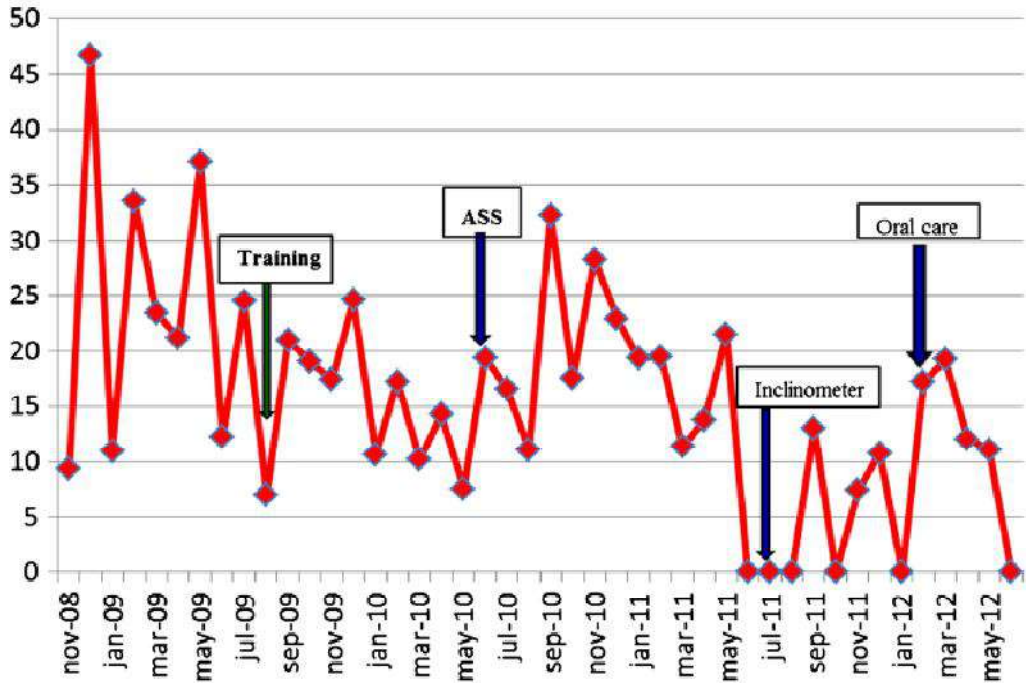
Medida mas efectiva inclinómetro

↓ VAP

↓ Costes antimicrobianos , mortalidad.

Incidence density of VAP during the study period

P=0.005



Conclusions: A sequentially applied bundle of four preventive measures reduces VAP rates, days of M the cost of antimicrobial therapy in patients admitted to the major heart surgery ICU.

Pérez-Granda et al. Critical Care 2014, 18:R53

tudio Prevalencias - cidencias

earch

ntilator-associated pneumonia in patients undergoing major rt surgery: an incidence study in Europe

r Hortal[1], Patricia Muñoz[2,6], Gregorio Cuerpo[3], Hector Litvan[4], Peter M Rosseel[5],
o Bouza[2,6] for the European Study Group on Nosocomial Infections and for the European
kgroup of Cardiothoracic Intensivists

CRITICAL CARE

986 - 1 mes

4% nosocomial 2.1% VAP

AP 13,9 ‰ VAT 3,7 ‰

iologías : Enterobacteria (45%) > pseudomona (20%)> MARSA (10%)

R VAP : Cirugia aorta, politransfusion/re-intervención.

AP vs NoVAP: Estancia 23 vs 2 , Mortalidad 35% vs 2-3%

Table 1

Participating hospitals and countries

Country	Hospitals	Patients per hospital	Patients per country
Austria	AKH University Hospital	19	19
Denmark	Rigshospitalet	72	72
France	Albert Michallon	95	95
Italy	Azienda Ospedaliera-Universita di Padova	64	64
The Netherlands	Amphia Hospital	134	134
Spain	Sant Creu i Sant Pau	59	487
	German Trias i Pujol	19	
	Virgen de las Nieves	26	
	Clinico de San Carlos	16	
	Clinico Universitario de Valencia	22	
	Hospital Universitario 12 de Octubre	32	
	Hospital de Cruces	[illegible]	
	[illegible]	[illegible]	
	Puerta de Hierro	24	
	Hospital de la Princesa	23	
	Virgen de la Macarena	39	
	Gregorio Marañón	39	
	Clínico Ruber	13	
	Hospital Universitario de Canarias	20	
	Ruber Internacional	4	
	Hospital la Fe	38	
	Virgen de la Arrixaca	35	
Sweden	Sahlgrens University Hospital	60	60
Switzerland	University Hospital Zurich	67	91
	Centre Hospitalier Universitaire de Vaudois	24	
Totals – 8	25		971

Meixoeiro 55

Introduction Patients undergoing major heart surgery (MHS) represent a special subpopulation at risk for nosocomial infections. Postoperative infection is the main non-cardiac complication after MHS and has been clearly related to increased morbidity, use of hospital resources and mortality. Our aim was to determine the incidence, aetiology, risk factors and outcome of ventilator-associated pneumonia (VAP) in patients who have undergone MHS in Europe.

Methods Our study was a prospective study of patients undergoing MHS in Europe who developed suspicion of VAP. During a one-month period, participating units submitted a protocol of all patients admitted to their units who had undergone MHS.

Results Overall, 25 hospitals in eight different European countries participated in the study. The number of patients intervened for MHS was 986. Fifteen patients were excluded because of protocol violations. One or more nosocomial infections were detected in 43 (4.4%) patients. VAP was the most frequent nosocomial infection (2.1%; 13.9 episodes per 1000 days of mechanical ventilation). The microorganisms responsible for VAP in this study were: *Enterobacteriaceae* (45%), *Pseudomonas aeruginosa* (20%), methicillin-resistant *Staphylococcus aureus* (10%) and a range of other microorganisms. We identified the following significant independent risk factors for VAP: ascending aorta surgery (odds ratio (OR) = 6.22; 95% confidence interval (CI) = 1.69 to 22.89), number of blood units transfused (OR = 1.08 per unit transfused; 95% CI = 1.04 to 1.13) and need for re-intervention (OR = 6.65; 95% CI = 2.10 to 21.01). The median length of stay in the intensive care unit was significantly longer ($P < 0.001$) in patients with VAP than in patients without VAP (23 days versus 2 days). Death was significantly more frequent ($P < 0.001$) in patients with VAP (35% versus 2.3%).

Conclusions Patients undergoing aortic surgery and those with complicated post-intervention courses, requiring multiple transfusions or re-intervention, constitute a high-risk group probably requiring more active preventive measures.

Critical Care 2009, **13**:R80 (doi:10.1186/cc7896)

Posoperatorio

N 78 (50%) año 2008
Control 3 días Mero+Line
(*)

- VAP/VAT
  - 64->34 ‰ ICU
- Diagnostico :
  - 4,5 -> 9 días

(ns):

- [días ICU]
- [días hospitalilazacion]
- Uso atb , clostridium
- Mortalidad

!!: SCN y stafilococos RTE

study period. *Conclusions:* A pre-emptive approach with broad-spectrum antibiotics may be effective in reducing the incidence and delaying the onset of VAP + VAT after MHS. The ecological consequences have to be carefully evaluated in future trials

Intensive Care Med (2013) 39:1547–1555
DOI 10.1007/s00134-013-2997-6

ORIGINAL

Emilio Bouza
María Jesús Pérez Granda
Javier Hortal
José M. Barrio
Emilia Cercenado
Patricia Muñoz

Pre-emptive broad-spectrum treatment for ventilator-associated pneumonia in high-risk patients

Outcome	Control ($n = 38$)	Intervention ($n = 40$)	p
VAP episodes	8 (21.1 %)	7 (17.5 %)	0.69
VAP cases/1,000 days of MV until LRTI[a]	32.39	20.23	0.14
Episodes of VAT	8 (21.1 %)	4 (10.0 %)	0.18
VAT cases/1,000 days of MV until LRTI[a]	32.39	11.56	0.10
VAP + VAT episodes (incidence)	16 (42.2 %)	11 (27.5 %)	0.17
VAP + VAT/1,000 days of MV until LRTI[a]	64.78	31.79	0.03
Median days on MV before VAP or VAT (IQR)	4.5 (3–9)	9 (2–23)	0.02
Median days on MV (IQR)	6 (4–17.5)	6 (4–16)	0.94
Median days of ICU stay (IQR)	12 (6–22)	10 (7–9.5)	0.77
Median days of hospital stay (IQR)	18 (12.7–36.0)	20.5 (13.0–38.5)	0.90
Mortality (%)	15 (39.4)	11 (27.5)	0.26
Overall DDDs of antimicrobial agents during ICU stay, mean (SD)	19.5 (38)	22.2 (25.6)	0.70
Episodes of CDI	1 (2.6 %)	2 (5.0 %)	1.00
Non respiratory superinfection	11 (28.9 %)	8 (20 %)	0.36

VAP ventilator-associated pneumonia, *VAT* ventilator-associated tracheobronchitis, *IQR* interquartile range, *DDDs* daily defined doses, *CDI Clostridium difficile* infection, *MV* mechanical ventilation
[a] Denominator was days of mechanical ventilation until VAP or VAT

	Intervention (6/40 patients)	Control (15/38 patients)	p
Staphylococcus aureus	1	0	>0.999
Enterobacteriaceae	5	12	0.056
Pseudomonas aeruginosa	1	0	>0.999
Haemophilus influenzae	3	4	0.708
Other gram-negative bacilli	0	1	0.487

Intensive Care Med (2013) 39:1547-1555

Bacteriemia

OPEN ACCESS Freely available online

PLOS | ONE

Ethanol Lock Therapy (E-Lock) in the Prevention of Catheter-Related Bloodstream Infections (CR-BSI) after Major Heart Surgery (MHS): A Randomized Clinical Trial

María Jesús Pérez-Granda[1,5,6]*, José María Barrio[1,5,6], Patricia Muñoz[2,4,5,6]*, Javier Hortal[1,5,6], Cristina Rincón[1], Pablo Martin Rabadán[2,4,5,6], Maria Sagrario Pernia[3], Emilio Bouza[2,4,5,6]

1 Department of Anesthesiology, School of Medicine, Universidad Complutense, Madrid, Spain, **2** Department of Clinical Microbiology and Infectious Diseases, School of Medicine, Universidad Complutense, Madrid, Spain, **3** Department of Pharmacy, Hospital General Universitario Gregorio Marañón, Madrid, Spain, **4** Medicine Department, School of Medicine, Universidad Complutense, Madrid, Spain, **5** Instituto de Investigación Biomédica Gregorio Marañón, Madrid, Spain, **6** CIBER Enfermedades Respiratorias-CIBERES (CB06/06/0058), Madrid, Spain

Abstract

Background: Lock-therapy with antimicrobials has been used for the treatment and prevention of catheter-related bloodstream infections (CR-BSI). Experiences with Ethanol-Locks (E-locks) have included therapeutic interventions with variable results. Patients undergoing Major Heart Surgery (MHS) are a high-risk population for CR-BSI.The aim of this study was to assess the efficacy and tolerance to E-Locks in the prevention of CR-BSI of patients undergoing MHS.

Methods and Findings: This is an academic, prospective, randomized, non-blinded and controlled clinical trial assessing the incidence of CR-BSI of patients with E-locks (E-lock) and the tolerance to the procedure in comparison with patients receiving conventional catheter-care (CCC). Patients undergoing MHS with intravascular catheters for more than 48 hours were randomly assigned into treatment or control group by a computer-generated list of randomly assigned numbers. In the treatment group, all their catheter lumens were locked with an ethanol solution at 70% for two hours, every three days (E-Locks). The control group received conventional catheter-care (CCC). Overall, 200 patients with 323 catheters were included in the study, which was stopped after 10 months due to adverse events. Of them, 179 catheters (113 patients) had E-Locks and 144 catheters (87 patients) were CCC. Euroscore Surgical Risk in both groups was 4.04 vs 4.07 $p = 0.94$ respectively. The results for the E-Locks and CCC were as follows: Incidence of CR-BSI/1000 days of exposure 2.1 vs 5.2 ($p = 0.33$), catheter tip colonization 14 (7.8%) vs 6 (4.2%) patients ($p = 0.17$), median length of hospital stay, 15 vs 16 days ($p = 0.77$). Seven patients (6.19%), all in the ethanol branch, had to discontinue the trial due to intolerance or adverse events.

Conclusions: We do not recommend prophylaxis of CR-BSI with ethanol-lock on a routine basis in patients undergoing Major Heart Surgery.

Trial Registration: Clinical Trials.gov NCT01229592

MEDIDAS BÁSICAS DE OBLIGADO CUMPLIMIENTO

1.- Formación y entrenamiento apropiado en el manejo de la vía aérea

2.- Higiene estricta de manos en el manejo de la vía aérea

3.- Control y mantenimiento de la presión del neumotaponamiento >20 cmH_2O

4.- Higiene bucal cada 6-8 horas utilizando Clorhexidina (0,12-0,2%)

5.- Evitar, siempre que sea posible, la posición de decúbito supino a 0º

6.- Favorecer procedimientos que permitan disminuir la intubación y/o su duración

7.- Evitar los cambios programados de las tubuladuras, humidificadores y tubos traqueales

MEDIDAS ESPECÍFICAS ALTAMENTE RECOMENDABLES

1.- Descontaminación selectiva del tubo digestivo (DDS)

2.- Aspiración continua de secreciones subglóticas

3.- Antibióticos sistémicos durante la intubación en pacientes con disminución del nivel de conciencia

SDD

Impact of selective digestive decontamination without systemic antibiotics in a major heart surgery intensive care unit

María Jesús Pérez-Granda, RN, PhD,[a,b,c,d] José M. Barrio, MD, PhD,[a,b,d] Javier Hortal, MD, PhD,[a,b,d] Almudena Burillo, MD, PhD,[c,d] Patricia Muñoz, MD, PhD,[b,c,d,e] and Emilio Bouza, MD, PhD[b,c,d,e]

.73 VM > 48 h. 17 m pre + 17 m pos

vo: nystatin,colistin, tobramycin and vancomycin

SNG , nystatin, colistin, and tobramycin

atb iv.

hours hasta extubación/traqueo.

2 -> 6,8 ‰ d VM
-> 12 ‰ d VM > 48 h

repercussion ecologica

SDD digestive solution and oral paste.

Results: The rates of VAP in the overall population before and during the intervention were 16.26/1000 days and 6.80 episodes/1000 days of mechanical ventilation, respectively ($P = .01$). The rates of VAP in the 173 patients remaining under mechanical ventilation > 48 hours after surgery were, respectively, 25.85/1000 days of mechanical ventilation versus 12.06 episodes/1000 days of mechanical ventilation ($P = .04$). We found a significant reduction in the number of patients with multidrug-resistant microorganisms ($P = .01$) in the second period of the study.

Conclusions: Our study shows that SDD without parenteral antibiotics can reduce the incidence of VAP in high-risk patients after major heart surgery, with no significant ecologic influence. (J Thorac Cardiovasc Surg 2018;156:685-93)

Central Message

Our study evaluates the efficacy of
without parenteral antibiotics for prev
VAP in an MHS ICU and its ecologic influ

Perspective

We found that SDD without parenteral
otics can reduce the incidence and delay
of VAP in high-risk patients after MHS. Th
ence of MDR microorganisms had no ec
influence on the MHS-ICU. In our op
SDD should be systematically applied to
tients requiring MV > 48 hours after MH

The Journal of Thoracic and Cardiovascular Surgery ◦ Volume 156, Number 2

SDD

Pérez-Granda *et al. BMC Infectious Diseases* (2017) 17:746
DOI 10.1186/s12879-017-2856-0

BMC Infectious Diseases

RESEARCH ARTICLE Open Access

Eradication of *P. aeruginosa* biofilm in endotracheal tubes based on lock therapy: results from an in vitro study

María Jesús Pérez-Granda[1,2,3], María Consuelo Latorre[4], Beatriz Alonso[2,5], Javier Hortal[1,3], Rafael Samaniego[2,6], Emilio Bouza[2,3,5,7] and María Guembe[2,5,8*]

Abstract

Background: Despite the several strategies available for the management of biofilm-associated ventilator-associated pneumonia, data regarding the efficacy of applying antibiotics to the subglottic space (SS) are scarce. We created an in vitro model to assess the efficacy of antibiotic lock therapy (ALT) applied in the SS for eradication of *Pseudomonas aeruginosa* biofilm in endotracheal tubes (ETTs).

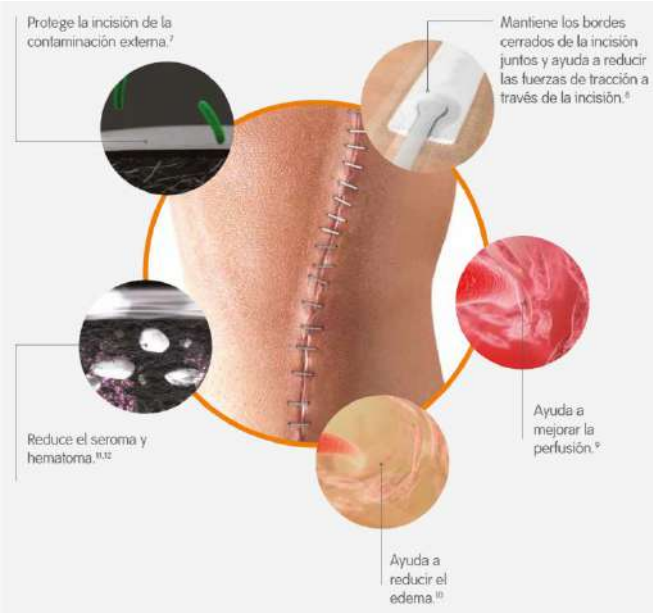
Methods: We applied 2 h of ALT to a *P. aeruginosa* biofilm in ETTs using a single dose (SD) and a 5-day therapy model (5D). We used sterile saline lock therapy (SLT) as the positive control. We compared colony count and the percentage of live cells between both models.

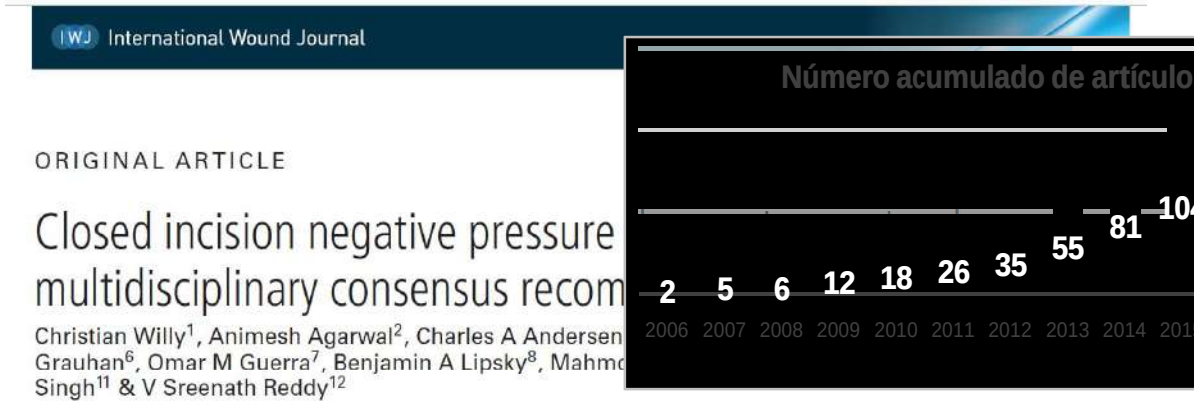
Results: The median (IQR) cfu counts/ml and percentage of live cells in the SD-ALT and SD-SLT groups were, respectively, 3.12×10^5 (9.7×10^4-0) vs. 8.16×10^7 (7.0×10^7-0) ($p = 0.05$) and 53.2% (50.9%-57.2%) vs. 91.5% (87.3%-93.9%) ($p < 0.001$). The median (IQR) cfu counts/ml and percentage of live cells in the 5D-ALT and 5D-SLT groups were, respectively, 0 (0-0) vs. 3.2×10^7 (2.32×10^7-0) ($p = 0.03$) and 40.6% (36.6%-60.0%) vs. 90.3% (84.8%-93.9%) ($p < 0.001$).

Conclusion: We demonstrated a statistically significant decrease in the viability of *P. aeruginosa* biofilm after application of 5D-ALT in the SS. Future clinical studies to assess ALT in patients under mechanical ventilation are needed.

Keywords: *Pseudomonas aeruginosa* biofilm, Ventilator-associated pneumonia, Selective decontamination solution, Lock therapy, Confocal laser scanning microscopy

VAC





IWJ International Wound Journal

ORIGINAL ARTICLE

Closed incision negative pressure multidisciplinary consensus recom

Christian Willy[1], Animesh Agarwal[2], Charles A Andersen
Grauhan[6], Omar M Guerra[7], Benjamin A Lipsky[8], Mahmo
Singh[11] & V Sreenath Reddy[12]

1 Department of Traumatology and Orthopaedic, Septic and Reconstructive Surgery, Research and Treatment Center for Complex Combat Injuries
Wound Centre Berlin, Bundeswehr Hospital Berlin, Ber
2 Division of Orthopaedic Traumatology, University of T
3 Vascular/Endovascular/Limb Preservation Surgery Se
4 Plastic, Reconstructive, Microvascular and Aesthetic
5 Plastic Surgery, PeaceHealth Medical Group, Vancou
6 Department of Cardiothoracic and Vascular Surgery, I
7 Surgery, Suburban Surgical Associates, St. Louis, MO
8 Division of Medical Sciences, University of Oxford, C
9 Department of Surgery, Johns Hopkins University Sc
10 Department of Orthopaedic Surgery, Aalborg Univer
11 Division of Plastic Surgery, Anne Arundel Medical C
12 TriStar CV Surgery, Centennial Heart and Vascular C

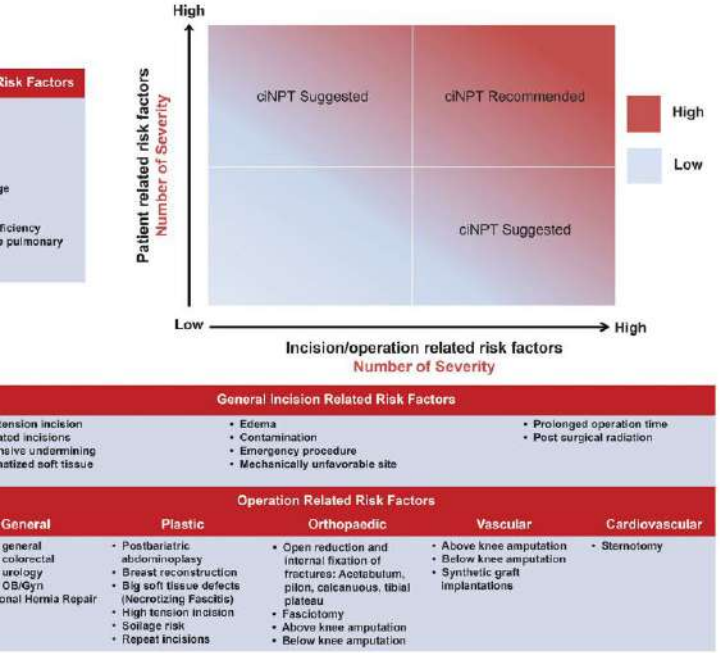
International Wound Journal

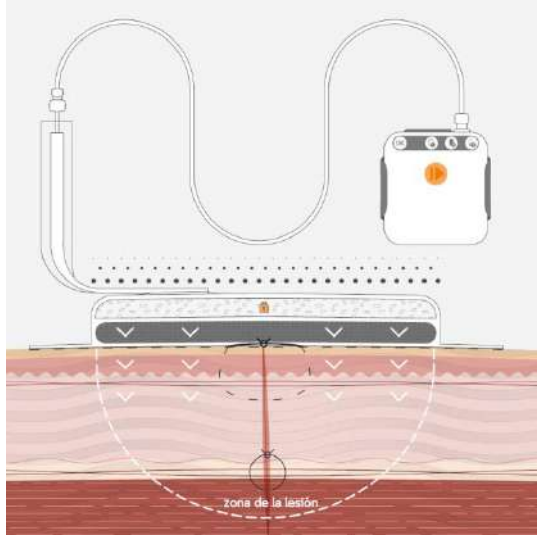
ORIGINAL ARTICLE

Improving wound healing and preventing surgical site complications of closed surgical incisions: a possible rol Incisional Negative Pressure Wound Therapy. A systema review of the literature

Alessandro Scalise[1], Roberto Calamita[1], Caterina Tartaglione[1], Marina Pierangeli[1], Elisa Bollet
Matteo Gioacchini[1], Rosaria Gesuita[2] & Giovanni Di Benedetto[1]

1 Department of Plastic and Reconstructive Surgery, Università Politecnica delle Marche, Ancona, Italy
2 Interdepartmental Centre of Epidemiology, Biostatistics and Medical Informatics (EBI Centre), Università Politecnica delle Marche,



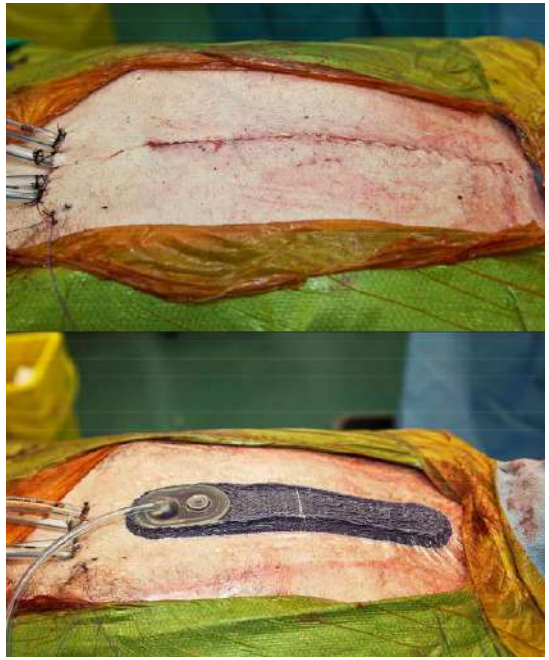


Key Messages

- closed incision negative pressure therapy (ciNPT may offer management of surgical incisions
- a literature search was conducted and a panel of e assembled to identify risk factors for surgical site plications and create consensus recommendatio ciNPT use over closed incisions
- patients with obesity, diabetes mellitus and a prol surgical time are at high risk for developing surgic complications
- surgeons should assess the patient's risk factors fo gical site complications and the type of surgery formed to identify individuals where ciNPT use co beneficial
- ciNPT is recommended for patients with one or comorbidity or in patients with a surgical incisio is historically at high risk for developing surgica complications

, et al . Closed incision negative pressure therapy: international multidisciplinary consensus recommendations. Int Wound J 2017; 14:385–398

VAC en CC



POLSKI
PRZEGLĄD CHIRURGICZN
2014, 86, 10, 456–465

Nherera et al. Journal of Cardiothoracic Surgery (2018) 13:103
https://doi.org/10.1186/s13019-018-0786-6

Cardiot

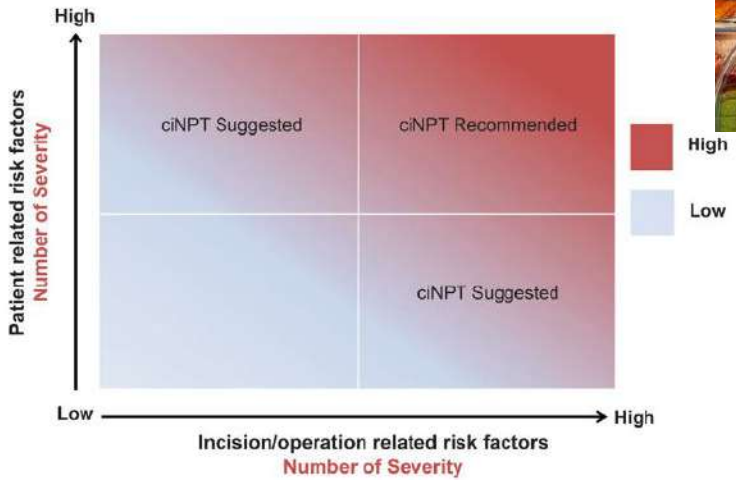
RESEARCH ARTICLE

Cost-effectiveness analysis of single use negative pressure wound therapy dressin (sNPWT) compared to standard of care in reducing surgical site complications (SSC) in patients undergoing coronary artery bypass grafting surgery

Leo M Nherera[1*], Paul Trueman[1], Michael Schmoeckel[2] and Francis A Fatoye[3]

PRELIMINARY OUTCOME OF TREATMENT OF POSTOPER
PRIMARILY CLOSED STERNOTOMY WOUNDS TREATED U
NEGATIVE PRESSURE WOUND THERAPY

ANNA WITT-MAJCHRZAK[1], PIOTR ŻELAZNY[1], JADWIGA SNARSKA



MEDICAL SCIENCE MONITOR

REVIEW ARTICLES

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DOI: 10.12659/MSM.891169

Received: 2014.06.11
Accepted: 2014.06.21
Published: 2014.10.04

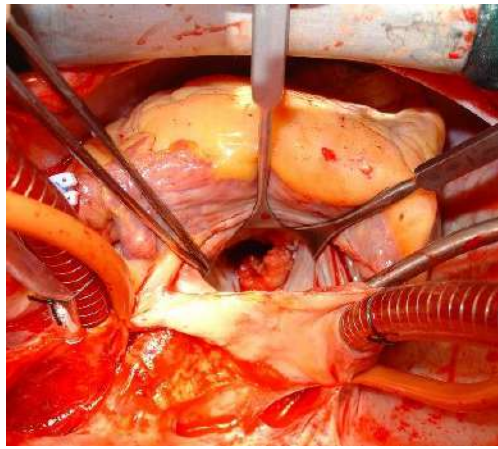
Use of Incisional Negative Pressure Wound Therapy on Closed Median Sternal Incisions after Cardiothoracic Surgery: Clinical Evidence and Consensus Recommendations

By pass doble mamaria ?
Cirugía prolongada ?
Re.op ¿?

ive pressure wound therapy in groin dissection. NCT02408835. Devices: PICO. Study anticipated completion July 2019. Sponsor: South Eastern Health and Social Care Trust. Location: United Kingdom
T – wound healing in surgery for trauma. PICO negative pressure wound therapy versus standard wound care. Study size: 1,540. Sponsor: NIHR health technology assessment programme.
E 7 – WHISH – wound healing in surgery for hip fractures. ISRCTN55305726. Device: PICO. Study completionDecember 2018. Sponsor: NIHR and Royal College of Surgeons of England.
-use negative pressure wound therapy system versus traditional negative pressure wound therapy system (sNPWT versus tNPWT). NCT02470806 Device:. Completed January 2018, Location: Canada,
negative pressure wound therapy in obese women undergoing elective caesarean delivery. NCT03414762. Device: PICO Study start date: February 2018. Sponsor: Northwell Health.

Medidas y Resultados

XUNTA DE GALICIA
CONSELLERÍA DE SANIDADE



SERVIZO GALEGO de SAÚDE | Xerencia de Xestión Integrada de Vigo
Vigo

Staphylococcus aureus NASAL

- Julio 2016.
  - SAMS Consulta.
  - MARSA en Reanimación 1 d/semana

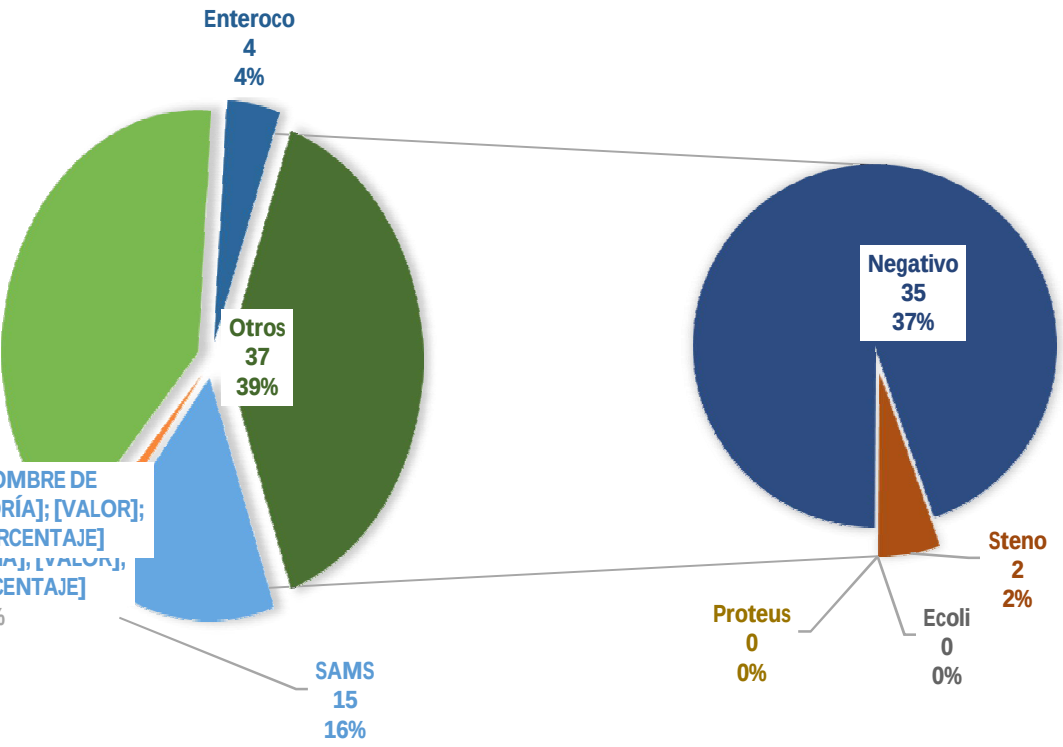
2015 – Nov 2018	%	N
Total pacientes		1590
Total peticiones		237
MARSA	3,4	55
SAMS	0,18	3

- Logística compleja SAMS

- Indicador -> ¿? endocarditis precoces, cultivos herida ?¿ :

GERMENES AISLADOS 2009-2010 (ABRIL)
N 27

SERVIZO GALEGO de SAÚDE | Xerencia de Xestión Integ de Vigo Vigo



GERMENES AISLADOS 20014-2015 (ENERO)
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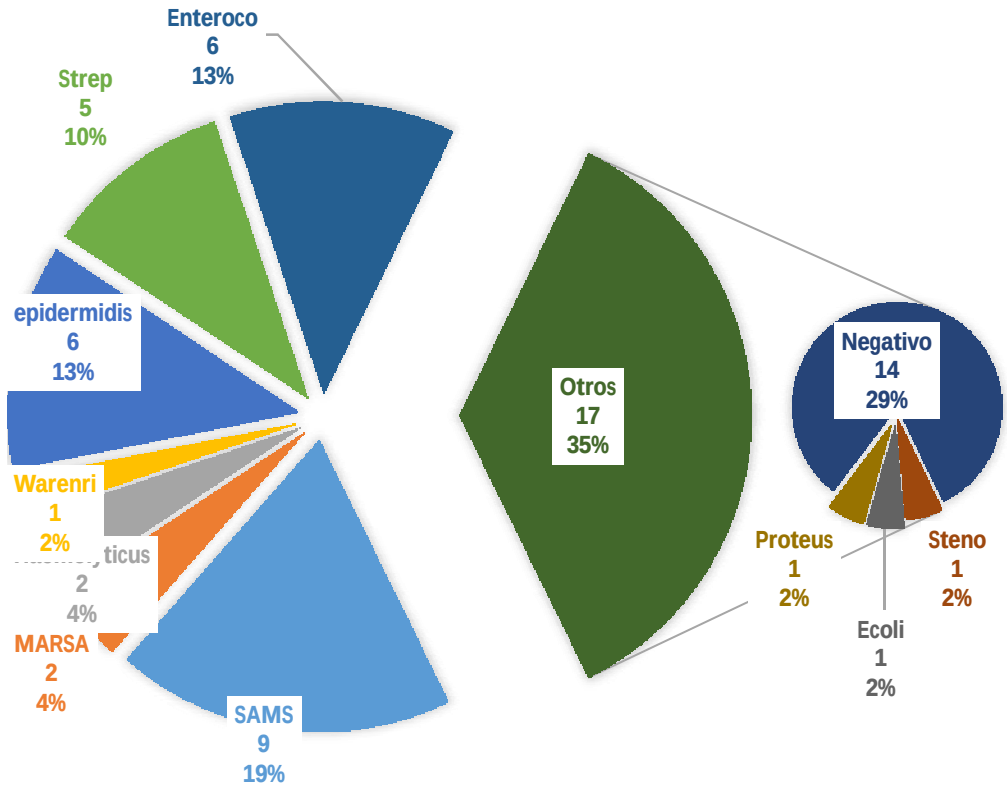
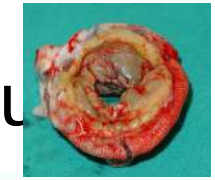
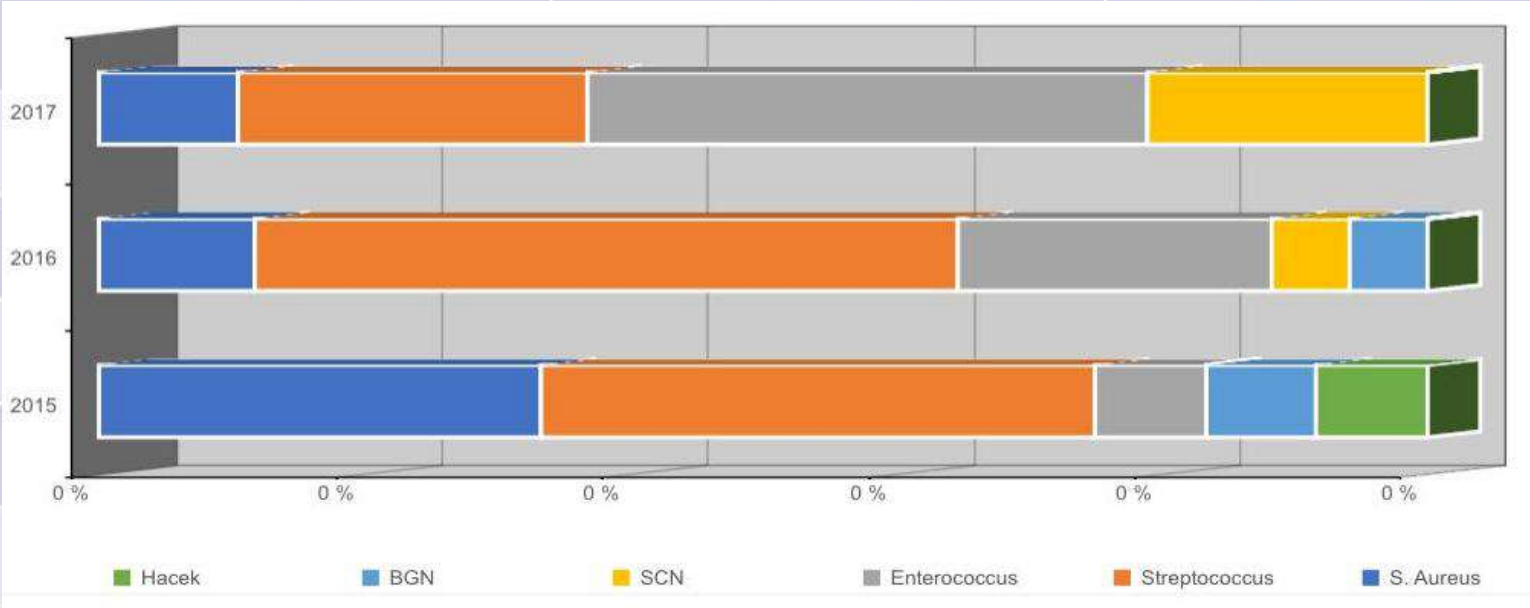


Endocarditis TEAM . H. Álvaro Cunqu



SERVIZO GALEGO de SAÚDE | Xerencia de Xestión Integ de Vigo Vigo

	2015	2016	2017
Casos	20	24	37
Quirúrgicos	14	17	20
Edad			
Hombres			
Shock			
Aortica			
Mitral			
M - A			
Prótesis	3 (15%)	6 (25%)	13 (35%)
Precoz	0	3 (12,5%)	4 (10%)
Exitus	5 (25%)	2 (8,3%)	4 (10,8%)



Exudados herida Quirúrgica CC

BZ-NZ 2010-2016

	2010	2011	2012	2013	2014	2015	2016	2017
Ingresos	680	620	653	687				
Estancias totales	3151	3002	2784	2429				
Estancia Media sin estructural	4,51	4,73	4,09	3,11				
pacientes estancia 1 día en la rea			271	358				
% pacientes con estancia 1 día			41,50%	52,11%				
Exitus	34	33	21	25				
% mortalidad	5.0	5.3	3.2	3.6				
Periodo ENVIN (1 abril-31Junio)								
Infecciones nosocomiales %	9.6	16	4,3	2,2	5,5	4	5,6	
Neumonía asociada a ventilación NAV pacientes	23	14.8						
ITU	5.2	8.6	3.1					
Bacterimias pacientes	1.27	2.4	2.27	1.35				
Anual enero – Diciembre								
Campaña BZ objetivo < 4(‰)	1.27*	**2.4***	**2.27**	**1.35**	**0,4**	**0,8**	**2,1**	
Campaña NZ objetivo < 9(‰)	23*	**14.8***	**19**	**3.5**	**4,1**	**1,3**	**6,4**	

de SAÚDE | Vigo

SERVIZO GALEGO de SAÚDE | Xerencia de Xestión Integ de Vigo Vigo

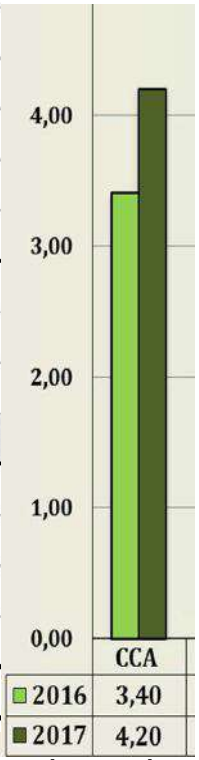
Año 2016	Objetivo	REA	NNIS	
ctriemias 1 y secundaria asociada a cateter	< 4	2,13	P 51	ok
dias de uso cateter				
umonias asociadas a ventilador (NAV)	< 9	6,41	P 58	ok
dias de ventiacion				
cientes con tasa de B.multiresistentes (BMR)	< 4	1,5		ok
guimiento plan de prevencion y control MARSA PC		controles de vigilancia semanal		ok
C		screening pacientes riesgo		ok

Tasas y epidemiologia local

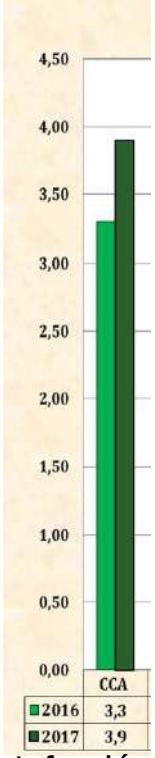
2017 Cirugía cardiaca

INFECCIONES HOSPITALARIAS SEGUN LOCALIZACION

ZACION	Frecuencia %	Nº	%	Acumulad Nº
S	1,09	12	22,22	
ORIAS	0,27	3	5,56	
MIAS	0,36	4	7,41	
MIAS ASOC. CATETER				
TÉTERES VASCULARES	0,09	1	1,85	
S	0,27	3	5,56	
IMPIA	2,18	24	44,44	
NO LIMPIA	0,36	4	7,41	
UIRURGICA	(2,55)	(28)	(51,85)	
L				
AL				
TES BLANDAS	0,18	2	3,70	
	0,09	1	1,85	
	4,9	**54**	**100,0**	



Infeccion /100 Cirugia total



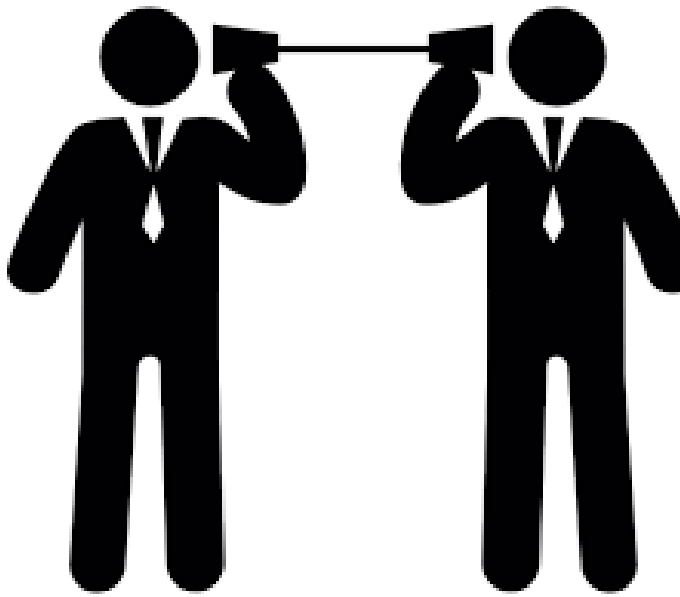
Infección /100 Cirugia limpia

SERVIZO GALEGO de SAÚDE | Xerencia de Xestión Integra de Vigo Vigo

GERMEN / TIPO INFECCIÓN		Urinario	Respir	Bacter	Bacter Catéter	Entérica	Herida quirúrgica Limp	Herida quirúrgica No Limp	Piel	Otras	Total
AEROBIOS – POSITIVOS	Staph. Aureus		1	1			6		1	1	10
	S.A.M.R.										
	Staf. Epidermidis			1			9				10
	Otros Staphyloccus						1				1
	Enterococo						2	2			4
AEROBIOS – NEGATIVOS	E. Coli	4		1			2				7
	E. Coli BLE								1		1
	Proteus	1					1				2
	Klebsiella	5	1	1				1			8
	Klebs. P.Carbap.							1			1
	Serratia									1	1
	Enterobacter		2				6				8
	Otras Ent. P.Carbap.							1			1
	Pseudomonas	2					1		1		4
	Ps.Aerug.Resist.						2				2
	Acinetobacter										
ANAEROBIOS	Clostridium Diffic.					3					3
	Anaerobios, otros						1				1
HONGOS	Candidas						1	1			2
	Aspergillus										

Serv. Medicina Preventiva.XXI Vigo. EPINE 2017

Conclusiones



- Pre- op :
  - Screenig de portardor nasal y descolonización
  - Baño esponja de clorhexidina 4%
- Intra – medidas control y mejor técnica. Menos invasivas.
  - VAC en alto riesgo
- Posoperatorio:
  - Medidas de disminución de infección nosocomial

Lineas de mejora..

- Aumentar alcance en medidas de screening
- Estrictos en medidas intraoperatorias
- Vigilancia de medidas en posoperatorias
- Reestablecer PROA
- Control y feed- back multidisciplinar…

ESGNI 10 ?

Timing	Intervention
Preoperative	1. Nares screened for methacillin resistant *Staphylococcus aureus*. 2. Soap and water bath, night before surgery. 3. Two preoperative baths with 2% chlorhexidine gluconate (CHG) wipes with emphasis on anterior thorax. On night before surgery after soap and water bath and on the morning of surgery. Place child in clean hospital gown after first CHG bath. 4. Place disposable telemetry leads on chest after first CHG bath.
Intraoperative	1. Timing of preoperative antibiotics. Cefuroxime given 60 minutes prior to skin incision. Vancomycin started between 60 and 120 minutes prior to skin incision. 2. CHG used for skin preparation for children >1,500 g.
Postoperative	Sternum closed 1. Hand washing for all persons entering and exiting patient room. 2. Stethoscopes to be cleaned with unit stocked disinfectant wipes prior to use. 3. Avoid draping telemetry leads or other equipment across sternotomy. 4. Postoperative antibiotics discontinued within 48 hours of surgery. 5. Sterile dressing applied in surgery and removed by surgery team within 48 hours of surgery. 6. Chest tube drain sites covered with occlusive dressing and changed if wet, soiled or loose. 7. Electrocardiograph technicians clean 12-lead cables with disinfectant wipes prior to being placed on bed. 8. Sterile gel used by technician or cardiologist for postoperative echocardiography. Sternum open—additional interventions 1. An individual stethoscope for exclusive use on that patient will be placed in room. 2. Daily CHG baths for children >1,500 g 3. Sign placed on door of patient's room to declare "sternal wound infection precautions." 4. During sternal closure procedure, the doors of the patient's room remain to be closed with minimal traffic in and out of room. 5. All staff in room during closure will wear a mask and cap. Surgical personnel wear sterile gowns, gloves, caps, and masks.

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Gracias !!!