21st Infection and Sepsis Symposium

07 - 09 March 2016 | Sheraton Porto

New Portuguese guidelines
Chairmen: Helena Ramos | Antero Fernandes

- Preventing infection: Novel strategies to tackle the problem. — **Paulo André Fernandes**

Grupo de Infecção e Sepsis

www.gis.pt

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Preventing Infection:
Novel Strategies to Tackle the Problem

Paulo André Fernandes

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Something old...

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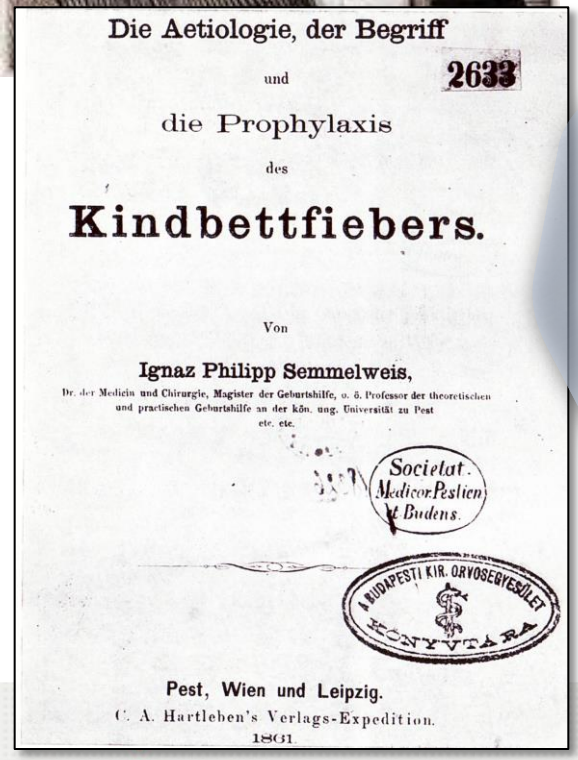
Hand Hygiene


Die Aetiologie, der Begriff

und

die Prophylaxis

des

Kindbettfiebers.

Von

Ignaz Philipp Semmelweis,

Societat. Medicor. Pestien. et Budens.

A BUDAPESTI KIR. ORVOSEGYESÜLET KÖNYVTÁRA

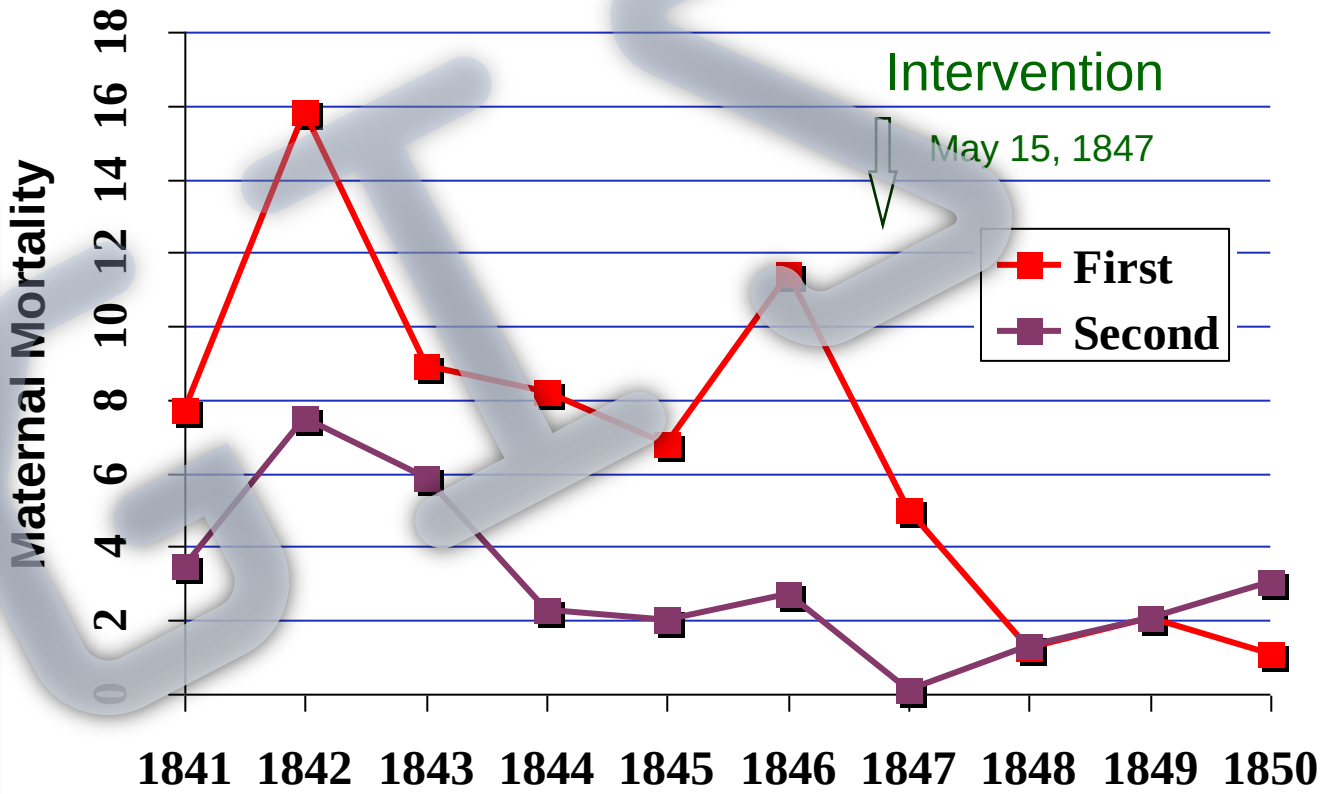
Pest, Wien und Leipzig.

C. A. Hartleben's Verlags-Expedition.

1861

Maternal Mortality due to Postpartum Infection

General Hospital, Vienna, Austria
1st & 2nd obstetrical clinics, 1841-1850



Adapt. from Pittet. 2010

In Portugal,
170 years after Semmelweis…

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HCW miss 3/10 opportunities for HH

Relatório Auditoria PBCI. PPCIRA 2015

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What can we do more…
to improve HCW adhesion to HH?...

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Rashidi B et al.
Am J Infect Control 2016

HAI are preventable… but to what proportion?

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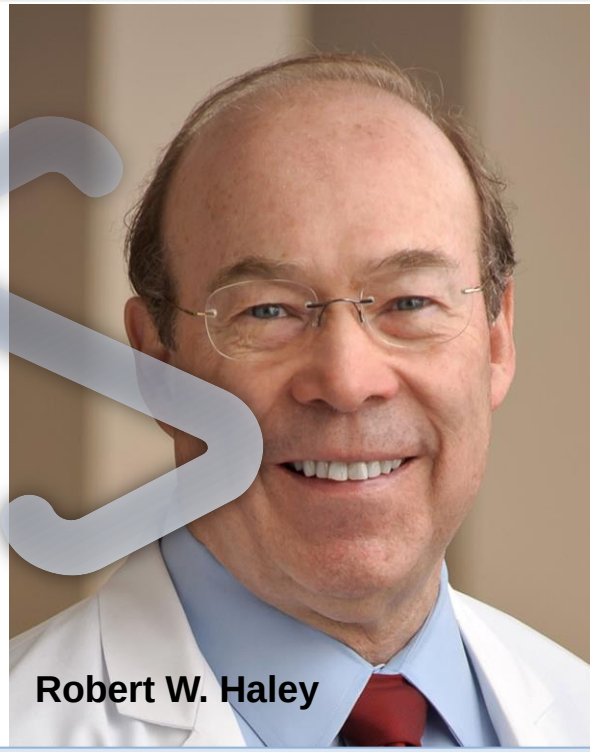
SENIC (1974-1983) – Hospitals with:

- Organized surveillance & control activities
- Trained, effective IC physician
- An IC nurse per 250 beds
- System for reporting infection rates to surgeons



Robert W. Haley

Reduced their hospitals' infection rates by 32%

(< 7–48% *versus* > 18%)

Haley RW et al. Am J Epidemiol 1985

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HAI are preventable… but to what proportion?

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Ventilator Bundle Interventions:

1. Peptic ulcer disease prophylaxis
2. Deep vein thrombosis prophylaxis
3. Elevation of the head of the bed
4. Sedation vacation

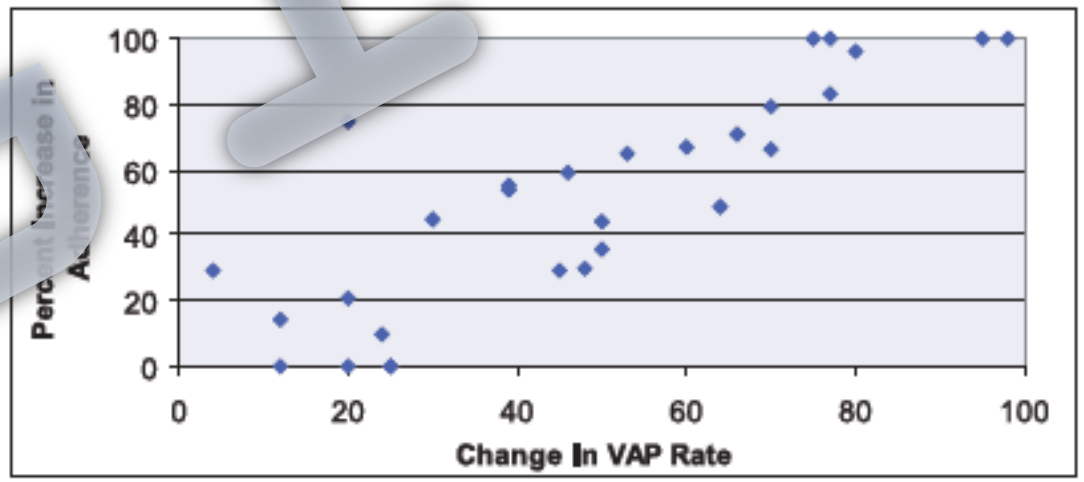
2005

100K Lives Campaign

Using a Bundle Approach to Improve Ventilator Care Processes and Reduce Ventilator-Associated Pneumonia

Roger Resar, M.D.
Peter Pronovost, M.D., Ph.D.
Carol Haraden, Ph.D.
Terri Simmonds, R.N.
Thomas Rainey, M.D.
Thomas Nolan, Ph.D.

The Joint Commission is a partner of the Institute for Healthcare Improvement's (IHI) 100K Lives Campaign, which promotes implementation of changes in care to prevent avoidable deaths (http://www.ihi.org). Manuscripts are invited on implementation of Prevention of Ventilator-Associated Pneumonia or any other of the six "planks" in the campaign platform.



Resar R. *Jt Comm J Qual Patient Saf* 2005;31:243-8

HAI are preventable… but to what proportion?

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The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 DECEMBER 28, 2006 VOL. 35

An Intervention to Decrease Catheter-Related Blo Infections in the ICU

Peter Pronovost, M.D., Ph.D., Dale Needham, M.D., Ph.D., Sean Berenholtz, M.D., David Sinc Haitao Chu, M.D., Ph.D., Sara Cosgrove, M.D., Bryan Sexton, Ph.D., Robert Hyzy, M.D., Ro Gary Roth, M.D., Joseph Bander, M.D., John Kepros, M.D., and Christine Goeschel,

Table 3. Rates of Catheter-Related Bloodstream Infection from Baseline (before Imp of Follow-up.*

Study Period	No. of ICUs	No. of Bloodstre				
		Overall	Teaching Hospital			
				m		
Baseline	55	2.7 (0.6–4.8)	2.7 (1.3–4.7)			
During implementation	96	1.6 (0–4.4)†	1.7 (0–4.5)			
After implementation						
0– 3 mo	96	0 (0–3.0)‡	1.3 (0–3.1)†			
4–6 mo	96	0 (0–2.7)‡	1.1 (0–3.6)†	0 (0–0)‡	0 (0–0)†	0 (0–3.2)‡
7–9 mo	95	0 (0–2.1)‡	0.8 (0–2.4)‡	0 (0–0)‡	0 (0–0)†	0 (0–2.2)‡
10–12 mo	90	0 (0–1.9)‡	0 (0–2.3)‡	0 (0–1.5)‡	0 (0–0)†	0.2 (0–2.3)‡
13–15 mo	85	0 (0–1.6)‡	0 (0–2.2)‡	0 (0–0)‡	0 (0–0)†	0 (0–2.0)‡
16–18 mo	70	0 (0–2.4)‡	0 (0–2.7)‡	0 (0–1.2)†	0 (0–0)†	0 (0–2.6)‡

KEYSTONE PROJECT BUNDLE

- Hand washing
- Full-barrier precautions during the insertion of CVC
- Cleaning the skin with chlorhexidine
- Avoiding the femoral site if possible
- Removing unnecessary catheters

2006

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Something new...

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New focus on environment in infection control

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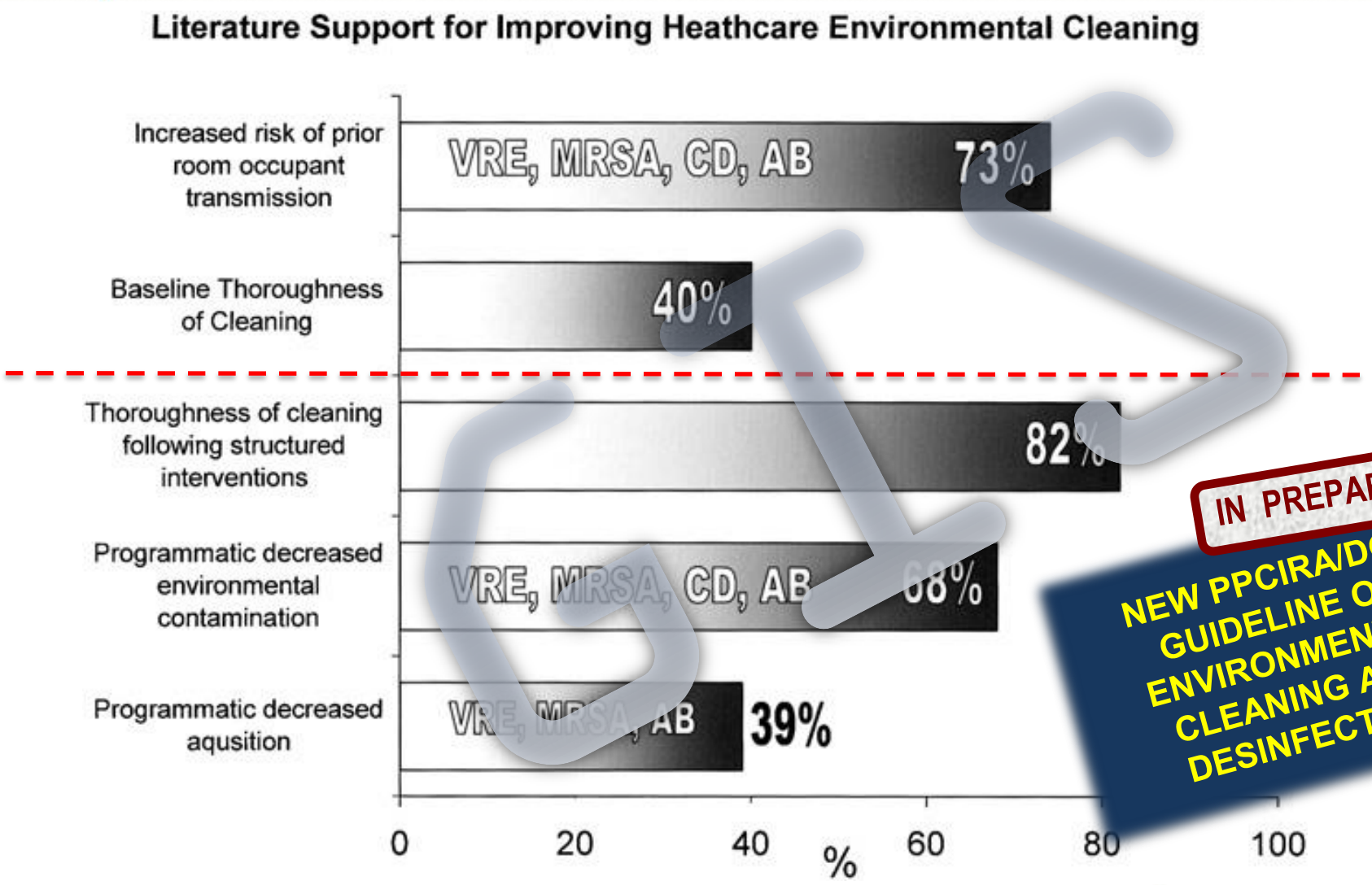

IN PREPARATION

NEW PPCIRA/DGS GUIDELINE ON ENVIRONMENTAL CLEANING AND DESINFECTION

Carling PC et al. Am J infect Control 2010;38:S41-50

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New focus on long-term care units in infection control & antibiotic resistance

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Long Term Care Intervention

- Written ICP&AMR policies and procedures
- Antimicrobial stewardship
- Surveillance
- Preparing for MDR
- Formation
- Programing HALT-3

Designated ICP&AMR practitioner?

Collaboration ACSS, UMP

Residents with HAI prevalence rate 10,4%

HAI prevalence rate 11,3%

HALT-2 2013

	Convalescença	Média duração	Longa duração	Paliativos	Total
Infeção urinária Confirmada Provável	11 (24,4%) 11 (24,4%)	22 (19,5%) 24 (21,2%)	27 (15,2%) 34 (19,1%)	- -	60 (17,5%) 69 (20,0%)
Infeção respiratória Superior Inferior	2 (4,4%) 8 (17,7%)	5 (4,4%) 20 (17,7%)	7 (3,9%) 28 (15,7%)	1 (16,6%) 2 (33,3%)	15 (4,5%) 58 (16,9%)
Infeção da pele e tecidos moles Infeção fungica	6 (13,3%) -	26 (23%) 3 (2,6%)	47 (26,4%) 4 (2,2%)	3 (7,5%) -	82 (23,8%) 7 (2,0%)
Infeções gastrintestinais Infeção por *C. difficile*	2 (4,4%) 2 (4,4%)	5 (4,4%) -	10 (5,6%) -	- -	17 (4,9%) 2 (0,6%)
Infeções oculares	2 (4,4%)	5 (4,4%)	12 (6,7%)	-	19 (5,5%)
Infeção do nariz ouvido e boca	1 (2,2%)	-	4 (2,2%)	-	5 (1,5%)
Infeção da corrente sanguínea	-	1 (0,9%)	-	-	1 (0,3%)
Síndrome febril inexplicado	-	2 (1,8%)	5 (2,8%)	-	(2,0%)
Outras	1	-	1	-	2 (0,6%)
Total	45 (10%)	113 (13,2%)	178 (10,5%)	6 (15%)	344 (11,3%)

Fonte: Healthcare-Associated Infection and Antimicrobial Use in Long-Term Care Facilities,HALT 2, Inquérito de prevalência de infeção nas unidades de cuidados continuados, 2014, DGS http://www.dgs.pt/documentos-e-publicacoes/inquerito-de-prevalencia-de-infecao-e-uso-de-antimicrobianos-nas-unidades-de-cuidados-continuados-2013.aspx

New and strong reactions facing a new threat: Carbapenemase-producing *Enterobacteriaceae*

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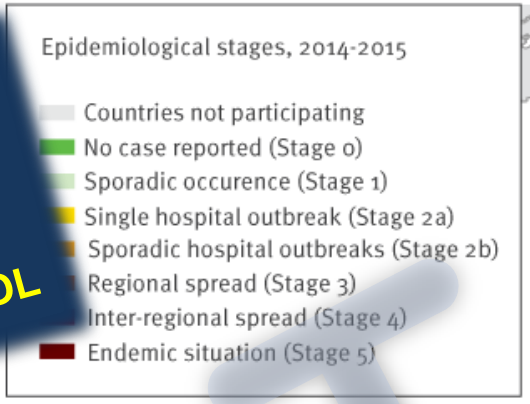
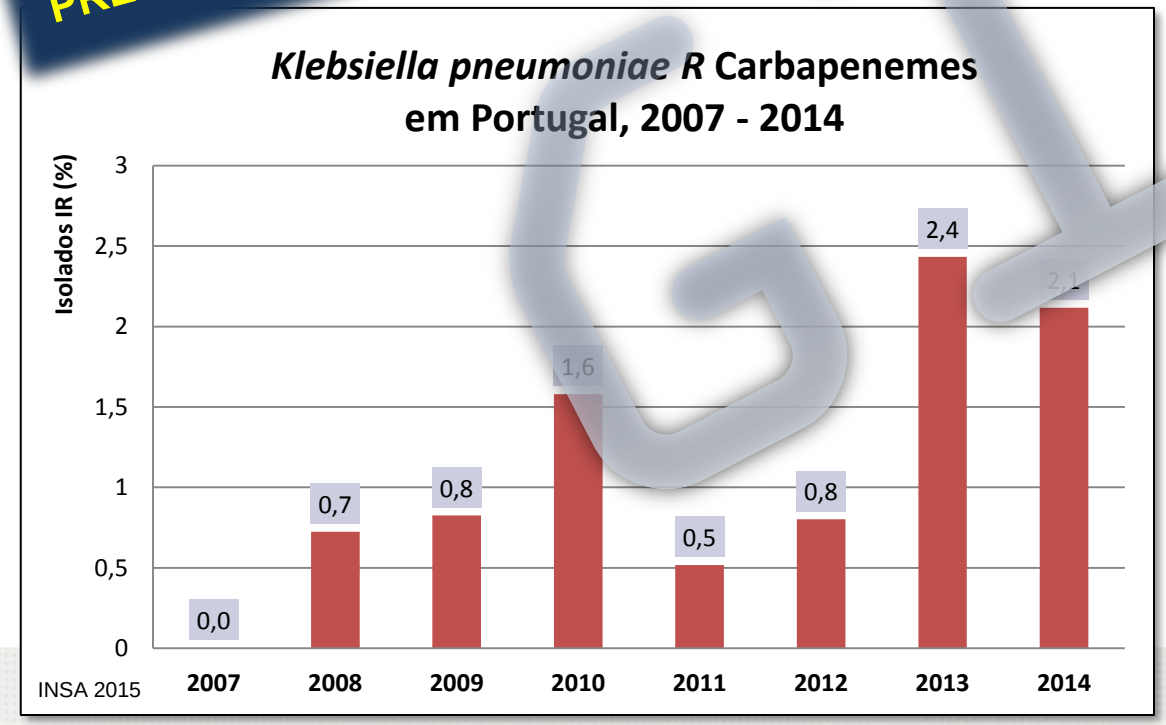
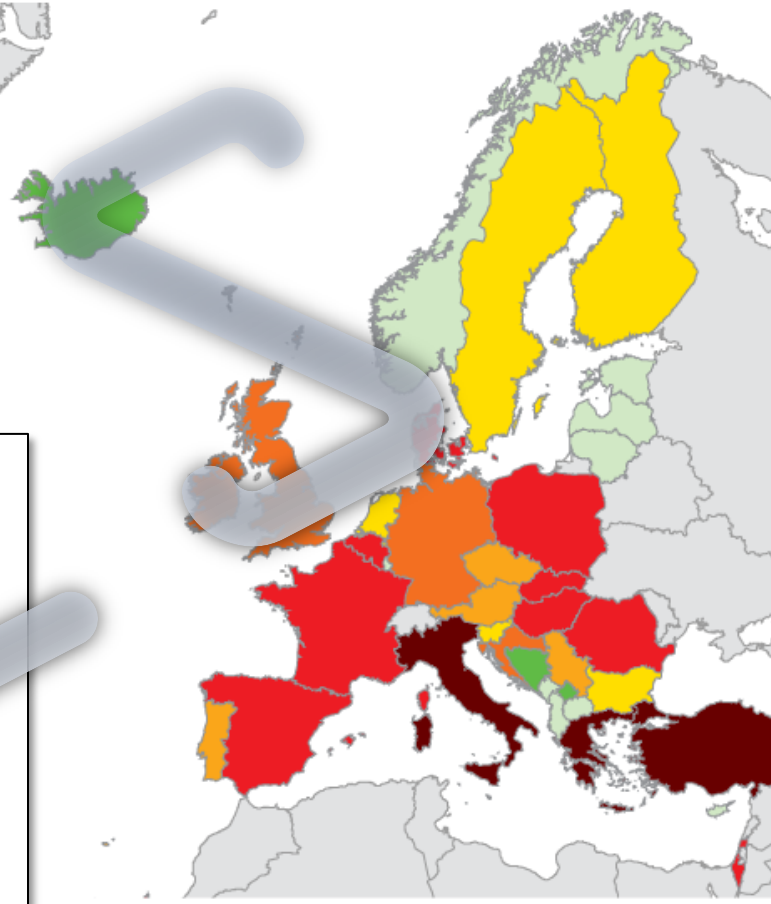
IN PREPARATION

NEW DGS/PPCIRA GUIDELINE ON CARBAPENEMASE-PRODUCING ENTEROBACTERIACEAE PREVENTION AND CONTROL







Eurosurveillance, 2015;20(45,12Nov)

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A new role for the citizen in antibiotic consumption & infection control

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Involving stakeholders in preventing HAI

ALL stakeholders

Including patients

Opportunity to improve HAI prevention

Sinergic HAI prevention:

Are patients ready?...

Are professionals ready?...

And if
a patient
asked you

What
would be
your
answer?...

How
would
you feel?...

A new role for the citizen in antibiotic consumption & infection control

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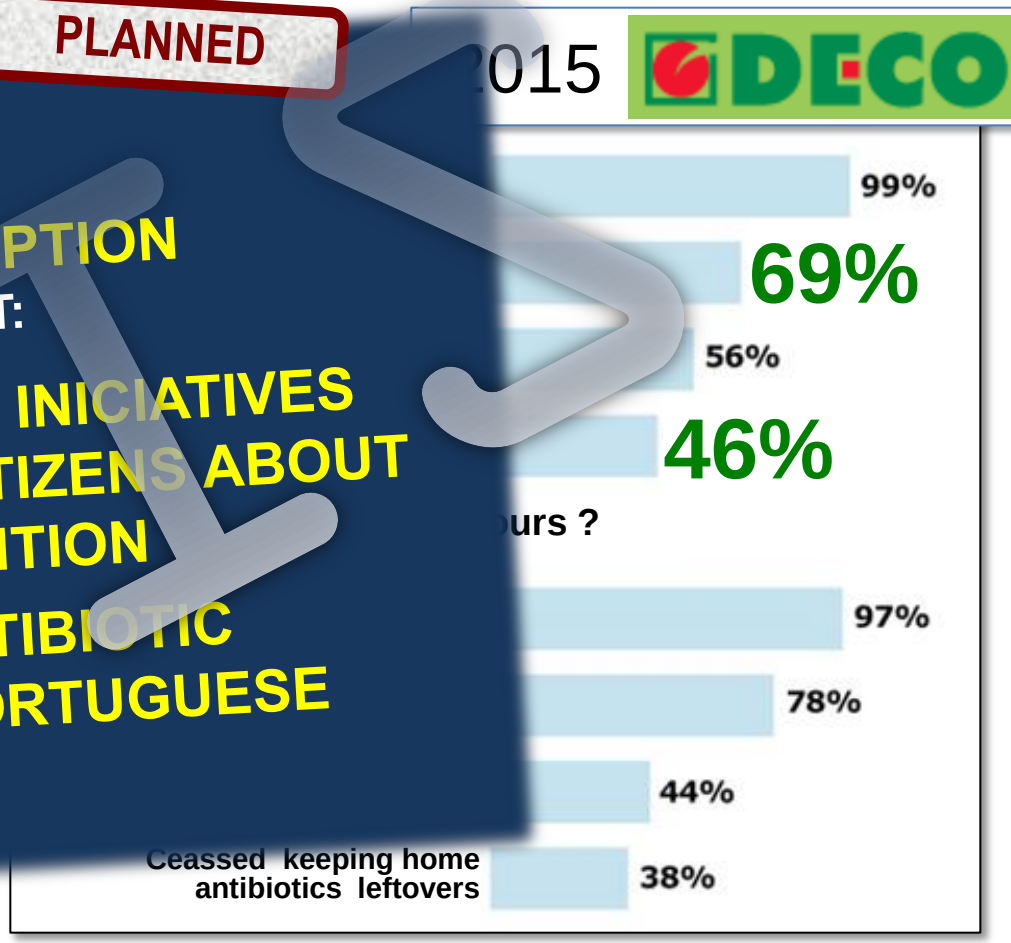
PLANNED

AIMING AT

HAI PREVENTION & ANTIBIOTIC CONSUMPTION LITERACY IMPROVEMENT:

- **NEW INFORMATION INICIATIVES ADDRESSED TO CITIZENS ABOUT AMR & HAI PREVENTION**
- **NEW DRIVE ON ANTIBIOTIC PRESERVATION PORTUGUESE ALIANCE**



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New drive towards empowering AMR & HAI prevention structures

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Yes,

there's always room for improving processes and good practices

aiming great results

fine

But...

good

processes and results are based in

EMPOWERED

structures

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New drive towards empowering PPCIRA local, regional and national structures

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MINISTÉRIO DA SAÚDE

Gabinete do Secretário de Estado Adjunto do Ministro da Saúde

Despacho

EMPOWERMENT ESSENTIAL

PPCIRA GCR & GCL atributions:

- Oversee local practices on in… prevention & control, and antimicrobials use
- Ensure mandatory infection and resistances surveillance
- Ensure local isolation practices for MDR agents containment
- Promote correct a…imi…bial consumption practices
- Investigate and monitor outbrakes

… & GCL …ources:

- 1 GCR per regi…; 1 GCL per hospital, ULS, ACES
- 1 assigned HCW in UCCI
- Dedicated nurses
- Dedicated medical time
- Multidisciplinarity
- Presence in hospital committees

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New drive towards empowering PPCIRA local, regional and national structures

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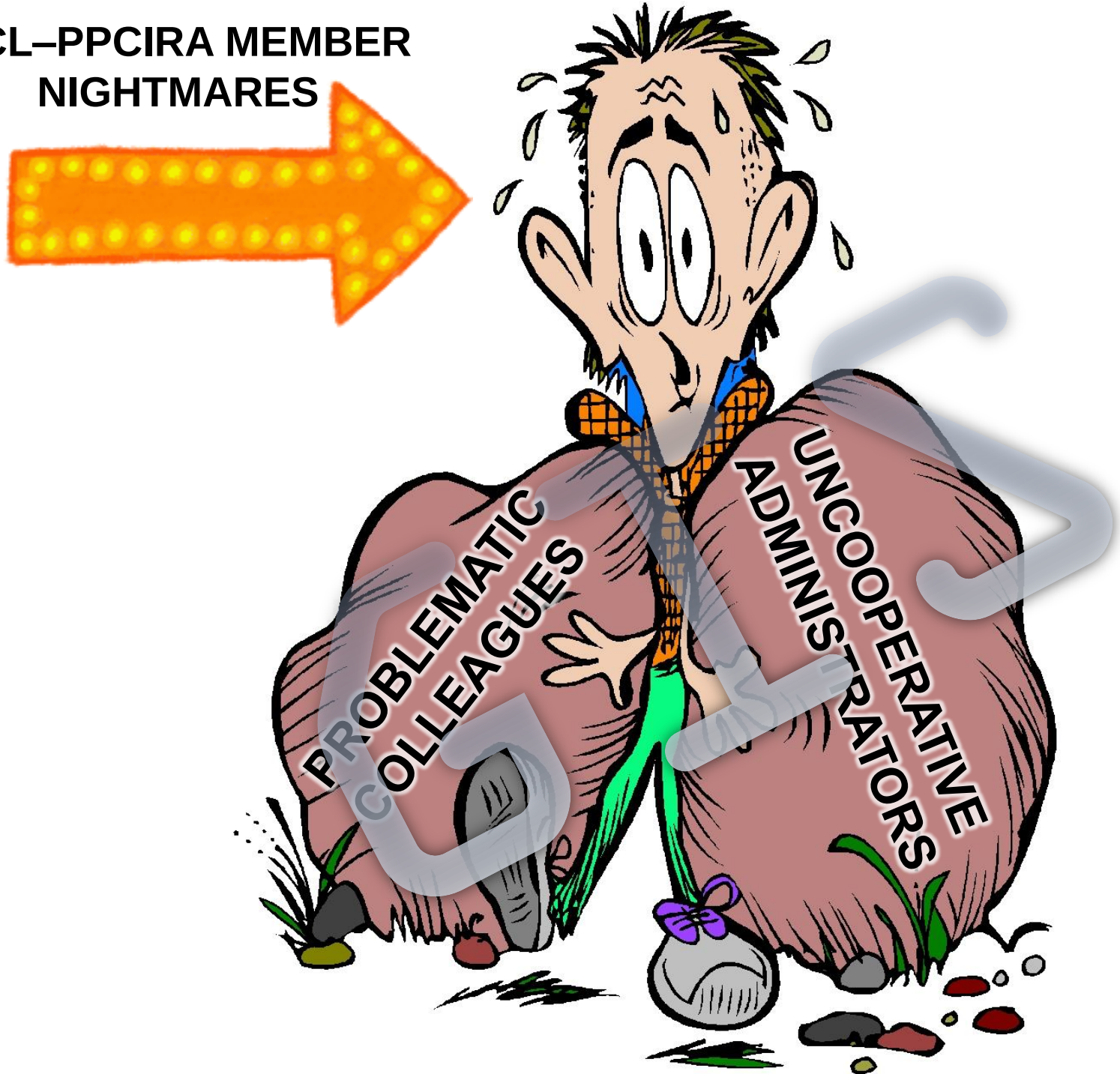
Why aren't ICP & AMR strucutures empowered enough?

- Lack of resources?
- Lack of skills?
- Lack of theoretical knowledge?
- Lack of motivation?
- Lack of problem's importance recognition?
- Lack of structures' relevance recognition?

GCL–PPCIRA MEMBER NIGHTMARES



New proposal for national politics of pay per performance in ICP & AMR

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Instead of paying hospitals for diseases and infections...

why not

to pay for good practices, less infections and appropriate antimicrobial use?

Not newest, but... new enough!

New proposal for national politics of pay per performance in ICP & AMR

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Hospitals could earn a financial incentive, from accomplishing a set of objectives concerning:

Assuming:

- Specific indicators
- Defined goals
- Clear metrics

AND...

- **Antimicrobial consumption**
- **Infection rates**
- **Significant infection events**
- **Antimicrobial resistance rates**
- **Infection control & prevention good practices**
- **Epidemiological surveillance**

New way of providing feedback information to care providers

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Feedback information recognised as essential:

In antimicrobial consumption

In antimicrobial resistance

In infection control & prevention

In surveillance practices

To:

- **Hospitals**
- **ICP & AMR structures**
- **Services**
- **Professionals**

Hospital PPCIRA data package

PLANNED IN DISCUSSION

New way of recognizing excellence. Rewarding good practices in ICP & AMR

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PLANNED IN DISCUSSION

PREVIOUSLY DEFINED CRITERIA, CONSENSUALIZED IN GROUP DEBATE

nd rewarding good practices

Is fair, is human, is intelligent

Regional PPCIRA Award

National PPCIRA Award

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Something borrowed...

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New strategies for making change happen…

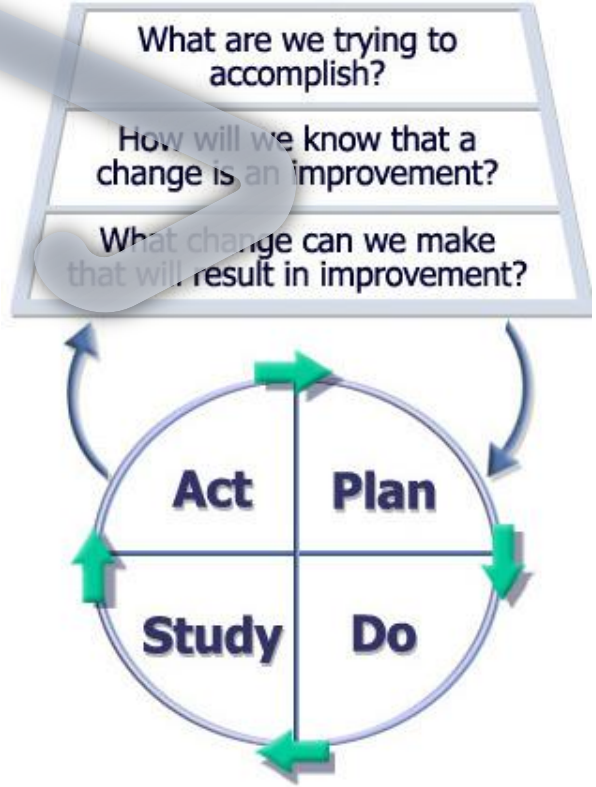
William Deming
Kuoru Ishikawa

Improvement cicle (1986)

Toyota Production System

G. Langley
K. Nolan
T. Nolan

Model for Improvement (1996)



"To Err is Human" (1999)

Science of Improvement

Intensive Care

BUNDLES (2001)

What is a Bundle?...

A grouping of best practices with respect to a disease process that **individually improve care, but when applied together result in substantially greater improvement**

The science behind the bundle is well established.

Bundle elements are dichotomous and compliance can be measured:

- ✓ yes/no answers
- ✓ "all or none" approach

Bundle considerations

- **The bundle is not intended to be a comprehensive list of all care that should be provided**
- 4 to 6 interventions with room for local improvement
- Goal is also to improve teamwork & communication

Portuguese bundles: SSI prevention bundle

a) Perform 2% **chlorhexidine bath** in the day previous to surgery and in surgery day, at least 2 hours before surgery (Category IB);

b) Administer antibiotic for surgical **antibiotic prophylaxis** in the 60 minutes period before surgical incision, every time it's indicated (Category IA);

   i. In a single dose or for a maximum of 24 hours (norm 031/2014)

c) **Avoid trichotomy** (Category IIA) and, when absolutely necessary, use a machine immediately before surgery (Category IA)

d) Assure perioperative **normothermia** (core temperature ≥35.5ºC) (Category IA)

e) Assure **glicemia ≤180mg/dl** during surgery and in following 24 hours (Category IA)

Portuguese bundles: CAUTI prevention

a) Evaluate systematically **possibility of avoiding bladder catheterism** (Category IB) and document systematically in clinical process the reason that makes it necessary (Category IC);

b) Perform **aseptic technique** when proceeding to bladder catheterism and connection to drainage system (Category IB);

c) Perform **clean technique**, namely with correct hand hygiene, wearing of gloves and apron, when handling drainage system, individually, patient-to-patient, constantly mantaining bladder catheter and drainage system connected (Category IB);

d) Perform daily urethral **meatus hygiene** by the patient (always that may be possible) or by healthcare professionals (Category IB) with health education activity for patient and family members concerning catheter-associated urinary tract infection preventive care (Category IIaC);

e) Keep **bladder catheter fixed**, with collector bag constantly bellow bladder level and emptied once have reached 2/3 of its capacity (Category IB);

f) **Check daily for need to keep** bladder catheter, removing it as soon as possible and register daily in clinical process the reasons for its maintenance (Category IB)

Portuguese bundles: CRBSI prevention

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IN THE MOMENT OF INSERTING CATHETER:

a) Evaluate the **need for central venous catheter** insertion, register the reason for that need and, if affirmative, select the catheter with less lumens that fits patient's clinical situation (Category IC);

b) Perform **hands presurgical preparation and full barrier precautions** (sterile gown, sterile gloves, cap and mask) for each operator, aides and all professionals present in place of catheter insertion procedure, in range of 2 meters (Category IC);
   i. Hand hygiene with alcohol based antiseptic solution to palpate insertion sitel before skin decontamination;
   ii. Hands and forearms surgical preparation for operator and aides;
   iii. Aseptic technique during insertion, with sterile gloves and "long" gown, cap and mask.

c) Perform **patient's skin antisepsis** with 2% alcoholic chlorhexidine solution before central venous catheter insertion (Category IA):
   i. Rub for, at least, 30 seconds; let dry for 30 seconds in dry sites and 2 minutes in moist sites.

d) Use **surgical field that fully covers** patient's body surface (Category IIC)

Portuguese bundles: CRBSI prevention

e) **Do not use femoral site** of insertion, whenever possible (Category IA)

i. Register reasons for using femoral site for insertion;

ii. Use subclavian or jugular internal site, according to operator's experience; (some evidence of lower infection rate with subclavian than with jugular internal site, mostly in tracheostomized patients).

iii. Prefer jugular internal site only in case of:

(i) Anomalous subclavian area anatomy;

(ii) Skin lesion in subclavian area;

(iii) Significant lung hyperinflation;

(iv) Operator's inexperience for subclavian site insertion.

f) Use **aseptic technique in dressing** placement (Category IIaC):

i. Assure insertion site cleanness and absence of blood;

ii. Wear mask, sterile gloves and sterile field to place dressing material;

iii. Use "dressing kit";

iv. Use 2% alcoholic chlorhexidine solution;

v. Date the dressing

Portuguese bundles: CRBSI prevention

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IN CATHETER MAINTENANCE MOMENTS:

a) Daily **evaluation for the need to keep** central venous catheter (Category IIaC);

b) Perform **hand hygiene** with neutral pH soap and water followed by hand rub with alcohol based antiseptic solution before handling catheter (Category IIaC);

c) **Decontaminate hubs with** 2% alcoholic chlorhexidine solution or 70% alcohol before handling the site (Category IIaC);

   i. Decontaminate the set and tubing access sites (lock, three way stopcocks, etc.), by rubbing with 2% alcoholic chlorhexidine solution or 70% alcohol during 10 to 15 seconds and let dry, before connecting any sterile device;

d) **Change dressing** in adequate time periods and using aseptic technique (Category IIaC):

   i. For dressing placement:

      (i) Assure insertion site is clean and with no blood;
      (ii) Wear mask, sterile gloves and sterile field to place dressing material;
      (iii) Use “dressing kit”;
      (iv) Use 2% alcoholic chlorhexidine solution for skin;
      (v) Date the dressing.

Portuguese bundles: CRBSI prevention

In catheter maintenance moments (cont.):

ii. Concerning dressing change moment:

(i) Change dressing whenever present one of following situations:

a. Dressing visibly soiled, with blood on or detached from skin;

b. After 48 hours in place, if gauze made;

c. After 7 days in place, if transparent.

Portuguese bundles: IAP prevention

a) Review, reduce and**, if possible, stop sedation daily**, maximizing its level titration to minimum appropriate to treatment, and register in clinical process (Category IA);

b) Discuss and evaluate daily the **readiness to wean** from ventilator and/or to extubate, with daily elaboration of weaning/extubation plan, registered in clinical process (Category IA);

c) Keep **head of bed ≥30º elevated**, avoid moments of supine position and daily audit this intervention fulfilment, registering in clinical process (Category IIbA);

d) Perform **oral hygiene with 0,2% chlorhexidine** gluconate, at least 3 times per day, in every patient, elder than 2 months, who is predicted to remain in ICU for more than 48 hours, and register in clinical process (Category IIA);

e) **Keep ventilatory circuits**, replacing them only when visibly soiled ou malfunctioning (Category IA);

f) Mantain **tracheal tube cuff pressure** between 20 and 30 cm H2O (Category IIC).

Bundles
supportive interventions

Multidisciplinary Daily Rounds:

Physicians	***Nurses***	***Microbiologist***
Nutritionist	***Pharmacist***	***Physiotherapist***

- An opportunity to assess bundle related issues
- Invite and encourage the family to join in

Daily Goal Sheets:

↳ Maintenance of bundle items

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Something blue...

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Old, very noble, always loyal and undefeated.

Daily Mail. Mail Online. 2016

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Thank you. ☺

www.dgs.pt