Monitoramento de indicadores de processo reduz infecção?

Luís Gustavo O. Cardoso

CCIH – HC – Unicamp

cardoso.lgustavo@gmail.com

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Indicador de resultado

Indicador de estrutura

Processo

Zzn Peres

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Monitoramento de indicadores de processo

CRITICAL SITE WITH
INFECTIOUS RISK
FOR THE PATIENT

2 BEFORE CLEAN/ASEPTIC PROCEDURE

1 BEFORE TOUCHING A PATIENT

4 AFTER TOUCHING A PATIENT

3 AFTER BODY FLUID EXPOSURE RISK

CRITICAL SITE
WITH BODY FLUID
EXPOSURE RISK

5 AFTER TOUCHING PATIENT SURROUNDINGS

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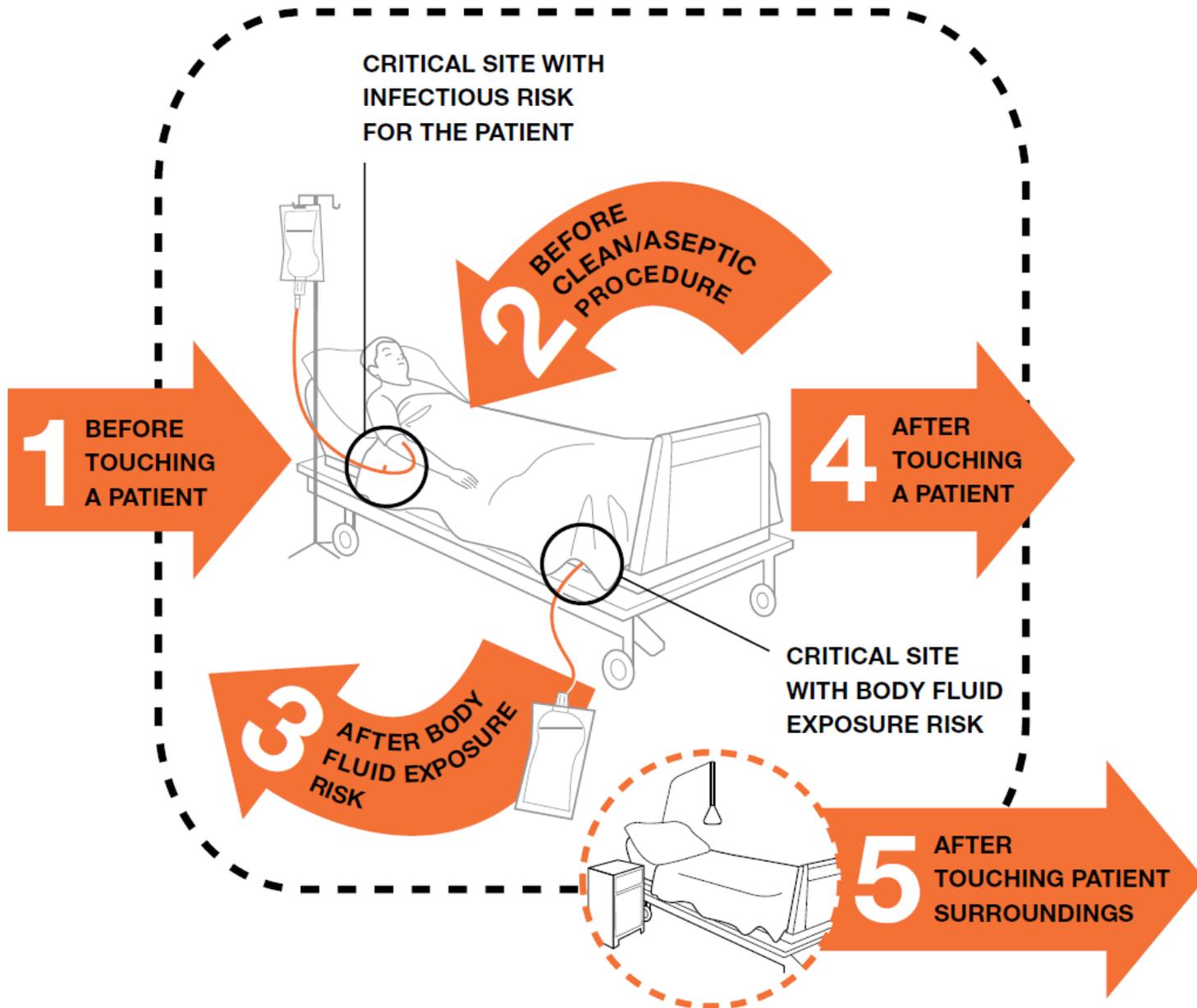
Observation Form

Facility:	
Service:	
Ward:	
Department:	
Country**:	

Period Number*:	
Date: (dd/mm/yy)	/ /
Start/End time: (hh:mm)	: / :
Session duration: (mm)	

Session Number*:	
Observer: (initials)	
Page N°:	
City**:	

Prof.cat		Prof.cat		Prof.cat		Prof.cat	
Code		Code		Code		Code	
N°		N°		N°		N°	
Opp.	Indication	HH Action	Opp.	Indication	HH Action	Opp.	Indication	HH Action	Opp.	Indication	HH Action

Each numbered row (1–8) per column contains:

Indication:
- ☐ bef-pat.
- ☐ bef-asept.
- ☐ aft-b.f.
- ☐ aft-pat.
- ☐ aft.p.surr.

HH Action:
- ☐ HR
- ☐ HW
- ○ missed
- ○ gloves

* To be completed by the data manager.
** **Optional**, to be used if appropriate, according to the local needs and regulations.

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Observation Form – Basic Compliance Calculation

	Facility:						Period:			Setting:					
	Prof.cat.			Prof.cat.			Prof.cat.			Prof.cat.			Total per session		
Session N°	Opp (n)	HW (n)	HR (n)	Opp (n)	HW (n)	HR (n)	Opp (n)	HW (n)	HR (n)	Opp (n)	HW (n)	HR (n)	Opp (n)	HW (n)	HR (n)
1															
2															
3															
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10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															
Total															
Calculation	Act (n) = Opp (n) =			Act (n) = Opp (n) =			Act (n) = Opp (n) =			Act (n) = Opp (n) =			Act (n) = Opp (n) =		
Compliance															

$$Compliance\ (\%) = \frac{Actions}{Opportunities} \times 100$$

Instructions for use

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Observation Form – Optional Calculation Form
(Indication-related compliance with hand hygiene)

	Facility:			Period:			Setting:								
	Before touching a patient			Before clean/ aseptic procedure			After body fluid exposure risk			After touching a patient			After touching patient surroundings		
Session N°	Indic (n)	HW (n)	HR (n)	Indic (n)	HW (n)	HR (n)	Indic (n)	HW (n)	HR (n)	Indic (n)	HW (n)	HR (n)	Indic (n)	HW (n)	HR (n)
1															
2															
3															
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14															
15															
16															
17															
18															
19															
20															
Total															
Calculation	Act (n) = Indic1 (n) =			Act (n) = Indic2 (n) =			Act (n) = Indic3 (n) =			Act (n) = Indic4 (n) =			Act (n) = Indic5 (n) =		
Ratio act / indic*															

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Quantifying the Hawthorne Effect in Hand Hygiene Compliance Through Comparing Direct Observation With Automated Hand Hygiene Monitoring

Stefan Hagel, MD;[1,2] Jana Reischke;[1] Miriam Kesselmeier, Dipl Math;[2,3] Johannes Winning, MD;[4] Petra Gastmeier, MD;[5] Frank M. Brunkhorst, MD;[2,4,6,7] André Scherag;[2,3] Mathias W. Pletz, MD[1]

- Prospectivo – UTI
- 48 auditorias por 2 horas – 96h (51% adesão)
- Contador automatizado - 384 horas (96+288)
- Mensurados "hand hygiene events" (HHE)

	96h observação direta	288h restantes
HHE total	2,029	2,151
HHE/hora	21	8

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ORIGINAL ARTICLE

Variability in the Hawthorne Effect With Regard to Hand Hygiene Performance in High- and Low-Performing Inpatient Care Units

Erol Kohli, MPH; Judy Ptak, MSN; Randall Smith, MS; Eileen Taylor, BSN; Elizabeth A. Talbot, MD; Kathryn B. Kirkland, MD

Inpatient care unit	Rate of compliance observed[a]		Difference, %	P
	By ICPs	By student intern		
Unit A	53/54 (98)	89/112 (79)	19	.003
Unit B	90/126 (71)	74/132 (56)	15	.01
Unit C	72/152 (47)	44/111 (40)	7	.3

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Vigilância de HM - UTI

	1- Antes do contato paciente		2- Antes de procedimentos		3- Após o risco de contato com fluidos		4- Após o contato paciente		Após o contato com superfícies	
	Número	Ação (sim) N (%)	Número	Ação (sim) N (%)	Número	Ação (sim) N (%)	Número	Ação (sim) N (%)	Número	Ação (sim) N (%)
Basal	48	9 (18,7%)	23	7 (30,4%)	3	2 (66,6%)	84	76 (90,5%)	22	14 (63,6%)
Pós tr	13	**9 (70,0%)**	14	**7 (50%)**	2	2 (100,0%)	24	23 (96,05)	13	**12 (92,3%)**
Oculto	54	**15 (27,7%)**	35	**15 (42,8%)**	10	**6 (60%)**	59	48 (81,3%)	53	**30 (56,6%)**

Dados não publicados

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Bundles

Topics »

Explore this topic in:

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Learn about the Model for Improvement, forming the improvement team, setting aims, establishing measures, and selecting and testing changes. Go to How to Improve.

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Evidence-Based Care Bundles

A bundle is a structured way of improving the processes of care and patient outcomes: a small, straightforward set of evidence-based practices — generally three to five — that, when performed collectively and reliably, have been proven to improve patient outcomes.

Start here: What Is a Bundle?

RECOMMENDED RESOURCES

How-to Guide: Prevent Central Line-Associated Bloodstream Infection »

How-to Guide: Prevent Obstetrical Adverse Events »

How-to Guide: Prevent Ventilator-Associated Pneumonia »

Severe Sepsis Bundles »

Using Care Bundles to Improve Health Care Quality »

PUBLICATIONS

10 IHI Innovations to Improve Health and Health Care »

MORE ON THIS TOPIC

10 IHI Innovations to Improve Health and Health Care »

Methods for Reducing Sepsis Mortality in Emergency Departments and Inpatient Units »

Project JOINTS: What Factors Affect Bundle Adoption in a Voluntary Quality Improvement Campaign? »

Did a Quality Improvement Collaborative Make Stroke Care Better? »

Understanding Bundles: An IHI Faculty Conversation »

View All »

UPCOMING PROGRAMS

2019 IHI Patient Safety Congress »
May 15–17, 2019 | Houston, TX

Certified Professional in Patient Safety (CPPS) Review Course »
May 15, 2019 | Houston, TX (in-person course)

New Strategies for Preventing Falls »
Begins June 11, 2019 | IHI Virtual Expedition

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What are effective strategies for the implementation of care bundles on ICUs: a systematic review

Marjon J. Borgert[1*], Astrid Goossens[2] and Dave A. Dongelmans[1]

Table 1 Explanation of the implementation strategies using the EPOC taxonomy [21–23]

Implementation strategy	Examples within the implementation of care bundles
Professional interventions	
Distribution of educational materials	(Web based) toolbox with educational materials, written material for self-study
Educational meetings	Educational meetings, seminars, workshops, teaching sessions
Local consensus processes	Development care bundle or materials or discussing about patients who developed an infection
Educational outreach visits	Use of a trained person who met professionals on the ICU to give information with the intent of changing practice
Local opinion leaders	Nursing and/or medical leadership
Audit and Feedback	Audits and feedback on infections rates or bundle compliance. Use of dash boards
Reminders	(Run) charts, checklists with bundle elements, daily goal sheets, insertion, HOB alarms
Tailored	Focus groups or (survey to) identify barriers
Mass media	Posters, fact sheets, newsletters, brochures to reach a great number of staff
Other; Time-out procedure	Time-out procedure, empower to stop procedure
Patient interventions	
Patient-family interventions	Family education of the bundle elements or family participation
Organisational interventions	
Revision of professional roles	Shifting of roles among staff
Clinical multidisciplinary teams	(Daily) multidisciplinary rounds, multidisciplinary teams
Skill mix changes	Changes in the number of staff
Continuity of care	Group of doctors to remove catheters daily
Satisfaction of providers	Nursing and medical champions, material rewards and staff engagement
Other; Implementation teams	Special team is actively involved to implement the care bundle, improvement teams
Structural interventions	
Changes in medical record system	Changes in a medical record system for electronic documentation

The EPOC taxonomy contains more items. We only used the taxonomy which was relevant in our study

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What are effective strategies for the implementation of care bundles on ICUs: a systematic review

Marjon J. Borgert[1*], Astrid Goossens[2] and Dave A. Dongelmans[1]

Table 2 Implementation strategies

	Central line bundle	Ventilator bundle	Sepsis bundle	Total number
Professional interventions				
Distribution of educational materials	27, 32–34	10, 40, 41, 46, 52, 56	66–70, 72	16
Educational meetings	28, 30, 35, 36	35, 41, 42, 53, 59	66, 67, 69, 70, 72	14
Local consensus processes		45, 46, 51, 57		4
Educational outreach visits	27–29, 31–34, 36, 37	10, 40, 42–60/61, 63	64–66, 68	34
Local opinion leaders	34, 36		65	3
Audit and Feedback	27, 28, 30–34, 36–38	10, 16, 40, 41, 43, 44, 46, 49, 52–54, 56–62	65, 66, 70	30
Reminders	27–39	10, 35, 39–47, 49, 51–54, 56–59, 63	65	35
Tailored		41, 51, 53, 54, 59		5
Mass media	27, 28, 30, 32	10, 40, 44, 45, 47, 52, 53, 56, 57, 59–62	65–67, 72	20
Other; Time-out procedure	28–30, 34, 36, 38	49, 54, 60/61		9
Patient interventions				
Patient-family interventions		46, 57, 59		3
Organisational interventions				
Revision of professional roles		59		1
Clinical multidisciplinary teams	28, 35	10, 35, 41, 43, 53, 55, 56, 57, 59, 63	68	13
Skill mix changes			68, 69, 71	3
Continuity of care	30			1
Satisfaction of providers	31, 33, 36	40, 46, 48, 54, 56		8
Other; Implementation teams	27, 29, 31, 34–36	35, 42, 45, 46, 52, 53, 56	65, 68, 69	16
Structural interventions				
Changes in medical record system	38		64	2

The numbers in the table are reference numbers, except for those in the last column
Central line bundle: 13 studies; Ventilator bundle: 27 studies; Sepsis bundle: 9 studies

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What are effective strategies for the implementation of care bundles on ICUs: a systematic review

Marjon J. Borgert[1*], Astrid Goossens[2] and Dave A. Dongelmans[1]

Conclusions

The three most frequently used implementation strategies were education, reminders and audit and feedback. We conclude that the heterogeneity among the included studies was high due to the variety in study design, difference in number and types of elements, types of compliance measurements calculation. Due to the heterogeneity of the data and the poor methodological quality of the studies, conclusions about which strategy results in the highest levels of care bundle compliance could not be determined and no recommendations can be made on which strategy should be selected to get the highest levels of compliance. We strongly recommend that studies in quality improvement should be reported in a formalised way in order to be able to compare research findings. It is imperative that authors follow the SQUIRE guidelines whenever they report quality improvement studies.

The effects of care bundles on patient outcomes: a systematic review and meta-analysis

Jacqueline F. Lavallée[1,2,3*], Trish A. Gray[1,2], Jo Dumville[1,2], Wanda Russell[4] and Nicky Cullum[1,2,5]

Study name	Outcome	Risk ratio	Lower limit	Upper limit
Anthony et al. (2011)*	SSIs	1.875	1.244	2.827
Chaboyer et al. (2016)*	HAPU	0.478	0.222	1.025
Chipps et al. (2016)*	MRSA/MSSA	0.447	0.146	1.365
Jennings et al. (2015)*	Readmissions	0.849	0.475	1.518
Loftus et al. (2012)*	Contamination	0.782	0.408	1.499
Al-Tawfiq et al. (2010)	HAP/1000	0.269	0.067	1.083
Anderson et al. (2015)	Pressure ulcers	0.133	0.041	0.428
Antworth et al. (2013)	Candidemia	0.541	0.270	1.087
Battersby et al. (2014a)	Exclusive MBM	0.978	0.931	1.027
Battersby et al. (2014b)	Any MBM	0.932	0.860	1.009
Berenholtz et al. (2011)	VAP/1000	0.083	0.005	1.490
Boesch et al. (2012)	Trache-PU	0.037	0.001	1.402
Conway-Morris et al. (2011)	VAP/1000	0.375	0.194	0.724
Duzkaya et al. (2016)	CAUTI	0.295	0.056	1.552
El Azab et al. (2013)	VAP/1000	0.340	0.130	0.890
Eom et al. (2014)	VAP/1000	0.284	0.036	2.232
Hakko et al. (2015)	CLABSI/1000	0.078	0.004	1.380
Hocking & Pirrett (2013)	CLAB/1000	0.285	0.055	1.467
Huddart et al. (2014)	Mortality	0.750	0.506	1.112
Jeong et al. (2013)	CLABSI/1000	0.383	0.069	2.130
Levy et al. (2014a)	Mortality	0.749	0.725	0.774
Levy et al. (2014b)	Mortality	0.966	0.935	0.998
Lim et al. (2015)	CAP mortality	0.648	0.428	0.981
Lindsay et al. (2013)	Systolic BP	0.750	0.677	0.830
Muzsynski et al. (2013)	VAT/1000	0.462	0.079	2.693
Pena-Lopez et al. (2016)	VARI/1000	0.568	0.214	1.509
Rinke et al. (2013a)	CLABSI/1000	0.508	0.007	35.743
Rinke et al. (2013b)	Bacteraemia	0.465	0.021	10.177
Salama et al. (2016)	CLABSI/1000	0.744	0.343	1.610
Schindler (2009)	Pressure ulcers	0.362	0.205	0.638
Schweizer et al. (2015)	SSIs	0.668	0.443	1.007
Silva Resende et al. (2011)	CABI/1000	0.618	0.326	1.172
Stano et al. (2013)	MRSA/1000	0.163	0.052	0.513
Steiner et al. (2015)	CLABSI/1000	0.338	0.119	0.959
Stolbrink et al. (2014)	HAP	0.369	0.232	0.589
Subramanian et al. (2013)	VAP/1000	0.385	0.213	0.693

Fig. 2 Effects of care bundles on patient outcomes. A forest plot of the risk ratios for each of the included studies

The effects of care bundles on patient outcomes: a systematic review and meta-analysis

Jacqueline F. Lavallée[1,2,3*], Trish A. Gray[1,2], Jo Dumville[1,2], Wanda Russell[4] and Nicky Cullum[1,2,5]

Subgroup	Statistics for each subgroup			Risk ratio and 95% CI	Overall subgroup differences
	Risk ratio	Lower limit	Upper limit		
Health condition					
VAP (n = 3,531)	0.38	0.26	0.57		
CLABSI (n=1,587)	0.46	0.26	0.8		
Pressure ulcers (n = 3,157)	0.33	0.21	0.52		
Other (n = 113,032)	0.79	0.71	0.89		$I^2 = 86\%$ $P = 0.03$
Fidelity with care bundle					
Inadequate (<95%) (n = 70,911)	0.79	0.65	0.96		
Adequate (>95%) (n = 70,810)	0.37	0.21	0.66		$I^2 = 86\%$ $P = 0.03$

Scale: 0.01 0.1 1 10

Favours care bundle — Favours usual care
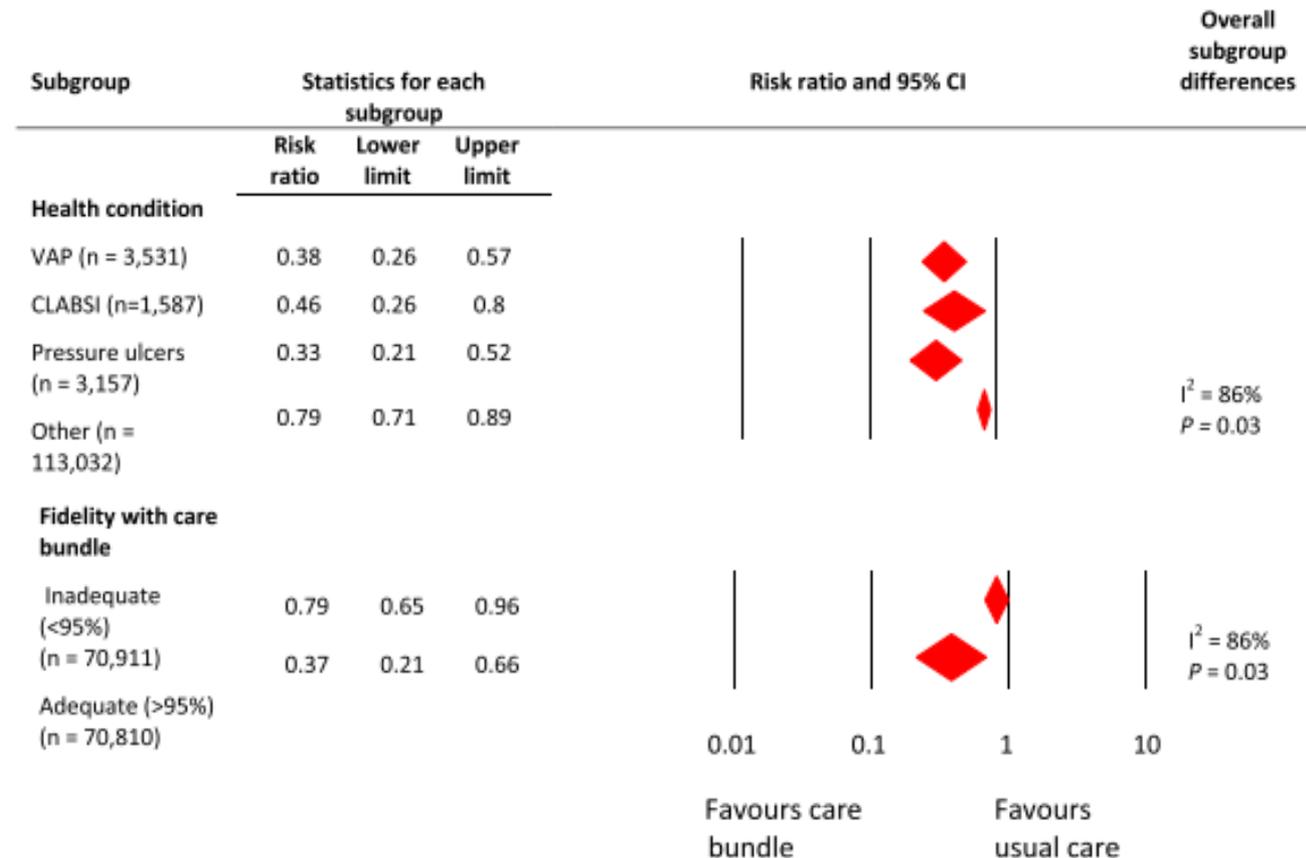
Fig. 3 Subgroup analysis of included studies. An analysis of five subgroups including risk ratios and heterogeneity

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Timing of preoperative antibiotic prophylaxis in 54,552 patients and the risk of surgical site infection

A systematic review and meta-analysis

Stijn Willem de Jonge, MD[a], Sarah L. Gans, MD, PhD[a], Jasper J. Atema, MD, PhD[a], Joseph S. Solomkin, MD[b], Patchen E. Dellinger, MD[c], Marja A. Boermeester, MD, PhD[a,*]
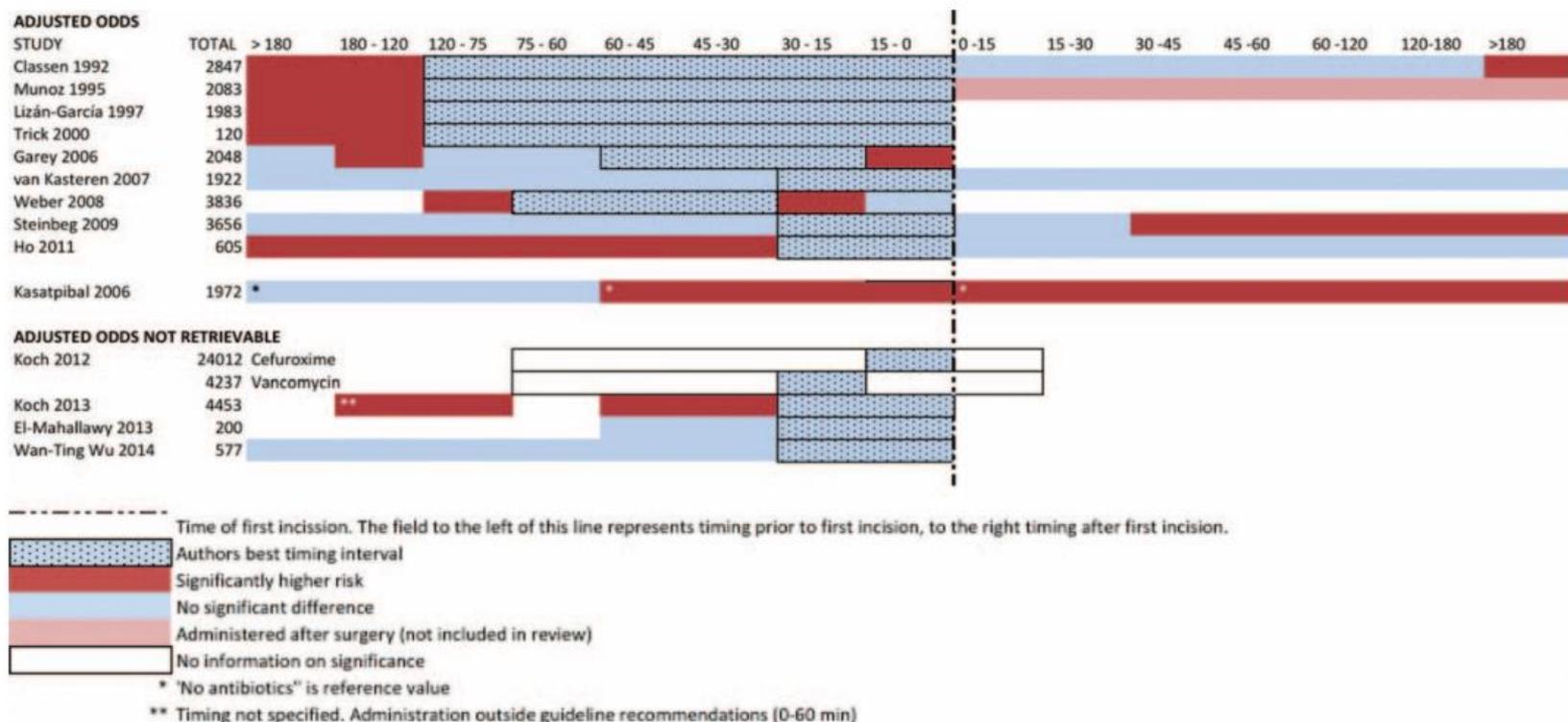
Figure 2. Visualization of results. The table provides a visualization of our findings from all the studies reporting adjusted odds ratios. The vertical dotted line represents the time of first incision. The field to the left of it represents timing prior to first incision, to the right timing after first incision. Blue-bordered fields represent the authors' best timing interval. Blue fields without borders represent timing intervals that do not differ significantly from the reported best interval. Red fields represent intervals with a significant higher risk of SSI.

de Jonge et al. Medicine (2017) 96:29

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Clin Infect Dis 2001

Association of a Bundled Intervention With Surgical Site Infections Among Patients Undergoing Cardiac, Hip, or Knee Surgery

Marin L. Schweizer, PhD[1,2,3]; Hsiu-Yin Chiang, MS, PhD[1]; Edward Septimus, MD[4,5]; et al
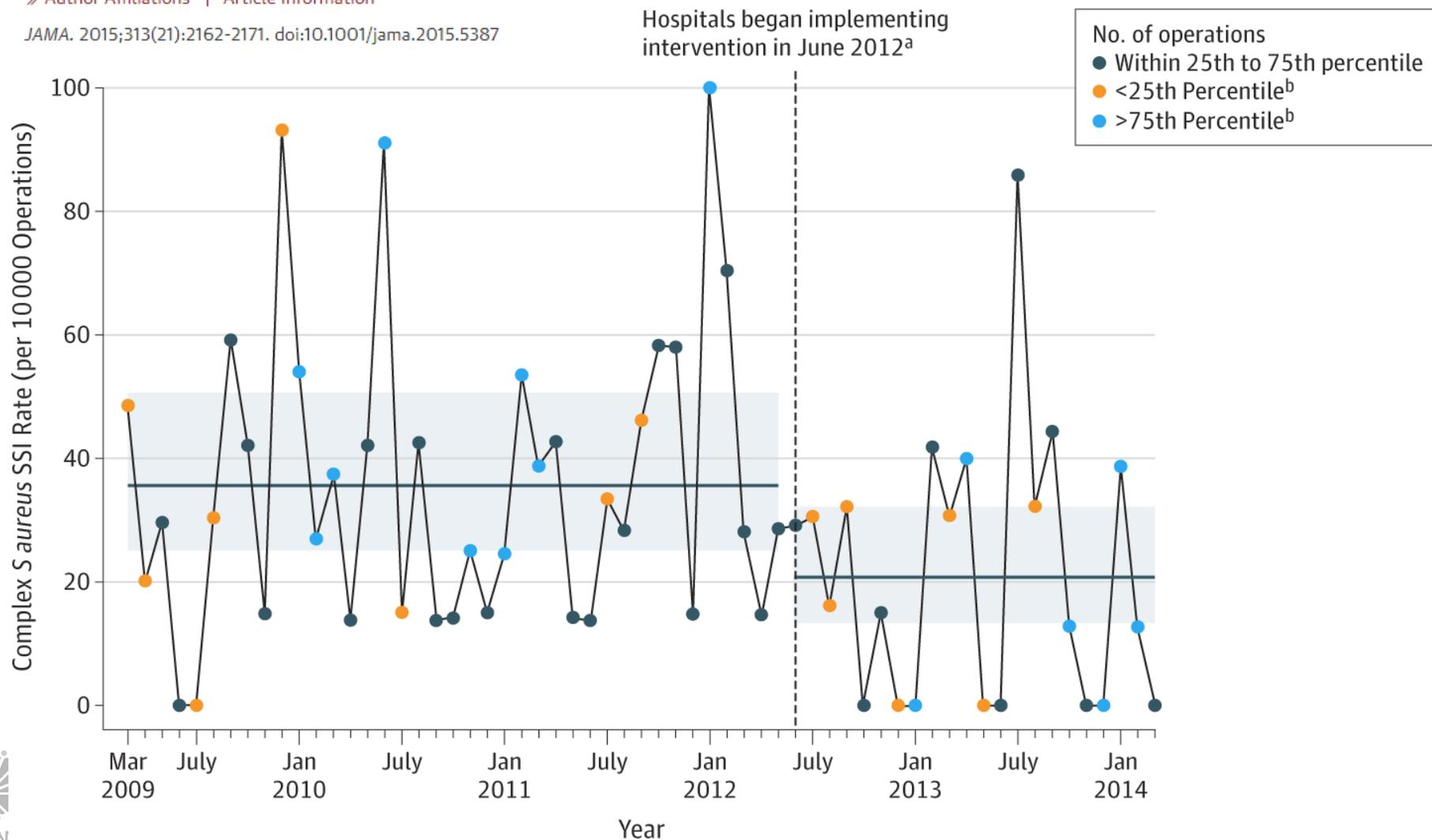
» Author Affiliations | Article Information

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» Author Affiliations | Article Information

A program for sustained improvement in preventing ventilator associated pneumonia in an intensive care setting

Raquel A Caserta[1*], Alexandre R Marra[1], Marcelino S Durão[1], Cláudia Vallone Silva[2], Oscar Fernando Pavao dos Santos[3], Henrique Sutton de Sousa Neves[4], Michael B Edmond[5] and Karina Tavares Timenetsky[1]
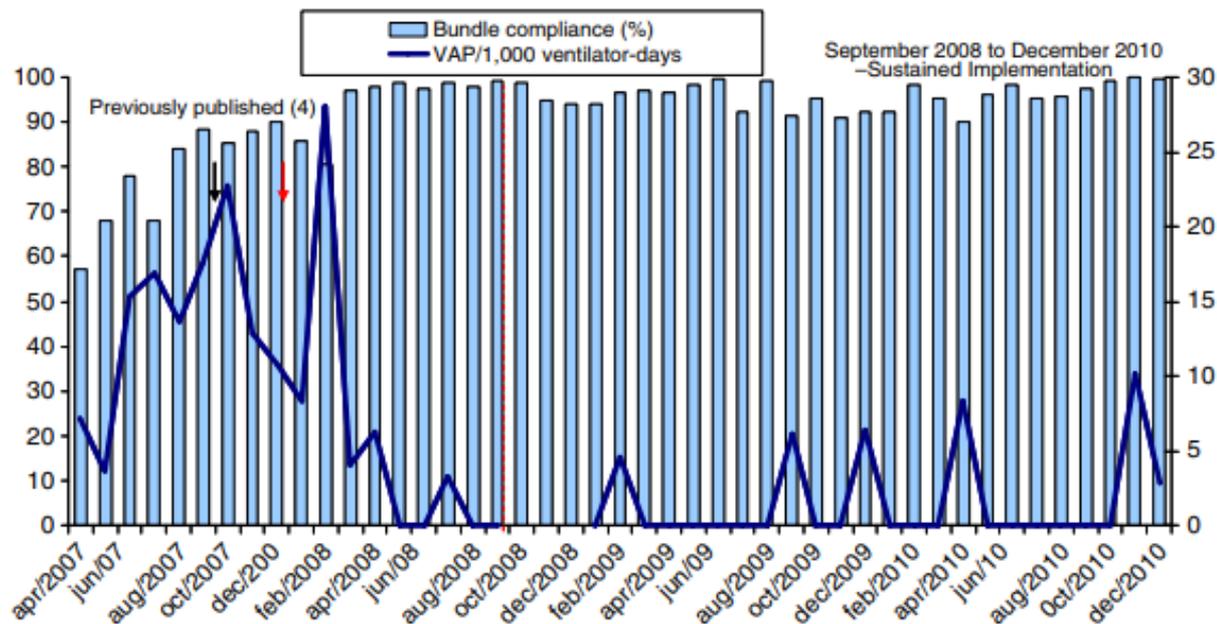
Figure 2 Bundle compliance and VAP (ventilator associated pneumonia) rate from April 2007 to December 2010. This chart shows extended data from the study published in AJIC 2009 (reference number 4). Oral decontamination with chlorhexidine 0.12% (since October/2007). Continuous aspiration of subglottic secretions (CASS) endotracheal tube (since February/2008).

Preventable proportion of intubation-associated pneumonia: Role of adherence to a care bundle

Antonella Agodi[1]*, Martina Barchitta[1], Annalisa Quattrocchi[1], Emiliano Spera[2], Giovanni Gallo[2], Francesco Auxilia[3], Silvio Brusaferro[4], Marcello Mario D'Errico[5], Maria Teresa Montagna[6], Cesira Pasquarella[7], Stefano Tardivo[8], Ida Mura[9], on behalf of the GISIO-SItI working group[10¶]
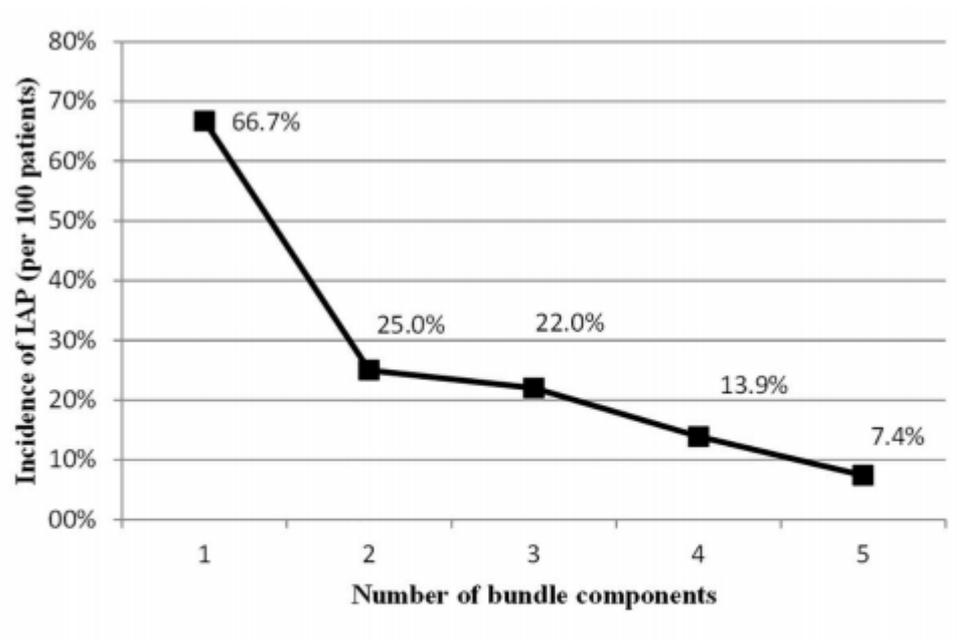
Fig 1. Correlation between incidences of IAP and number of bundle components performed. The correlation between incidences of IAP and the number of bundle components performed was assessed using linear regression and the Pearson correlation coefficient. A significant negative trend of IAP incidences was observed with increasing number of bundle components performed ($p<0.001$) and a strong negative correlation between these two factors was shown ($r = -0.882$; $p = 0.048$).

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Central Line-Associated Bloodstream Infections Reduction and Bundle Compliance in ICUs: A National Study

E. Yoko Furuya, MD, MS[1,2], **Andrew W. Dick, PhD**[3], **Carolyn T. A. Herzig, PhD, MS**[4], **Monika Pogorzelska-Maziarz, PhD, MPH**[5], **Elaine L. Larson, PhD, FAAN**[4,6], and **Patricia W. Stone, PhD, FAAN**[4]

Description of participating hospitals and adult ICUs

Hospital characteristics (n=632)	Value
Number of hospital beds, mean (SD)	243.6 (214.7)
Affiliated with a medical school, n (%)	237 (37.5)
Electronic surveillance system, n (%)	248 (39.2)
IP full-time equivalents per 100 beds, mean (SD)	1.14 (1.14)
HE full-time equivalents per 100 beds, mean (SD)	0.18 (0.49)

ICU characteristics (n=984)	
Number of ICU beds, mean (SD)	14.0 (8.3)
ICU type, n (%)	
Medical	214 (21.7)
Medical/Surgical	511 (51.9)
Surgical	218 (22.2)
Other	41 (4.2)
Number of CLABSIs, mean (SD)	3.44 (4.78)
Number of central line days, mean (SD)	3,285 (2,980)
CLABSIs/1000 central line days, mean (SD)	0.96 (1.29)

Notes: Medical ICU types include: Medical, Medical cardiac, Neurologic, Respiratory; Surgical ICU types include: Neurosurgical, Surgical, Surgical cardiothoracic; Other ICU types include: Burn, Trauma; ICU = intensive care unit; SD = standard deviation; IP = infection preventionist; HE = hospital epidemiologist; CLABSI = central line-associated bloodstream infection

Central Line-Associated Bloodstream Infections Reduction and Bundle Compliance in ICUs: A National Study

Presence of and compliance with individual CLABSI bundle policies in adult ICUs (n=984)

CLABSI bundle elements	Presence of written policy n (%)	Proportion of time policy was correctly implemented n (%)			
		All of the time (≥95%)	Usually (75–94%)	Sometimes (25–74%)	Rarely/Never/ No monitoring
Hand hygiene	923 (93.8)	528 (53.7)	169 (17.2)	16 (1.6)	210 (21.3)
Maximal barrier precautions	962 (97.8)	554 (56.3)	164 (16.7)	16 (1.6)	228 (23.2)
Chlorhexidine use	966 (98.2)	640 (65.0)	98 (10.0)	10 (1.0)	218 (22.2)
Optimal catheter site selection	916 (93.1)	387 (39.3)	261 (26.5)	35 (3.6)	233 (23.7)
Daily assessment of central line need	865 (87.9)	299 (30.4)	249 (25.3)	66 (6.7)	251 (25.5)

Notes: ICU = intensive care unit; CLABSI: central line-associated bloodstream infection

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Central Line-Associated Bloodstream Infections Reduction and Bundle Compliance in ICUs: A National Study

Compliance with multiple CLABSI bundle policies in adult ICUs (n=984)

CLABSI bundle elements	Proportion of time policy was correctly implemented n (%)	
	All of the time ($\geq 95\%$)	All of the time or Usually ($\geq 75\%$)
All five elements	192 (19.5)	477 (48.5)
Just four elements	194 (19.7)	183 (18.6)
Just three elements	155 (15.8)	56 (5.7)
Just two elements	73 (7.4)	16 (1.6)
Just one element	61 (6.2)	13 (1.3)
No elements	309 (31.4)	239 (24.3)

Notes: ICU = intensive care unit; CLABSI: central line-associated bloodstream infection

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Central Line-Associated Bloodstream Infections Reduction and Bundle Compliance in ICUs: A National Study

Multivariable regression analysis of associations between ≥95% compliance with central line bundle elements and CLABSI rates in adult ICUs

Variables	Model 1: Impact of each individual element		Model 2: Impact of complying with any one or multiple elements	
	IRR	95% CI	IRR	95% CI
≥95% compliance with				
Hand hygiene	0.91	0.80, 1.05	--	--
Maximal barrier precautions	0.96	0.83, 1.11	--	--
Chlorhexidine use	0.89	0.78, 1.02	--	--
Optimal catheter site selection	0.90	0.80, 1.00	--	--
Daily assessment of central line need	0.99	0.89, 1.10	--	--
CLABSI bundle elements (indicator variables with reference = no elements)				
All five elements	--	--	0.67[***]	0.59, 0.77
Just four elements	--	--	0.72[***]	0.63, 0.82
Just three elements	--	--	0.83[**]	0.74, 0.94
Just two elements	--	--	0.82[*]	0.70, 0.95
Just one element	--	--	0.77[**]	0.64, 0.92

Notes: CLABSI = central line-associated bloodstream infection; ICU = intensive care unit; CAUTI = catheter-associated urinary tract infection; IRR = incidence rate ratio; CI = confidence interval; In addition to what is shown in the table, calendar year and month were also controlled for;

[*] $p < 0.05$,

[**] $p < 0.01$,

[***] $p < 0.001$

Central Line-Associated Bloodstream Infections Reduction and Bundle Compliance in ICUs: A National Study

Multivariable regression analysis of associations between ≥95% compliance with central line bundle elements and CLABSI rates in adult ICUs

Variables	Model 1: Impact of each individual element		Model 2: Impact of complying with any one or multiple elements	
	IRR	95% CI	IRR	95% CI
Compliance with ventilator bundle	1.06 ***	1.03, 1.08	1.06 ***	1.03, 1.08
Compliance with CAUTI bundle	1.00	0.94, 1.06	1.00	0.94, 1.06
Hospital and ICU characteristics				
Number of hospital beds	1.08 **	1.03, 1.13	1.08 ***	1.03, 1.13
Number of ICU beds	0.94 **	0.91, 0.98	0.95 **	0.91, 0.98
Surgical ICU (vs. Medical/Surgical)	0.86 **	0.78, 0.95	0.86 **	0.78, 0.95
Medical ICU (vs. Medical/Surgical)	1.08	0.98, 1.20	1.09	0.99, 1.20
Burn or Trauma ICU (vs. Medical/Surgical)	1.64 ***	1.42, 1.90	1.62 ***	1.40, 1.87
Affiliated with a medical school	1.32 ***	1.19, 1.45	1.29 ***	1.17, 1.43
Electronic surveillance system	0.91 *	0.83, 0.99	0.90 *	0.83, 0.98
IP full-time equivalents per 100 hospital beds	0.87 *	0.78, 0.97	0.88 *	0.79, 0.98
HE full-time equivalents per 100 hospital beds	1.00	0.87, 1.16	0.99	0.86, 1.15

Notes: CLABSI = central line-associated bloodstream infection; ICU = intensive care unit; CAUTI = catheter-associated urinary tract infection; IRR = incidence rate ratio; CI = confidence interval; In addition to what is shown in the table, calendar year and month were also controlled for;

* $p < 0.05$,

** $p < 0.01$,

*** $p < 0.001$

Central Line-Associated Bloodstream Infections Reduction and Bundle Compliance in ICUs: A National Study

- Sem associação entre taxa ICS e bundle apenas descrito, nem com adesão <75%

- Alta adesão a uma das medidas (independente de qual) tem impacto na redução de ICS-CVC

- Adesão alta a demais medidas só tem impacto se pacote inteiro (33% redução) - < 20% das UTIs EUA

- Correlação negativa com outros bundles (PAV)

Outros indicadores de processo

- Limpeza de superfícies
- Limpeza e desinfecção de equipamentos – pex endoscópios
- Reprocessamento de materiais
  - Indicador biológico
  - Fita zebrada
  - Carga desafio

Monitoramento de indicadores de processo reduz infecção?

SIM !!

POR QUE NÃO REDUZIRIA?

SE NÃO REDUZ, O PROCESSO NORMATIZADO/MONITORADO IMPLICA EM RISCO DE INFECÇÃO??