



WETENSCHAPPELIJK INSTITUUT
VOLKSGEZONDHEID
INSTITUT SCIENTIFIQUE
DE SANTÉ PUBLIQUE

Surveillance of ICU - Acquired Infections

Individual Feedback Report

Risk Factor Indicators

Hospital 9999 Quarter 2009q2

Scientific Institute of Public Health
Direction of Public Health and Surveillance
National Surveillance of Hospital Infections (NSIH program)

14, Juliette Wytmanstraat
1050 Brussels - Belgium
<http://www.wiv-isp.be>
<http://www.nsih.be>

Het project wordt financieel ondersteund door
KB van 19 juni 2007 betreffende de vaststelling en de vereffening van het budget van financiële middelen van de ziekenhuizen

Le projet est financièrement soutenu par
AR du 19 juin 2007 relatif à la fixation et à la liquidation du budget des moyens financiers des hôpitaux

Further information on this report:
Mr. Karl Mertens
Tel +32 2 642 5795
karl.mertens@wiv-isp.be



List of Tables

1	Missing Admission variables	2
2	Admission Characteristics (a)	3
3	Admission Characteristics (b)	4
4	Daily Invasive Device exposure indicators	4
5	Missing SOFA Scores	5
6	Daily SOFA score indicators (a)	5
7	Daily SOFA score indicators (b)	5
8	Antibiotic Use Population (aggregated)	5
9	Antibiotic Use Distribution (aggregated)	6
10	Antibiotic Use (exhaustive) (a)	6
11	Antibiotic Use (exhaustive) (b)	6
12	Antibiotic Use (exhaustive) (c)	6
13	Pneumonia and Admission Exposure (a)	7
14	Pneumonia and Admission Exposure (b)	8
15	Bloodstream Infection and Admission Exposure (a)	9
16	Bloodstream Infection and Admission Exposure (b)	10
17	Pneumonia and Invasive Device Exposure (a)	11
18	Pneumonia and Invasive Device Exposure (b)	12
19	Bloodstream Infection and Invasive Device Exposure (a)	13
20	Bloodstream Infection and Invasive Device Exposure (b)	14
21	Pneumonia and Antibiotic Use	14
22	Bloodstream Infection and Antibiotic Use	15
23	Pneumonia and SOFAScore	16
24	Bloodstream Infections and SOFAScore	16
25	Standardized Pneumonia and Bacteremia Rates	17
26	Nosocomial Pneumonia and Bacteremia risk score distribution	17

List of Figures

1	Evolution: SAPS II Score Median	18
2	Evolution: Death / DNR (%)	18
3	Evolution: Intubation days / 1000 patientdays	19
4	Evolution: CVC days / 1000 patientdays	19
5	Evolution: Any AB utilization days / 1000 patientdays	20
6	Benchmark: Standardized Pneumonia Ratio	20
7	Benchmark: Ventilator Associated Pneumonia versus Standardized Pneumonia Ratio	21
8	Benchmark: Standardized Bacteremia Ratio	21
9	Benchmark: Catheter Associated Bacteremia versus Standardized Bacteremia Ratio	22



Table 1: Missing Admission variables

variable	L1 ^a	L2 ^a	Ls ^a	Req ^a	# ^a	% ^a	rank
discharge date from the ICU		V	0	M	0	0.00	1/62
discharge status		V	0	R	0	0.00	1/62
discharge date from the hospital		V	0	O	1	1.09	46/62
discharge status from the hospital		V	0	O	1	1.09	44/62
SAPS II score		V	0	R	4	4.35	47/62
APACHE II score		V	0	O	4	4.35	47/62
PRISM score		V	0	O	5	5.43	47/62
patient origin		V	0	O	1	1.09	52/62
type of admission		V	0	R	0	0.00	1/62
trauma		V	0	R	0	0.00	1/62
impaired immunity		V	0	O	0	0.00	1/62
antimicrobial treatment within 48h around admission (<>48h)		V	0	R	0	0.00	1/62
acute coronary care		V	a	R	0	0.00	1/62
surgery in 30 days before admission		V	a	R	6	6.52	61/62
surgery in 30 days before admission		V	a	R	0	0.00	1/62
Glasgow coma score, estimated		V	a	O	92	100.00	21/62
Glasgow coma score, measured		V	a	O	92	100.00	20/62
total patient variables		V	a	O	206	13.17	24/50

^a I1= level 1 variable (denominator-based surveillance) ; I2= level 2 variable (patient-based surveillance) ; L2s= level 2 suboption (0=basic level 2 variables a=extra patient admission and day by day variables, b=central vascular catheter follow-up, c=antimicrobial treatment follow-up); Req: M=mandatory, R=Required, O=Optional #=number of missing variables; %=# / 100 eligible records



Table 2: Admission Characteristics (a)

	patients			LOS p50 ^a		SAPSII p50 ^a		Death/DNR % ^a	
	# ^b	% ^b	rank ^b	p50 ^b	rank ^b	p50 ^b	rank ^b	% ^b	rank ^b
Age									
≤ 40	10	10.9	45/50	4	11/46	12	9/38	0.0	1/46
40-59	20	21.7	36/50	5	26/50	16	4/46	10.0	31/50
60-69	18	19.6	23/50	4	3/49	23	2/44	16.7	37/49
70-74	10	10.9	15/50	5	14/50	26	2/46	20.0	37/50
75-79	11	12.0	7/50	4	4/50	32	11/45	9.1	11/50
≥ 80	23	25.0	27/50	4	3/50	33	6/44	8.7	10/50
unknown	0	0.0	1/50						
Gender									
female	36	39.1	21/50	4	2/50	25	2/46	8.3	15/50
male	56	60.9	30/50	5	19/50	26	4/47	12.5	25/50
unknown	0	0.0	1/50						
SAPSII score									
≤ 10	9	9.8	49/50	4	13/37	7	12/37	0.0	1/37
10-19	21	22.8	45/50	3	1/44	16	23/44	0.0	1/44
20-29	21	22.8	25/50	4	8/47	24	9/47	0.0	1/47
30-39	11	12.0	8/50	5	14/46	34	16/46	0.0	1/46
40-49	10	10.9	20/50	6	14/44	44	22/44	30.0	39/44
50-59	8	8.7	29/50	6	5/45	52	3/45	37.5	26/45
≥ 60	8	8.7	32/50	6	6/45	67	18/45	37.5	17/45
unknown	4	4.3	35/50	22	24/25			25.0	23/25
Apache Score									
< 10	0	0.0	1/50						
10-19	0	0.0	1/50						
20-29	0	0.0	1/50						
30-39	0	0.0	1/50						
40-49	0	0.0	1/50						
50-59	0	0.0	1/50						
≥ 60	0	0.0	1/50						
unknown	92	100.0	3/50	4	3/49	26	2/46	10.9	21/49
Patient Origin									
other service	34	37.0	16/50	4	2/50	28	3/45	11.8	22/50
other ICU	1	1.1	36/50	9	15/19	44	12/18	100.0	17/19
community	51	55.4	37/50	4	3/50	24	6/47	9.8	25/50
nursing home	5	5.4	31/50	6	19/44	52	34/39	0.0	1/44
unknown	1	1.1	40/50	4	4/15	24	3/15	0.0	1/15
Type of Admission									
medical	49	53.3	10/50	5	10/50	35	21/48	16.3	28/50
scheduled surgical	28	30.4	39/50	3	1/50	18	7/44	3.6	36/50
unscheduled surgical	15	16.3	42/50	4	4/49	26	3/44	6.7	13/49
unknown	0	0.0	1/50						

^a LOS=median length of stay for patients admitted within this category; SAPSII=median SAPSII score for patients admitted within this category

^b #=number of admissions within category; %=#/100 total admissions



Table 3: Admission Characteristics (b)

	patients			LOS p50 ^a		SAPSII p50 ^a		Death/DNR % ^a	
	# ^b	% ^b	rank ^b	p50 ^b	rank ^b	p50 ^b	rank ^b	% ^b	rank ^b
Trauma									
no	86	93.5	29/50	4	2/48	26	3/46	11.6	18/48
yes	6	6.5	30/50	5	17/50	16	4/44	0.0	1/50
unknown	0	0.0	1/50						
Impaired Immunity									
no	89	96.7	35/50	4	2/48	25	4/46	11.2	22/48
yes	3	3.3	25/50	5	8/36	35	10/34	0.0	1/36
unknown	0	0.0	1/50						
Antibiotic Treatment									
no	81	88.0	49/50	4	1/47	26	7/45	9.9	26/47
yes	11	12.0	2/50	5	12/50	25	2/46	18.2	29/50
unknown	0	0.0	1/50						
Acute Coronary Care									
no	85	92.4	40/50	4	3/48	25	3/46	11.8	19/48
yes	7	7.6	18/50	4	5/47	32	22/43	0.0	1/47
unknown	0	0.0	1/50						
Prior Surgery site									
no	55	59.8	19/50	5	10/50	33	15/48	16.4	29/50
coronary	0	0.0	1/50						
other cardiac	0	0.0	1/50						
other thoracic	0	0.0	1/50						
other vascular	4	4.3	27/50	5	19/43	20	7/38	0.0	1/43
abdominal	0	0.0	1/50						
neurosurgery	10	10.9	44/50	3	1/48	15	2/42	0.0	1/48
other	23	25.0	44/50	4	12/47	22	4/42	4.3	22/47
unknown	0	0.0	1/50						

^a LOS=median length of stay for patients admitted within this category; SAPSII=median SAPSII score for patients admitted within this category

^b #=number of admissions within category; %=#/100 total admissions

Table 4: Daily Invasive Device exposure indicators

invasive device	# ^a	rate (rank) ^a	
Intubation days	200	341.9	24/50
patients with Intubation days	28	30.4	15/50
central vascular catheter days	464	793.2	49/62
patients with central vascular catheter days	69	75.0	37/50
urinary catheter days	471	805.1	33/50
patients with urinary catheter days	75	81.5	33/50
naso-oro intestinal tube days	226	386.3	22/50
patients with naso-oro intestinal tube days	50	54.3	37/50
naso-oro intestinal tube feeding days	77	131.6	14/50
patients with naso-oro intestinal tube feeding days	10	10.9	12/50
parenteral feeding days	158	270.1	32/50
patients with parenteral feeding days	33	35.9	40/50
invasive mechanical ventilation days	200	341.9	30/50
patients with invasive mechanical ventilation days	28	30.4	25/50
non-invasive mechanical ventilation days	16	27.4	26/50
patients with non-invasive mechanical ventilation days	6	6.5	25/50
tracheotomy intubation days	40	68.4	39/50
patients with tracheotomy intubation days	5	5.4	40/50
re-intubation days	0	0.0	1/50
patients with re-intubation days	0	0.0	1/50

^a #=number of days or patients with device exposure; rate=#/1000 patientdays (days); rate=#/100 admissions (patients)



Table 5: Missing SOFA Scores

variable	L1 ^a	L2 ^a	Ls ^a	Req ^a	# ^a	% ^a	rank
sofa score, cns		V	a	R	585	100.00	25/62
sofa score, respiration		V	a	R	585	100.00	25/62
sofa score, coagulation		V	a	R	585	100.00	25/62
sofa score, cardio		V	a	R	585	100.00	25/62
sofa score, kidney		V	a	R	585	100.00	25/62
sofa score, liver		V	a	R	585	100.00	25/62
total sofa variables		V	a	O	3510	100.00	13/50

^a l1= level 1 variable (denominator-based surveillance) ; l2= level 2 variable (patient-based surveillance) ; L2s= level 2 suboption (0=basic level 2 variables a=extra patient admission and day by day variables, b=central vascular catheter follow-up, c=antimicrobial treatment follow-up); Req: M=mandatory, R=Required, O=Optional #=number of missing variables; %=# / 100 eligible records

Table 6: Daily SOFA score indicators (a)

	# ^a	%, p50 ^b	rank ^b
CNS score no data available			
Respiratory score no data available			
Coagulation score no data available			
Cardiovascular score no data available			

^a #=number of patientdays; 0/4/any=# of days with SOFA score=0/4/any

^b 0/4=% of days with SOFA score=0/4 among days with any SOFA score; any=% of days with any SOFA score among total patientdays; scores=median score for SOFA component; agg= value obtained when pooling all participating units; p=percentiles for the distribution of participating units;

Table 7: Daily SOFA score indicators (b)

	# ^a	%, p50 ^b	rank ^b
Renal score no data available			
Liver score no data available			
Total score no data available			

^a #=number of patientdays; 0/4/any=# of days with SOFA score=0/4/any

^b 0/4=% of days with SOFA score=0/4 among days with any SOFA score; any=% of days with any SOFA score among total patientdays; scores=median score for SOFA component; agg= value obtained when pooling all participating units; p=percentiles for the distribution of participating units;

Table 8: Antibiotic Use Population (aggregated)

	Patients (rank)# ^a	Patientdays (rank)# ^a
no data available		

^a Patients, #=number of patients; Patientdays, #=number of patientdays



Table 9: Antibiotic Use Distribution (aggregated)

	# ^a	% (rank) ^a	incd (rank) ^a
no data available			

^a #=number of Antibiotic days with particular use; %=# AB days/100 total AB days; incd=# AB days/1000 patientdays of units with AB use;

Table 10: Antibiotic Use (exhaustive) (a)

Antibiotic	pats #	patdays #	Antibiotic days, # ^a					
			T	S	P	E	M	A

^a T=total use; S=SDD use; P=Profylactic use; E=Empirical use; M=Microorganism known; A=Antibiogram known

Table 11: Antibiotic Use (exhaustive) (b)

Antibiotic	pats #	patdays #	Antibiotic days, # ^a					
			T	S	P	E	M	A

^a T=total use; S=SDD use; P=Profylactic use; E=Empirical use; M=Microorganism known; A=Antibiogram known

Table 12: Antibiotic Use (exhaustive) (c)

Antibiotic	pats #	patdays #	Antibiotic days, # ^a					
			T	S	P	E	M	A

^a T=total use; S=SDD use; P=Profylactic use; E=Empirical use; M=Microorganism known; A=Antibiogram known



Table 13: Pneumonia and Admission Exposure (a)

	pats	patdays	NP ^a				IAP ^a			
			# ^b	% (rank) ^b	incd (rank) ^b	# ^b	incd (rank) ^b			
Age										
≤ 40	10	55	0	0.0	1/46	0.0	1/46	0	0.0	1/33
40-59	20	134	3	15.0	47/50	22.4	48/50	1	23.8	43/46
60-69	18	141	2	11.1	40/49	14.2	43/49	2	28.6	43/48
70-74	10	57	1	10.0	38/50	17.5	44/50	1	43.5	45/46
75-79	11	76	2	18.2	47/50	26.3	49/50	2	66.7	46/47
≥ 80	23	122	0	0.0	1/50	0.0	1/50	0	0.0	1/50
unknown	0	0	0					0		
Gender										
female	36	205	1	2.8	29/50	4.9	33/50	1	18.5	46/50
male	56	380	7	12.5	47/50	18.4	49/50	5	34.2	47/50
unknown	0	0	0					0		
SAPSII score										
≤ 10	9	42	1	11.1	35/37	23.8	36/37	0	0.0	1/9
10-19	21	79	0	0.0	1/44	0.0	1/44	0	0.0	1/25
20-29	21	91	0	0.0	1/47	0.0	1/47	0	0.0	1/42
30-39	11	58	0	0.0	1/46	0.0	1/46	0		
40-49	10	89	2	20.0	39/44	22.5	41/44	2	40.8	40/44
50-59	8	71	2	25.0	42/45	28.2	45/45	2	44.4	44/45
≥ 60	8	66	1	12.5	25/45	15.2	33/45	1	25.0	39/45
unknown	4	89	2	50.0	24/25	22.5	24/25	1	16.7	17/18
APACHE score										
< 10	0	0	0					0		
10-19	0	0	0					0		
20-29	0	0	0					0		
30-39	0	0	0					0		
40-49	0	0	0					0		
50-59	0	0	0					0		
≥ 60	0	0	0					0		
unknown	92	585	8	8.7	41/49	13.7	46/49	6	30.0	47/48
Patient Origin										
other service	34	207	1	2.9	22/50	4.8	26/50	0	0.0	1/49
other ICU	1	9	0	0.0	1/19	0.0	1/19	0	0.0	1/16
community	51	338	7	13.7	48/50	20.7	48/50	6	48.4	49/50
nursing home	5	27	0	0.0	1/44	0.0	1/44	0	0.0	1/31
unknown	1	4	0	0.0	1/15	0.0	1/15	0		
Type of Admission										
medical	49	359	5	10.2	43/50	13.9	45/50	4	26.1	48/50
scheduled surgical	28	128	1	3.6	33/50	7.8	36/50	0	0.0	1/40
unscheduled surgical	15	98	2	13.3	39/49	20.4	47/49	2	54.1	46/47
unknown	0	0	0					0		

^a NP=Nosocomial Pneumonia; IAP=Intubation Associated NP

^b #=#crude number; NP %=# NP /100 patients; NP incd = # NP / 1000 patientdays; IAP incd = # NP / 1000 intubation days (before 1st NP);



Table 14: Pneumonia and Admission Exposure (b)

	pats	patdays	NP ^a				IAP ^a			
			# ^b	% (rank) ^b	incd (rank) ^b	# ^b	incd (rank) ^b			
Trauma										
no	86	549	8	9.3	41/48	14.6	45/48	6	30.6	46/48
yes	6	36	0	0.0	1/50	0.0	1/50	0	0.0	1/35
unknown	0	0	0					0		
Impaired Immunity										
no	89	570	8	9.0	42/48	14.0	46/48	6	30.0	46/48
yes	3	15	0	0.0	1/36	0.0	1/36	0		
unknown	0	0	0					0		
Antibiotic Treatment										
no	81	497	7	8.6	40/47	14.1	43/47	6	38.0	44/46
yes	11	88	1	9.1	42/50	11.4	43/50	0	0.0	1/50
unknown	0	0	0					0		
Acute Coronary Care										
no	85	552	8	9.4	41/48	14.5	46/48	6	30.6	46/48
yes	7	33	0	0.0	1/47	0.0	1/47	0	0.0	1/35
unknown	0	0	0					0		
Prior Surgery site										
no	55	399	6	10.9	42/50	15.0	47/50	4	24.4	47/50
coronary	0	0	0					0		
other cardiac	0	0	0					0		
other thoracic	0	0	0					0		
other vascular	4	18	0	0.0	1/43	0.0	1/43	0		
abdominal	0	0	0					0		
neurosurgery	10	37	0	0.0	1/48	0.0	1/48	0		
other	23	131	2	8.7	41/47	15.3	44/47	2	55.6	45/45
unknown	0	0	0					0		

^a NP=Nosocomial Pneumonia; IAP=Intubation Associated NP

^b #=#crude number; NP %=# NP /100 patients; NP incd = # NP / 1000 patientdays; IAP incd = # NP / 1000 intubation days (before 1st NP);



Table 15: Bloodstream Infection and Admission Exposure (a)

	pats	patdays	NB ^a				CAB ^a			
			# ^b	% (rank) ^b	incd (rank) ^b	# ^b	incd (rank) ^b			
Age										
≤ 40	10	55	0	0.0	1/46	0.0	1/46	0	0.0	1/39
40-59	20	134	1	5.0	41/50	7.5	43/50	1	9.4	44/49
60-69	18	141	1	5.6	38/49	7.1	38/49	1	8.5	42/49
70-74	10	57	1	10.0	42/50	17.5	48/50	1	22.2	48/49
75-79	11	76	2	18.2	50/50	26.3	50/50	2	35.7	50/50
≥ 80	23	122	0	0.0	1/50	0.0	1/50	0	0.0	1/50
unknown	0	0	0					0		
Gender										
female	36	205	0	0.0	1/50	0.0	1/50	0	0.0	1/50
male	56	380	5	8.9	49/50	13.2	48/50	5	16.8	49/50
unknown	0	0	0					0		
SAPSII score										
≤ 10	9	42	0	0.0	1/37	0.0	1/37	0	0.0	1/28
10-19	21	79	0	0.0	1/44	0.0	1/44	0	0.0	1/41
20-29	21	91	0	0.0	1/47	0.0	1/47	0	0.0	1/45
30-39	11	58	1	9.1	45/46	17.2	46/46	1	31.3	45/45
40-49	10	89	1	10.0	36/44	11.2	37/44	1	13.0	39/43
50-59	8	71	2	25.0	41/45	28.2	45/45	2	34.5	44/44
≥ 60	8	66	1	12.5	37/45	15.2	41/45	1	15.4	41/45
unknown	4	89	0	0.0	1/25	0.0	1/25	0	0.0	1/21
APACHE score										
< 10	0	0	0					0		
10-19	0	0	0					0		
20-29	0	0	0					0		
30-39	0	0	0					0		
40-49	0	0	0					0		
50-59	0	0	0					0		
≥ 60	0	0	0					0		
unknown	92	585	5	5.4	45/49	8.5	47/49	5	10.8	47/49
Patient Origin										
other service	34	207	1	2.9	32/50	4.8	38/50	1	5.4	42/50
other ICU	1	9	0	0.0	1/19	0.0	1/19	0	0.0	1/17
community	51	338	4	7.8	44/50	11.8	47/50	4	15.9	48/50
nursing home	5	27	0	0.0	1/44	0.0	1/44	0	0.0	1/40
unknown	1	4	0	0.0	1/15	0.0	1/15	0	0.0	1/13
Type of Admission										
medical	49	359	5	10.2	43/50	13.9	45/50	4	26.1	48/50
scheduled surgical	28	128	1	3.6	33/50	7.8	36/50	0	0.0	1/40
unscheduled surgical	15	98	2	13.3	39/49	20.4	47/49	2	54.1	46/47
unknown	0	0	0					0		

^a NB=Nosocomial Bloodstream Infection; CAB=Intubation Associated NB

^b #=*crude number*; NB %=# NB /100 patients; NB incd = # NB / 1000 patientdays; CAB incd = # NB / 1000 catheter days (before 1st NB); CUR=Catheter Utilization Rate, catheter days / 1000 patientdays



Table 16: Bloodstream Infection and Admission Exposure (b)

	pats	patdays	NB ^a				CAB ^a			
			# ^b	% (rank) ^b	incd (rank) ^b	# ^b	incd (rank) ^b			
Trauma										
no	86	549	5	5.8	44/48	9.1	45/48	5	11.4	45/48
yes	6	36	0	0.0	1/50	0.0	1/50	0	0.0	1/41
unknown	0	0	0					0		
Impaired Immunity										
no	89	570	4	4.5	41/48	7.0	43/48	4	8.9	46/48
yes	3	15	1	33.3	34/36	66.7	36/36	1	66.7	33/33
unknown	0	0	0					0		
Antibiotic Treatment										
no	81	497	5	6.2	42/47	10.1	44/47	5	12.8	45/47
yes	11	88	0	0.0	1/50	0.0	1/50	0	0.0	1/50
unknown	0	0	0					0		
Acute Coronary Care										
no	85	552	5	5.9	42/48	9.1	46/48	5	10.9	46/48
yes	7	33	0	0.0	1/47	0.0	1/47	0	0.0	1/39
unknown	0	0	0					0		
Prior Surgery site										
no	55	399	4	7.3	46/50	10.0	49/50	4	13.3	47/50
coronary	0	0	0					0		
other cardiac	0	0	0					0		
other thoracic	0	0	0					0		
other vascular	4	18	0	0.0	1/43	0.0	1/43	0	0.0	1/41
abdominal	0	0	0					0		
neurosurgery	10	37	0	0.0	1/48	0.0	1/48	0	0.0	1/39
other	23	131	1	4.3	31/47	7.6	31/47	1	8.3	36/46
unknown	0	0	0					0		

^a NB=Nosocomial Bloodstream Infection; CAB=Intubation Associated NB

^b #=#crude number; NB %=# NB /100 patients; NB incd = # NB / 1000 patientdays; CAB incd = # NB / 1000 catheter days (before 1st NB);



Table 17: Pneumonia and Invasive Device Exposure (a)

	pats	patdays	NP ^a			IAP ^a				
			# ^b	% (rank) ^b	incd (rank) ^b	# ^b	incd (rank) ^b			
Intubation										
0	65	286	1	1.5	38/50	3.5	41/50	0	0.0	1/36
1	14	84	1	7.1	36/50	11.9	34/50	1	32.3	43/50
2/3	8	115	4	50.0	43/48	34.8	42/48	4	44.0	47/48
4/6	3	33	0	0.0	1/45	0.0	1/45	0	0.0	1/45
>=7	2	67	2	100.0	42/42	29.9	42/42	1	20.0	41/42
Central Vascular Catheter										
0	25	120	0	0.0	1/50	0.0	1/50	0	0.0	1/45
1	25	86	2	8.0	31/47	23.3	34/47	1	83.3	36/39
2/3	33	240	4	12.1	43/50	16.7	43/50	4	41.2	48/50
4/6	6	57	0	0.0	1/50	0.0	1/50	0	0.0	1/48
>=7	3	82	2	66.7	46/47	24.4	47/47	1	16.9	45/47
Urinary Catheter										
0	19	97	0	0.0	1/50	0.0	1/50	0	0.0	1/41
1	31	110	2	6.5	31/40	18.2	32/40	1	71.4	28/31
2/3	34	248	4	11.8	37/41	16.1	36/41	4	39.2	38/41
4/6	5	48	0	0.0	1/41	0.0	1/41	0	0.0	1/39
>=7	3	82	2	66.7	37/38	24.4	38/38	1	16.9	37/38
Naso Oro Intestinal Tube without feeding										
0	43	233	2	4.7	46/50	8.6	48/50	1	35.7	48/49
1	27	133	3	11.1	39/50	22.6	42/50	3	54.5	45/47
2/3	18	128	1	5.6	29/50	7.8	30/50	1	20.4	41/50
4/6	4	91	2	50.0	41/44	22.0	41/44	1	14.7	31/44
>=7	0	0	0					0		
Naso Oro Intestinal Tube with feeding										
0	84	458	4	4.8	40/50	8.7	42/50	3	29.1	47/50
1	3	28	1	33.3	32/41	35.7	34/41	1	45.5	33/38
2/3	2	23	1	50.0	40/47	43.5	45/47	1	62.5	45/46
4/6	2	41	1	50.0	34/40	24.4	35/40	1	28.6	36/39
>=7	1	35	1	100.0	37/37	28.6	37/37	0	0.0	1/37

^a NP=Nosocomial Pneumonia; IAP=Intubation Associated NP

^b #=#crude number; NP %=# NP /100 patients; NP incd = # NP / 1000 patientdays; IAP incd = # NP / 1000 intubation days (before 1st NP);



Table 18: Pneumonia and Invasive Device Exposure (b)

	pats	patdays	NP ^a				IAP ^a			
			# ^b	% (rank) ^b	incd (rank) ^b	# ^b	incd (rank) ^b			
Parenteral Nutrition										
0	63	342	4	6.3	41/50	11.7	44/50	3	37.5	50/50
1	15	71	0	0.0	1/49	0.0	1/49	0	0.0	1/44
2/3	11	119	3	27.3	44/49	25.2	45/49	3	45.5	47/47
4/6	3	53	1	33.3	39/44	18.9	41/44	0	0.0	1/44
>=7	0	0	0					0		
Invasive Mechanical Ventilation										
0	65	286	1	1.5	31/50	3.5	34/50	0	0.0	1/46
1	14	84	1	7.1	28/40	11.9	29/40	1	32.3	34/39
2/3	8	115	4	50.0	37/40	34.8	35/40	4	44.0	38/39
4/6	3	33	0	0.0	1/37	0.0	1/37	0	0.0	1/37
>=7	2	67	2	100.0	35/35	29.9	35/35	1	20.0	34/35
Non-Invasive Mechanical Ventilation										
0	87	558	8	9.2	47/50	14.3	48/50	6	30.2	48/50
1	4	20	0	0.0	1/34	0.0	1/34	0	0.0	1/30
2/3	1	7	0	0.0	1/28	0.0	1/28	0		
4/6	0	0	0					0		
>=7	0	0	0					0		
Tracheotomy Intubation										
0	89	531	7	7.9	43/50	13.2	46/50	6	34.9	49/50
1	2	19	0	0.0	1/7	0.0	1/7	0	0.0	1/5
2/3	0	0	0					0		
4/6	0	0	0					0		
>=7	1	35	1	100.0	17/18	28.6	18/18	0	0.0	1/18

^a NP=Nosocomial Pneumonia; IAP=Intubation Associated NP

^b #=#crude number; NP %=# NP /100 patients; NP incd = # NP / 1000 patientdays; IAP incd = # NP / 1000 intubation days (before 1st NP);



Table 19: Bloodstream Infection and Invasive Device Exposure (a)

	pats	patdays	NB ^a				CAB ^a			
			# ^b	% (rank) ^b	incd (rank) ^b	# ^b	incd (rank) ^b			
Intubation										
0	68	379	1	1.5	40/50	2.6	42/50	1	3.6	47/50
1	14	84	1	7.1	43/50	11.9	43/50	1	12.7	46/50
2/3	6	57	2	33.3	44/47	35.1	43/47	2	41.7	46/47
4/6	4	65	1	25.0	33/45	15.4	35/45	1	16.1	38/44
>=7	0	0	0					0		
Central Vascular Catheter										
0	28	215	0	0.0	1/50	0.0	1/50	0	0.0	1/38
1	24	77	1	4.2	41/47	13.0	41/47	1	13.2	44/47
2/3	32	189	3	9.4	45/50	15.9	45/50	3	16.5	48/50
4/6	7	89	1	14.3	41/50	11.2	40/50	1	11.8	45/50
>=7	1	15	0	0.0	1/47	0.0	1/47	0	0.0	1/47
Urinary Catheter										
0	22	192	0	0.0	1/50	0.0	1/50	0	0.0	1/46
1	30	101	1	3.3	34/40	9.9	34/40	1	13.5	37/40
2/3	33	197	3	9.1	37/41	15.2	37/41	3	17.8	39/41
4/6	6	80	1	16.7	35/41	12.5	35/41	1	13.2	37/41
>=7	1	15	0	0.0	1/38	0.0	1/38	0	0.0	1/38
Naso Oro Intestinal Tube without feeding										
0	45	305	1	2.2	46/50	3.3	45/50	1	4.8	47/50
1	27	133	3	11.1	44/50	22.6	46/50	3	25.2	47/49
2/3	18	123	1	5.6	38/50	8.1	39/50	1	8.8	45/50
4/6	2	24	0	0.0	1/47	0.0	1/47	0	0.0	1/46
>=7	0	0	0					0		
Naso Oro Intestinal Tube with feeding										
0	85	493	2	2.4	40/50	4.1	41/50	2	5.1	46/50
1	3	28	1	33.3	37/39	35.7	36/39	1	43.5	37/37
2/3	2	23	1	50.0	43/48	43.5	46/48	1	71.4	46/47
4/6	2	41	1	50.0	37/37	24.4	36/37	1	26.3	36/37
>=7	0	0	0					0		

^a NB=Nosocomial Bloodstream Infection; CAB=Intubation Associated NB

^b #=#crude number; NB %=# NB /100 patients; NB incd = # NB / 1000 patientdays; CAB incd = # NB / 1000 catheter days (before 1st NB);



Table 20: Bloodstream Infection and Invasive Device Exposure (b)

	pats	patdays	NB ^a				CAB ^a			
			# ^b	% (rank) ^b	incd (rank) ^b	# ^b	incd (rank) ^b			
Parenteral Nutrition										
0	65	398	3	4.6	49/50	7.5	50/50	3	10.4	49/50
1	16	103	1	6.3	35/49	9.7	35/49	1	10.0	41/49
2/3	9	66	1	11.1	36/49	15.2	41/49	1	17.2	45/49
4/6	2	18	0	0.0	1/45	0.0	1/45	0	0.0	1/45
>=7	0	0	0					0		
Invasive Mechanical Ventilation										
0	68	379	1	1.5	35/50	2.6	38/50	1	3.6	43/50
1	14	84	1	7.1	33/40	11.9	34/40	1	12.7	37/40
2/3	6	57	2	33.3	38/40	35.1	37/40	2	41.7	40/40
4/6	4	65	1	25.0	26/38	15.4	28/38	1	16.1	32/36
>=7	0	0	0					0		
Non-Invasive Mechanical Ventilation										
0	87	558	5	5.7	45/50	9.0	46/50	5	11.1	48/50
1	4	20	0	0.0	1/34	0.0	1/34	0	0.0	1/32
2/3	1	7	0	0.0	1/27	0.0	1/27	0		
4/6	0	0	0					0		
>=7	0	0	0					0		
Tracheotomy Intubation										
0	90	566	5	5.6	46/50	8.8	48/50	5	11.2	48/50
1	2	19	0	0.0	1/8	0.0	1/8	0	0.0	1/6
2/3	0	0	0					0		
4/6	0	0	0					0		
>=7	0	0	0					0		

^a NB=Nosocomial Bloodstream Infection; CAB=Intubation Associated NB

^b #=#crude number; NB %=# NB /100 patients; NB incd = # NB / 1000 patientdays; CAB incd = # NB / 1000 catheter days (before 1st NB);

Table 21: Pneumonia and Antibiotic Use

	pats	patdays	NP ^a			IAP ^a	
			# ^b	% (rank) ^b	incd (rank) ^b	# ^b	incd (rank) ^b
total Antibiotic Use days							
no data available							
SDD Antibiotic Use days							
no data available							
Profylactic Antibiotic Use days							
no data available							
Empirical Antibiotic Use days							
no data available							

^a NP=Nosocomial Pneumonia; IAP=Intubation Associated NP

^b #=#crude number; NP %=# NP /100 patients; NP incd = # NP / 1000 patientdays; IAP incd = # NP / 1000 intubation days (before 1st NP);



Table 22: Bloodstream Infection and Antibiotic Use

	pats	patdays	NB ^a			CAB ^a	
			# ^b	% (rank) ^b	incd (rank) ^b	# ^b	incd (rank) ^b
total Antibiotic Use days							
no data available							
SDD Antibiotic Use days							
no data available							
Profylactic Antibiotic Use days							
no data available							
Empirical Antibiotic Use days							
no data available							

^a NB=Nosocomial Bloodstream Infection; CAB=Intubation Associated NB

^b #=crude number; NB %=# NB /100 patients; NB incd = # NB / 1000 patientdays;
CAB incd = # NB / 1000 catheter days (before 1st NB);



Table 23: Pneumonia and SOFAScore

	pats	patdays	NP ^a			IAP ^a	
			# ^b	% (rank) ^b	incd (rank) ^b	# ^b	incd (rank) ^b
mean CNS SOFA score							
no data available							
mean Respiratory SOFA score							
no data available							
mean Coagulation SOFA score							
no data available							
mean Cardiovascular SOFA score							
no data available							
mean Renal SOFA score							
no data available							
mean Liver SOFA score							
no data available							
mean Total SOFA score							
no data available							

^a NP=Nosocomial Pneumonia; IAP=Intubation Associated NP

^b #=crude number; NP %=# NP /100 patients; NP incd = # NP / 1000 patientdays;
IAP incd = # NP / 1000 intubation days (before 1st NP);

Table 24: Bloodstream Infections and SOFAScore

	pats	patdays	NB ^a			CAB ^a	
			# ^b	% (rank) ^b	incd (rank) ^b	# ^b	incd (rank) ^b
mean CNS SOFA score							
no data available							
mean Respiratory SOFA score							
no data available							
mean Coagulation SOFA score							
no data available							
mean Cardiovascular SOFA score							
no data available							
mean Renal SOFA score							
no data available							
mean Liver SOFA score							
no data available							
mean Total SOFA score							
no data available							

^a NB=Nosocomial Bloodstream Infection; CAB=Intubation Associated NB

^b #=crude number; NB %=# NB /100 patients; NB incd = # NB / 1000 patientdays;
CAB incd = # NB / 1000 catheter days (before 1st NB);



Table 25: Standardized Pneumonia and Bacteremia Rates

	Expected ^a	Observed/Expected ^a (Rank)
Nosocomial Bacteremia	2.03	2.46 47/48
Nosocomial Pneumonia	4.69	1.28 39/48

^a Expected=number of infection as predicted by risk factors for Pneumonia and Bacteremia Observed/Expected=number of observed infections divided by expected number of infections

Table 26: Nosocomial Pneumonia and Bacteremia risk score distribution

	pats ^a		patdays ^a		NP,NB ^a				IAP,CAB ^a			
	# ^b	% ^b	# ^b	% ^b	# ^b	% (rank) ^b	incd (rank) ^b	# ^b	incd (rank) ^b	# ^b	incd (rank) ^b	
Nosocomial Pneumonia Risk Score												
≤ 9	16	17	75	13	0	0.0	1/45	0.0	1/45	0	0.0	1/35
10/19	33	36	157	27	0	0.0	1/45	0.0	1/45	0	0.0	1/42
20/29	25	27	96	16	0	0.0	1/44	0.0	1/44	0	0.0	1/42
30/39	3	3	26	4	1	33.3	35/40	38.5	36/40	0	0.0	1/40
40/49	5	5	65	11	2	40.0	32/41	30.8	33/41	2	41.7	37/41
50/59	3	3	19	3	0	0.0	1/35	0.0	1/35	0	0.0	1/35
≥ 60	3	3	58	10	3	100.0	24/26	51.7	24/26	3	60.0	25/26
Nosocomial Bacteremia Risk Score												
≤ 9	32	35	138	24	1	3.1	47/48	7.2	47/48	1	20.0	41/42
10/19	27	29	115	20	0	0.0	1/46	0.0	1/46	0	0.0	1/46
20/29	13	14	75	13	0	0.0	1/45	0.0	1/45	0	0.0	1/45
30/39	7	8	59	10	0	0.0	1/44	0.0	1/44	0	0.0	1/44
40/49	5	5	62	11	1	20.0	35/43	16.1	39/43	1	18.5	41/43
≥ 50	4	4	47	8	3	75.0	27/29	63.8	29/29	3	69.8	29/29
	0	0	0	0	0					0		

^a pats=patients patdays=patient days NP=Nosocomial Pneumonia; NB=Nosocomial Bacteremia; IAP=Intubation Associated NP; CAB=Catheter Associated NB

^b #=#crude number; pats/patdays %=percentage of total pats/patdays; NP %=# NP/100 patients; NP incd = # NP/1000 patientdays; IAP incd = # NP/1000 intubation days (before 1st NP); NB %=# NB/100 patients; NB incd = # NB/1000 patientdays; CAB incd = # NB/1000 catheter days (before 1st NB);

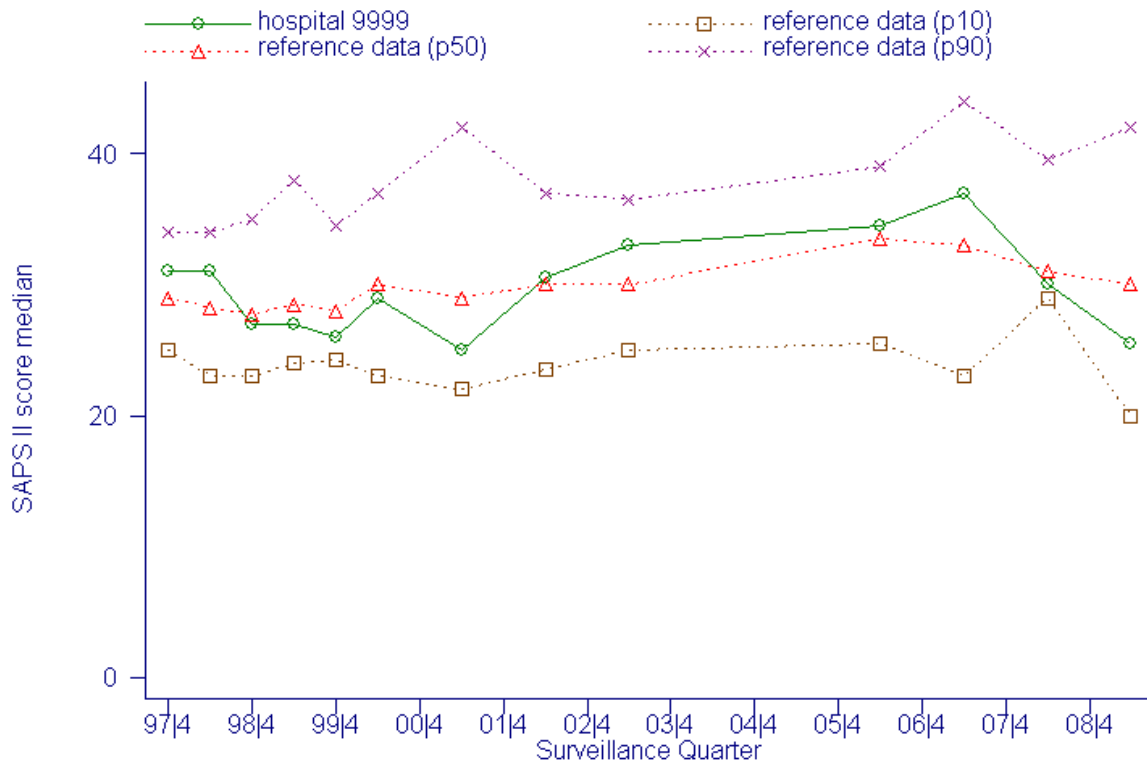


Figure 1: Evolution: SAPS II Score Median

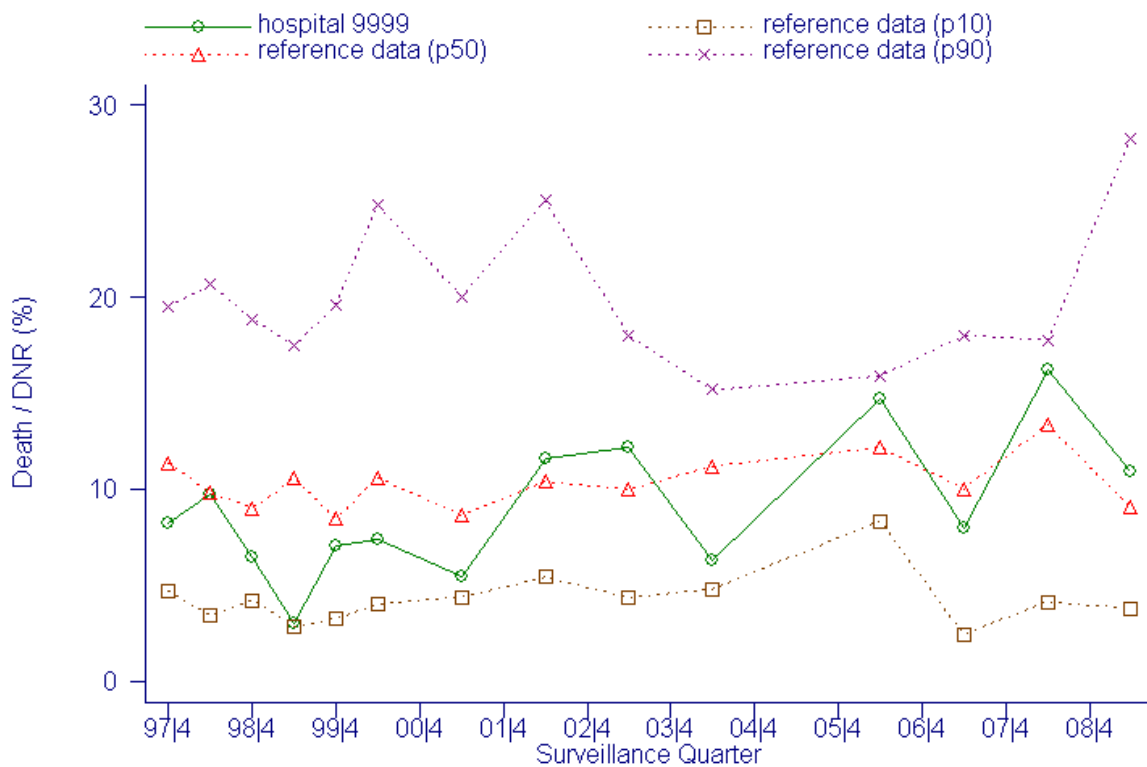


Figure 2: Evolution: Death / DNR (%)

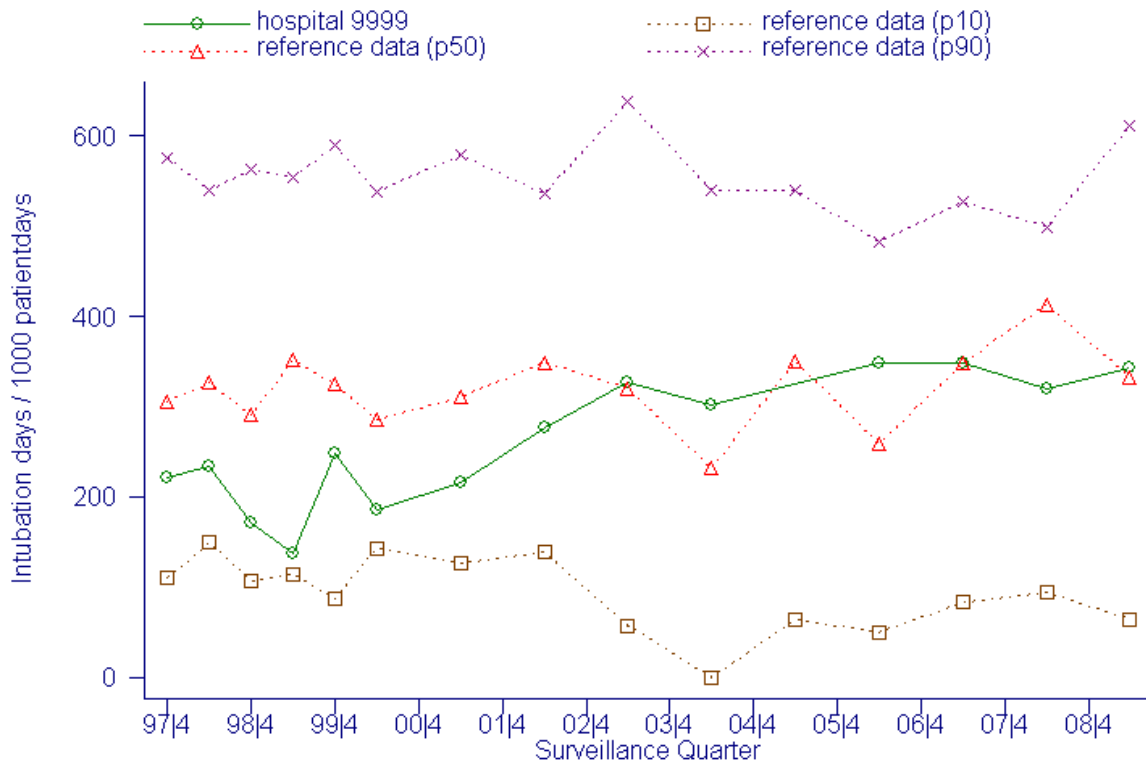


Figure 3: Evolution: Intubation days / 1000 patientdays

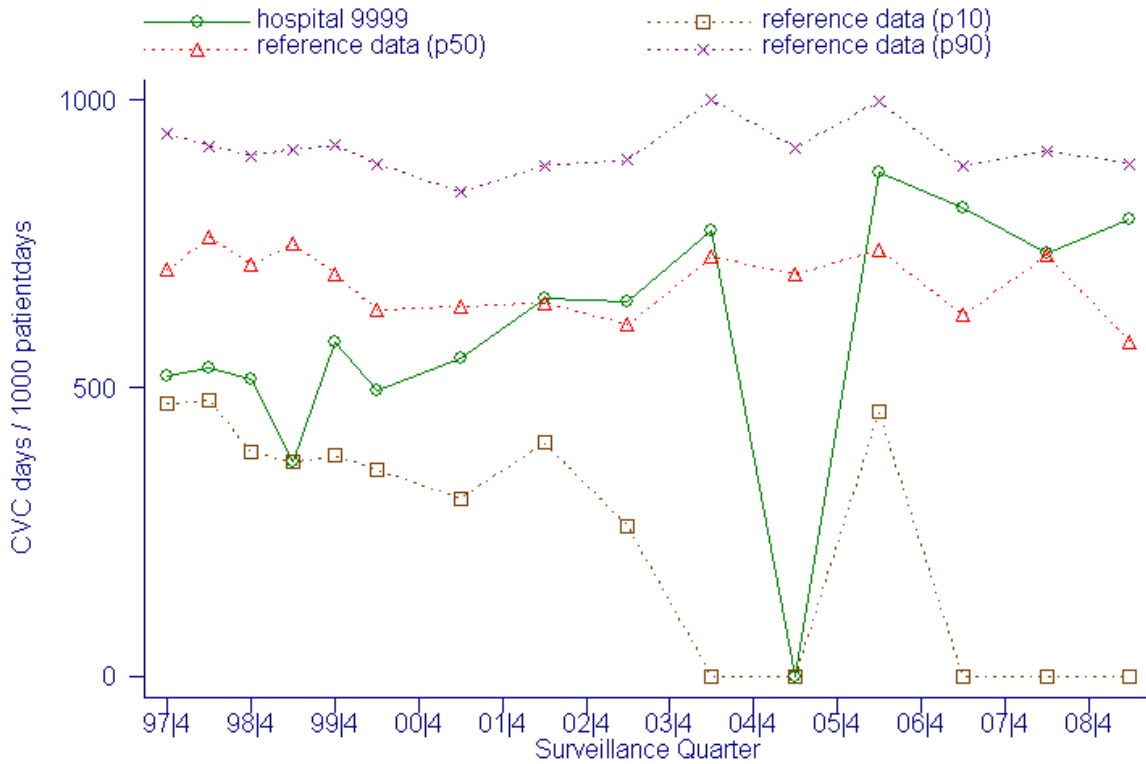


Figure 4: Evolution: CVC days / 1000 patientdays

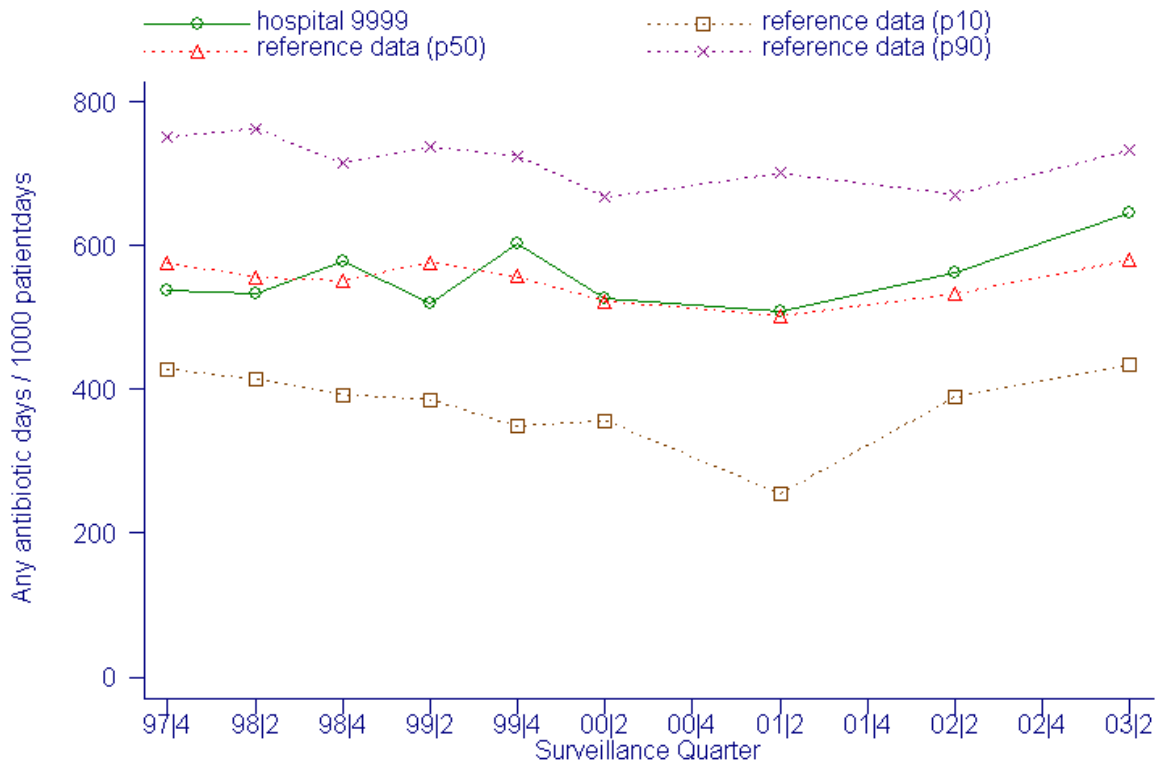


Figure 5: Evolution: Any AB utilization days / 1000 patientdays

Hospital 9999 :
 1.28 observed NP/expected NP

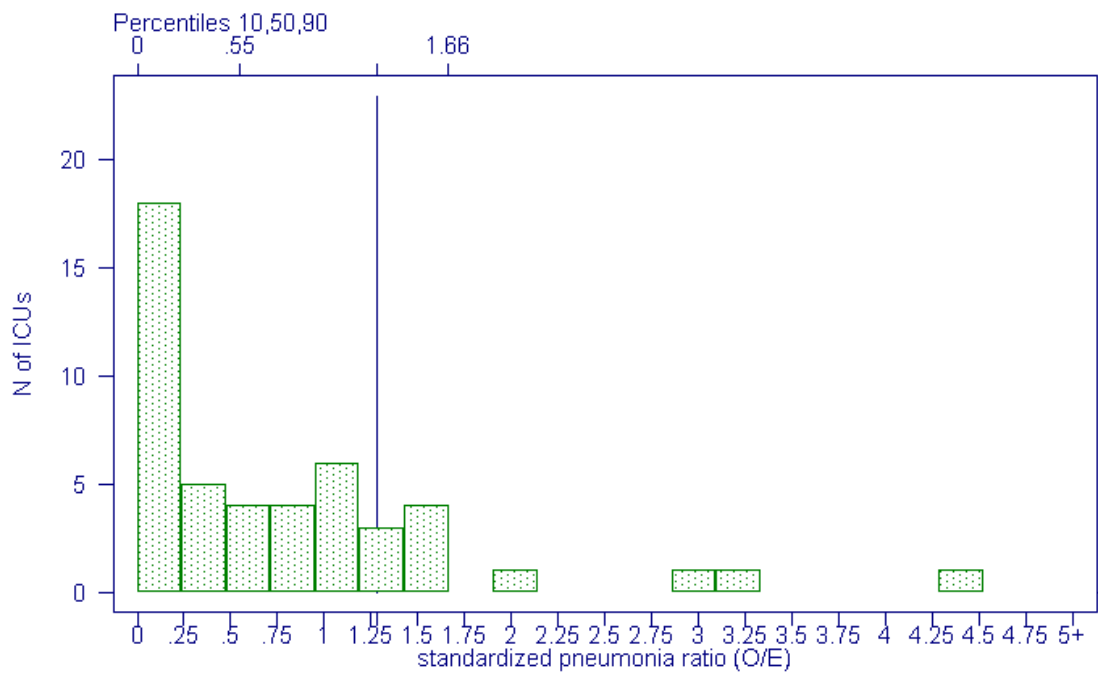


Figure 6: Benchmark: Standardized Pneumonia Ratio

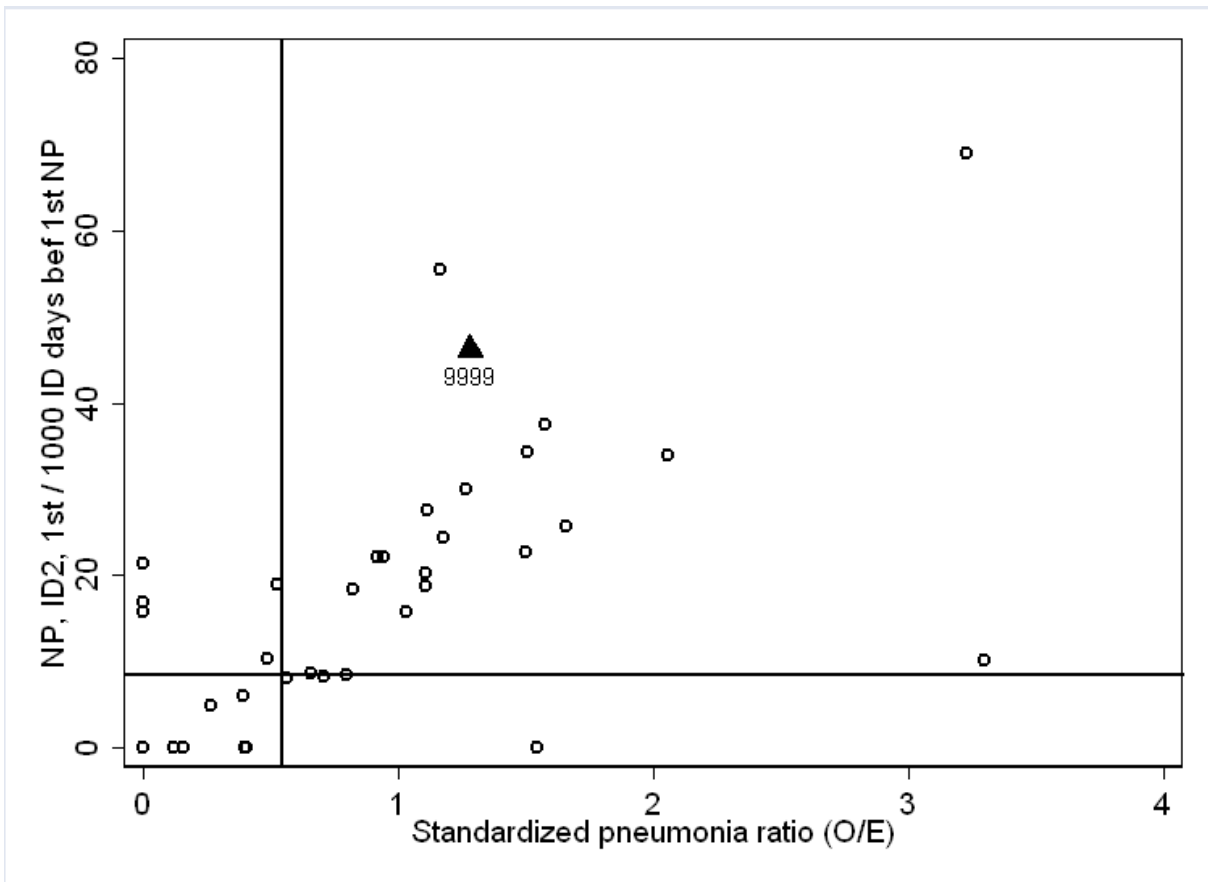


Figure 7: Benchmark: Ventilator Associated Pneumonia versus Standardized Pneumonia Ratio

Hospital 9999 :
 2.46 observed NB/expected NB

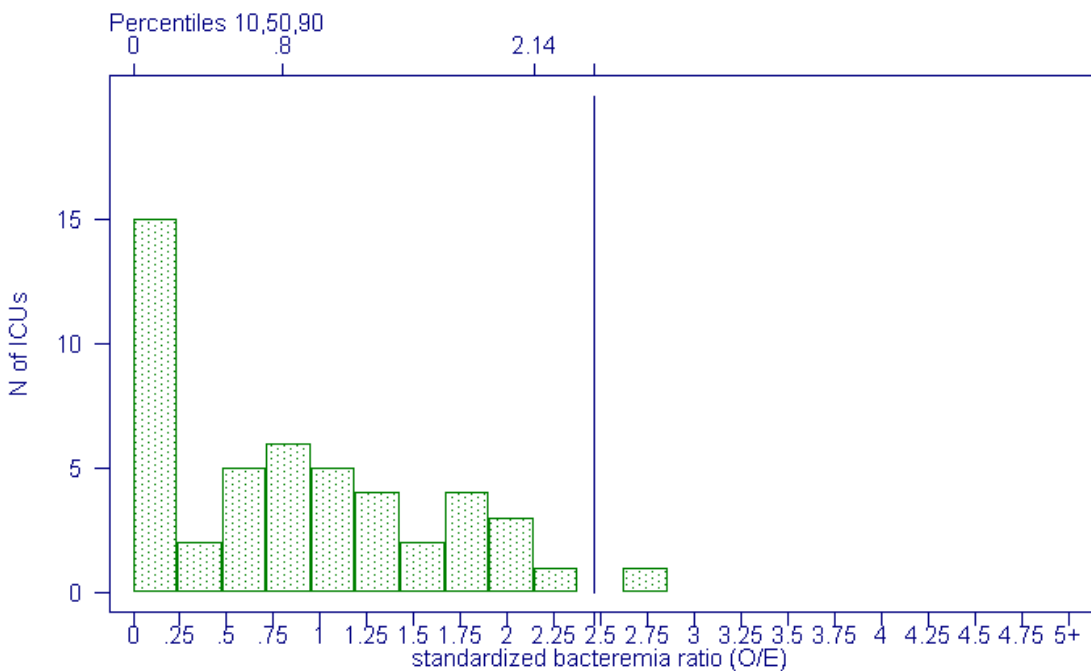


Figure 8: Benchmark: Standardized Bacteremia Ratio

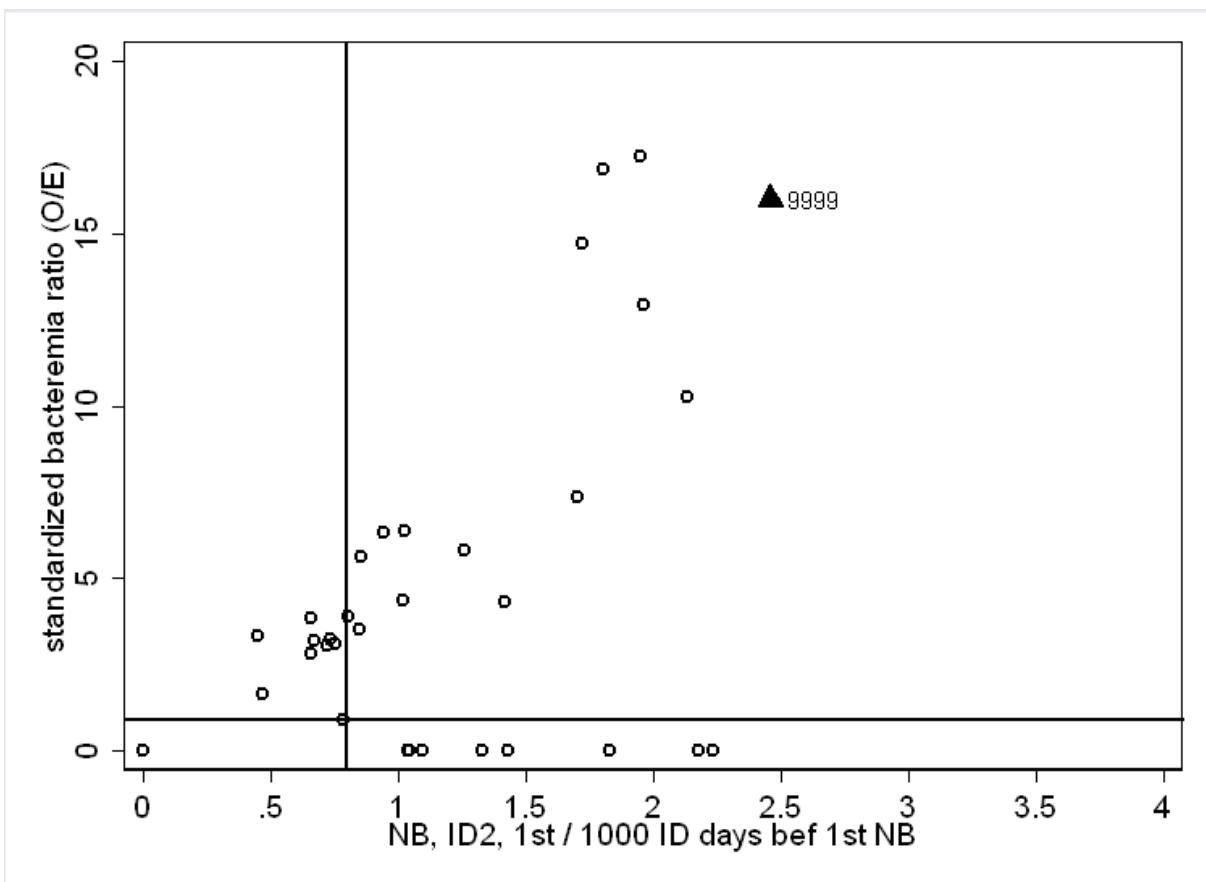


Figure 9: Benchmark: Catheter Associated Bacteremia versus Standardized Bacteremia Ratio