Faut-il mettre en route un traitement antibiotique devant une culture positive d'une aspiration bronchique ?

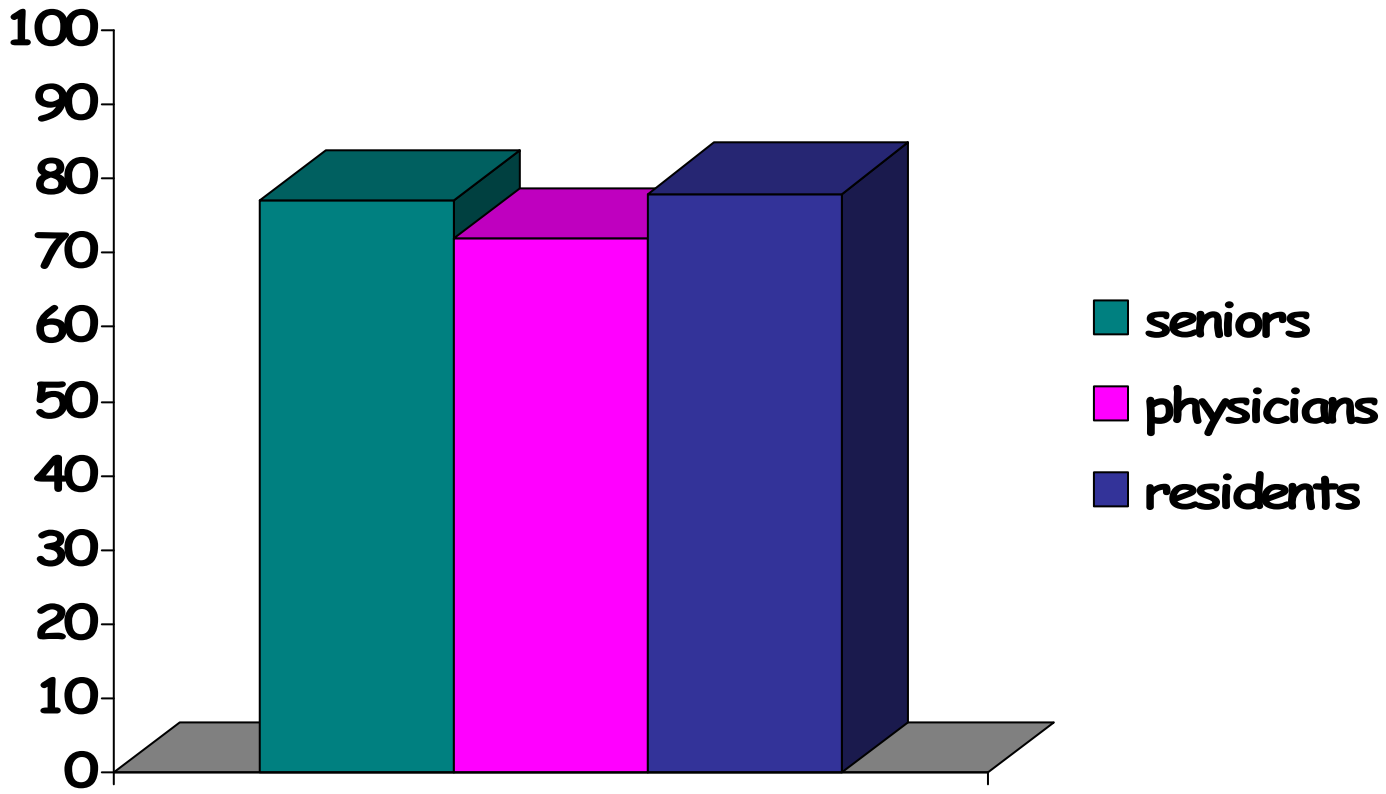
laurent.papazian@ap-hm.fr

Critères cliniques

- tableau clinique de PAVM

Fagon et al. Chest 93

- diagnostic: histo ou BTP > 10^3 cfu/ml



Le pour et le contre

Critères cliniques

SDRA (n = 24)

Andrews et al. Chest 81

- t° > 38,3 °C
- GB > 10 G/l ou < 5 G/l
- bactérie pathogène
- réponse aux ATB
- radio

analyse rétrospective des dossiers

Critères cliniques

Andrews et al. Chest 81

- pneumonie histologique : 14 patients
- diagnostic clinique :

sensibilité : 64%

spécificité : 80%

Critères cliniques

Clinical Pulmonary Infection Score

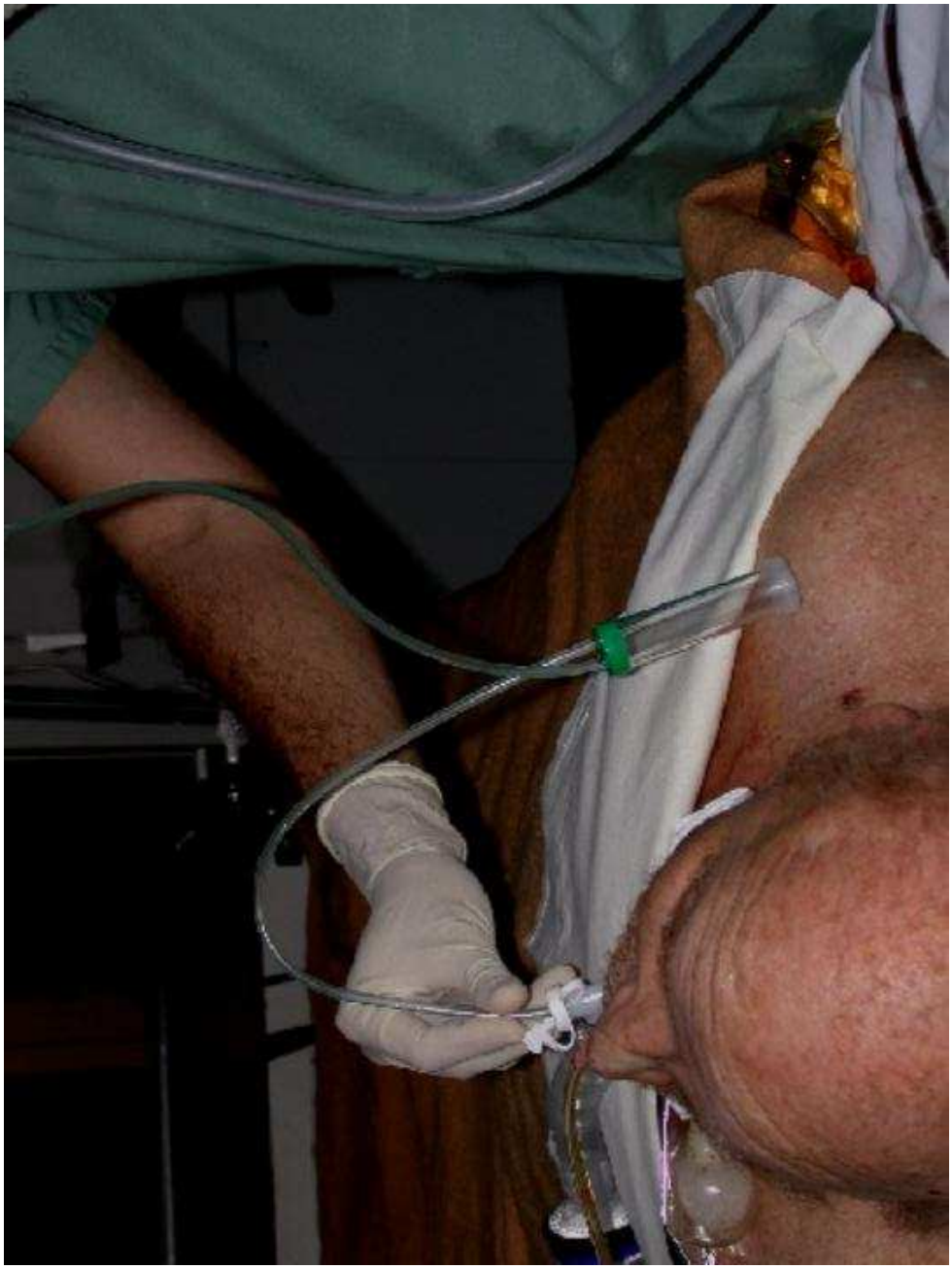
Pugin et al. ARRD 91

* temperature °C
  - > 36.5 and < 38.4 : 0 point
  - > 38.5 and < 38.9 : 1 point
  - > 39 or < 36 : 2 points
* WBC, mm^{-3}
  - < 4,000 and < 11,000 : 0 point
  - < 4,000 or > 11,000 : 1 point + band forms > 500 = + 1 point
* tracheal secretions
  - < 14 + of tracheal secretions = 0 point
  - > 14 + of tracheal secretions = 1 point + purulent secretions = + 1 point
* PaO2/FiO2, mmHg
  - > 240 or ARDS = 0 point
  - < 240 and no evidence of ARDS = 1 point
* pulmonary radiography
  - no infiltrate = 0 point
  - diffused (or patchy) infiltrate = 1 point
  - localized infiltrate = 2 points
* culture of TA (semiquantitative : 0,1,2 or 3 +)
  - pathogenic bacteria cultured < 1 + or no growth = 0 point
  - pathogenic bacteria cultured > 1 = 1 point + same bacteria on Gram stain > 1 + = + 1 point

Critères cliniques
Clinical Pulmonary Infection Score

- comparaison avec LBA : CPIS > 6
  - sensibilité : 93 %
  - spécificité : 100 %

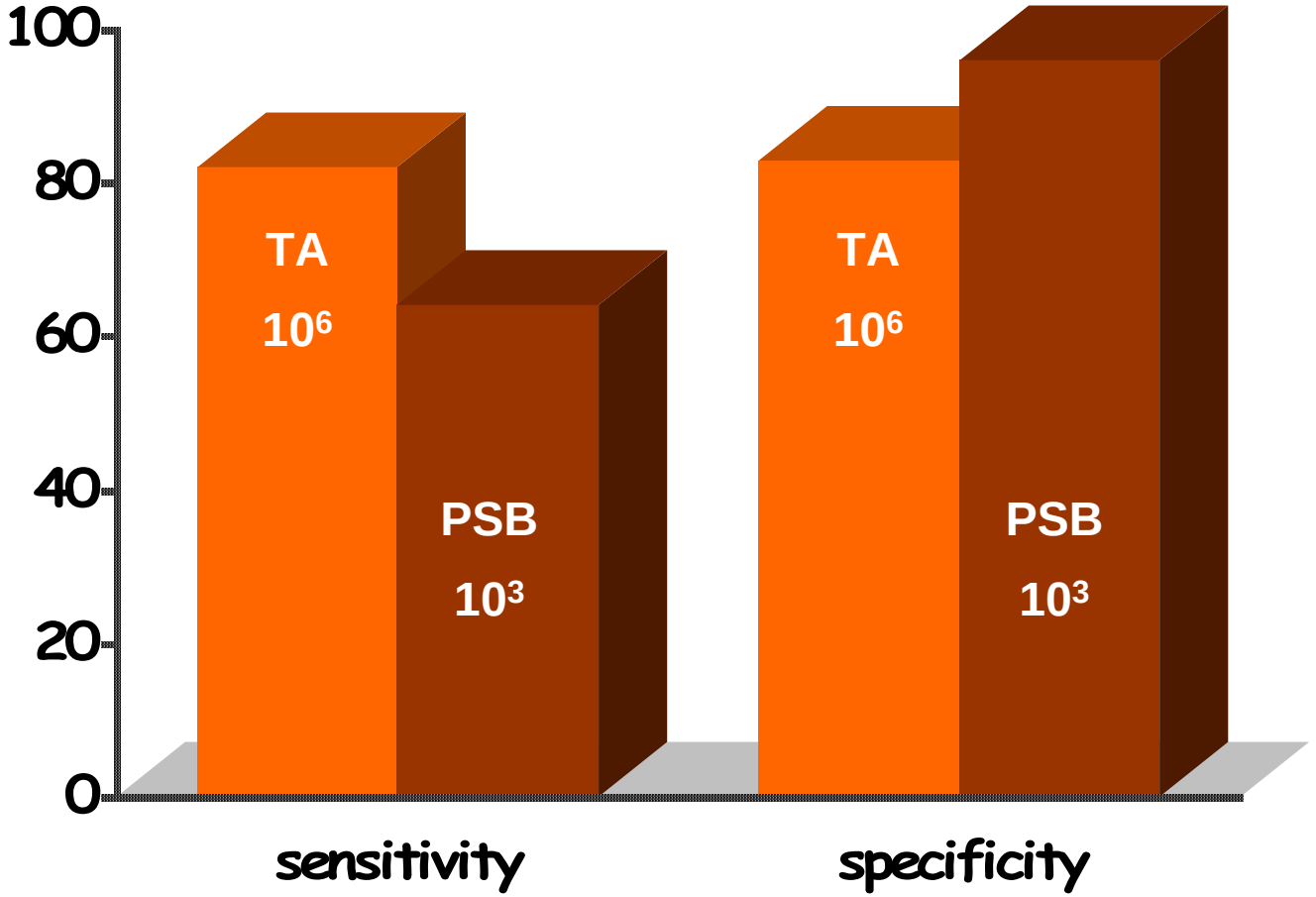
Pugin et al. ARRD 91



Tracheal aspirates
diagnostic accuracy

Marquette et al. ARRD 93

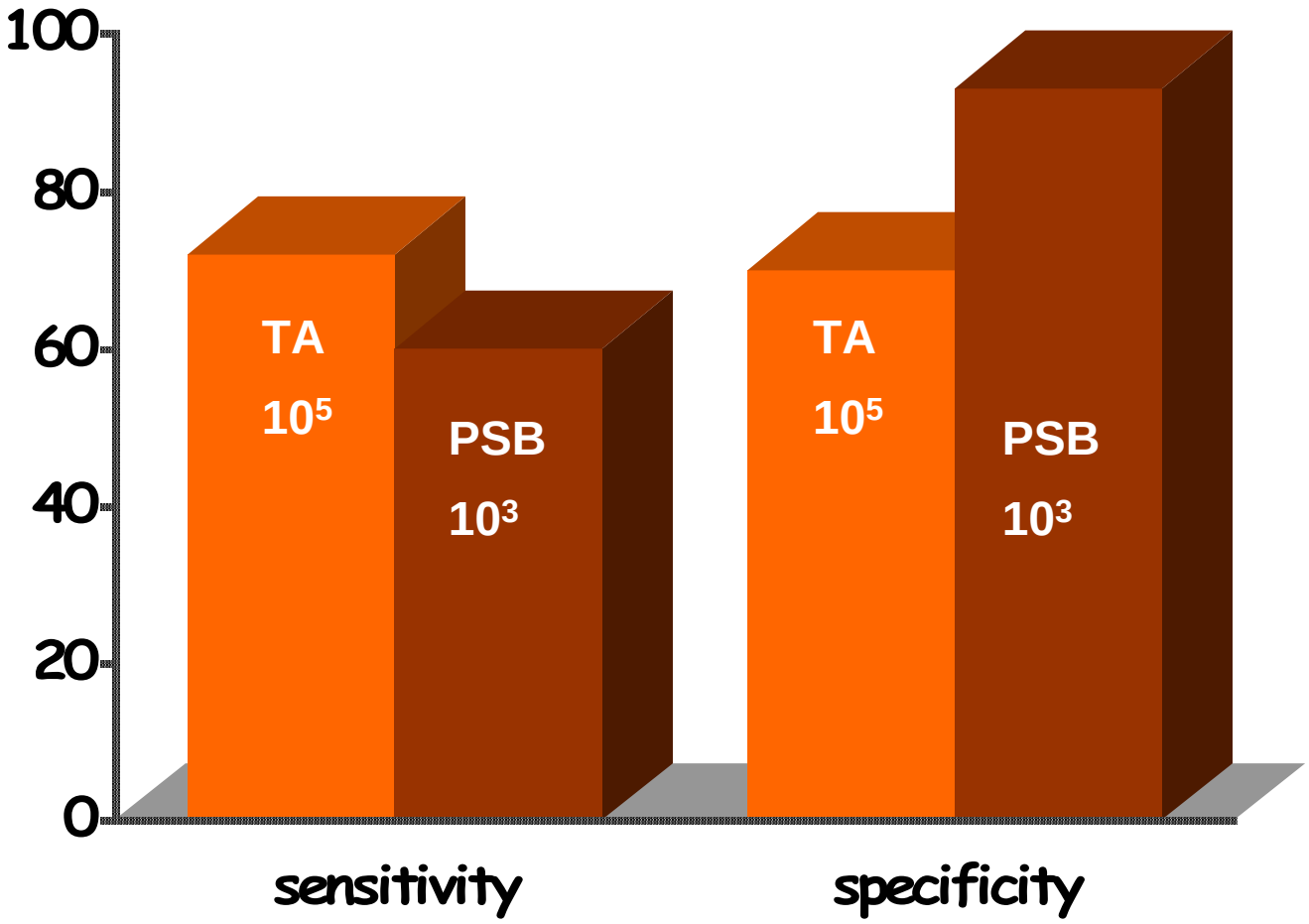
* reference : clinical criteria
* 45 patients (22 with pneumonia)



Tracheal aspirates
diagnostic accuracy

El-Ebiary et al. ARRD 93

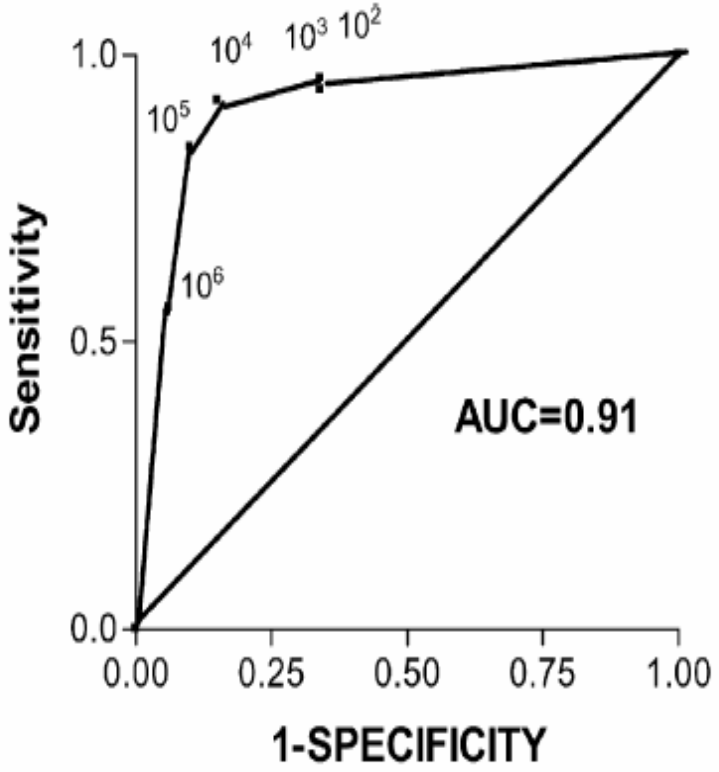
* reference : blood or pleural cultures, histology
* 54 patients (26 with pneumonia)



EA *vs.* PTC

	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)
$\geq 10^2$	96.5	66	82	92
$\geq 10^3$	94	66	81	87.5
$\geq 10^4$	92	85	90	88
$\geq 10^5$	84	90	93	78.6
$\geq 10^6$	44	94	92	51

PPV positive predictive value, *NPV* negative predictive value



Elatrous *et al.* ICM 2004

Etudes comparatives avec histologie

sensibilité/spécificité

	BTP	LBA	AT			Comb	CPIS
	10^3	10^4	10^4	10^5	10^6	10^3	6
Torrès AJRCCM 94	36/50	50/45	-	-	-	-	-
Marquette AJRCCM 95	58/89	47/100	67/75	67/75	53/87	-	-
Chastre AJRCCM 95	82/89	91/78	-	-	-	-	-
Papazian AJRCCM 95	33/95	50/95	72/80	56/95	44/100	67/80	72/85

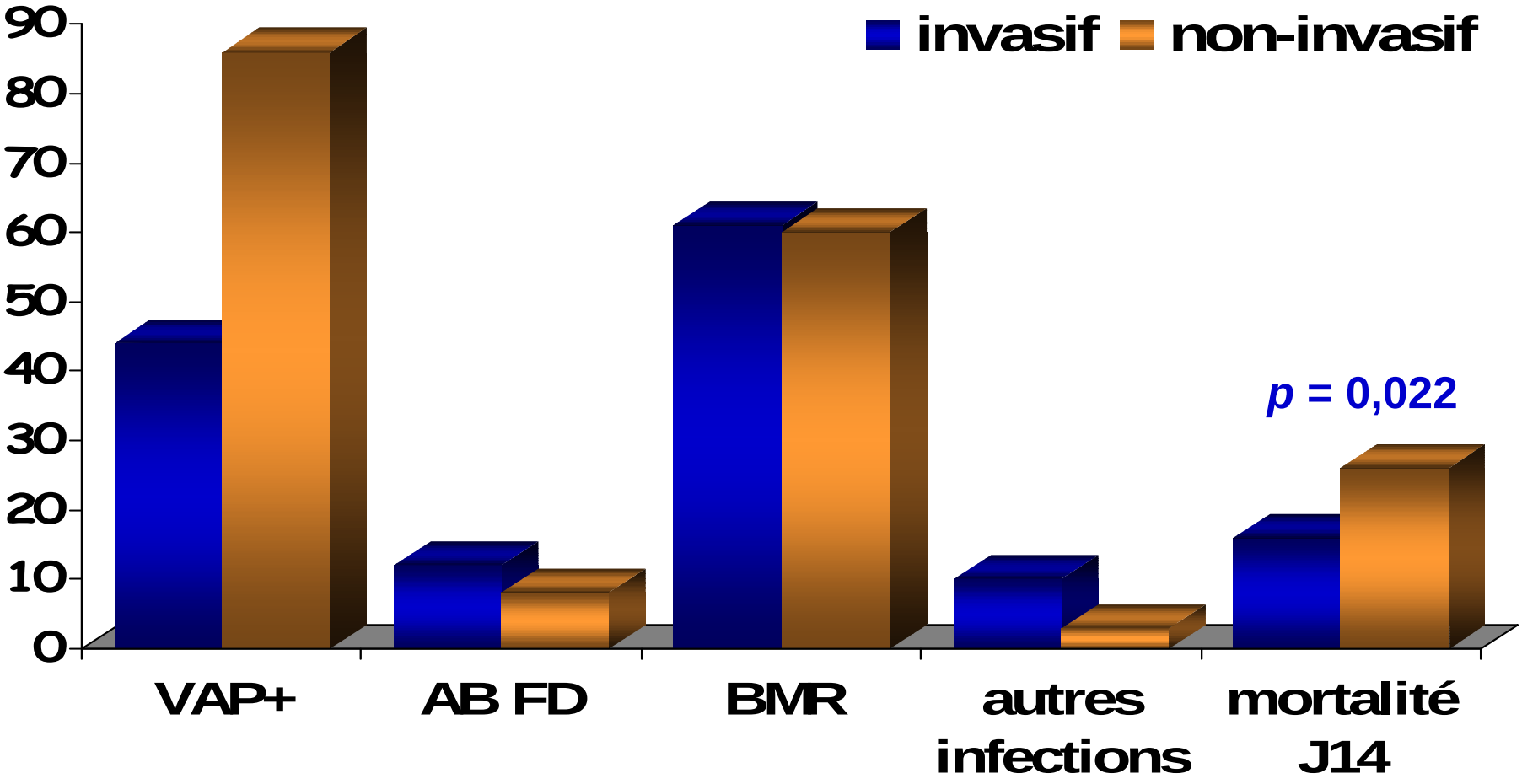
Mortalité et diagnostic

- AT SQ et ATS vs BTP/LBA
- 413 patients (31 centres, 17 mois)
- patients suspects de VAP, sans modification AB depuis 72 h
- choix AB sur
  - ED de l 'AT et recommandations ATS
  - ED BTP/LBA

Fagon et al. *AIM* 2000

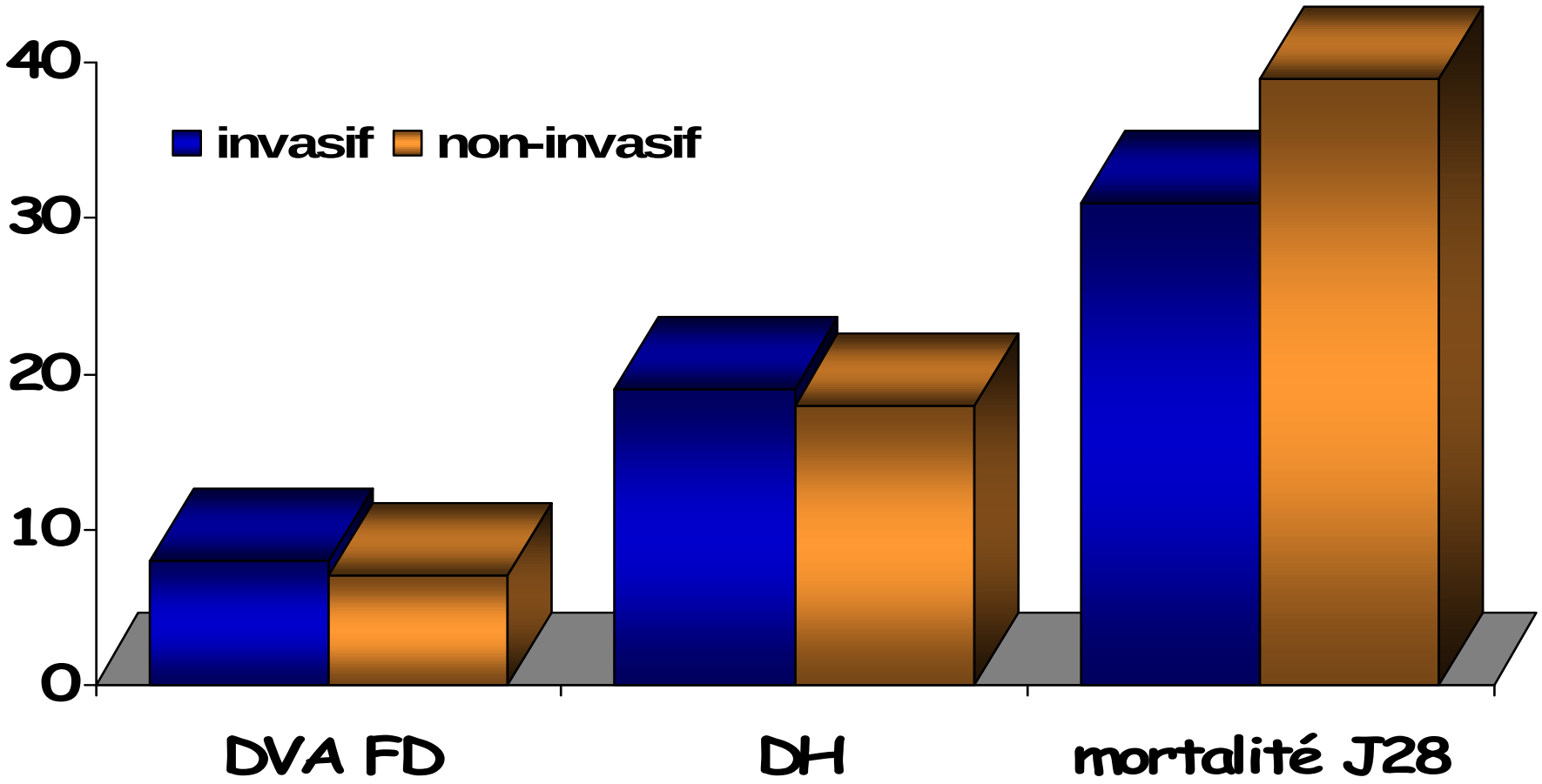
Moins d 'AB = moins de BMR = moins de VAP tardives = réduction mortalité tardive ?

Fagon et al. AIM 2000



Mortalité et diagnostic

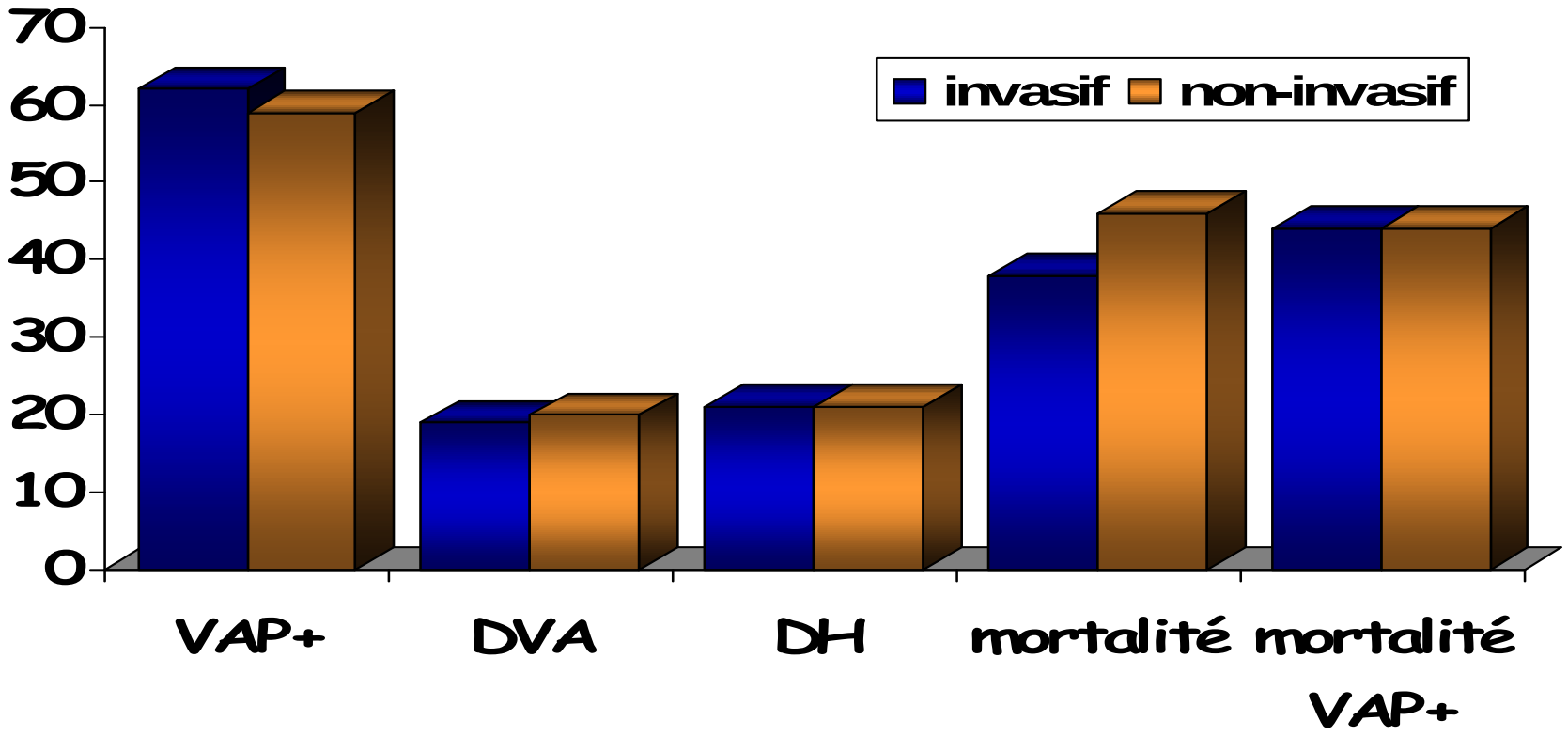
Fagon et al. AIM 2000



Mortalité et diagnostic

- 76 patients suspects (3 centres)
- BTP/LBA vs AT quantitative (10^5)
- protocole AB identique

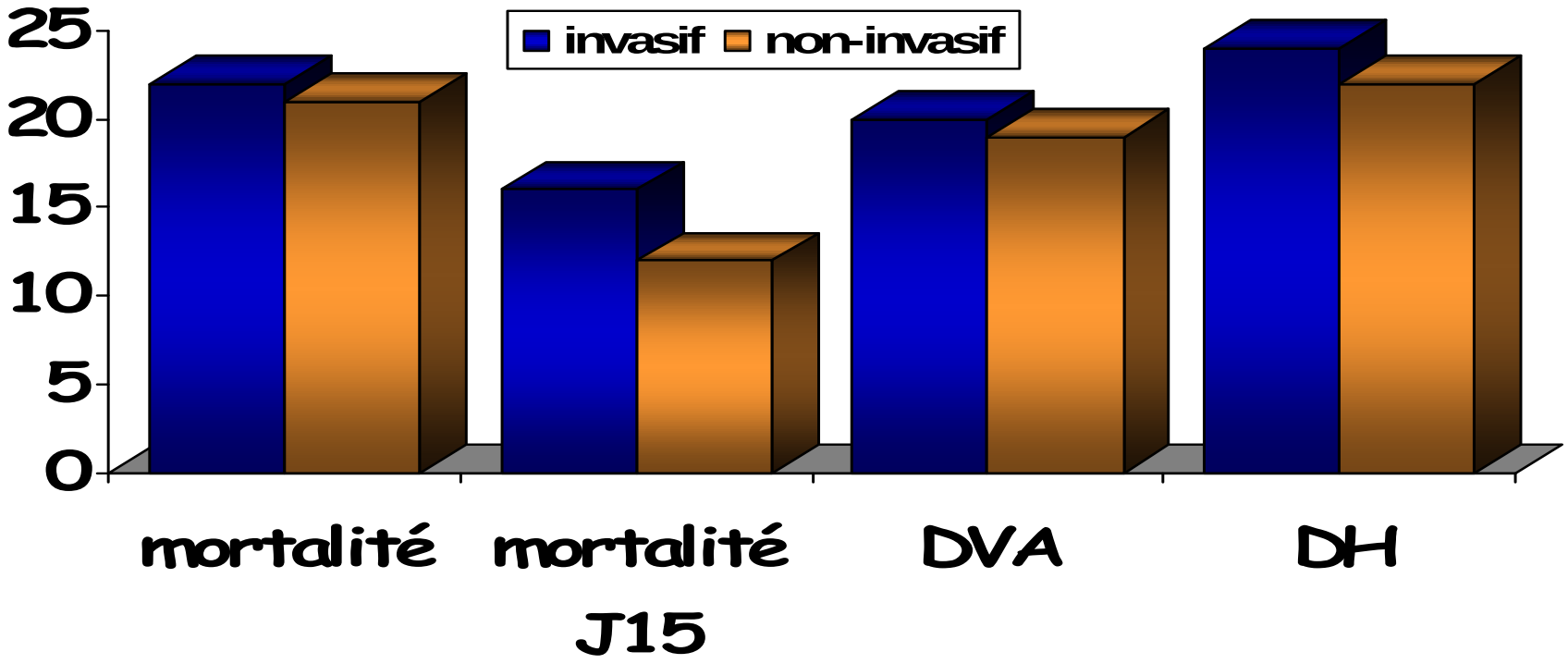
Ruiz et al. *AJRCCM* 2000



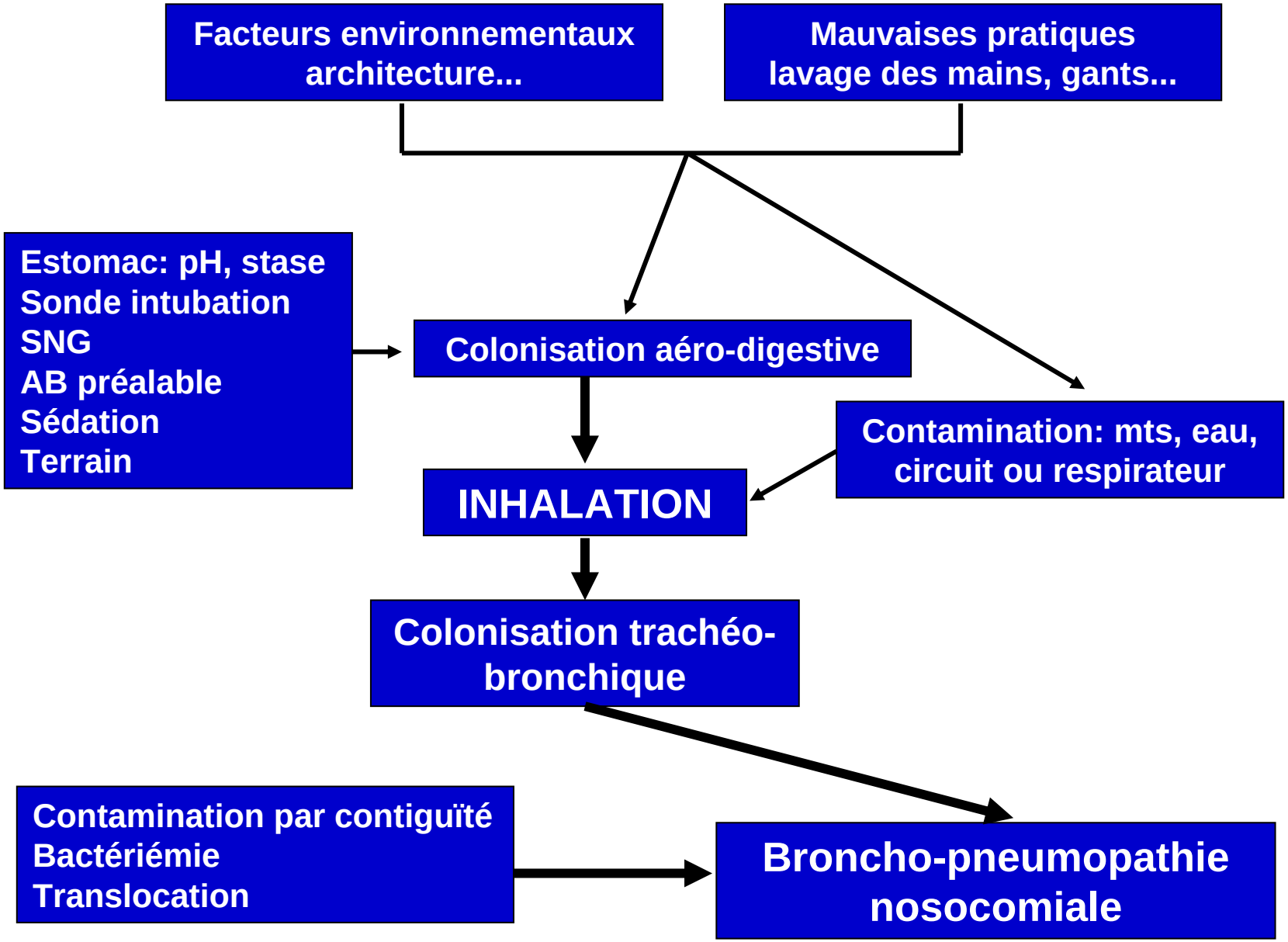
Mortalité et diagnostic

Sole Violan et al. *CCM* 2000

- 88 patients suspects (1 centre)
- BTP et/ou LBA ou PDP (0-8 h) vs AT qualitative
- protocole AB identique

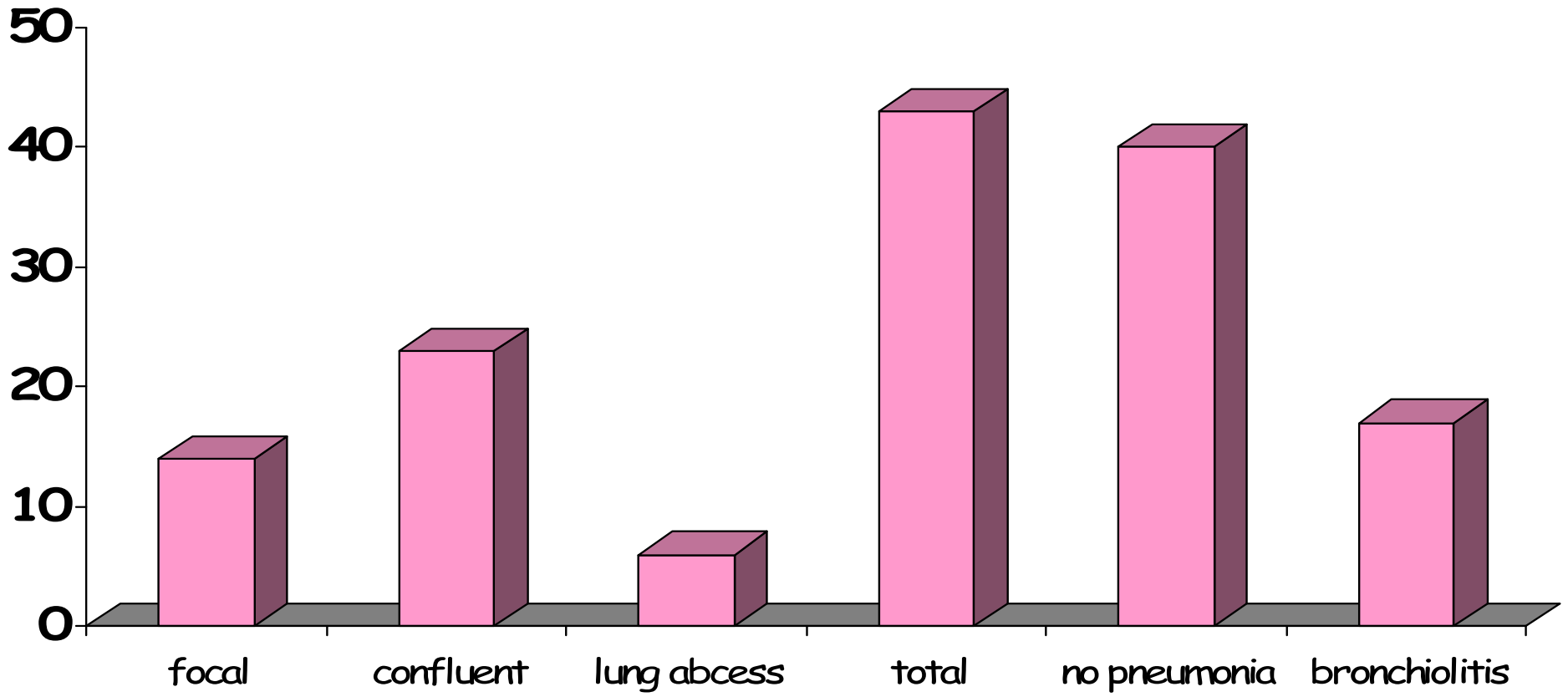


VAP = atteinte diffuse

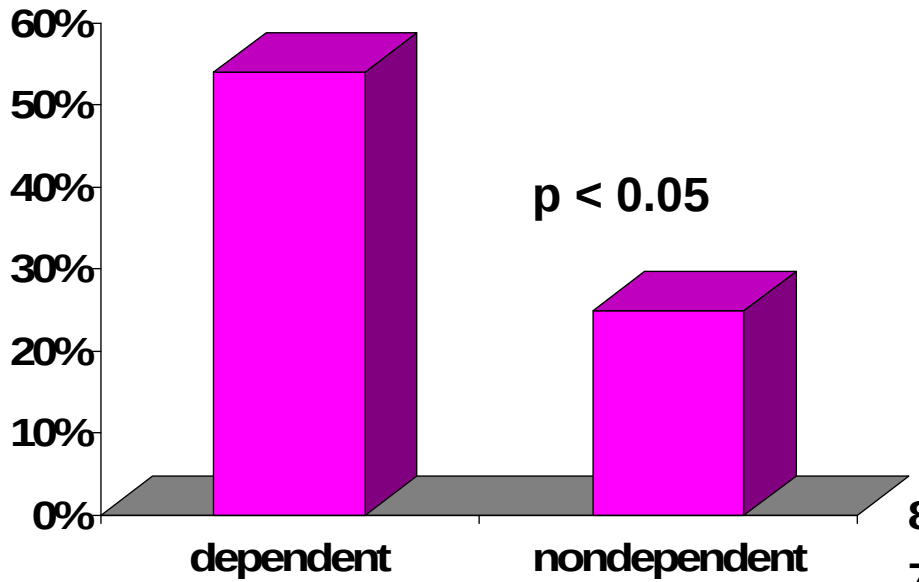

Facteurs environnementaux
architecture...
Mauvaises pratiques
lavage des mains, gants...
Estomac: pH, stase
Sonde intubation
SNG
AB préalable
Sédation
Terrain
Colonisation aéro-digestive
Contamination: mts, eau,
circuit ou respirateur
INHALATION
Colonisation trachéo-
bronchique
Contamination par contiguïté
Bactériémie
Translocation
Broncho-pneumopathie
nosocomiale

Localisation

Rouby et al. ARRD 92

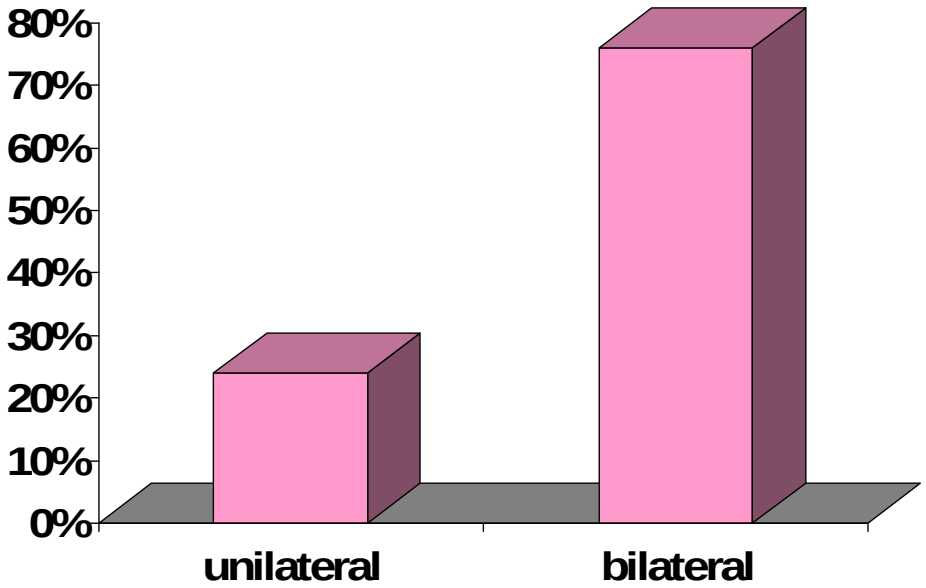


Modèle animal



$p < 0.05$

Marquette et al. Chest 99

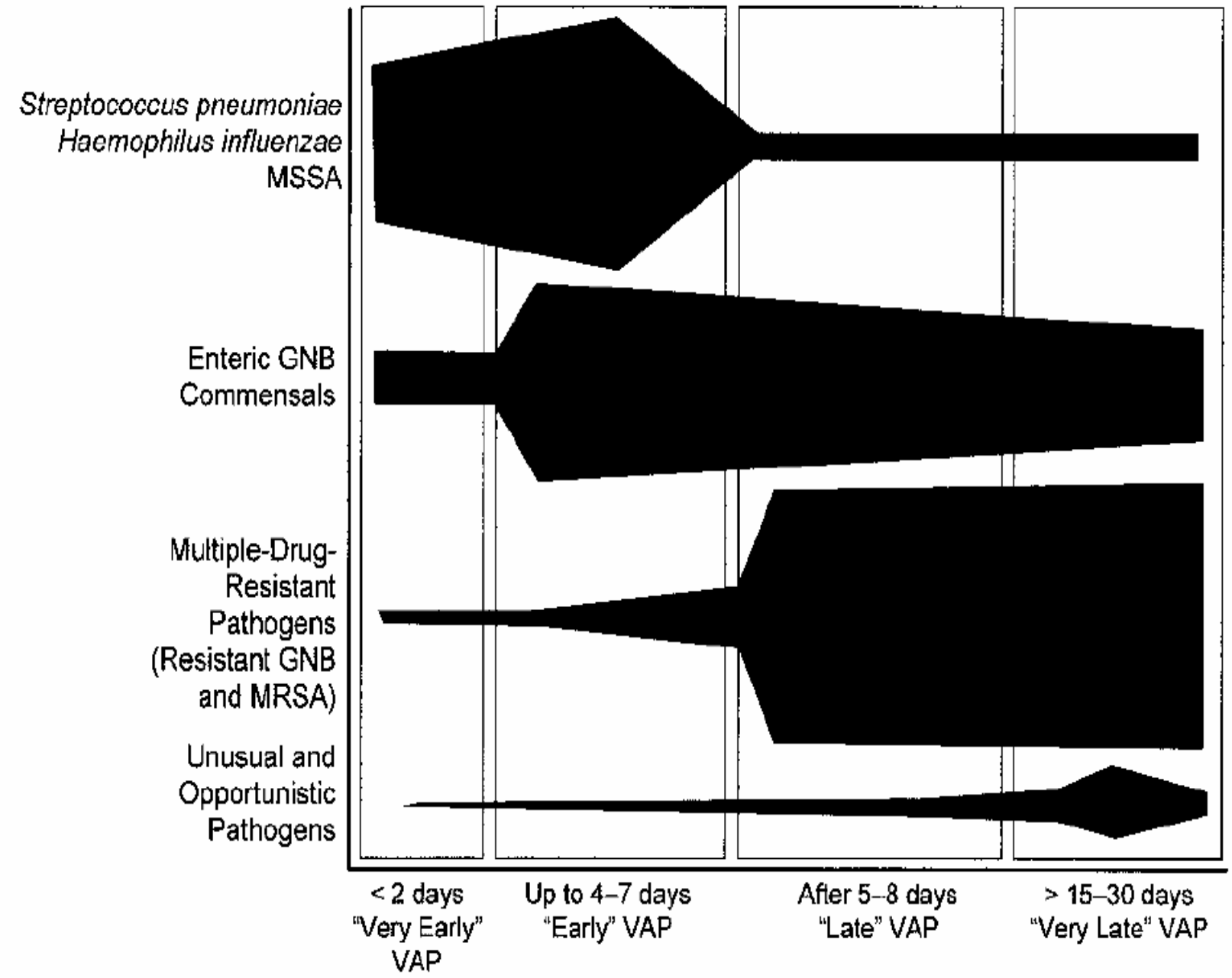


Borderline results of PSB

* 29 PSB with at least 1 microorganism > 10^2 but < 10^3 cfu/ml
* second PSB
* 12 / 29 (41 %) : second PSB > 10^3 cfu/ml

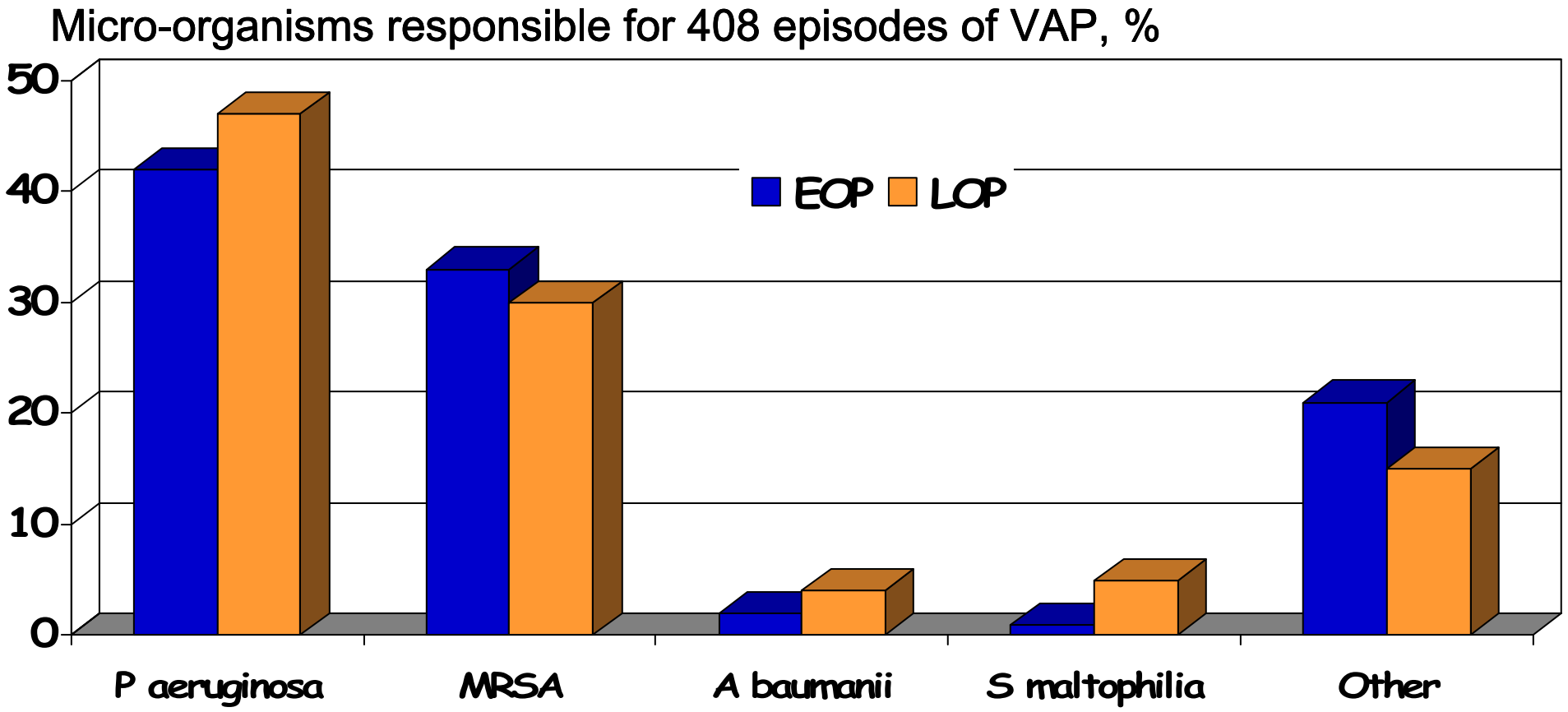
Dreyfuss et al. ARRD 93

Difficultés à prévoir le(s) germe(s) responsable(s)


Streptococcus pneumoniae
Haemophilus influenzae
MSSA
Enteric GNB
Commensals
Multiple-Drug-Resistant Pathogens (Resistant GNB and MRSA)
Unusual and Opportunistic Pathogens
< 2 days "Very Early" VAP
Up to 4–7 days "Early" VAP
After 5–8 days "Late" VAP
> 15–30 days "Very Late" VAP

Resistant strains even in EOP

Giantsou *et al.* Intensive Care Med 2005



Modification of the initial antibiotic therapy: 58% vs. 36%, $p < .001$

Trouillet *et al.* CID 98

PERCENTAGES OF SUSCEPTIBILITY TO 14 ANTIMICROBIAL REGIMENS OF THE 245 STRAINS RESPONSIBLE FOR 135 VAP EPISODES

Regimen	Group 1 (22/41)* MV < 7 d ABT = no	Group 2 (12/20)* MV < 7 d ABT = yes	Group 3 (17/32)* MV ⩾ 7 d ABT = no	Group 4 (84/152)* MV ⩾ 7 d ABT = yes	p Value
Amoxicillin	52	59	53	23	< 0.0001
Amoxicillin-clavulanic acid	90	60	72	32	< 0.0001
Ticarcillin	69	80	56	43	0.001
Ticarcillin-clavulanic acid	85	82	63	50	0.0001
Piperacillin	73	76	66	44	0.0006
Piperacillin-tazobactam	100	85	94	58	< 0.0001
Cefamandole	93	65	72	28	< 0.0001
Cefotaxime	100	70	81	34	< 0.0001
Ceftazidime	98	80	88	50	< 0.0001
Aztreonam	55	47	34	28	0.007
Imipenem	98	95	94	64	< 0.0001
Gentamicin	62	50	53	33	0.004
Amikacin	63	60	55	42	0.06
Ciprofloxacin	69	60	63	38	0.0006

* Number of episodes/number of pathogens.

Rello *et al.* CCM 2004

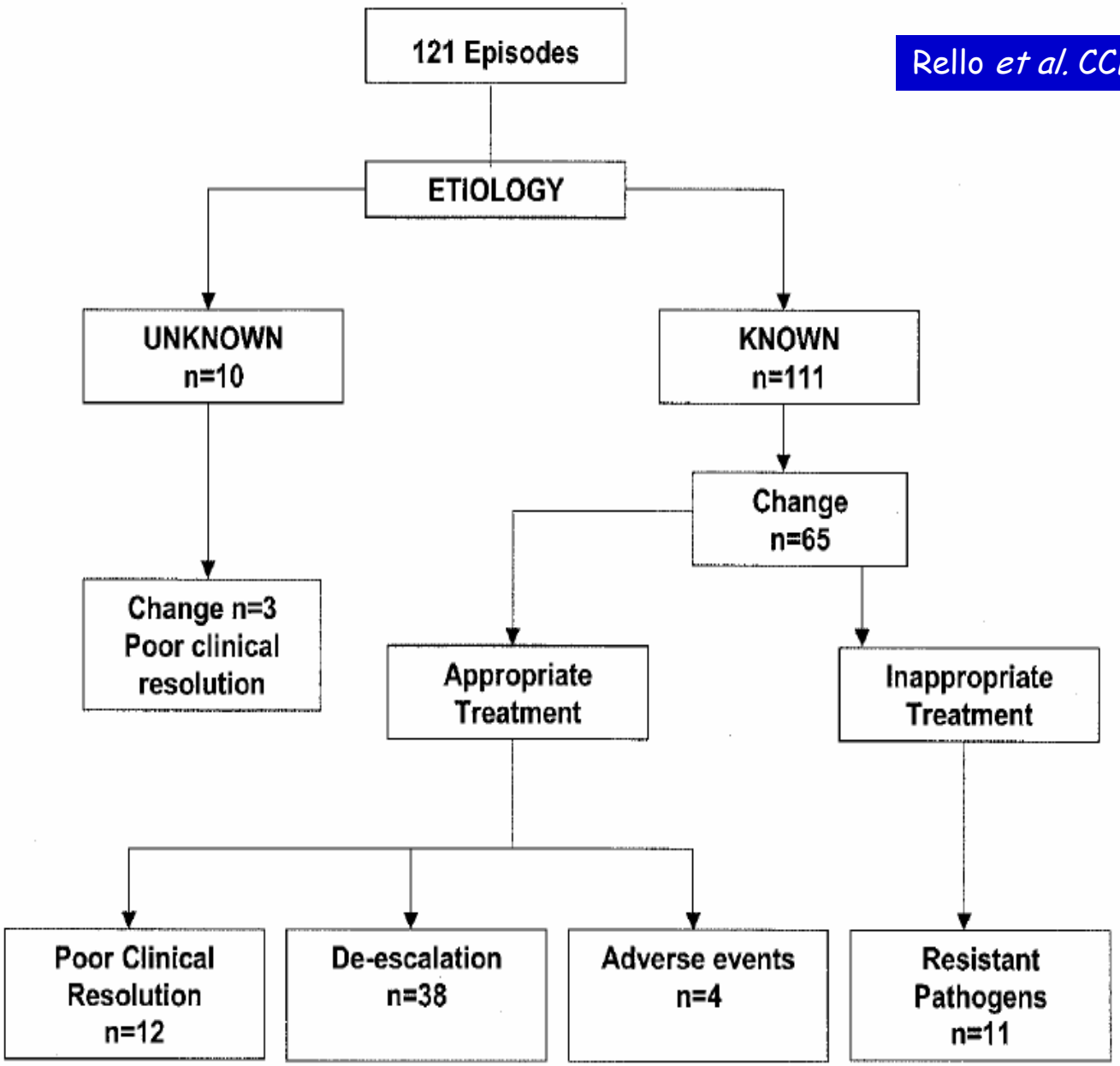


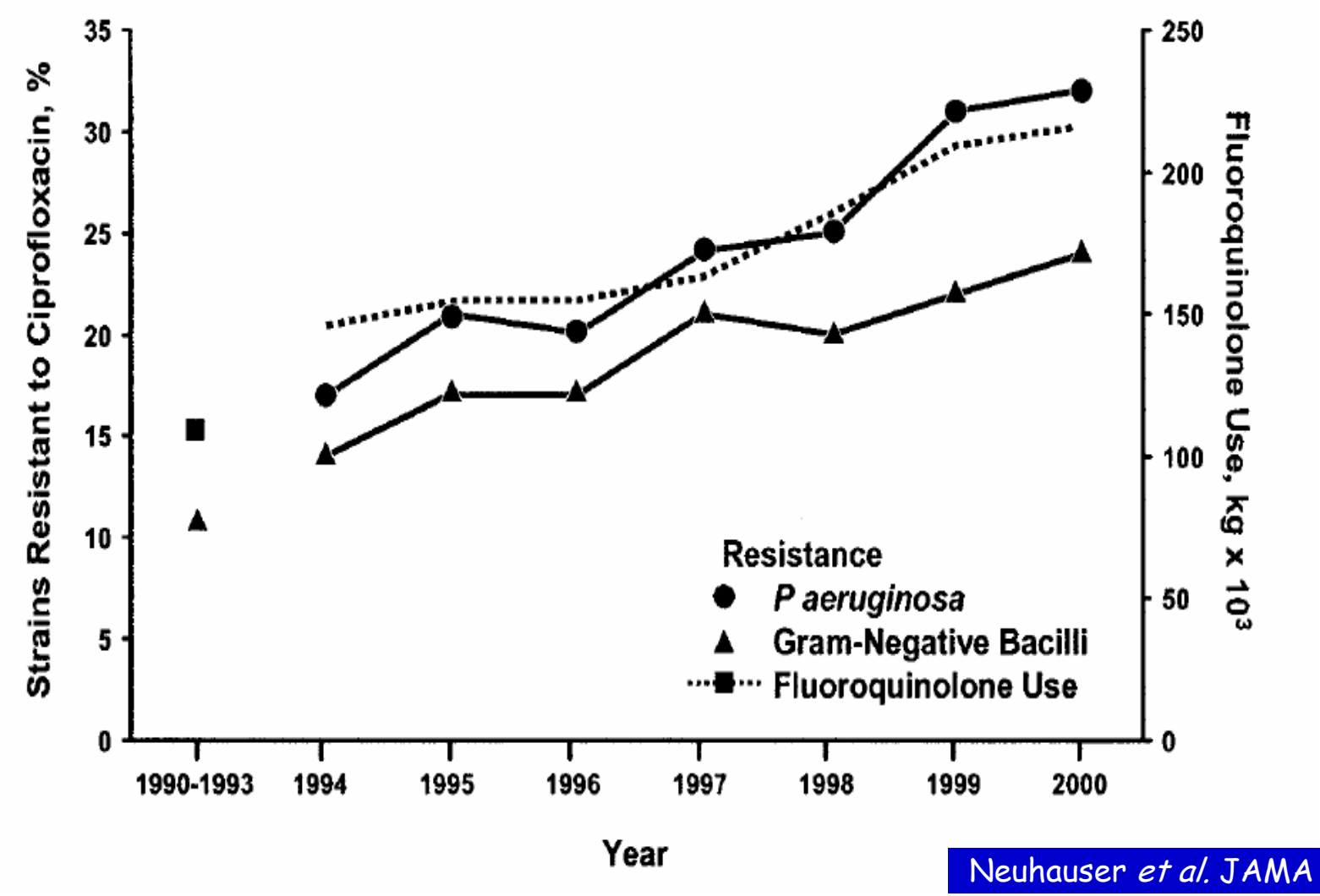
Figure 3. Algorithm detailing changes in antibiotic therapy based on microbiological results.

Table 4. Initial empirical therapy and de-escalating rate

Agent	No. (%)	De-escalation, No. (%)
Carbapenem		
Overall	37 (30)	13 (35)
Monotherapy	19 (16)	5 (26.3)
Combination therapy	18 (14)	8 (44.4)
Amikacin		
Overall	27 (22.3)	11 (40.7)
Monotherapy	0 (0)	0 (0)
Combination therapy	27 (22.3)	11 (40.7)
Piperacillin/tazobactam		
Overall	22 (18.2)	5 (22.7)
Monotherapy	8 (6.6)	2 (25)
Combination therapy	14 (11.6)	3 (21.4)
Ceftazidime		
Overall	19 (15.7)	11 (58)
Monotherapy	0 (0)	0 (0)
Combination therapy	19 (15.7)	11 (58)
Cefepime		
Overall	18 (14.9)	7 (39)
Monotherapy	8 (6.6)	3 (37.5)
Combination therapy	10 (8.3)	4 (40)
Ciprofloxacin		
Overall	17 (14)	5 (29.4)
Monotherapy	2 (1.6)	1 (50)
Combination therapy	15 (12.4)	4 (26.6)
Amoxicillin/clavulanate		
Overall	14 (11.6)	0 (0)
Monotherapy	14 (11.6)	0 (0)
Combination therapy	0 (0)	0 (0)
Linezolid		
Overall	10 (8.3)	6 (60)
Monotherapy	0 (0)	0 (0)
Combination therapy	10 (8.3)	6 (60)

Rello *et al.* CCM 2004

Broad-spectrum antibiotic use and resistance



Neuhauser *et al.* JAMA 2003

Pneumonies à germes … inattendus !

Etudes comparatives avec histologie

sensibilité/spécificité

	BTP	LBA	AT			Comb	CPIS
seuil =	10^3	10^4	10^4	10^5	10^6	10^3	6
Torrès AJRCCM 94	36/50	50/45	-	-	-	-	-
Marquette AJRCCM 95	58/89	47/100	67/75	67/75	53/87	-	-
Chastre AJRCCM 95	82/89	91/78	-	-	-	-	-
Papazian AJRCCM 95	33/95	50/95	72/80	56/95	44/100	67/80	72/85

- Gram-positive cocci
  - *Staphylococcus aureus*
  - *Streptococcus pneumoniae*
  - Other streptococci
  - Coagulase-negative staphylococci
  - Enterococci
- Gram-positive rods
  - *Corynebacterium* species (diptheroids)
  - *Listeria monocytogenes*
  - *Nocardia* species
- Aerobic Gram-negative bacilli
  - *Haemophilus influenzae*
  - Lactose fermenting Gram-negative bacilli
    - *Enterobacteriaceae* or Enteric Gram-negative bacilli
      - *Escherichia coli*
      - *Klebsiella* species
      - *Enterobacter* species
      - *Proteus* species
      - *Serratia* species
      - *Citrobacter* species
      - *Hafnia alvei*
  - Non-lactose fermenting Gram-negative bacilli
    - *Pseudomonas aeruginosa*
    - *Acinetobacter calcoaceticus* and *baumannii*
    - *Stenotrophomonas maltophilia*
    - *Burkholderia cepacia*
- Gram-negative cocci
  - *Neisseria* species
  - *Moraxella* species
- Anaerobic bacteria
  - Bacilli
    - *Bacteroides* species
    - *Fusobacterium* species
    - *Prevotella* species
    - *Actinomyces* species
  - Cocci
    - *Veillonella* species
    - Peptostreptococci
- "Atypical bacteria"
  - *Legionella* species
  - *Legionella*-like amoebal pathogens
  - *Mycoplasma pneumoniae*
  - *Chlamydia pneumoniae*
- Fungi
  - *Candida* species and other yeasts
  - *Aspergillus* species and other molds
  - *Pneumocystis carinii*
- Viruses
  - Influenza and other respiratory viruses
  - Herpes simplex virus
  - Cytomegalovirus
- Miscellaneous causes
  - *Mycobacterium tuberculosis*
  - *Strongyloides stercoralis*
  - Others

Park DR Respir Care 2005

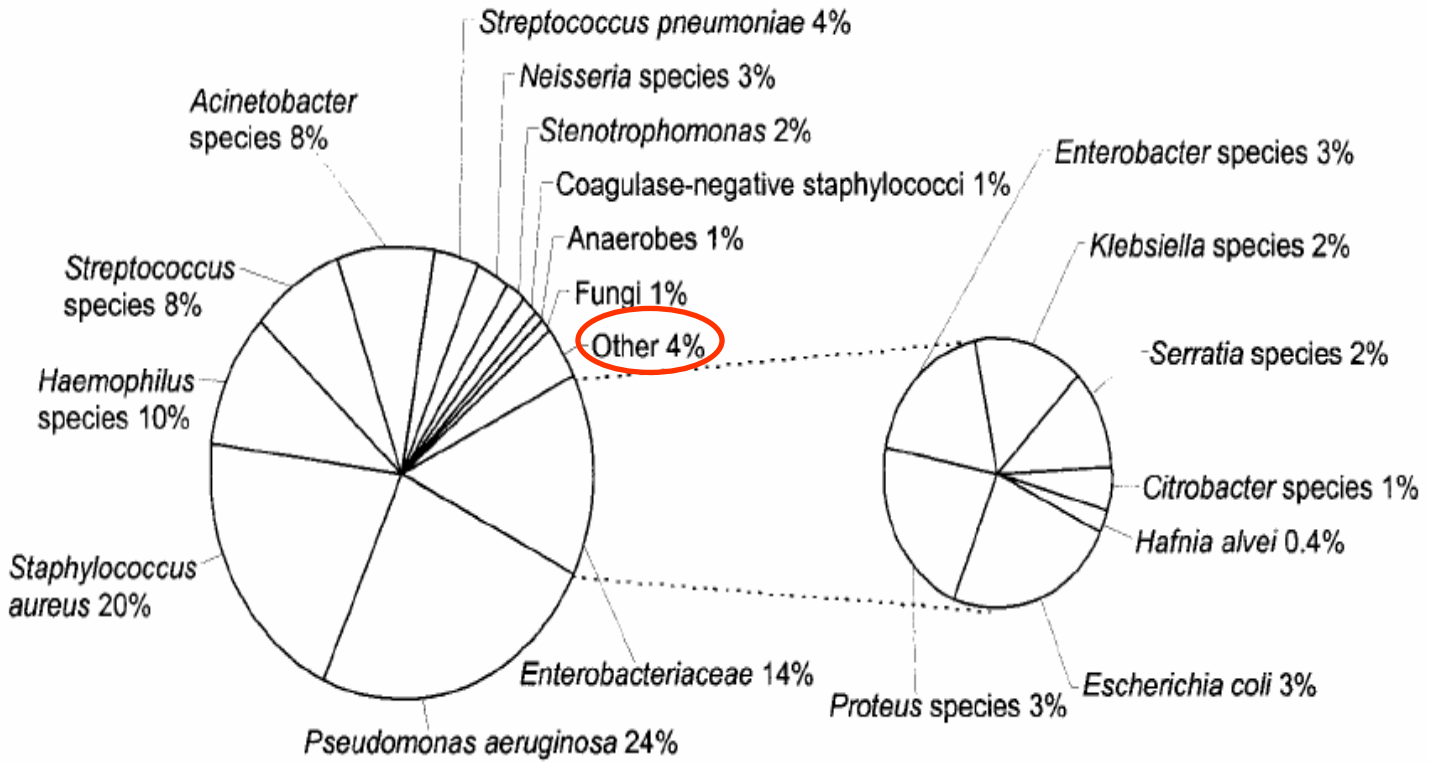
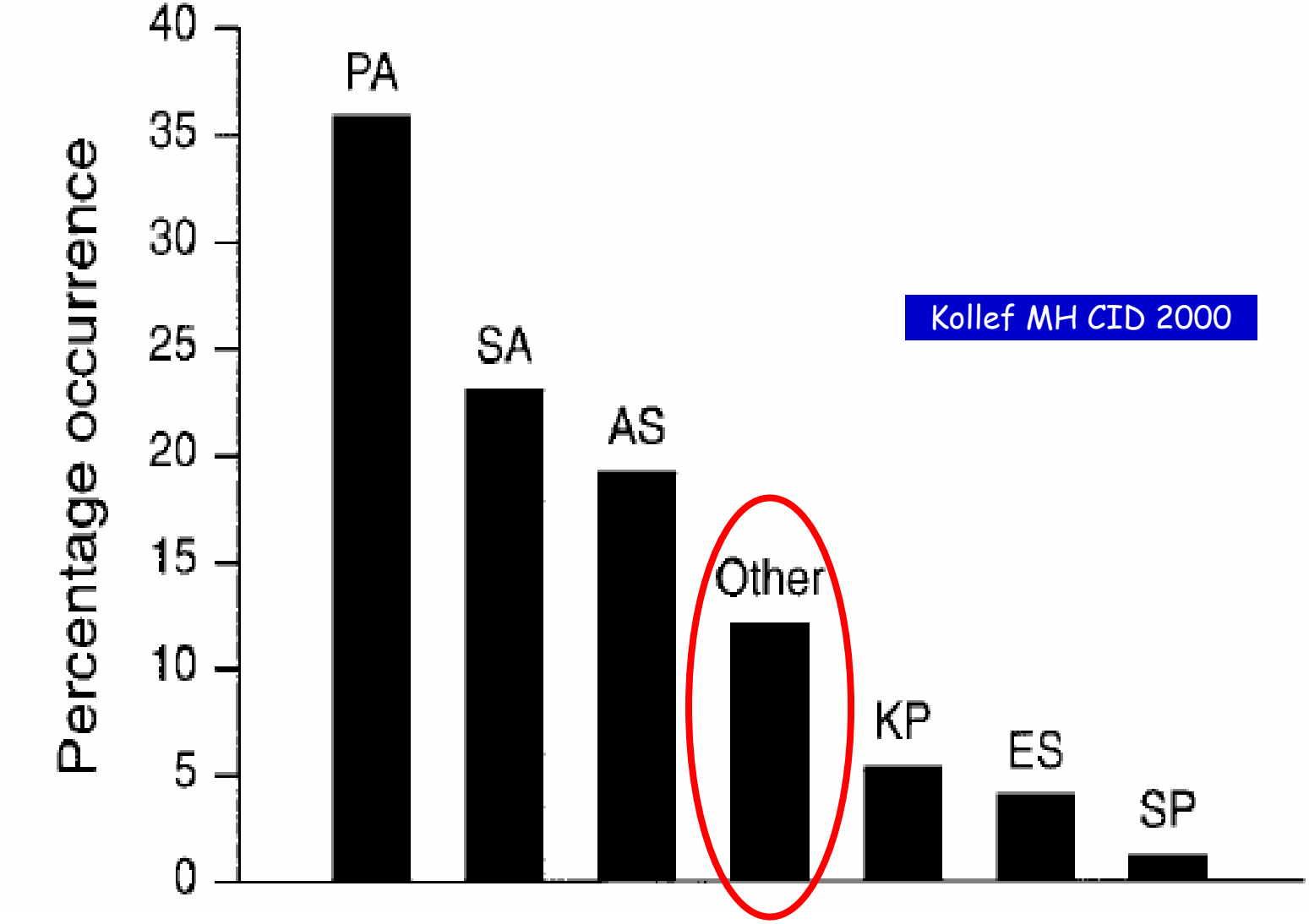


Fig. 1. Causes of ventilator-associated pneumonia. The relative proportions of common causes of ventilator-associated pneumonia are shown from 1,689 bronchoscopically-confirmed cases involving 2,490 individual isolates reported in 24 published studies. (Data from Reference 4.)

Pathogens associated with inadequate antimicrobial treatment



Unexpected agents of VAP

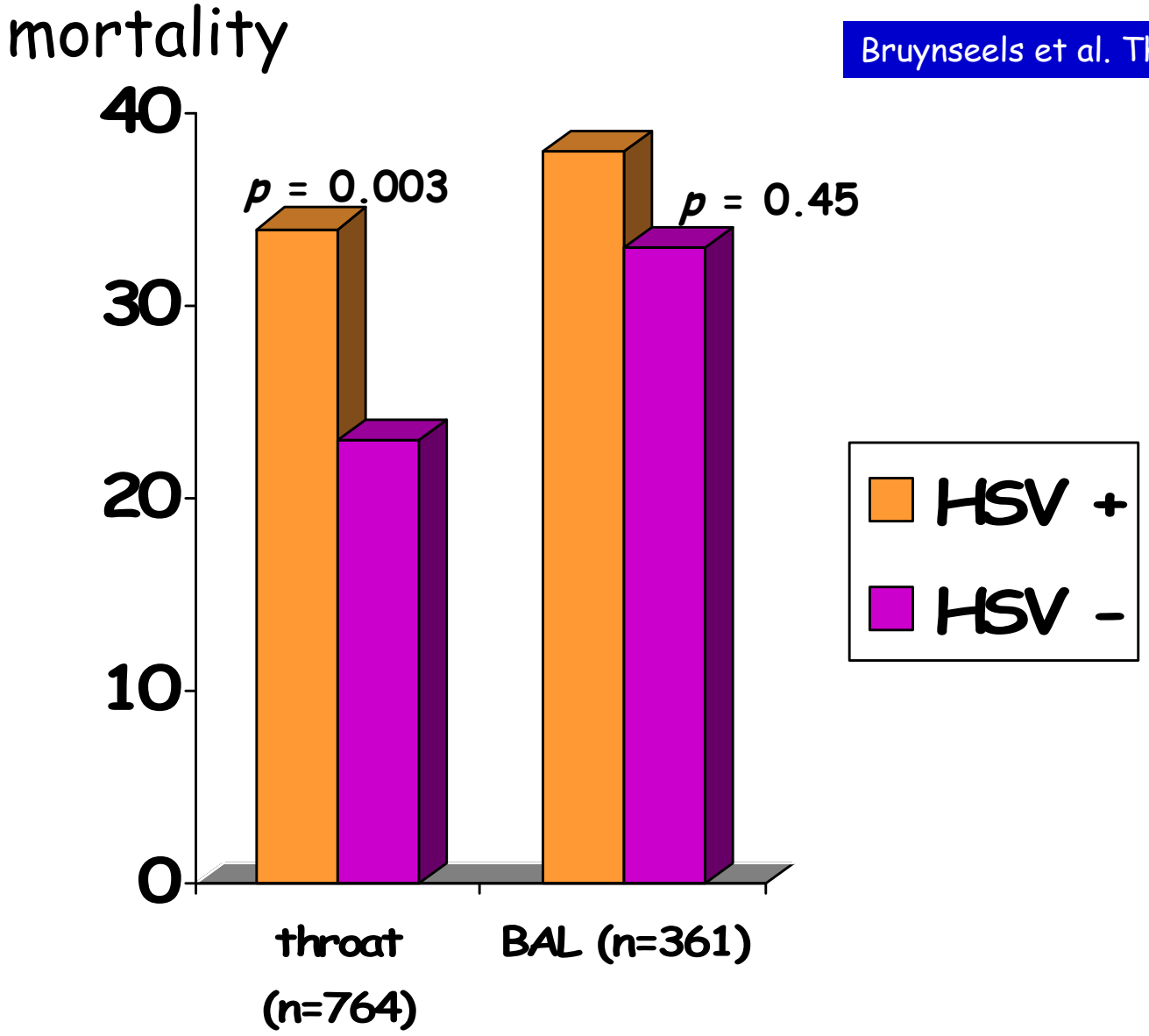
- 60 autopsies, 26 biopsies
- 25 CMV pneumonia
- CMV: sole pathogen in 88%

Papazian *et al.* Anesthesiology 1996

- 100 VAP after at least 14 days of hospitalization and at least 2 days of MV
- Quantitative PCR
- Mycoplasma pneumoniae (3%)
- Chlamydia pneumoniae (2%)

Apfalter *et al.* Crit Care Med 2005

HSV and ICU-acquired pneumonia ?



Bruynseels et al. The Lancet 2003

Other micro-organisms

BAL⊕
4-fold increase in antibody titer

stable increased antibody titer

VAP episodes, n=120

Berger *et al.* Emerg Infect Dis 2006

Table 4. Identification of ameba-associated microorganisms in pneumonia and level of evidence

Microorganism	High, no. (%)	Low, no. (%)	Total, no. (%)
Ventilator-associated pneumonia			
Bacteria			
B. massiliensis	1 (5.3)	3 (7.5)	4 (6.8)
B. thiooxydans		3 (7.5)	3 (5.1)
B. japonicum		5 (12.5)	5 (8.5)
B. liaoningense		3 (7.5)	3 (5.1)
L. anisa		1 (2.5)	1 (1.7)
L. bozemanii		3 (7.5)	3 (5.1)
L. pneumophila	2 (10.5)	5 (12.5)	7 (11.9)
L. quinlivanii	1 (5.3)		1 (1.7)
L. rubrilucens	1 (5.3)	1 (2.5)	2 (3.4)
L. worsleiensis	1 (5.3)		1 (1.7)
Mesorhizobium amorphae	1 (5.3)		1 (1.7)
Parachlamydiae acanthamoebae	1 (5.3)	2 (5.0)	3 (5.1)
Rasbo bacterium	1 (5.3)	3 (7.5)	4 (6.8)
Virus			
A. polyphaga mimivirus	6 (31.6)	7 (17.5)	13 (22.0)

Beaucoup d'analyses = beaucoup de matière = LBA

BAL : Clinical studies

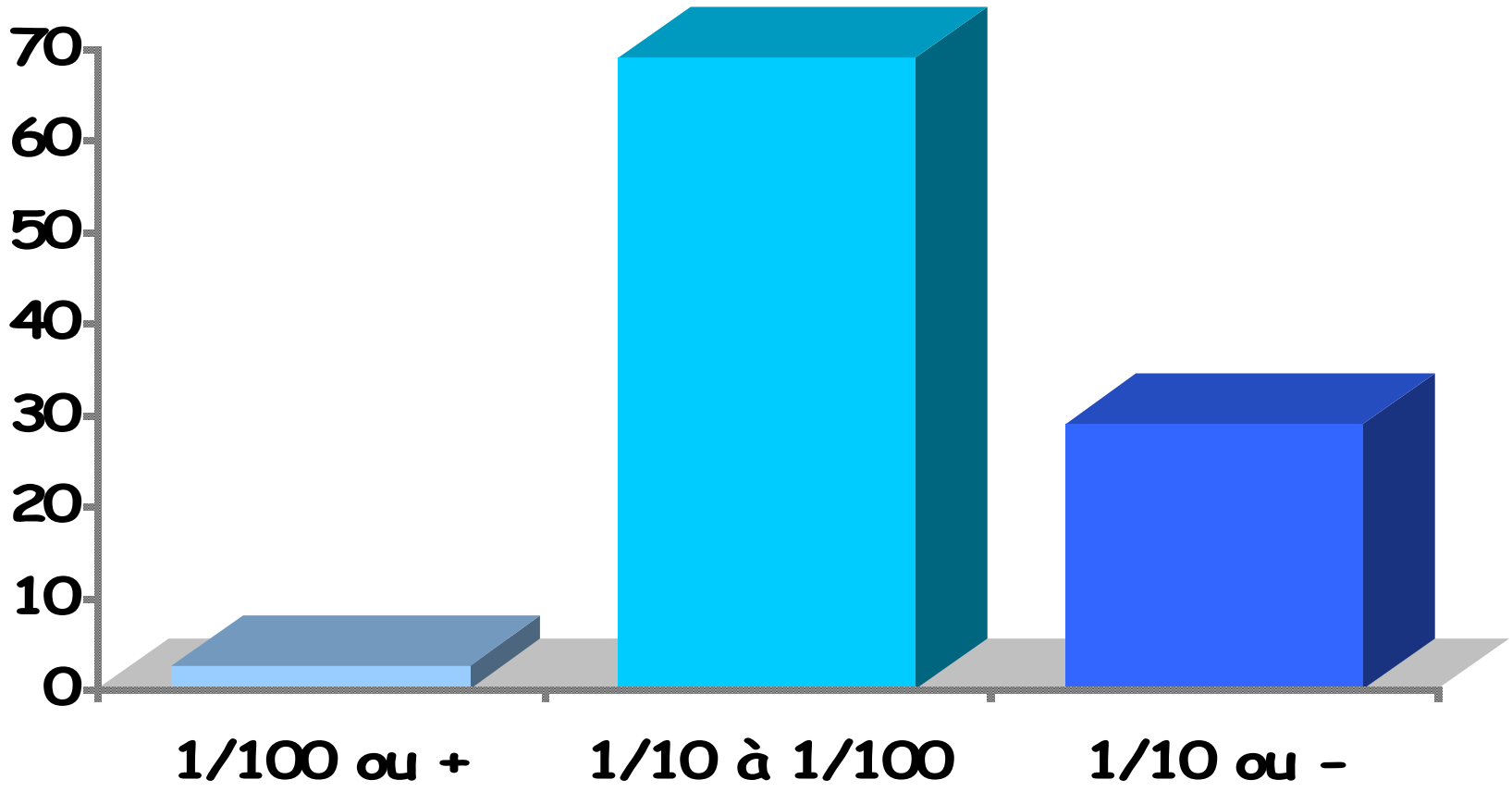
	n	VAP	threshold	sens.	spec.
Chastre AJM 88	18	5	10^5	60%	85%
Torrès ARRD 89	32	25	10^3	72%	71%
Solé Violan Chest 93	45	25	10^5	76%	100%
Rodriguez AJRCCM 94	22	0	10^5	NA	82%
Aubas AJRCCM 94	80	28	10^3	89%	85%

BAL : clinical studies
methodology

	ml	1st aliq	ATB	gold standard
Chastre AJM 88	5x20	yes	no	clinical/histo
Torrès ARRD 89	150	no	100%	clinical /histo
Solé Violan Chest 93	3x50	yes	49%	clinical /histo
Rodriguez AJRCCM 94	3x50	yes	no	clinical
Aubas AJRCCM 94	2x50	no	70%	clinical

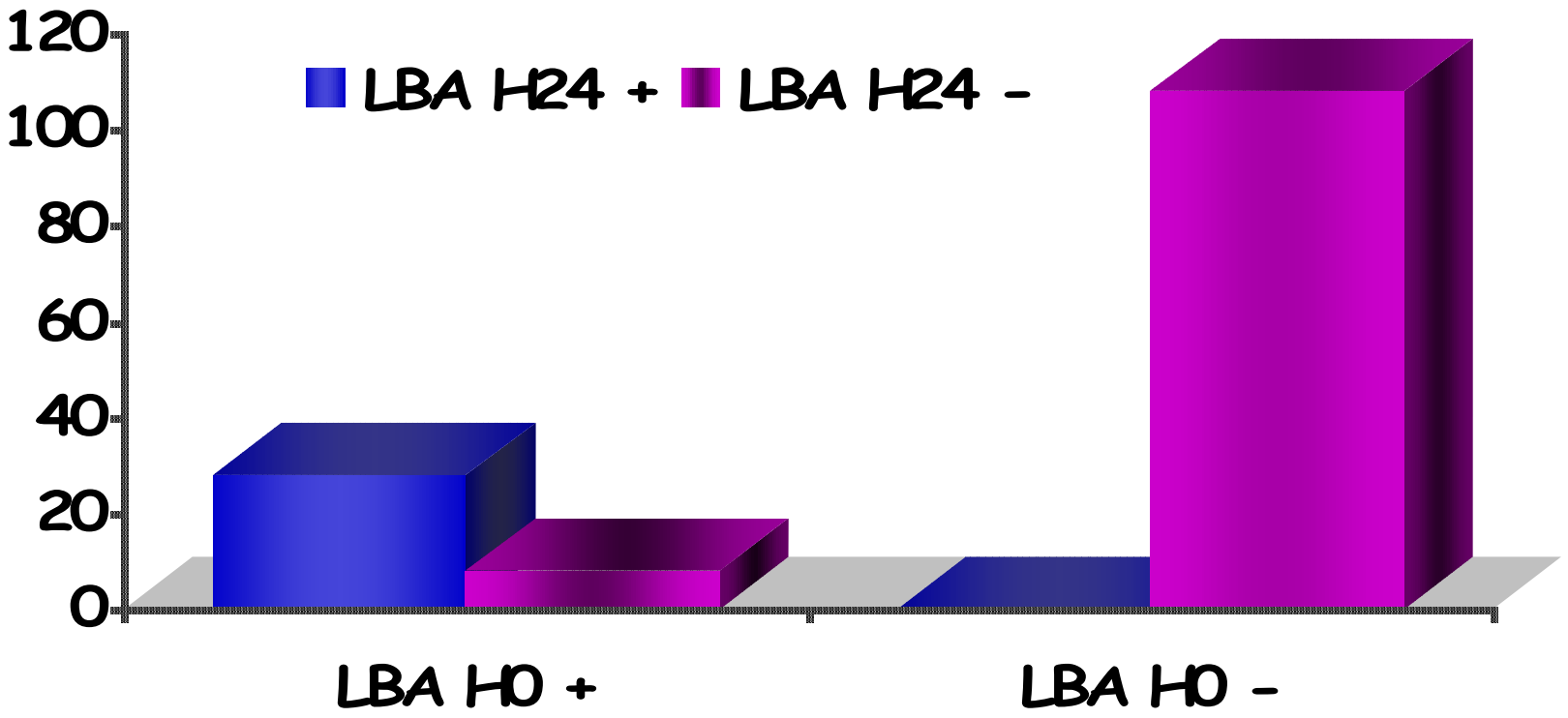
Dilution du LBA

Baldesi O. et Grandfond A.



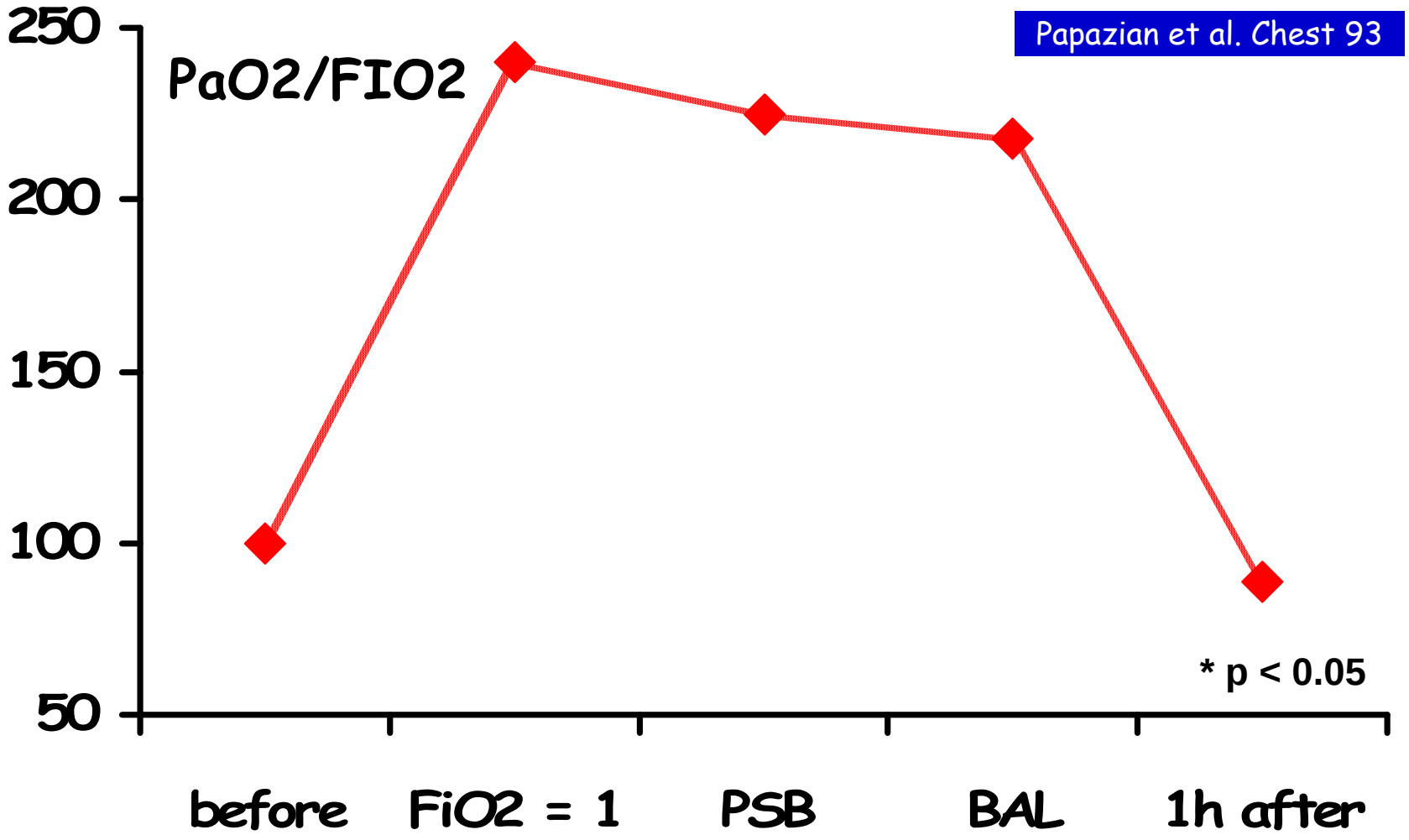
Stabilité à 4°C

De Lassence CCM 2004



BAL under fiberscopy

tolerance



Non-directed BAL

• Gaussorgues ICM 89	pulmonary artery catheter
• Rouby Anesth 89, ARRD 92	double protected catheter
• Pugin ARRD 91	duodenography catheter
• Levy Chest 94	Ballard catheter
• Kollef Annals IM 95	Ballard catheter

Non-directed BAL : clinical studies

	n	VAP	threshold	sens.	spec.
DPC	69	40	SQ	70%	69%
PAC	13	9	no	100%	75%
duodenography	28	13	BI > 5	73%	96%
Ballard	36	14	10^3	100%	96%

Reproductibilité des examens invasifs

BTP

24% des micro-organismes de part et d'autre du seuil de 10^3 cfu/ml

Timsit et al. Chest 93

LBA

33% des micro-organismes de part et d'autre du seuil de 10^4 cfu/ml

Gerbeaux et al. AJRCCM 98

Stratégie invasive. Oui, mais...

Heyland et al. Chest 99

- Diagnostic de VAP sur dossier
- fibro: 92 patients
- pas de fibro: 49 patients (35%)
  - patients trop "instables": 11
  - pas d'intérêt ou pas de disponibilité du fibroscopiste: 38

Et si l 'on parlait…euro !

	BTP	LBA	LBA + BTP	Combi	AT
matériel	37	1	38	13	1,5
coût total	220	185	405	65	54

Entretien des endoscopes

- Circulaire DGS/DH n°100 du 11/12/95
- Circulaire DGS/DH n°236 du 02/04/96
- Circulaire DGS/DH n°672 du 20/10/97
- Note d 'information DGS/DH n°226 du 23/03/98
- 4 bacs
  - pré-traitement
  - rinçage
  - désinfection
  - rinçage terminal
- Contrôle de qualité

Le diagnostic, c'est bien, le traitement…

Principes de l'antibiothérapie probabiliste

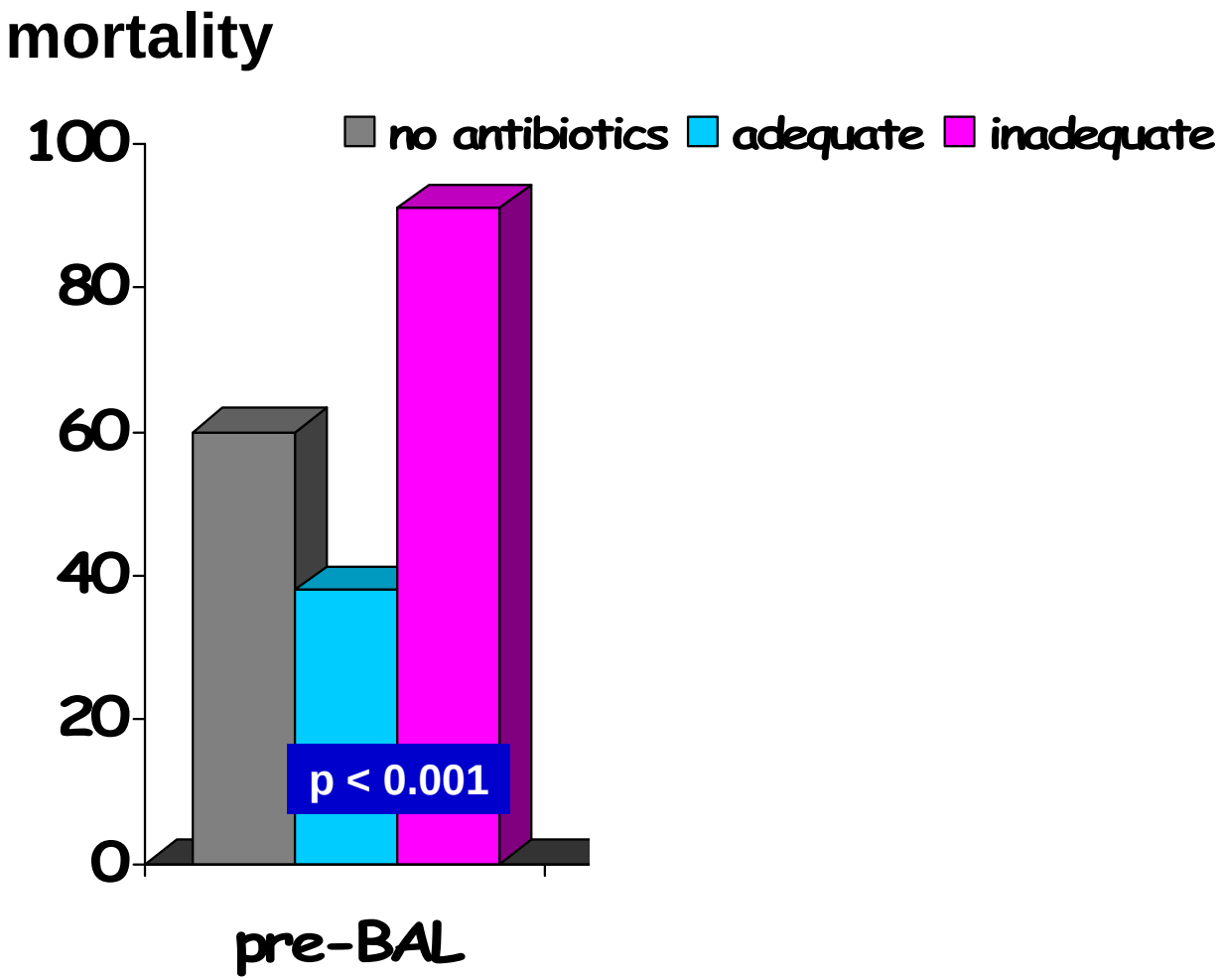
- En fonction
  - du site hospitalier (écologie)
  - du patient
    - immunodéprimé
    - choc septique
  - de l'antibiothérapie préalable
  - de la fonction rénale
  - des ressources...

TABLE 2. RISK FACTORS FOR MULTIDRUG-RESISTANT PATHOGENS CAUSING HOSPITAL-ACQUIRED PNEUMONIA, HEALTHCARE-ASSOCIATED PNEUMONIA, AND VENTILATOR-ASSOCIATED PNEUMONIA

- Antimicrobial therapy in preceding 90 d
- Current hospitalization of 5 d or more
- High frequency of antibiotic resistance in the community or in the specific hospital unit
- Presence of risk factors for HCAP:
  - Hospitalization for 2 d or more in the preceding 90 d
  - Residence in a nursing home or extended care facility
  - Home infusion therapy (including antibiotics)
  - Chronic dialysis within 30 d
  - Home wound care
  - Family member with multidrug-resistant pathogen
- Immunosuppressive disease and/or therapy

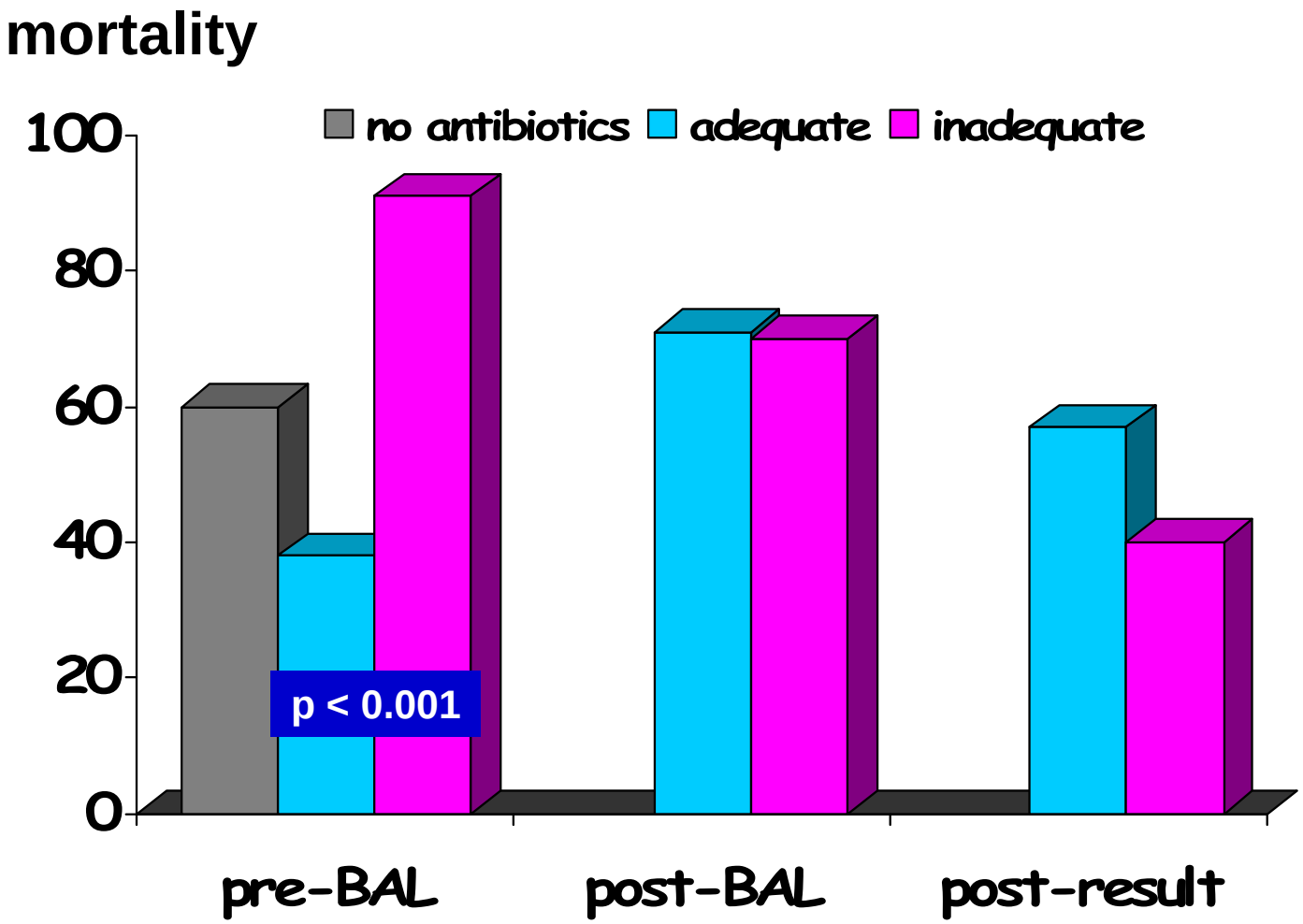
Adequate antibiotherapy

Luna *et al.* Chest 97

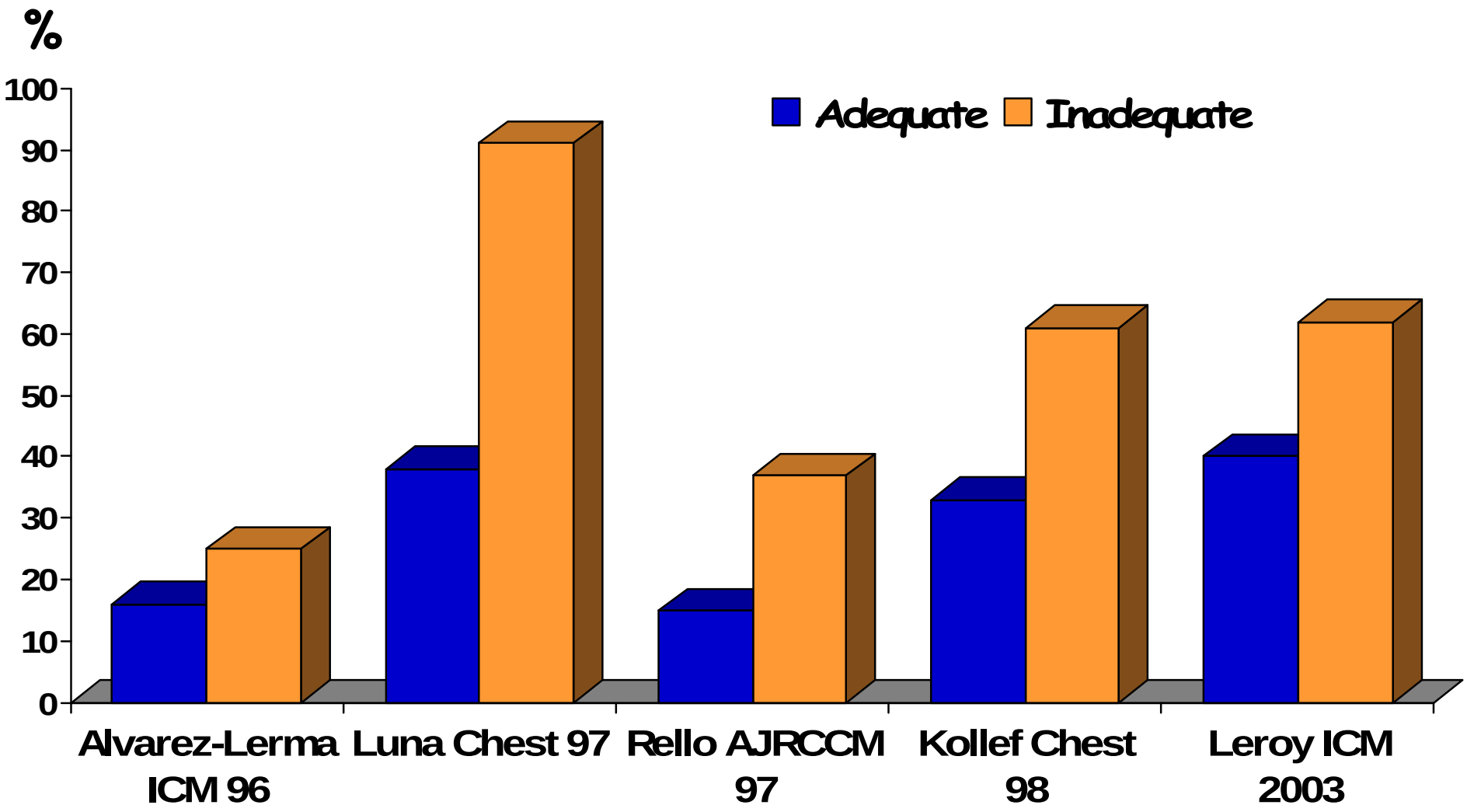


Adequate antibiotherapy

Luna *et al.* Chest 97



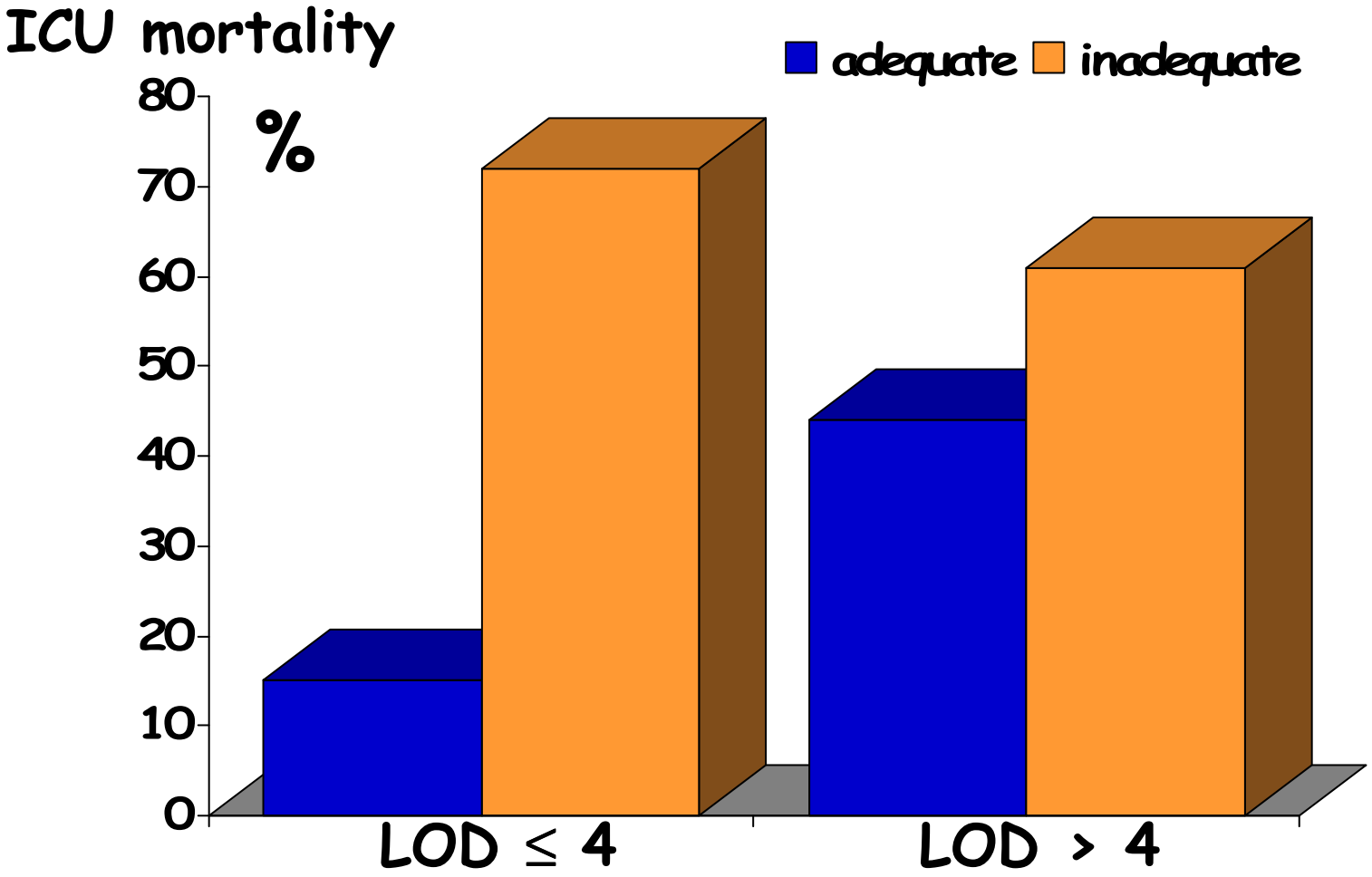
VAP, adequacy of antibiotic therapy and mortality



Adequate early antibiotic therapy

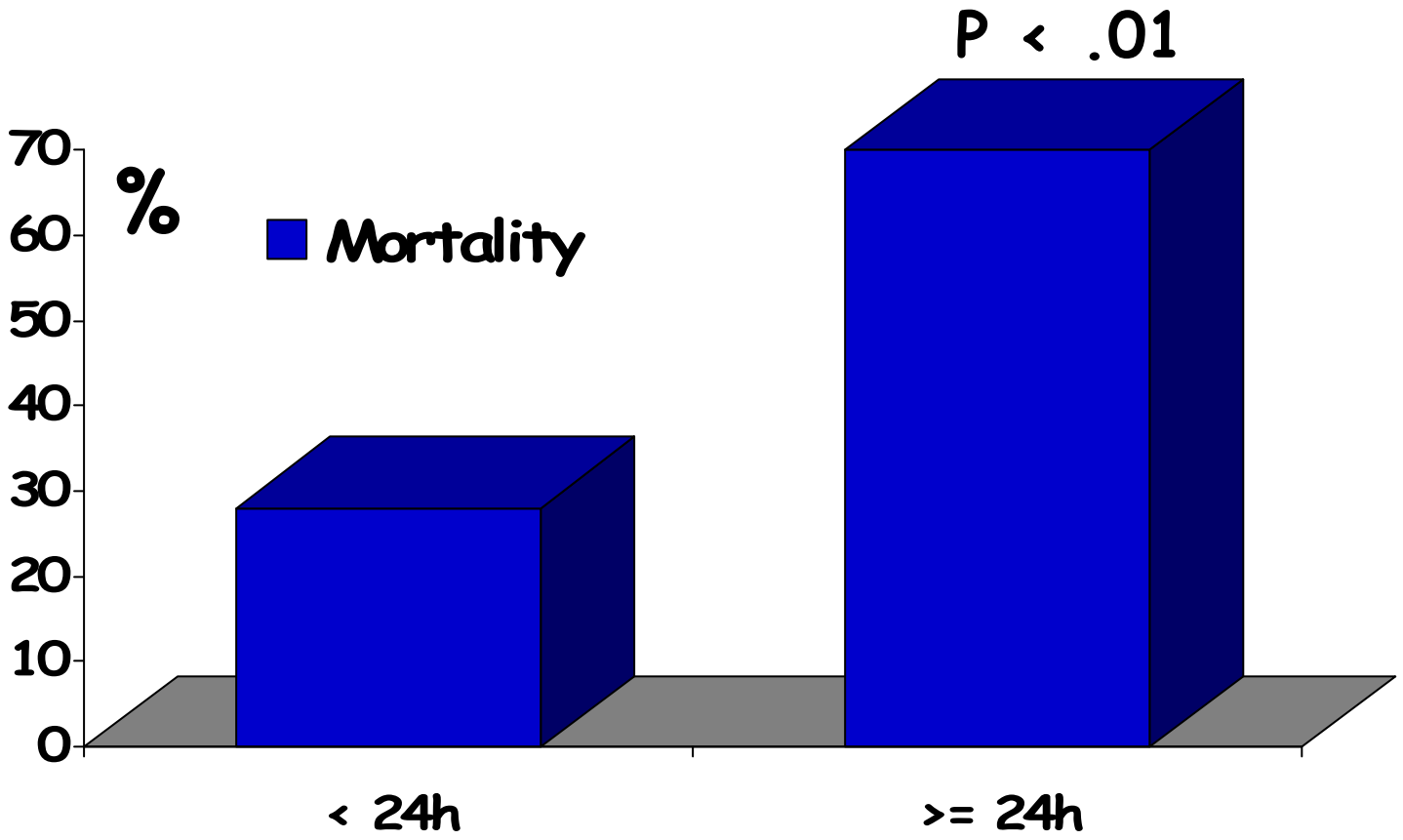
Disease severity

Clec'h *et al.* Intensive Care Med 2004



Delay in the initiation of appropriate antibiotic treatment

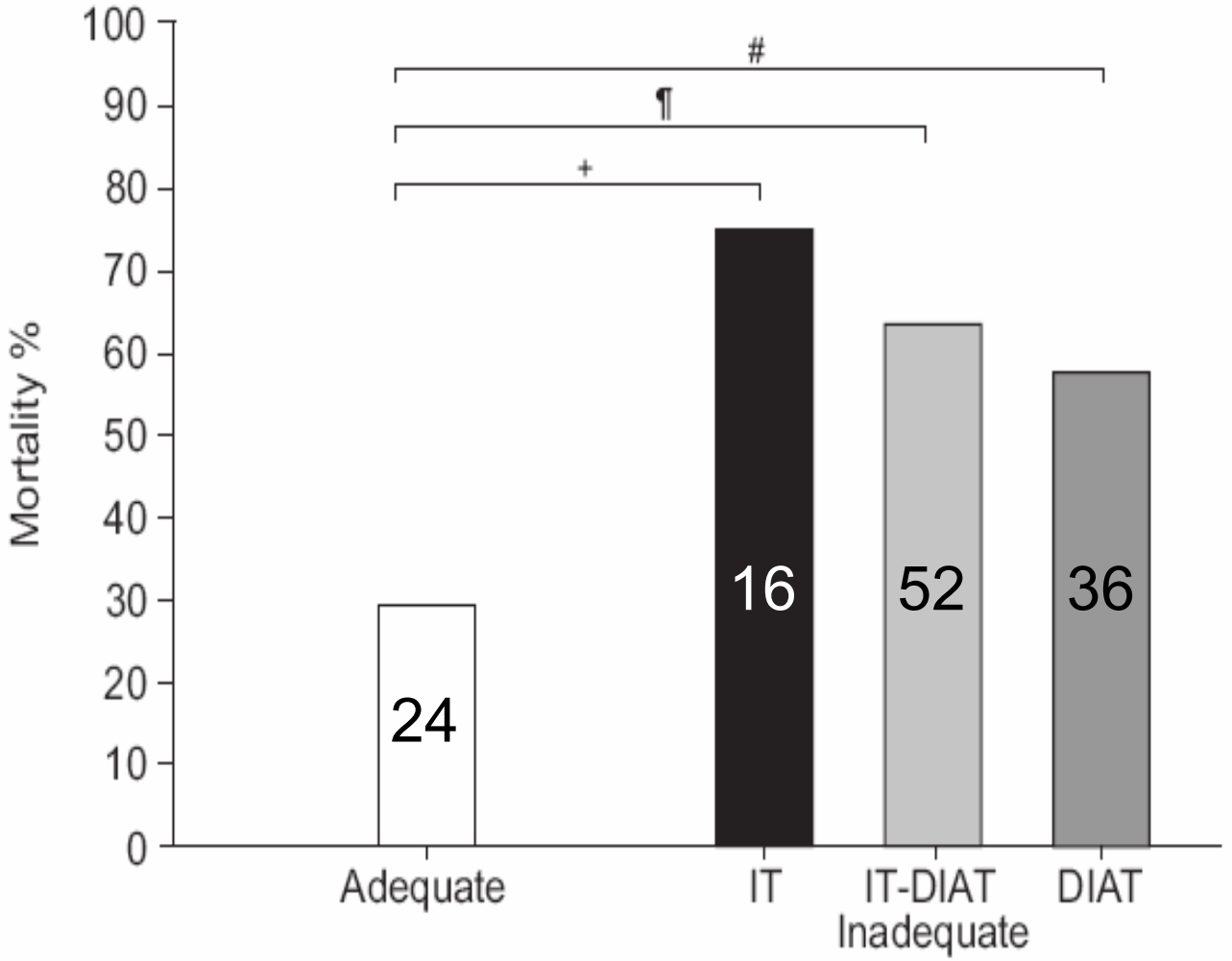
VAP, n=107



Iregui *et al.* Chest 2002

Inadequate/delayed initiation

Luna *et al.* Eur Respi J 2006



Management des VAP

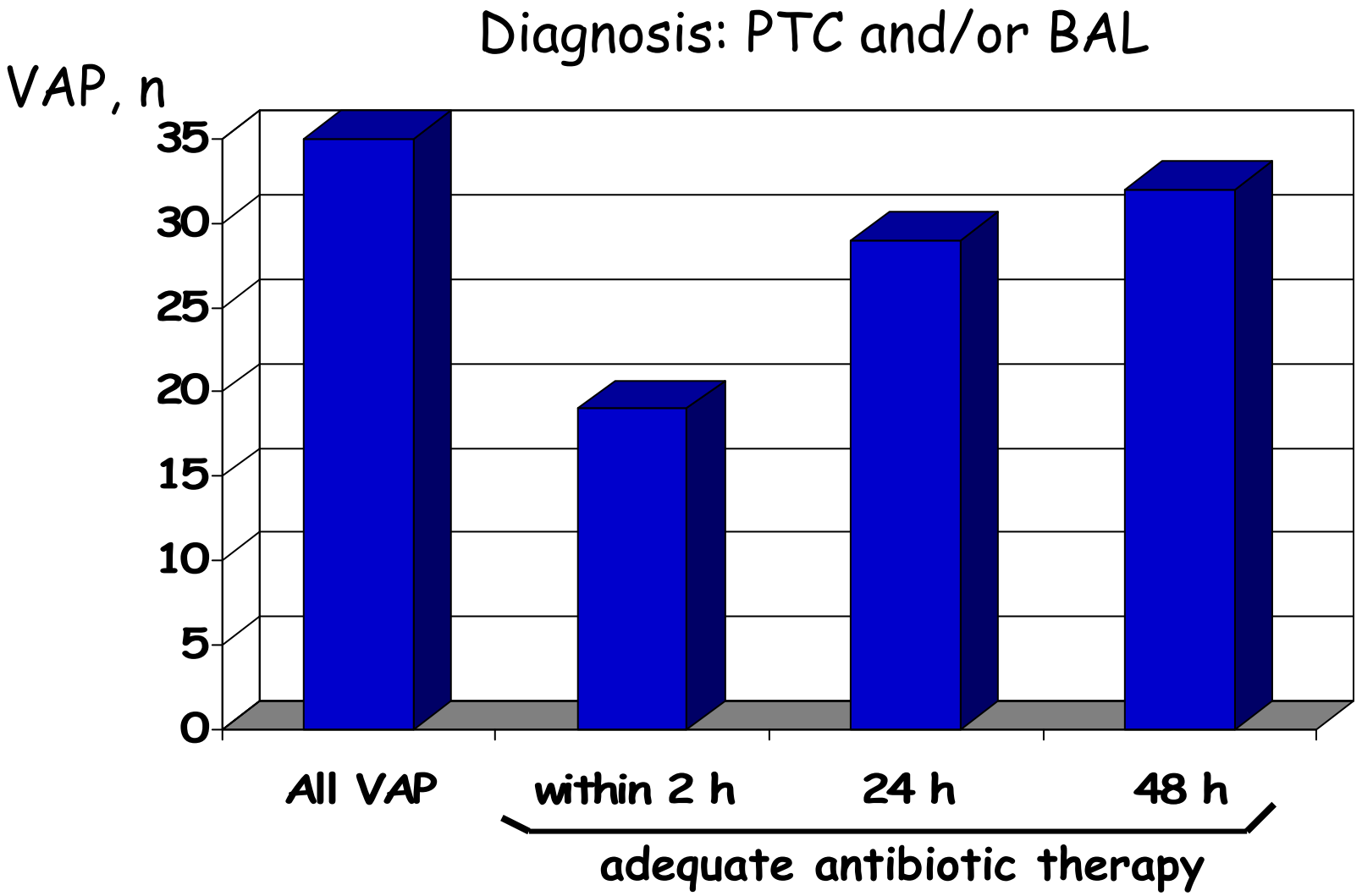
- Traiter vite avec les bons entibiotiques (anti-infectieux)
- Ne pas abuser des antibiotiques

Michael Niederman Crit Care Med 2004

Jean Chastre Intensive Care Med 2005

Delay in the initiation of adequate antibiotic therapy

Brun-Buisson *et al.* Chest 2005



How to reduce the rate of inadequate antibiotic treatment?

Kollef MH CID 2000

Table 1. Strategies to reduce the administration of inadequate antimicrobial treatment in the hospital setting.

Consultation by an infectious disease specialist
Antibiotic practice guidelines
Combination antimicrobial treatment
Scheduled changes or cycling of antimicrobial agents
More rapid microbiological identification
Reduction of the prevalence of antimicrobial resistance in both the community and the hospital setting

Cultures systématiques

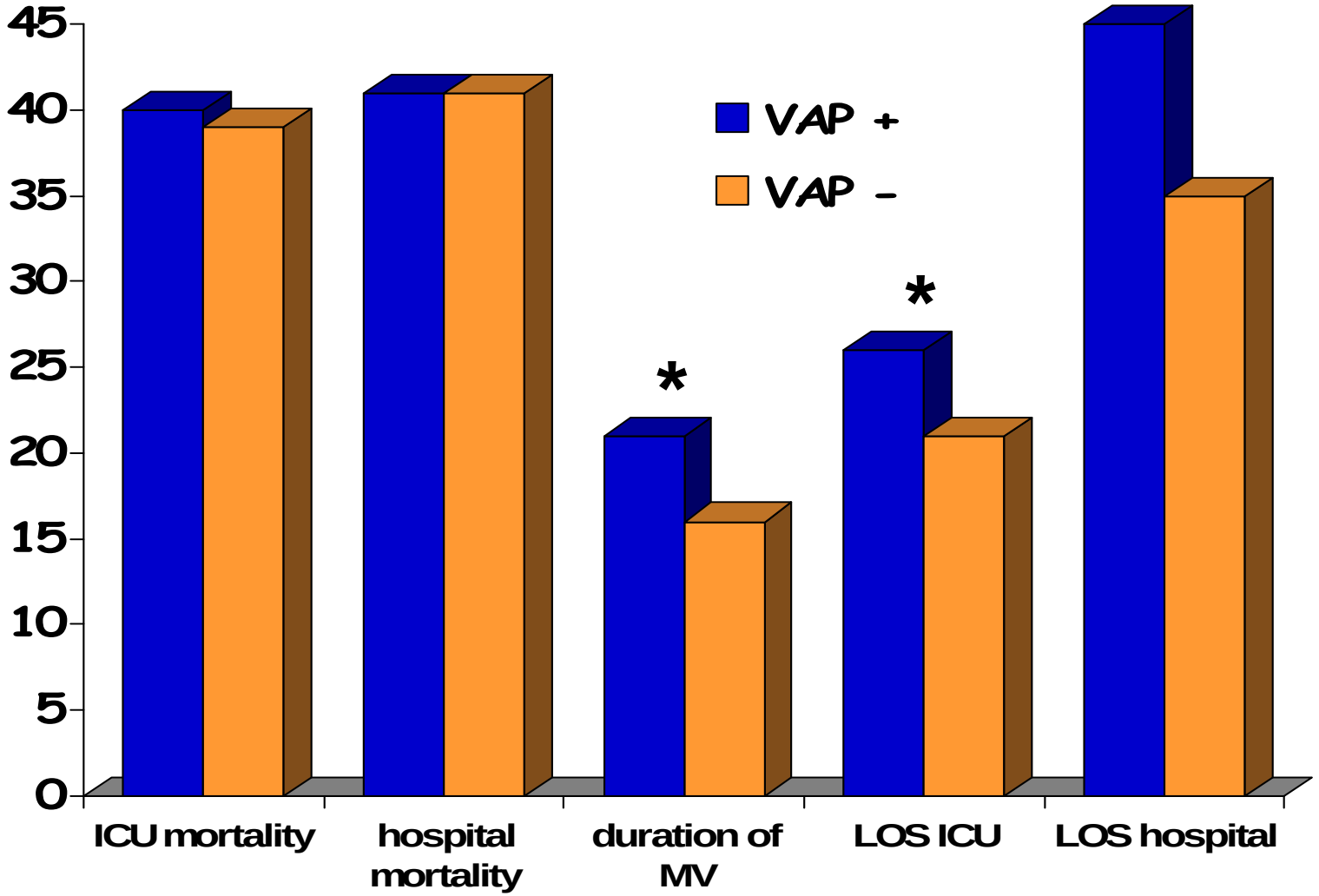
TABLE 4. NUMBERS AND TYPES OF MICROBIOLOGIC SPECIMENS OBTAINED BEFORE ONSET OF 125 VAP EPISODES

Type	No. Positive/No. Performed	Mean No. Performed per Episode ± SD	Total Costs*
Blood cultures	157/2,264	18.1 ± 18.2	51,630
Respiratory secretion† cultures	230/366	2.9 ± 2.7	19,639
Tracheal aspirate cultures	28/37	0.3 ± 1.5	
BAL specimen cultures	141/182	1.5 ± 2.9	
PSB specimen cultures	61/147	1.2 ± 2.6	
Intravenous catheter-tip cultures	122/629	5.0 ± 4.8	25,313
Urine cultures	79/453	3.6 ± 3.0	8,507
Systematic surveillance cultures	58/732	5.9 ± 5.0	21,603
Miscellaneous specimen cultures	268/1,132	9.0 ± 14.7	46,790
Total	914/5,576	44.6 ± 37.9	173,482

* Costs are calculated in euros.
† Tracheal aspirate, BAL, or PSB specimens.

Hayon *et al.* AJRCCM 2002

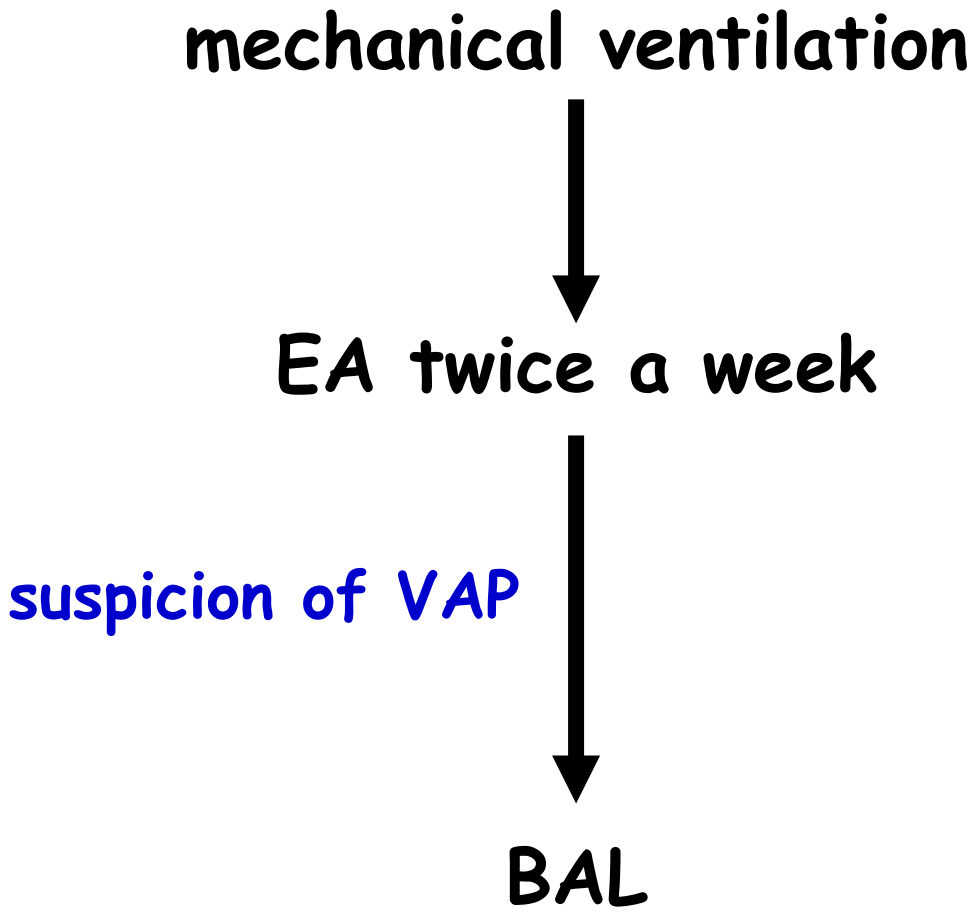
Mortalité – surmortalité ?



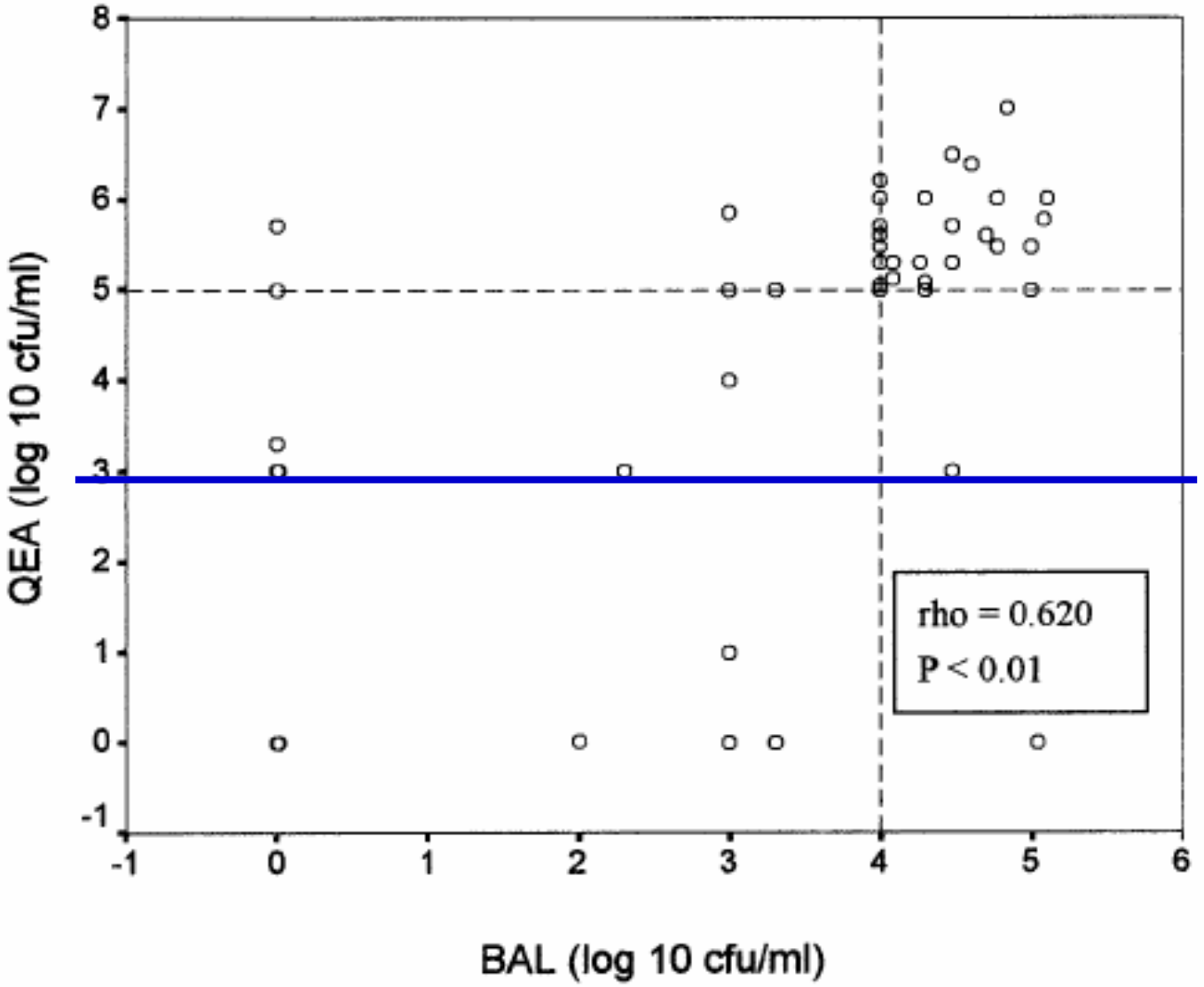
* $p < .05$

Papazian et al. AJRCCM 96

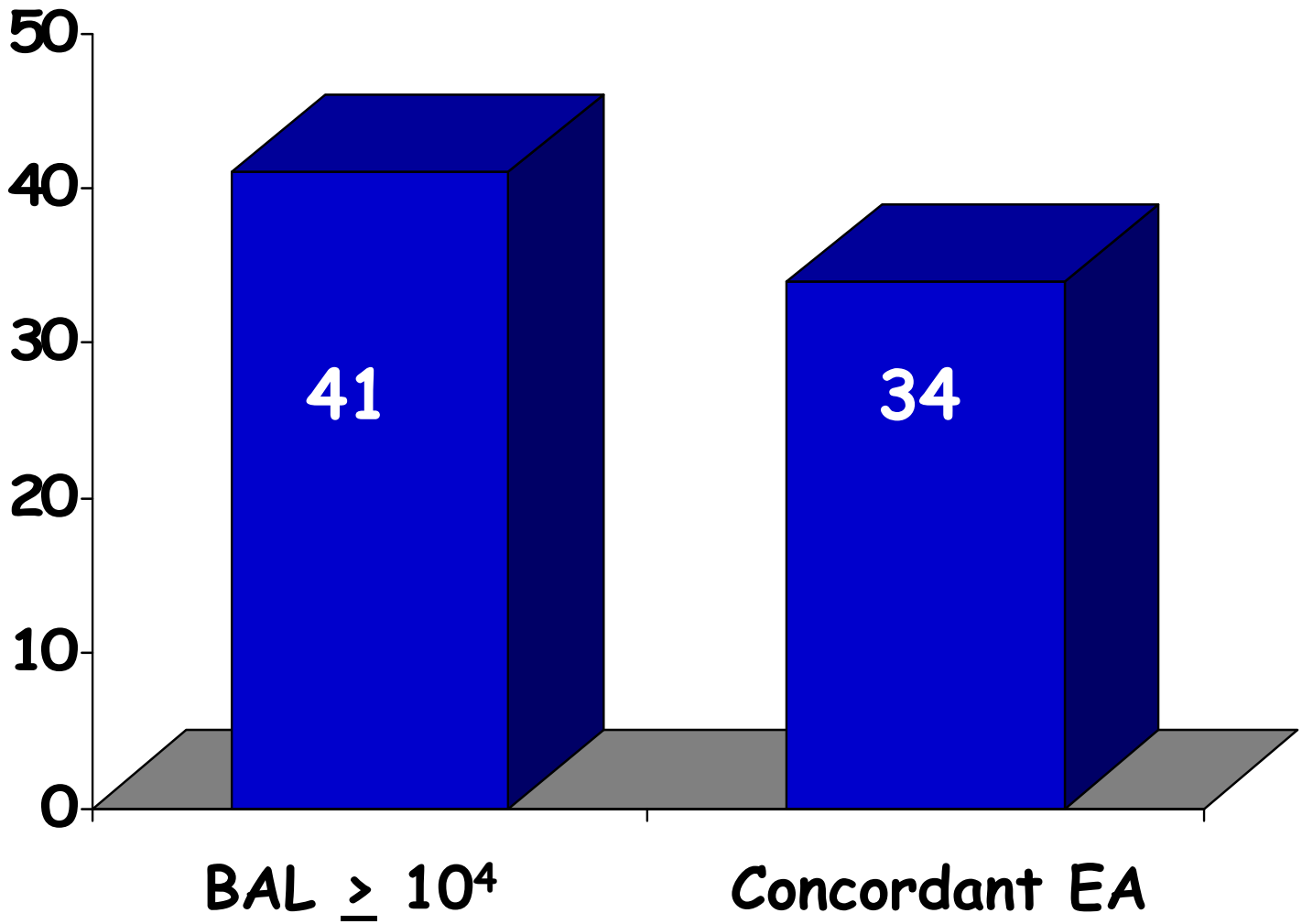
Methods


mechanical ventilation
EA twice a week
suspicion of VAP
BAL

Wu *et al.* Chest 2002



Concordance BAL ≥ 10^4 CFU/mL - EA



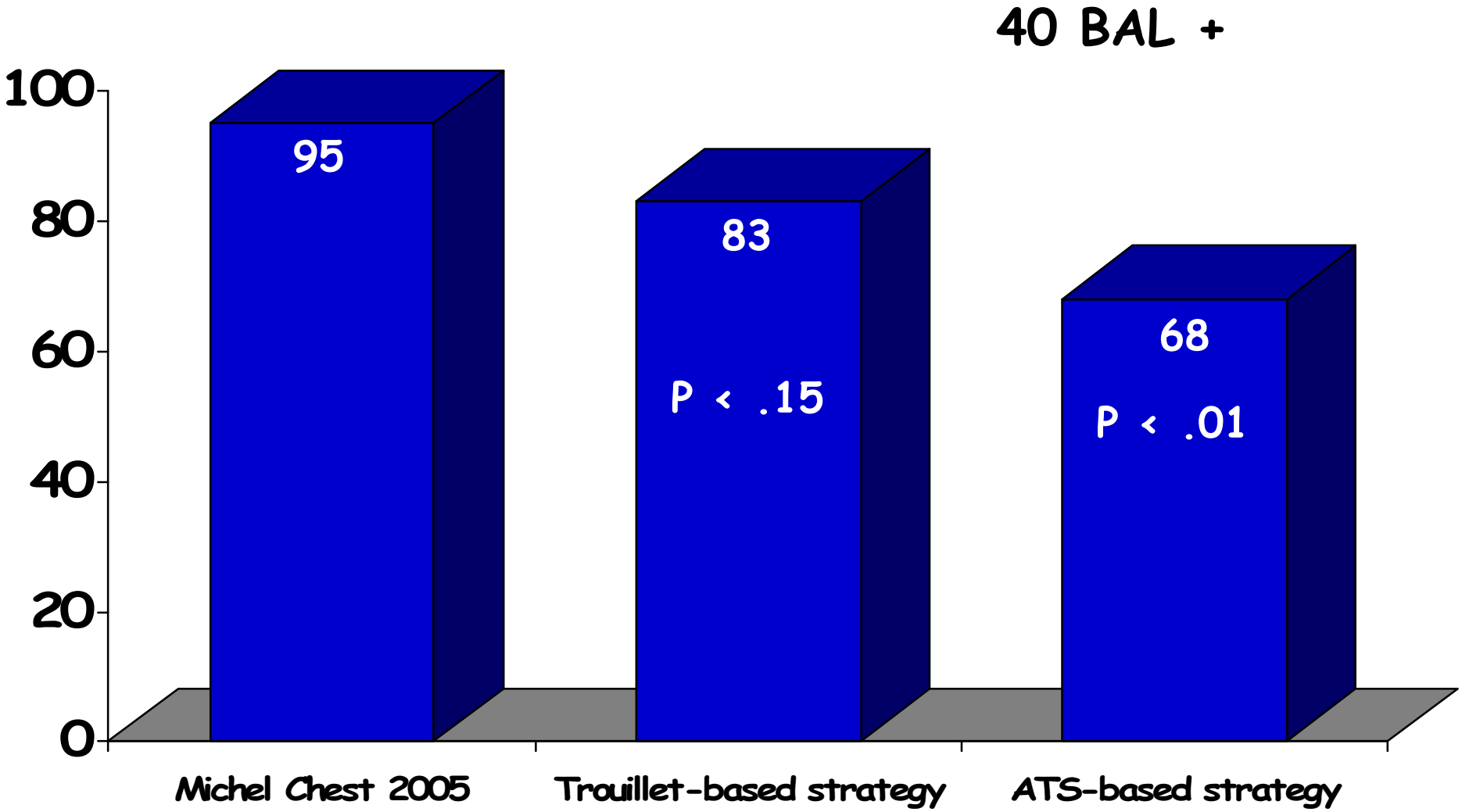
Causes of discrepancies between EA and BAL $\geq 10^4$ cfu/ml

Table 3—*Causes of Discrepancies Between EA-Pre and Positive BAL Culture

Microorganisms Identified by EA	Antibiotics Given Prior to BAL Culture Results	BAL Culture Results
No result at the time of BAL	Amoxicillin + clavulanic acid	MSSA
Cefotaxime-R *Serratia marcescens*	Imipenem + aminoglycoside	Cefotaxime-R *S marcescens* + MSSA
Ticarcillin-S *P aeruginosa* + ampicillin-R *Echerichia coli*	Ceftazidime + aminoglycoside	Ticarcillin-S *P aeruginosa*
No growth	No antibiotic	*H influenzae*
No growth	No antibiotic	*Providencia stuartii*
Haemophilus influenzae	Amoxicillin + clavulanic acid	*Streptococcus pneumoniae* + ampicillin-R *Proteus mirabilis*
MSSA	Amoxicillin + clavulanic acid	MSSA + *S pneumoniae* + cefotaxime-S Klebsiella sp

*MSSA = methicillin-susceptible *S aureus*.

Adequacy of antibiotic therapy according to the strategy



Trouillet *et al.* CID 98

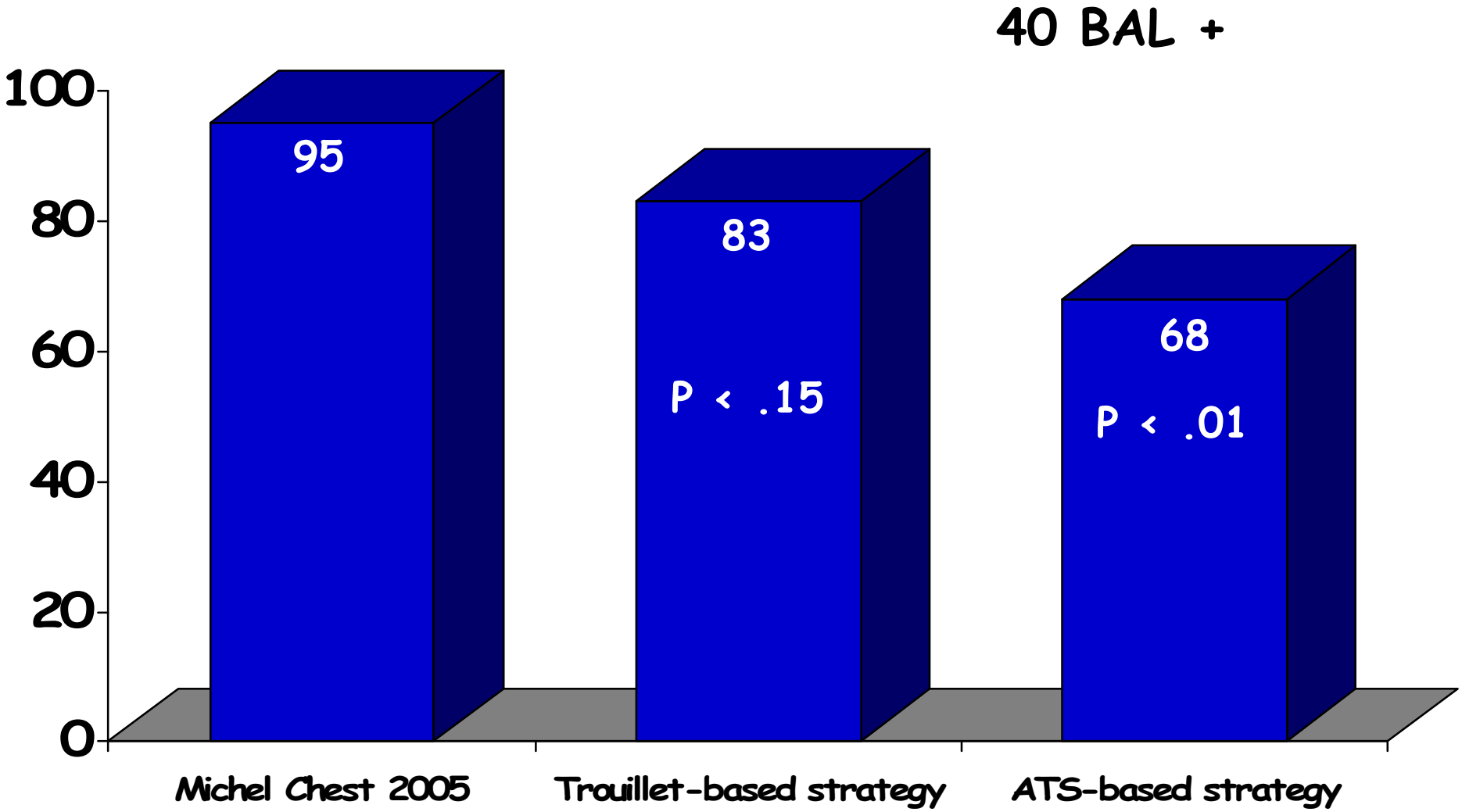
TABLE 6

NUMBERS AND PERCENTAGES OF MICROORGANISMS RESPONSIBLE FOR 135 VAP EPISODES CLASSIFIED ACCORDING TO THE DURATION OF MV AND PRIOR ANTIBIOTIC THERAPY (ABT)

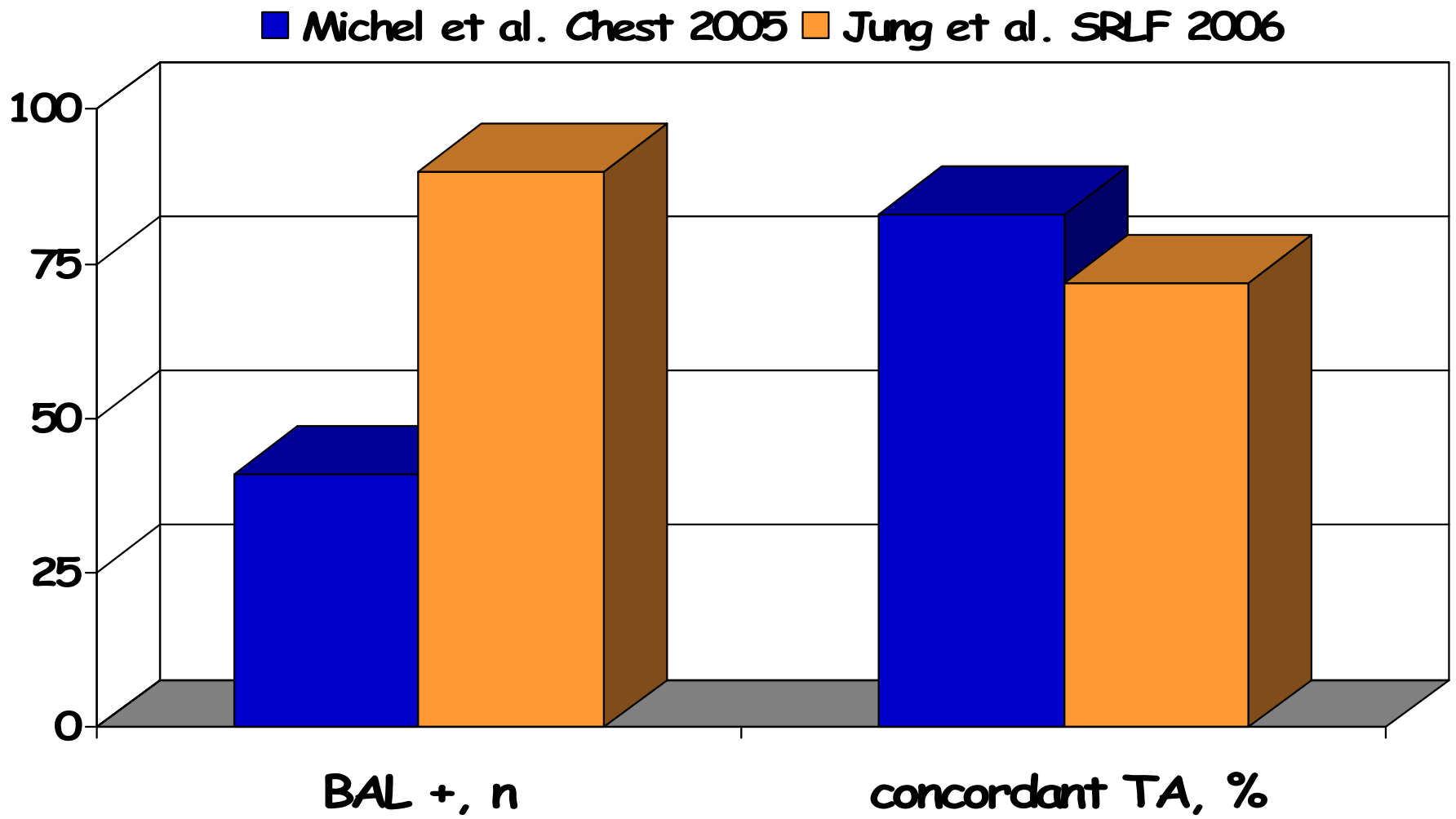
Organisms	Group 1 (*n* = 22) MV < 7 ABT = no	Group 2 (*n* = 12) MV < 7 ABT = yes	Group 3 (*n* = 17) MV ⩾ 7 ABT = no	Group 4 (*n* = 84) MV ⩾ 7 ABT = yes
Multiresistant bacteria	0*	6 (30)	4 (12.5)†	89 (58.6)
P. aeruginosa	0	4 (20)	2 (6.3)	33 (21.7)
A. baumannii	0	1 (5)	1 (3.1)	20 (13.2)
S. maltophilia	0	0	0	6 (3.9)
MRSA	0	1 (5)	1 (3.1)	30 (19.7)
Other bacteria	41 (100)	14 (70)	28 (87.5)	63 (41.4)
Enterobacteriaceae	10 (24.4)	4 (20)	7 (21.9)	23 (15.1)
Hemophilus spp.	8 (19.5)	2 (10)	1 (3.1)	4 (2.6)
MSSA	6 (14.6)	0	7 (21.9)	7 (4.6)
S. pneumoniae	3 (7.3)	0	0	0
Other streptococci	7 (17.1)	5 (25)	7 (21.9)	14 (9.2)
Neisseria spp.	5 (12.2)	2 (10)	4 (12.5)	3 (2)
Other pathogens	2 (4.9)	1 (5)	2 (6.3)	12 (7.9)
Total number of bacteria	41 (100)	20 (100)	32 (100)	152 (100)

* $p < 0.02$ versus Groups 2, 3, or 4.
† $p < 0.0001$ versus Group 4.

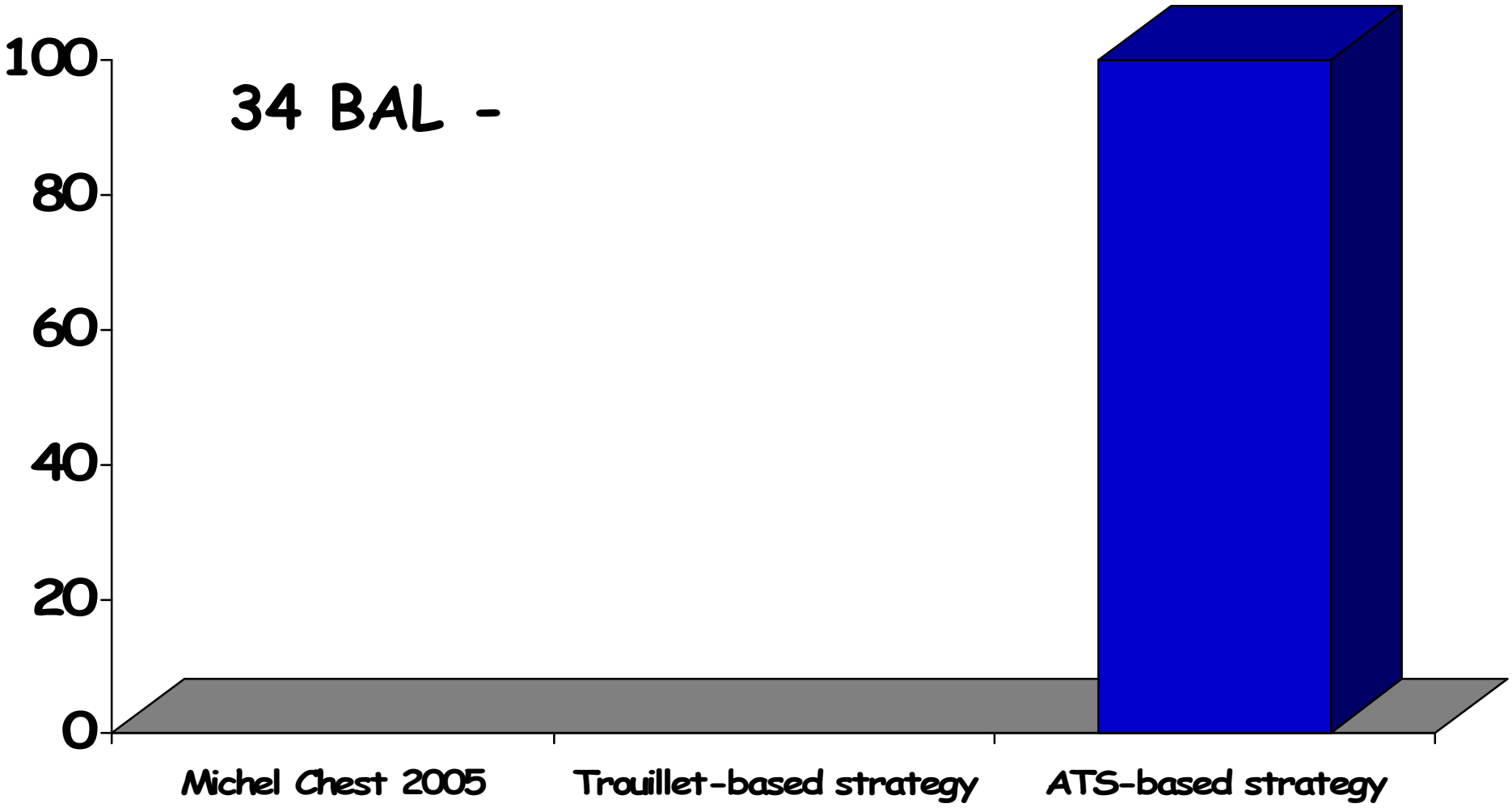
Adequacy of antibiotic therapy according to the strategy



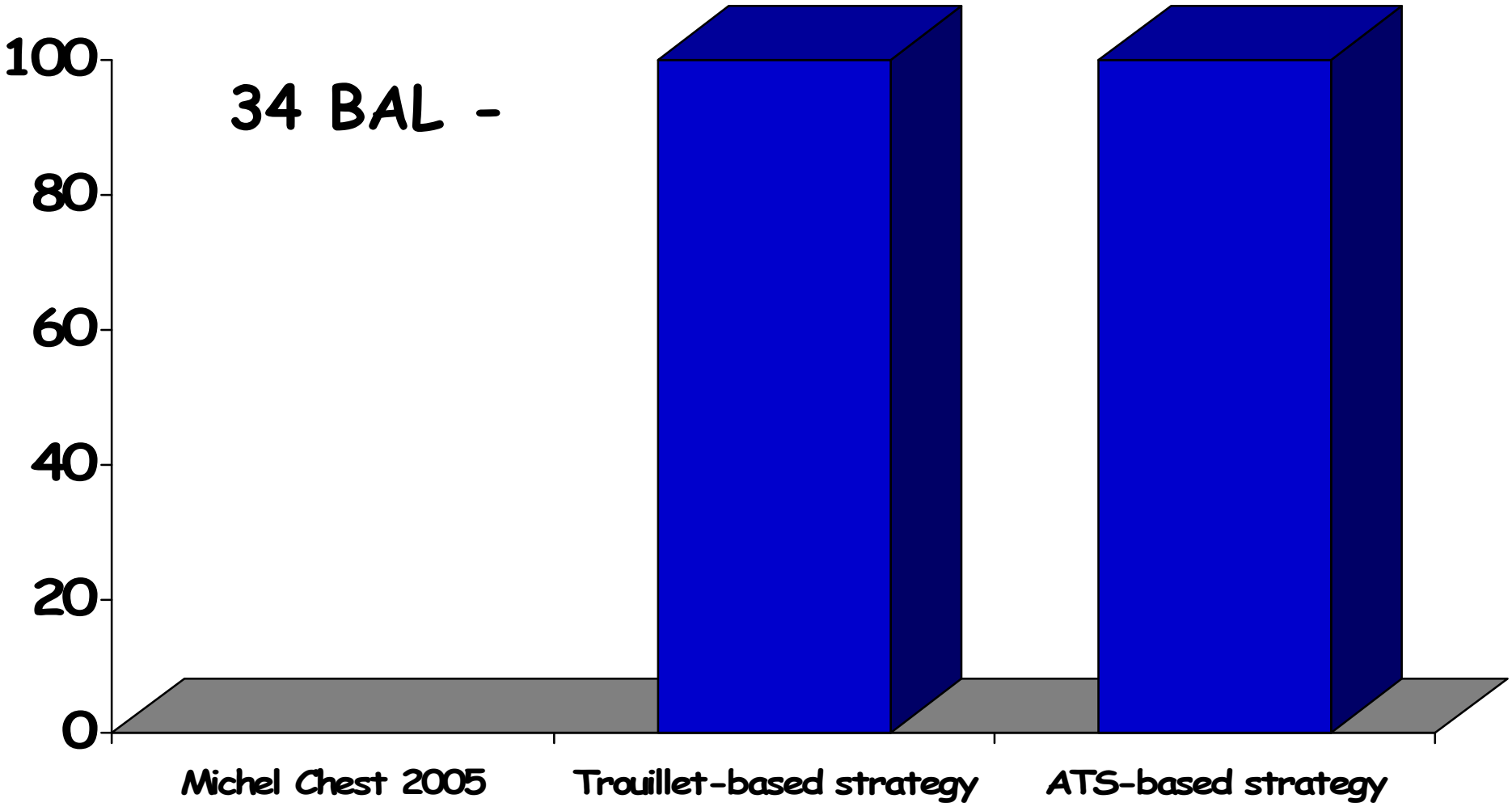
One or two TA per week



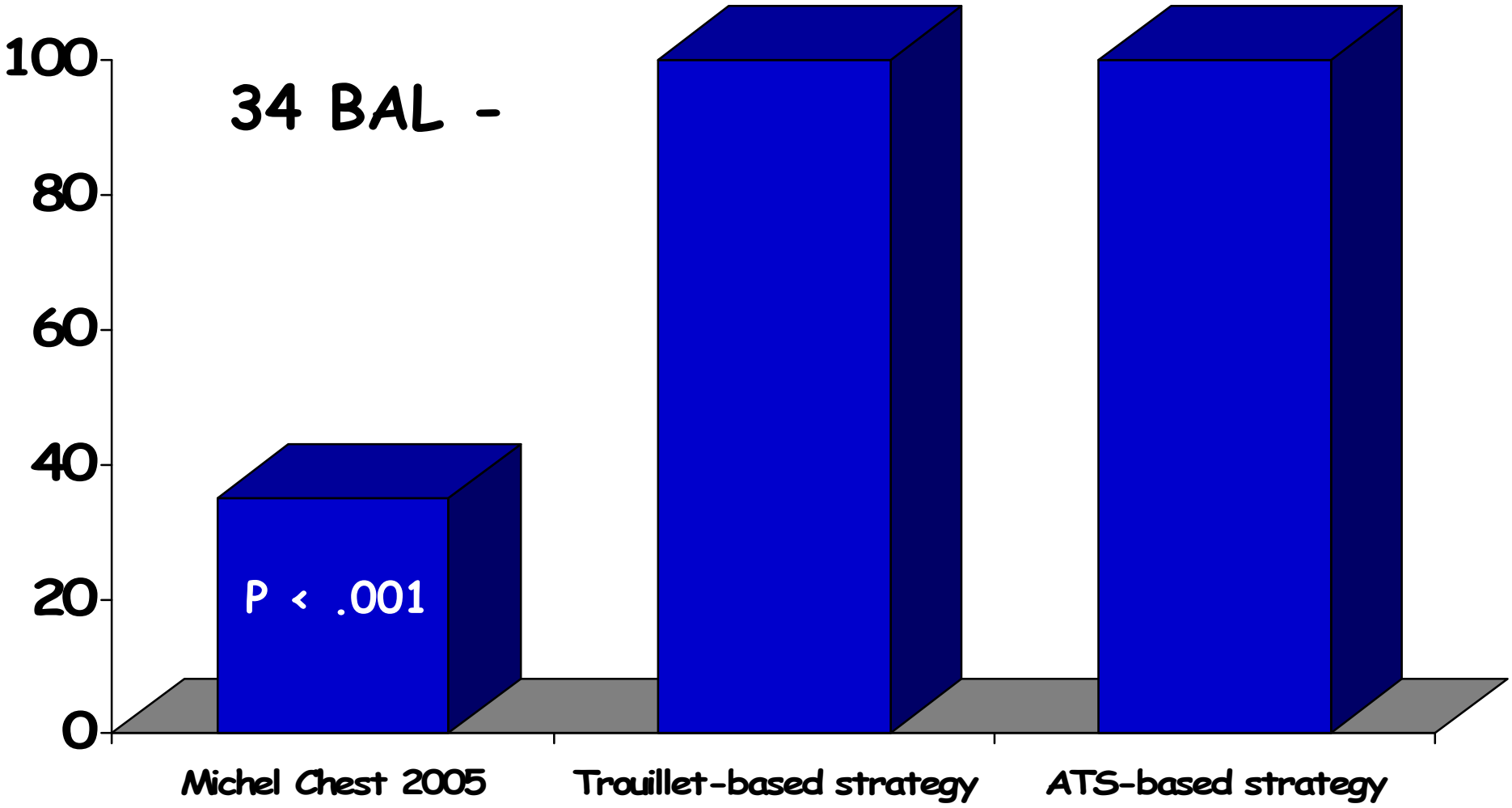
Use of antibiotics according to the strategy



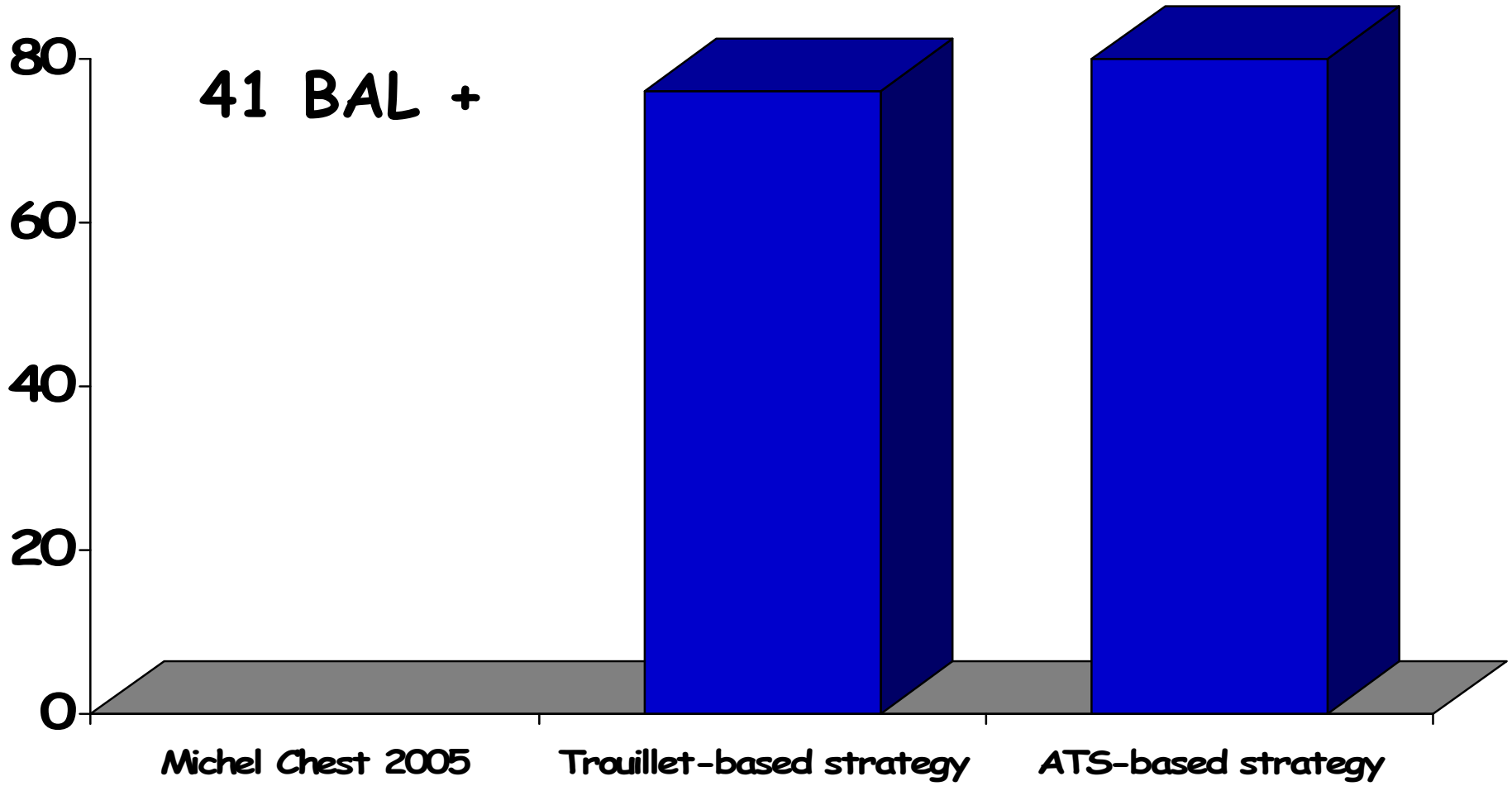
Use of antibiotics according to the strategy



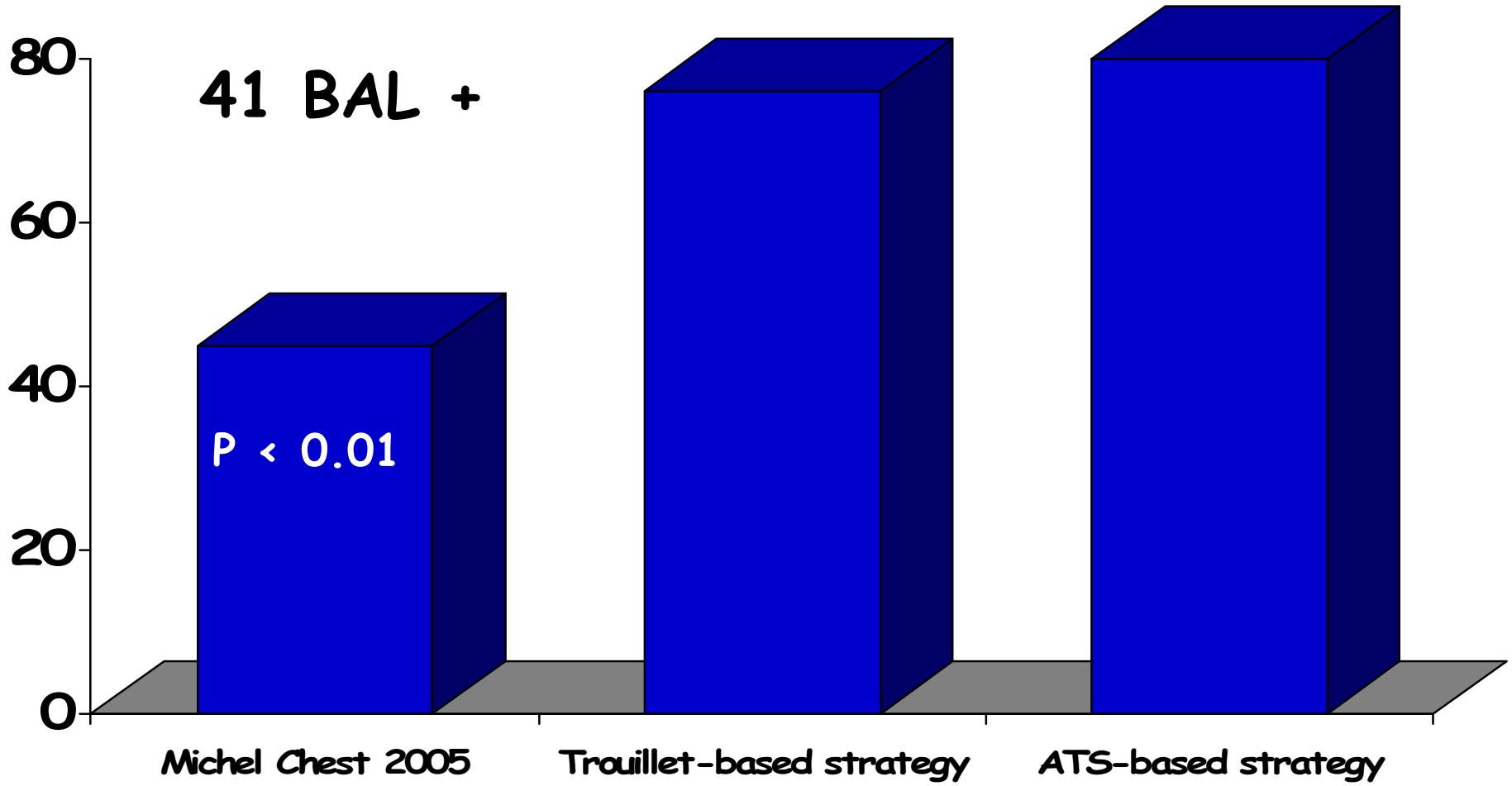
Use of antibiotics according to the strategy



Use of imipenem or other antipseudomonal β-lactam according to the strategy



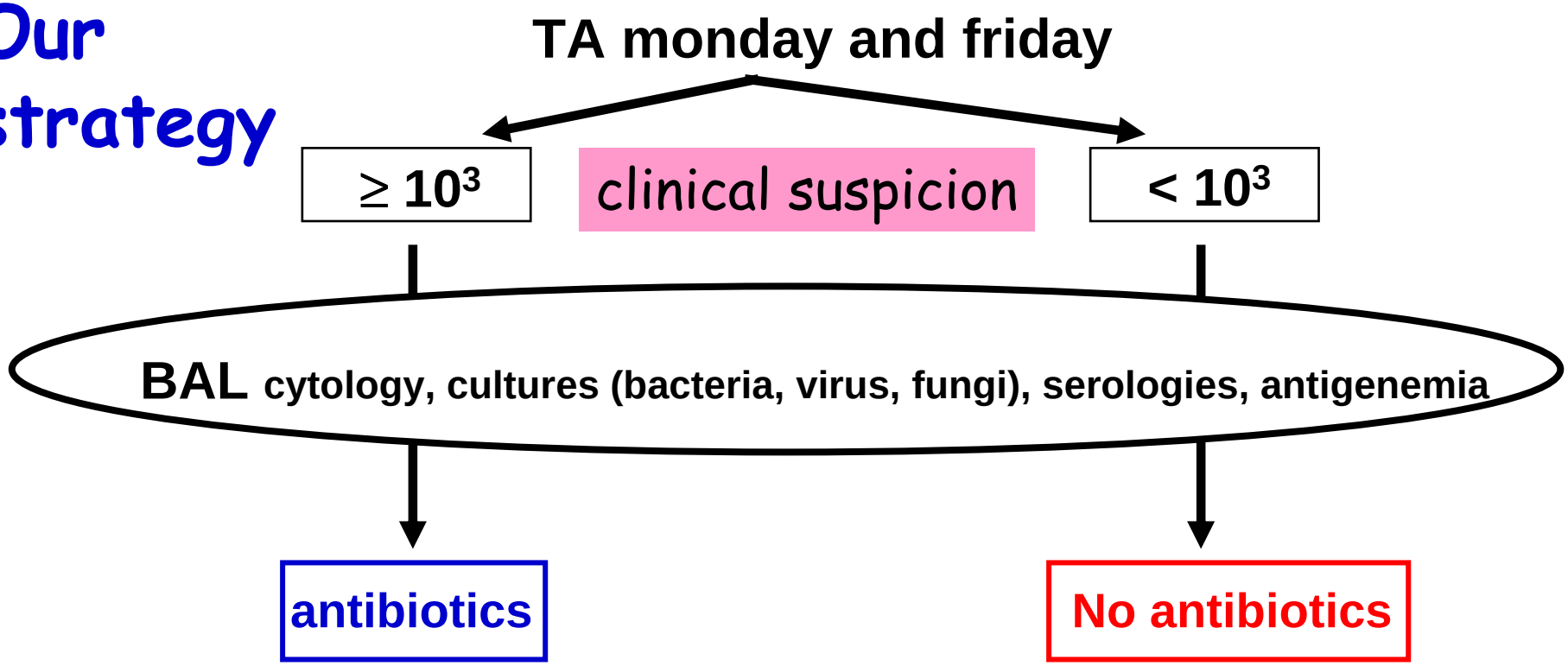
Use of imipenem or other antipseudomonal β-lactam according to the strategy



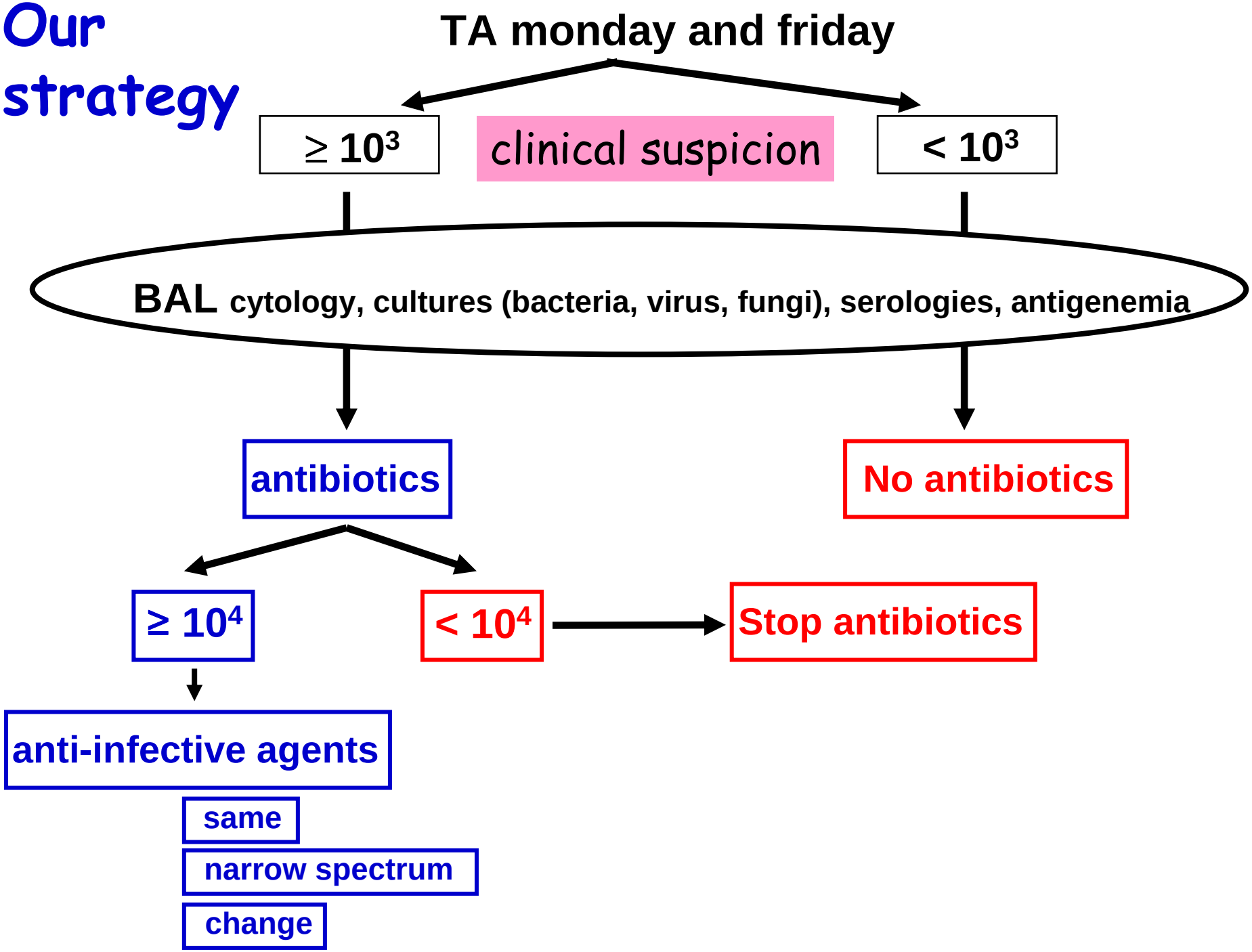
Our strategy

TA monday and friday

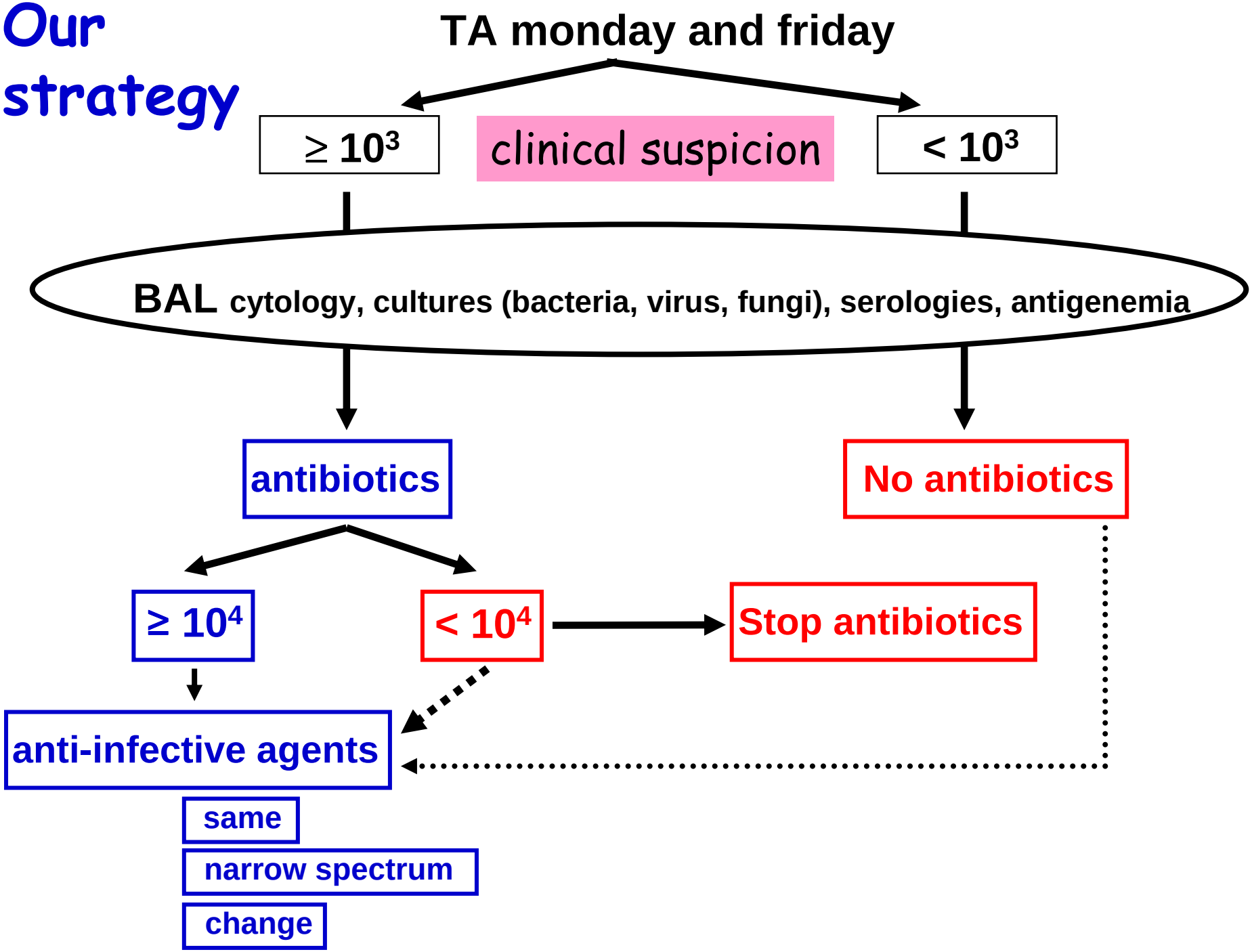
Our strategy



Our strategy



Our strategy



Guidelines for the Management of Adults with Hospital-acquired, Ventilator-associated, and Healthcare-associated Pneumonia

THIS OFFICIAL STATEMENT OF THE AMERICAN THORACIC SOCIETY AND THE INFECTIOUS DISEASES SOCIETY OF AMERICA WAS APPROVED BY THE ATS BOARD OF DIRECTORS, DECEMBER 2004 AND THE IDSA GUIDELINE COMMITTEE, OCTOBER 2004

Am J Respir Crit Care Med Vol 171. pp 388–416, 2005

- HCAP is included in the spectrum of HAP and VAP, and patients with HCAP need therapy for MDR pathogens.
- A lower respiratory tract culture needs to be collected from all patients before antibiotic therapy, but collection of cultures should not delay the initiation of therapy in critically ill patients.
- Either "semiquantitative" or "quantitative" culture data can be used for the management of patients with HAP.
- Lower respiratory tract cultures can be obtained bronchoscopically or nonbronchoscopically, and can be cultured quantitatively or semiquantitatively.
- Quantitative cultures increase specificity of the diagnosis of HAP without deleterious consequences, and the specific quantitative technique should be chosen on the basis of local expertise and experience.

stop antibiotic therapy in a patient who has had cultures obtained in the absence of an antibiotic change in the past 72 hours.

- Early, appropriate, broad-spectrum, antibiotic therapy should be prescribed with adequate doses to optimize antimicrobial efficacy.
- An empiric therapy regimen should include agents that are from a different antibiotic class than the patient has recently received.
- Combination therapy for a specific pathogen should be used judiciously in the therapy of HAP, and consideration should be given to short-duration (5 days) aminoglycoside therapy, when used in combination with a β-lactam to treat *P. aeruginosa* pneumonia.
- Linezolid is an alternative to vancomycin, and unconfirmed, preliminary data suggest it may have an advantage for proven VAP due to methicillin-resistant *S. aureus*.
- Colistin should be considered as therapy for patients with VAP due to a carbapenem-resistant *Acinetobacter* species.
- Aerosolized antibiotics may have value as adjunctive therapy in patients with VAP due to some MDR pathogens.
- De-escalation of antibiotics should be considered once data are available on the results of lower respiratory tract cultures and the patient's clinical response.
- A shorter duration of antibiotic therapy (7 to 8 days) is recommended for patients with uncomplicated HAP, VAP, or HCAP who have received initially appropriate therapy and have had a good clinical response, with no evidence of infection with nonfermenting gram-negative bacilli.

Boutique www.PSG.fr

Accueil Informations Légales Recherche Panier

?

LOSC LILLE METROPOLE

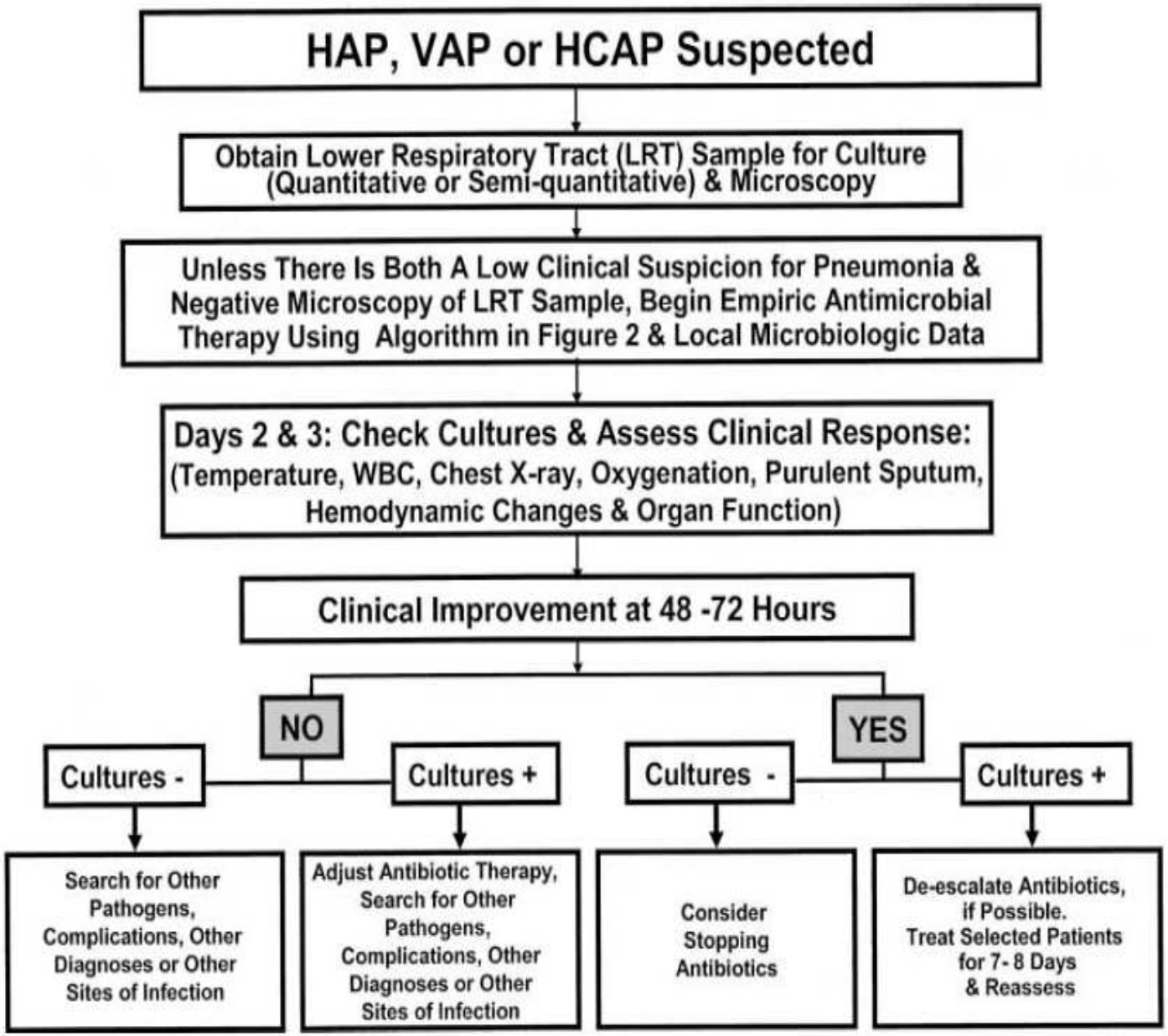
F.C.B.

SCB

DROIT AU BUT

Diagnostic = LBA + sang + urines

Mais antibiothérapie initiale basée sur AT !


HAP, VAP or HCAP Suspected
Obtain Lower Respiratory Tract (LRT) Sample for Culture (Quantitative or Semi-quantitative) & Microscopy
Unless There Is Both A Low Clinical Suspicion for Pneumonia & Negative Microscopy of LRT Sample, Begin Empiric Antimicrobial Therapy Using Algorithm in Figure 2 & Local Microbiologic Data
Days 2 & 3: Check Cultures & Assess Clinical Response: (Temperature, WBC, Chest X-ray, Oxygenation, Purulent Sputum, Hemodynamic Changes & Organ Function)
Clinical Improvement at 48 -72 Hours
NO
YES
Cultures -
Cultures +
Cultures -
Cultures +
Search for Other Pathogens, Complications, Other Diagnoses or Other Sites of Infection
Adjust Antibiotic Therapy, Search for Other Pathogens, Complications, Other Diagnoses or Other Sites of Infection
Consider Stopping Antibiotics
De-escalate Antibiotics, if Possible. Treat Selected Patients for 7- 8 Days & Reassess