JNI 24es Journées Nationales d'Infectiologie
Grenoble
et la région Auvergne-Rhône-Alpes
ALPEXPO
du mercredi 7 au vendredi 9 juin 2023

Pneumonies bactériennes des patients présentant une Covid en réanimation : quelles leçons pour le BUA ?

Keyvan RAZAZI (Créteil)

Déclaration de liens d'intérêt avec les industries de santé en rapport avec le thème de la présentation (loi du 04/03/2002) :

Intervenant : Razazi Keyvan

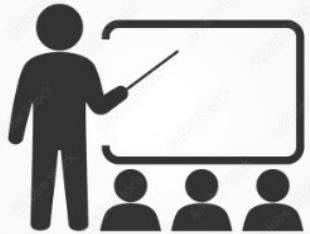
Titre : Pneumonies bactériennes des patients présentant une Covid en réanimation : quelles leçons pour le BUA ?

Consultant ou membre d'un conseil scientifique	☐ OUI	☑ NON
Conférencier ou auteur/rédacteur rémunéré d'articles ou documents	☐ OUI	☑ NON
Prise en charge de frais de voyage, d'hébergement ou d'inscription à des congrès ou autres manifestations	☐ OUI	☑ NON
Investigateur principal d'une recherche ou d'une étude clinique	☐ OUI	☑ NON

Measuring the global response to antimicrobial resistance, 2020–21: a systematic governance analysis of 114 countries

Jay Patel, Anne Harant, Genevie Fernandes, Ambele Judith Mwamelo, Wolfgang Hein, Denise Dekker, Devi Sridhar

LID 2023



- ✓ Mécanismes de retour
- ✓ Efficacité
- ✓ Recherche sur la résistance

		Policy design									Implementation tools							Monitoring and evaluation			
	Governance score	Policy design	Implementation tools	Monitoring and evaluation	Strategic vision	Coordination	Participation	Accountability	Transparency	Sustainability	Equity	Surveillance	Antimicrobial stewardship	Infection prevention and control	Education	Public awareness	Medicines regulation	Research and development for novel products	Reporting	Feedback mechanism	Effectiveness	Antimicrobial resistance research
Norway	85	76	92	87	72	100	100	50	88	50	100	100	100	81	64	98	100	100	83	67	100	100
USA	84	83	85	83	97	96	94	50	88	72	100	86	81	96	64	90	75	100	83	50	100	100
UK	83	85	80	88	95	100	100	50	88	75	100	99	70	94	42	58	100	100	96	50	100	100
Sweden	78	69	87	76	72	96	94	50	88	47	0	100	91	73	56	93	100	100	83	17	100	100
Denmark	76	85	75	57	94	100	100	67	100	75	0	83	83	81	64	93	83	33	100	58	0	50
Germany	76	74	79	69	39	100	100	50	88	75	100	96	80	77	47	56	100	100	92	33	50	88
Japan	75	67	84	71	93	96	89	50	63	45	0	81	83	96	44	93	92	100	92	33	100	50
Australia	75	76	70	89	60	100	100	50	88	75	50	75	57	94	42	56	67	100	83	75	100	100
Switzerland	75	79	71	74	72	100	94	83	88	74	0	80	74	75	42	56	83	83	96	50	100	38
France	74	73	82	55	97	92	72	50	88	39	100	86	93	92	61	79	83	67	83	33	50	38

Plan

- Pneumonies bactériennes à l'admission en réanimation: co-infections
- Pneumonies bactériennes au cours du séjour: PAVM

Plan

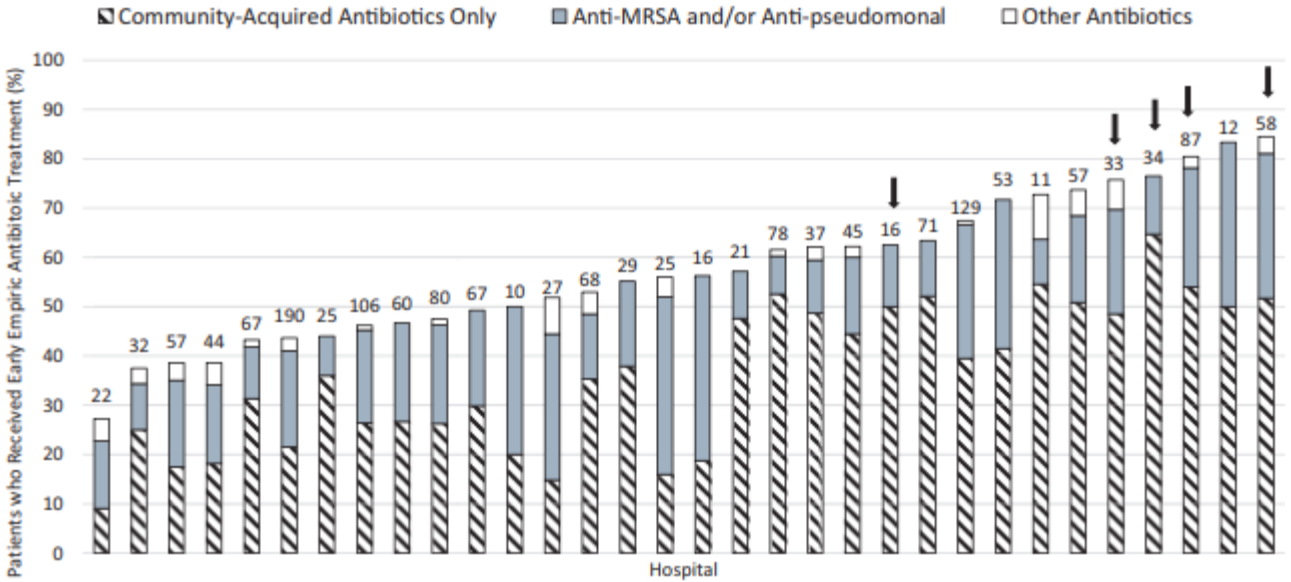
- **Pneumonies bactériennes à l'admission en réanimation: co-infection**
- **Pneumonies bactériennes au cours du séjour: PAVM**

Pratiques hétérogènes

Clinical Infectious Diseases
MAJOR ARTICLE

Empiric Antibacterial Therapy and Community-onset Bacterial Coinfection in Patients Hospitalized With Coronavirus Disease 2019 (COVID-19): A Multi-hospital Cohort Study

Valerie M. Vaughn,[1,2] Tejal N. Gandhi,[1] Lindsay A. Petty,[1] Payal K. Patel,[1,2] Hallie C. Prescott,[1,2] Anurag N. Malani,[3,4] David Ratz,[1,2] Elizabeth McLaughlin,[1] Vineet Chopra,[1,2] and Scott A. Flanders[1]



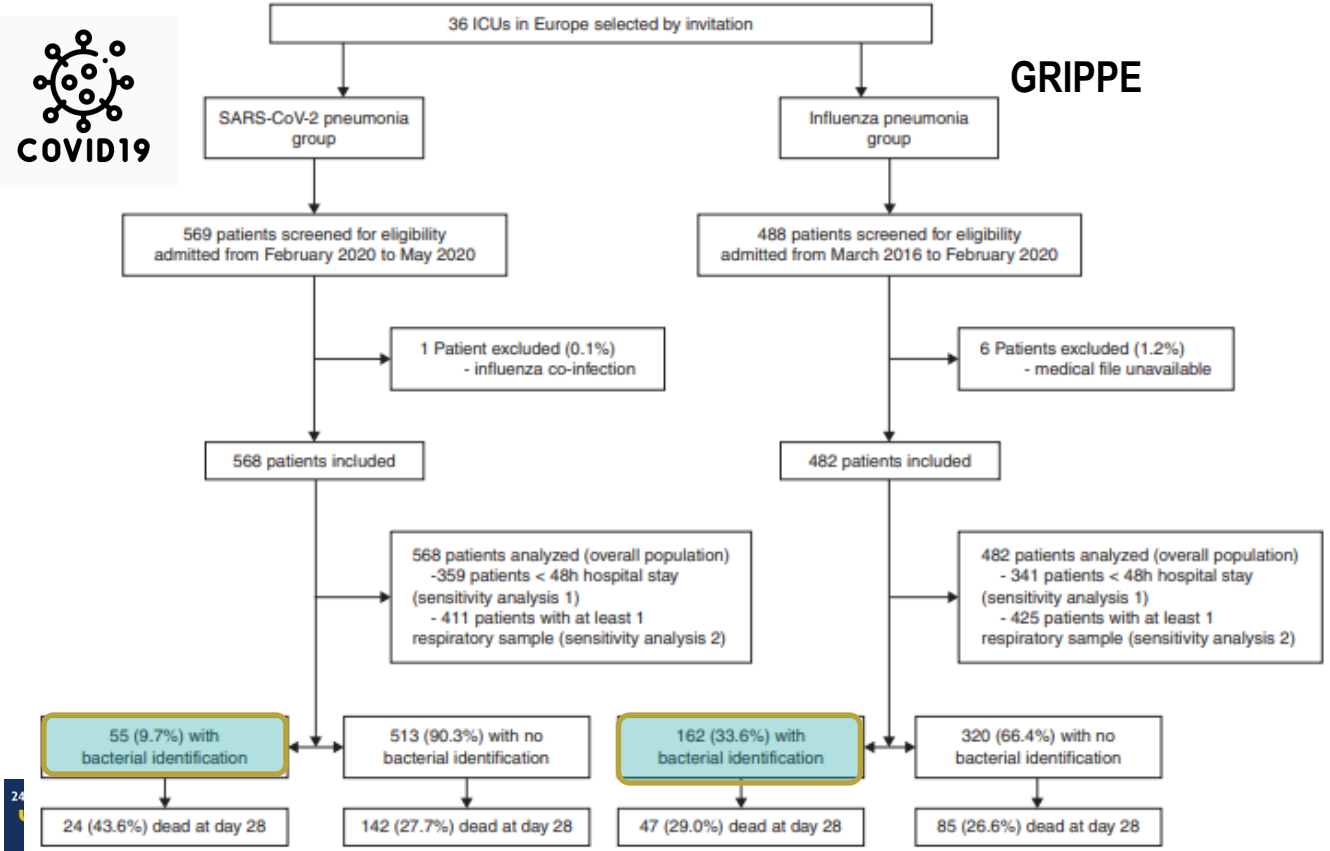
ATB à l'admission en réanimation

- 1ère vague: ATB >90%

Co-infection moins fréquente que la grippe

COVID19

GRIPPE



Rouze AJRCCM coVAPid Study

Bactéries responsable de la co-infection

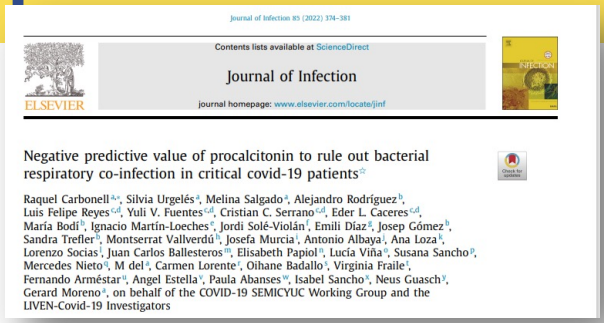
	SARS-CoV-2 Pneumonia (*n* = 55)	Influenza Pneumonia (*n* = 162)
Gram-positive cocci	32 (58.2)	116 (71.6)
Methicillin-sensitive *Staphylococcus aureus*	13 (23.6)	47 (29.0)
Methicillin-resistant *Staphylococcus aureus*	1 (1.8)	4 (2.5)
Staphylococcus other than aureus	1 (1.8)	2 (1.2)
Streptococcus pneumoniae	12 (21.8)	52 (32.1)
Other *Streptococcus* spp	4 (7.3)	10 (6.2)
Enterococcus spp	1 (1.8)	1 (0.6)
Gram-negative bacilli	23 (41.8)	45 (27.8)
Pseudomonas aeruginosa	6 (10.9)	10 (6.2)
Haemophilus influenzae	5 (9.1)	18 (11.1)
Moraxella catarrhalis	3 (5.5)	1 (0.6)
Enterobacter spp	2 (3.6)	1 (0.6)
Klebsiella pneumonia	2 (3.6)	3 (1.9)
Other *Klebsiella* spp	0 (0.0)	1 (0.6)
Serratia marcescens	2 (3.6)	0 (0.0)
Citrobacter spp		
Proteus mirabili		
Acinetobacter b		
Escherichia coli		
Morganella mor		
Stenotrophomo		
Other		
Polymicrobial		
Multidrug-resistant isolates	3 (5.5)	6 (3.7)

LES MACROLIDES

Rouze AJRCCM coVAPid Study

Des outils pour sélectionner les patients

- PCT et CRP non discriminant
- PCT <0,3 ng/mL ->NPV 90%



Journal of Infection 85 (2022) 374–381

Contents lists available at ScienceDirect

Journal of Infection

journal homepage: www.elsevier.com/locate/jinf

Negative predictive value of procalcitonin to rule out bacterial respiratory co-infection in critical covid-19 patients☆

Raquel Carbonell[a,*], Silvia Urgelés[a], Melina Salgado[a], Alejandro Rodríguez[b], Luis Felipe Reyes[c,d], Yuli V. Fuentes[c,d], Cristian C. Serrano[c,d], Eder L. Caceres[c,d], María Bodí[b], Ignacio Martín-Loeches[e], Jordi Solé-Violán[f], Emili Díaz[g], Josep Gómez[h], Sandra Trefler[h], Montserrat Vallverdú[h], Josefa Murcia[i], Antonio Albaya[i], Ana Loza[k], Lorenzo Socias[l], Juan Carlos Ballesteros[m], Elisabeth Papiol[n], Lucía Viña[o], Susana Sancho[p], Mercedes Nieto[q], M del[q], Carmen Lorente[r], Oihane Badallo[s], Virginia Fraile[t], Fernando Arméstar[u], Angel Estella[v], Paula Abanses[w], Isabel Sancho[x], Neus Guasch[y], Gerard Moreno[a], on behalf of the COVID-19 SEMICYUC Working Group and the LIVEN-Covid-19 Investigators

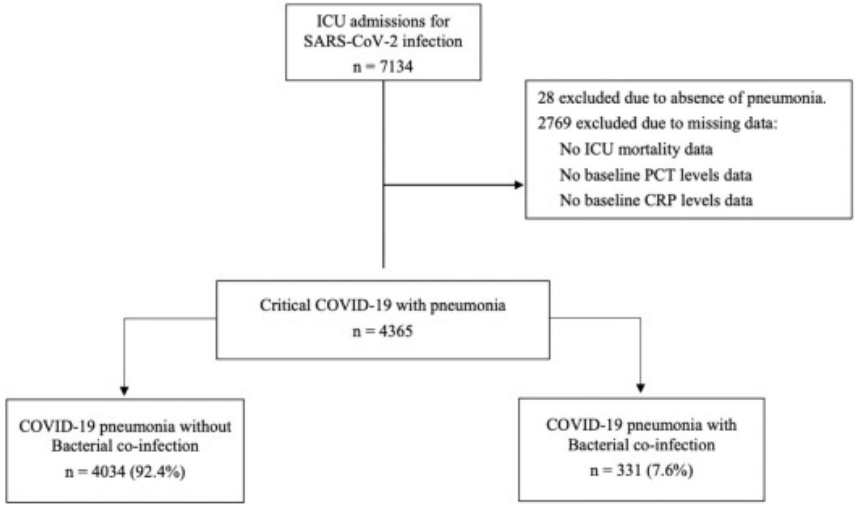
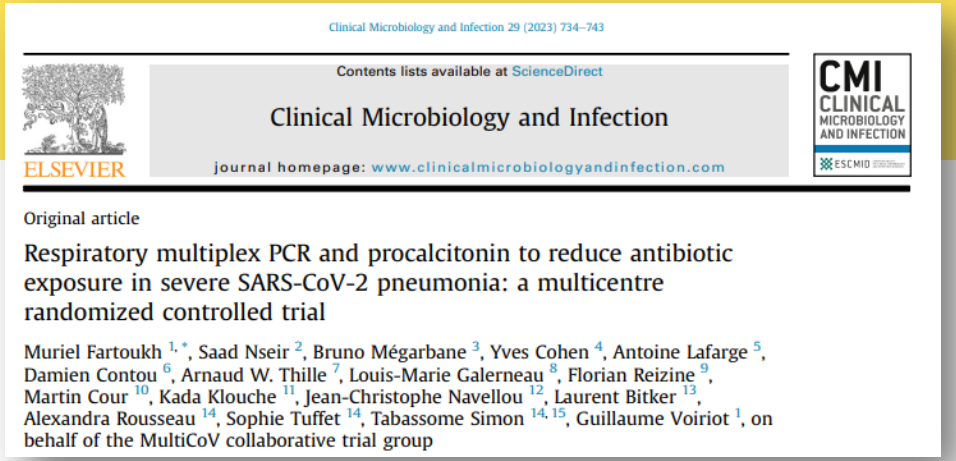


Figure 1. Flow chart of patient enrolment. ICU, Intensive Care Unit; PCT, procalcitonin; CRP, C-Reactive protein.

Etude MultiCov



Clinical Microbiology and Infection 29 (2023) 734–743

Contents lists available at ScienceDirect

Clinical Microbiology and Infection

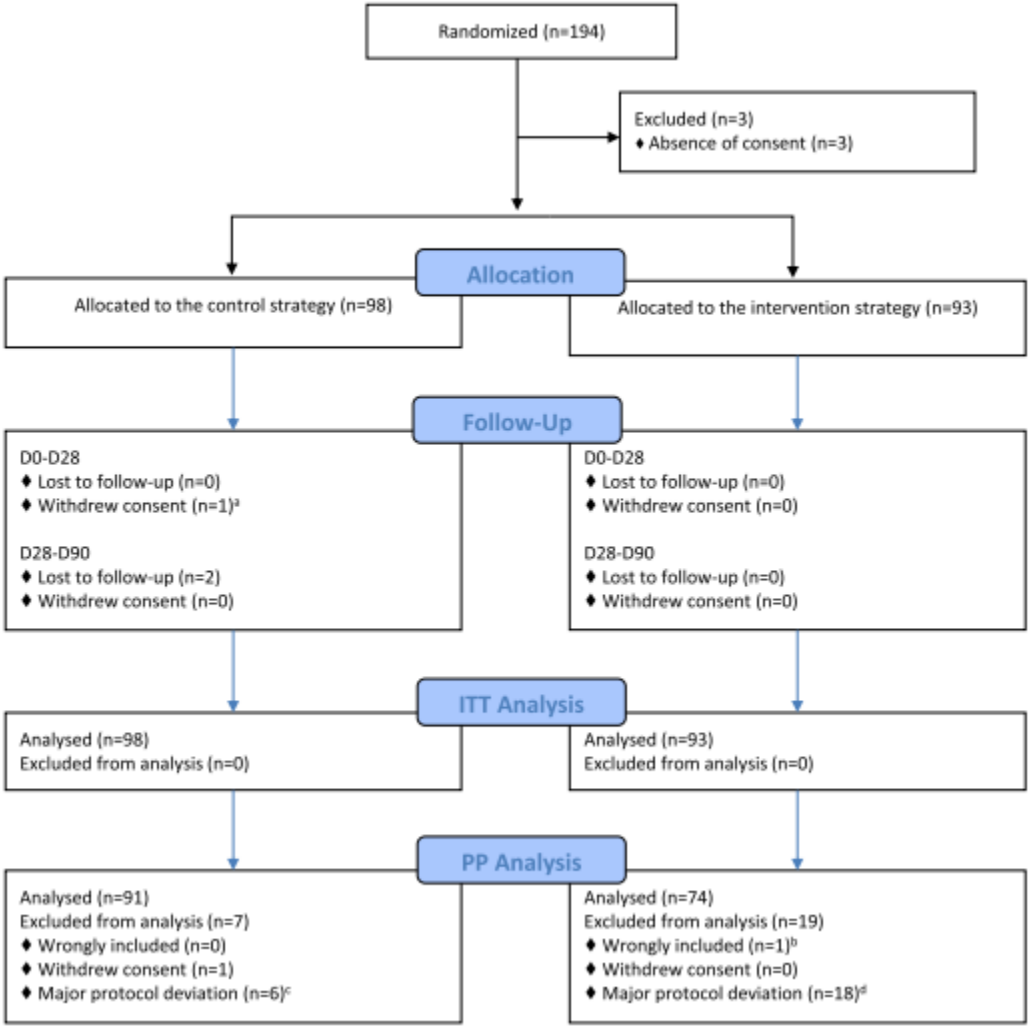
journal homepage: www.clinicalmicrobiologyandinfection.com

Original article

Respiratory multiplex PCR and procalcitonin to reduce antibiotic exposure in severe SARS-CoV-2 pneumonia: a multicentre randomized controlled trial

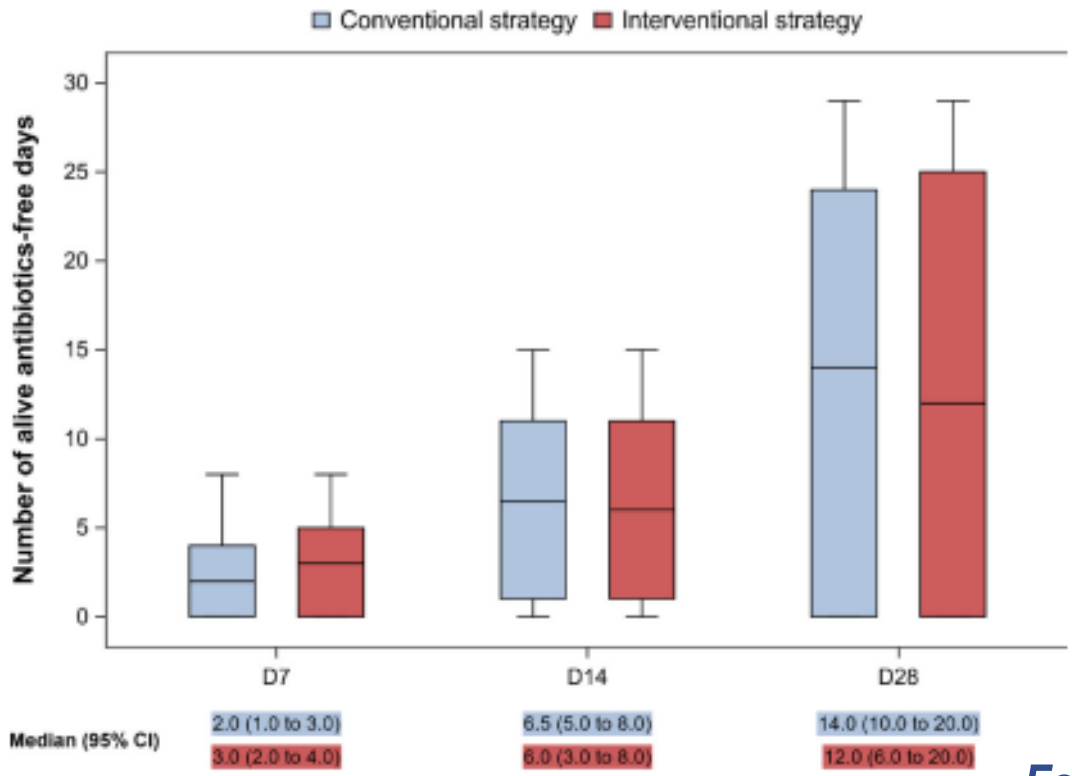
Muriel Fartoukh [1,*], Saad Nseir [2], Bruno Mégarbane [3], Yves Cohen [4], Antoine Lafarge [5], Damien Contou [6], Arnaud W. Thille [7], Louis-Marie Galerneau [8], Florian Reizine [9], Martin Cour [10], Kada Klouche [11], Jean-Christophe Navellou [12], Laurent Bitker [13], Alexandra Rousseau [14], Sophie Tuffet [14], Tabassome Simon [14,15], Guillaume Voiriot [1], on behalf of the MultiCoV collaborative trial group

- Intervention= mPCR +PCT quotidienne
- 13 réanimations
- Avril à Nov 2020



Fartoukh CMI 2023

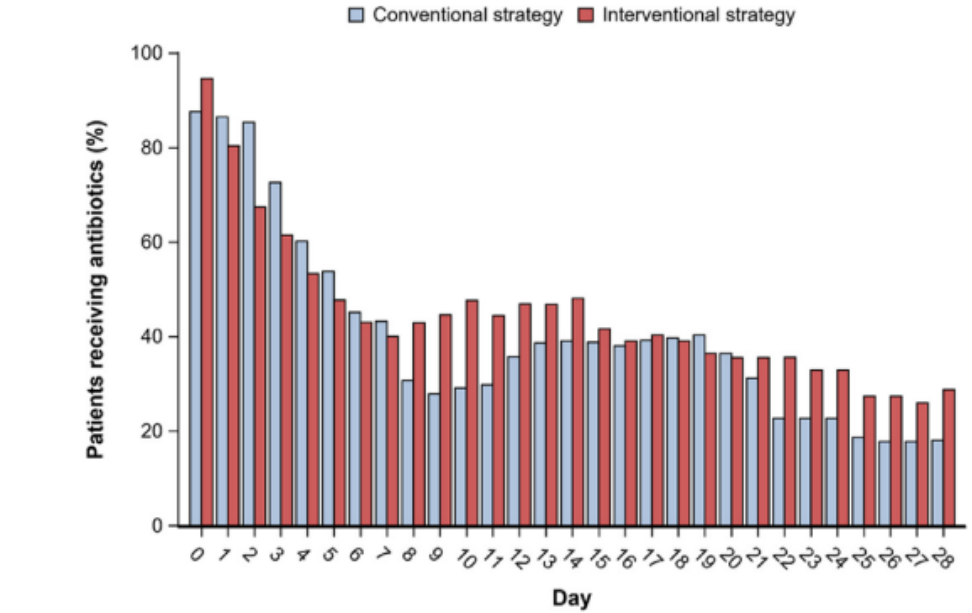
Nombre de jours vivants sans ATB



Fartoukh CMI 2023

Pas une bonne indication des mPCR?

- 48% ECBC
- PAVM



Fartoukh CMI 2023

BUA

Efficacy and safety of antimicrobial stewardship prospective audit and feedback in patients hospitalised with COVID-19 (COVASP): a pragmatic, cluster-randomised, non-inferiority trial

Justin Z Chen, Holly L Hoang*, Maryna Yaskina, Dima Kabbani, Karen E Doucette, Stephanie W Smith, Cecilia Lau, Jackson Stewart, Shahileen Remtulla, Karen Zurek, Morgan Schultz, Hiromi Koriyama-McKenzie, Carlos Cervera*

- 886 patients dans 3 hôpitaux; 15% en réa ;
- 53% ont des ATB (89% en réa)
- Mars à Oct 2021
- Prospectif, randomisé en cluster, étude de non infériorité
- Bras intervention: 301 audits avec feeback (84% d'acceptation)
- Diminution antibiotique à 365 vs 384 days per 1000 patient days (2j vs 2,4 j d'atb)

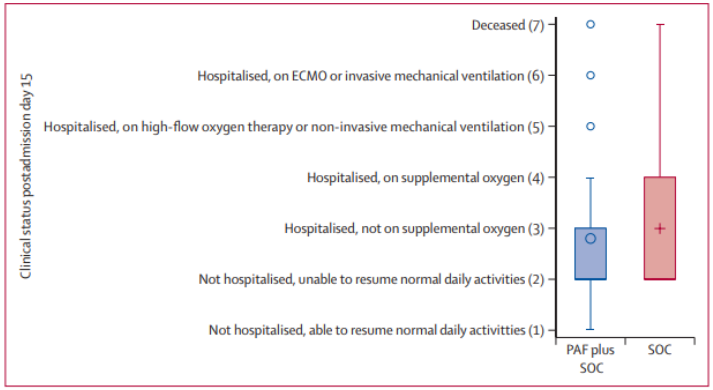


Figure 2: Clinical status measured on a seven-point ordinal scale at postadmission day 15

	PAF + SOC (N=429)	SOC (N=404)
Mean acute length of hospital stay (SD, 95% CI), days*	9·59 (8·84, 8·75–10·43)	11·03 (14·69, 9·59–12·47)
In-hospital mortality (%, 95% CI)	46 (11%, 8%–14%)	51 (13%, 9%–16%)
30-day mortality (%, 95% CI)	46 (11%, 8%–14%)	50 (12%, 9%–16%)
30-day re-admission (%, 95% CI)	19 (4%, 3%–6%)	21 (5%, 3%–7%)
Clostridioides difficile infection (%)	1 (<1%)	0
Clostridioides difficile-associated mortality	0	0

Data are n (%) except where specified. PAF=prospective audit and feedback. SOC=standard of care. *Acute length of stay is not normally distributed; median is 7·0 (IQR 4·0–12·0) for the PAF + SOC group and 7·0 (4·0–12·0) for the SOC group.

Table 2: **Secondary clinical outcomes**

ATB à l'admission en réanimation

- **« Actuellement » antibiotiques à l'admission:**
  - Environ 71%
  - Durée courte

Plan

- Pneumonies bactériennes à l'admission en réanimation: co-infections
- **Pneumonies bactériennes au cours du séjour: PAVM**

+ de PAVM

ORIGINAL

Relationship between SARS-CoV-2 infection and the incidence of ventilator-associated lower respiratory tract infections: a European multicenter cohort study

Anahita Rouzé[1,2], Ignacio Martin-Loeches[3,4], Pedro Povoa[5,6], Demosthenes Makris[7], Antonio Artigas[8], Mathilde Bouchereau[1], Fabien Lambiotte[9], Matthieu Metzelard[10], Pierre Cuchet[11], Claire Boulle Geronimi[12], Marie Labruyere[13], Fabienne Tamion[14], Martine Nyunga[15], Charles-Edouard Luyt[16], Julien Labreuche[17], Olivier Pouly[18], Justine Bardin[19], Anastasia Saade[20], Pierre Asfar[21], Jean-Luc Baudel[22], Alexandra Beurton[23], Denis Garot[24], Iliana Ioannidou[25], Louis Kreitmann[26], Jean-François Llitjos[27], Eleni Magira[28], Bruno Mégarbane[29], David Meguerditchian[30], Edgar Moglia[31], Armand Mekontso-Dessap[32], Jean Reignier[33], Matthieu Turpin[34], Alexandre Pierre[35], Gaetan Plantefeve[36], Christophe Vinsonneau[37], Pierre-Edouard Floch[38], Nicolas Weiss[39], Adrian Ceccato[40], Antoni Torres[41], Alain Duhamel[17], Saad Nseir[1,2*] on behalf of the coVAPid study Group

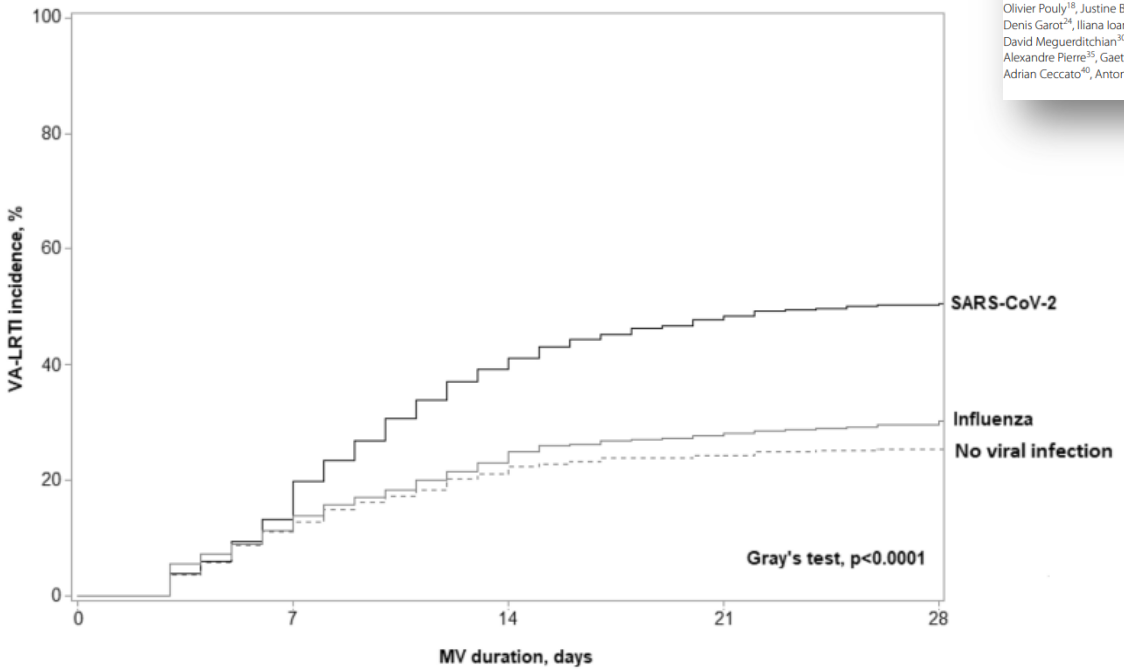


Fig. 1 The 28-day cumulative incidence of ventilator-associated lower respiratory tract infections. Cumulative incidence estimated using Kalbfleish and Prentice method, considering extubation (dead or alive) within 28 days as competing event. *VA-LRTI* ventilator-associated respiratory tract infection, *MV* mechanical ventilation

scientific reports

OPEN

SARS-CoV-2 variants and mutational patterns: relationship with risk of ventilator-associated pneumonia in critically ill COVID-19 patients in the era of dexamethasone

Keyvan Razazi[1,2,3,19✉], Anissa Martins Bexiga[1,2,19], Romain Arrestier[1,2], Bastien Peiffer[4], Guillaume Voiriot[5], Charles-Edouard Luyt[6], Tomas Urbina[7], Julien Mayaux[8], Tài Pham[9,9,10], Damien Roux[11,12], Raphael Bellaiche[13], Zakaria Alt Hamou[14], Stéphane Gaudry[15], Elie Azoulay[16], Armand Mekontso Dessap[1,2,3], Christophe Rodriguez[1,17,18], Jean-Michel Pawlotsky[1,17,18], Slim Fourati[1,17,18,20] & Nicolas de Prost[1,2,3,20]

nature communications

Article

https://doi.org/10.1038/s41467-022-33801-z

Clinical phenotypes and outcomes associated with SARS-CoV-2 variant Omicron in critically ill French patients with COVID-19

Utilisation des risques compétitifs

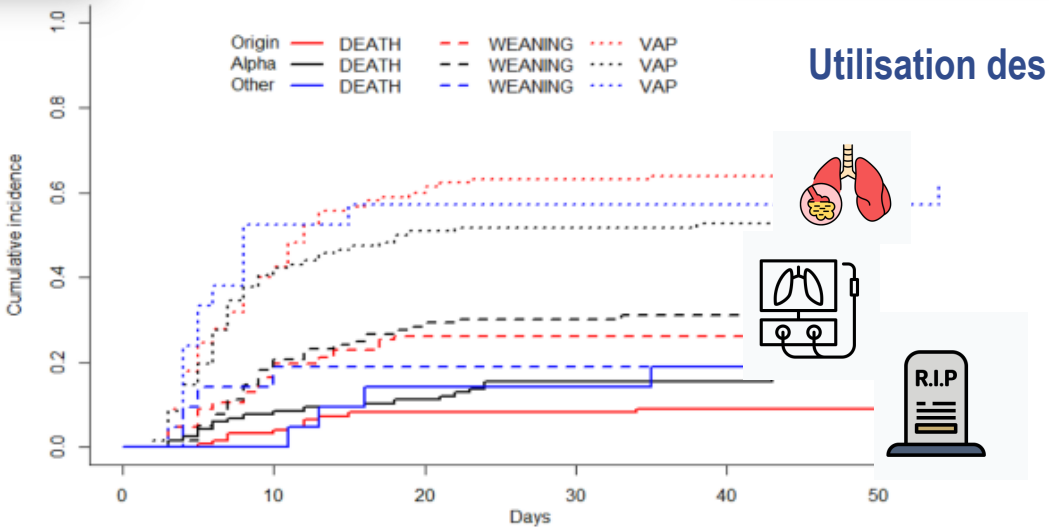


Figure1. Day-60 cumulative probability of ventilator-associated pneumonia (VAP) in patients infected with the variant of origin (red lines), variant α (black lines) or other variants (blue lines). Cumulative incidence estimated using the Kalbfleish and Prentice method considering time from intubation to VAP (dotted line), to death (continuous line) and to weaning (dashed line).

Durée longue de VM

RESEARCH Open Access

Ventilator-associated pneumonia in patients with SARS-CoV-2-associated acute respiratory distress syndrome requiring ECMO: a retrospective cohort study

Charles-Edouard Luyt[1,2*], Tarek Sahnoun[1], Melchior Gautier[1], Pauline Vidal[3], Sonia Burrel[4,5], Marc Pineton de Chambrun[1], Juliette Chommeloux[1], Cyrielle Desnos[1], Jeremy Arzoine[6], Ania Nieszkowska[1], Nicolas Bréchot[1,2], Matthieu Schmidt[1,2], Guillaume Hekimian[1], David Boutolleau[4,5], Jérôme Robert[3], Alain Combes[1,2] and Jean Chastre[1,2]

Characteristic	Covid-19 patients ($n=50$)	Influenza patients ($n=45$)
Age, y[a]	48 (42–56)	58 (48–64)
Male sex	36 (72)	28 (62)
Symptom-onset-to-ICU-admission interval, days[a]	11 (7–14)	7 (6–10)
Admission SAPS II[a,b]	54 (46–65)	71 (59–79)
Admission SOFA score[a,c]	12 (10–14)	15 (10–17)
Immunocompromised[d]	1 (2)	4 (9)
Documented bacterial coinfection[a]	9 (18)	18 (40)
Antimicrobial treatment	50 (100)	45 (100)
Days of antimicrobial treatment	5 (4–6)	4 (2–7)
Antiviral agents		
Remdesivir	6 (12)	0
Lopinavir/ritonavir	9 (18)	0
Hydroxychloroquine	20 (40)	0
Oseltamivir	0	45 (100)
Patients with at least one VAP episode[a]	43 (86)	28 (62)
Number of VAP episodes per patient[a]		
1	43 (86)	28 (62)
2	33 (66)	17 (38)
3	20 (40)	8 (18)
≥ 4	11 (22)	3 (7)
Days of ECMO support	21 (10–34)	18 (8–31)
Days on mechanical ventilation[a,b]	45 (27–62)	24 (14–45)
ICU length of stay, days[a]	48 (34–68)	30 (20–53)
ICU mortality rate, days	17 (34)	18 (40)

Beaucoup de rechutes de PAVM

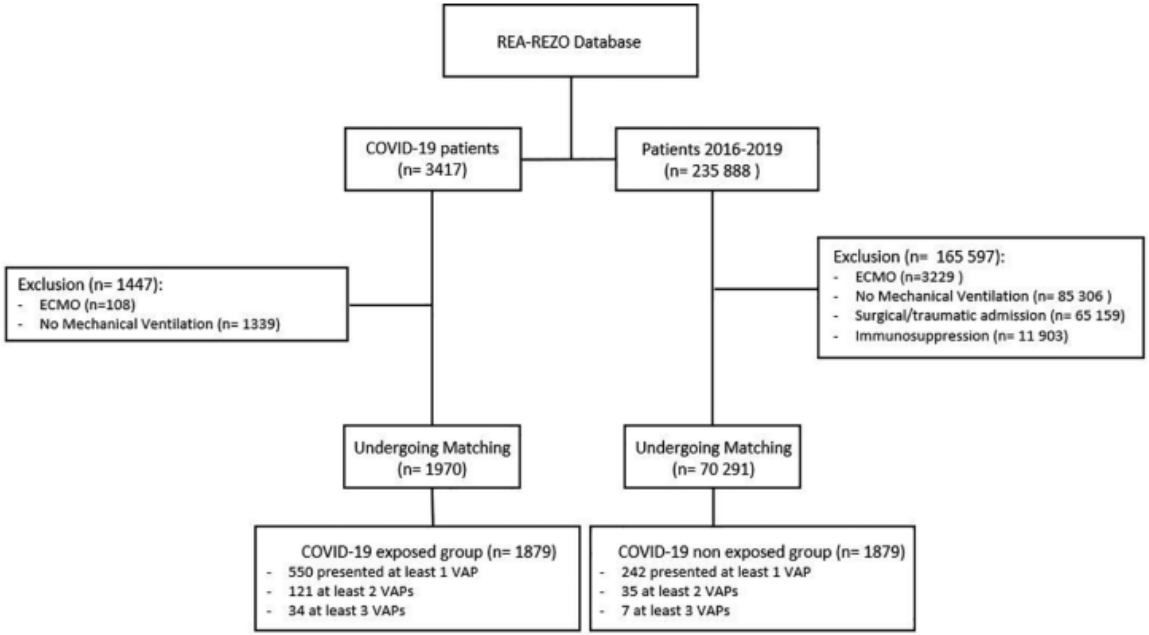
Table 3 Characteristics of recurrent VAP episodes in patients with Covid-19 or influenza ARDS

Characteristic	Episode 2		Episode 3		Episode 4	
	Covid-19	Influenza	Covid-19	Influenza	Covid-19	Influenza
Number of patients	34	17	20	8	11	3
Relapse	26 (76)	10 (59)	16 (76)	7 (78)	11 (100)	3 (100)
Days between end of treatment and relapse	2 (1–3)	3 (0–5)	2 (0–4)	3 (0–5)	0 (0–2)	8 (4–8)
Relapse before end of treatment	6 (23)	3 (30)	7 (44)	2 (29)	6 (55)	0
Superinfection	8 (24)	7 (41)	5 (24)	2 (22)	0	0
Days between end of treatment and superinfection	4 (0–8)	8 (7–11)	0 (0–0)	35 (23–48)	–	–
Superinfection before end of treatment	3 (38)	0	4 (100)	0	–	–
Pathogen responsible for VAP recurrence[a]						
Pseudomonas aeruginosa	19 (56)	11 (64)	12 (60)	7 (88)	8 (73)	3 (100)
Enterobacteriaceae	16 (47)	5 (29)	10 (50)	1 (13)	7 (64)	0
Inducible AmpC Enterobacteriaceae[b]	11 (32)	2 (12)	9 (45)	0	6 (55)	0
ESBL-producing Enterobacteriaceae	2 (6)	0	0	1 (13)	0	0
Stenotrophomonas maltophilia	2 (6)	0	1 (5)	0	1 (9)	0
Acinetobacter baumannii	0	1 (6)	0	0	0	0
Methicillin-resistant *Staphylococcus aureus*	1 (1)	0	0	0	0	0
Methicillin-susceptible *Staphylococcus aureus*	1 (1)	0	1 (5)	0	0	0
Enterococcus faecalis	1 (1)	0	4 (20)	0	0	0

The results are expressed as n (%) or median (IQR)

Luyt AOIC 2020

Plus de 2ème , 3ème épisodes



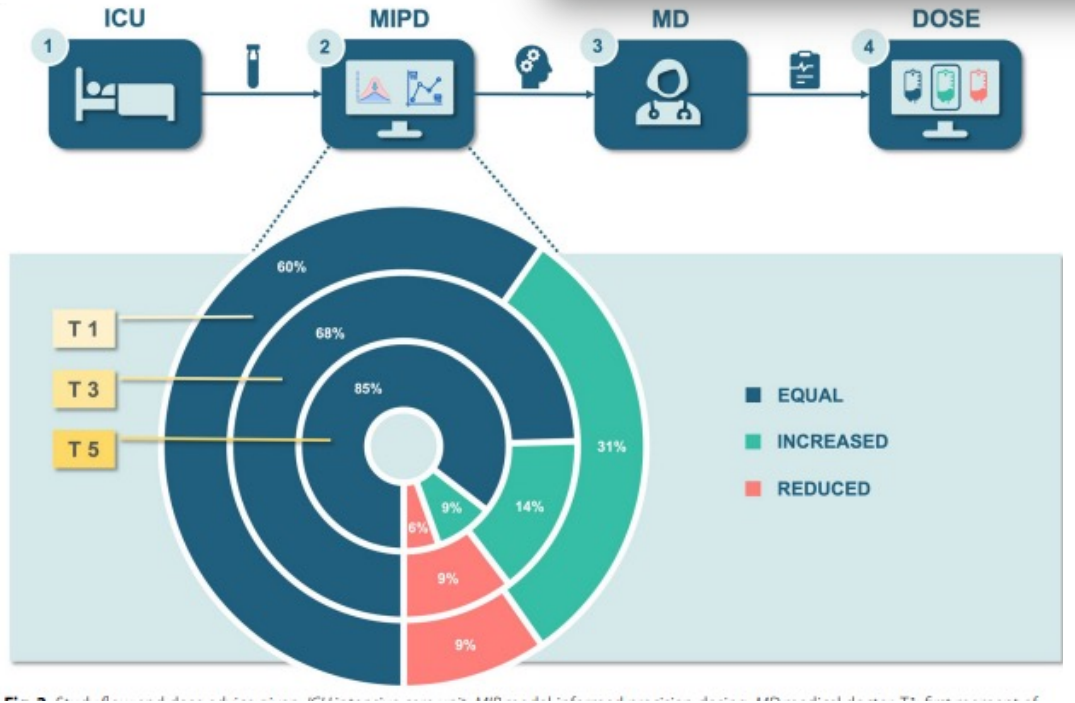
Dosages d'ATB

ORIGINAL

Model-informed precision dosing of beta-lactam antibiotics and ciprofloxacin in critically ill patients: a multicentre randomised clinical trial

Tim M. J. Ewoldt[1,2,3*], Alan Abdulla[2,3], Wim J. R. Rietdijk[2], Anouk E. Muller[3,4,5], Brenda C. M. de Winter[2,3], Nicole G. M. Hunfeld[1,2], Ilse M. Purmer[6], Peter van Vliet[7], Evert-Jan Wils[1,8], Jasper Haringman[9], Annelies Draisma[10], Tom A. Rijpstra[11], Attila Karakus[12], Diederik Gommers[1], Henrik Endeman[1] and Birgit C. P. Koch[2,3]

388 patients



Dosage dans la cible ?

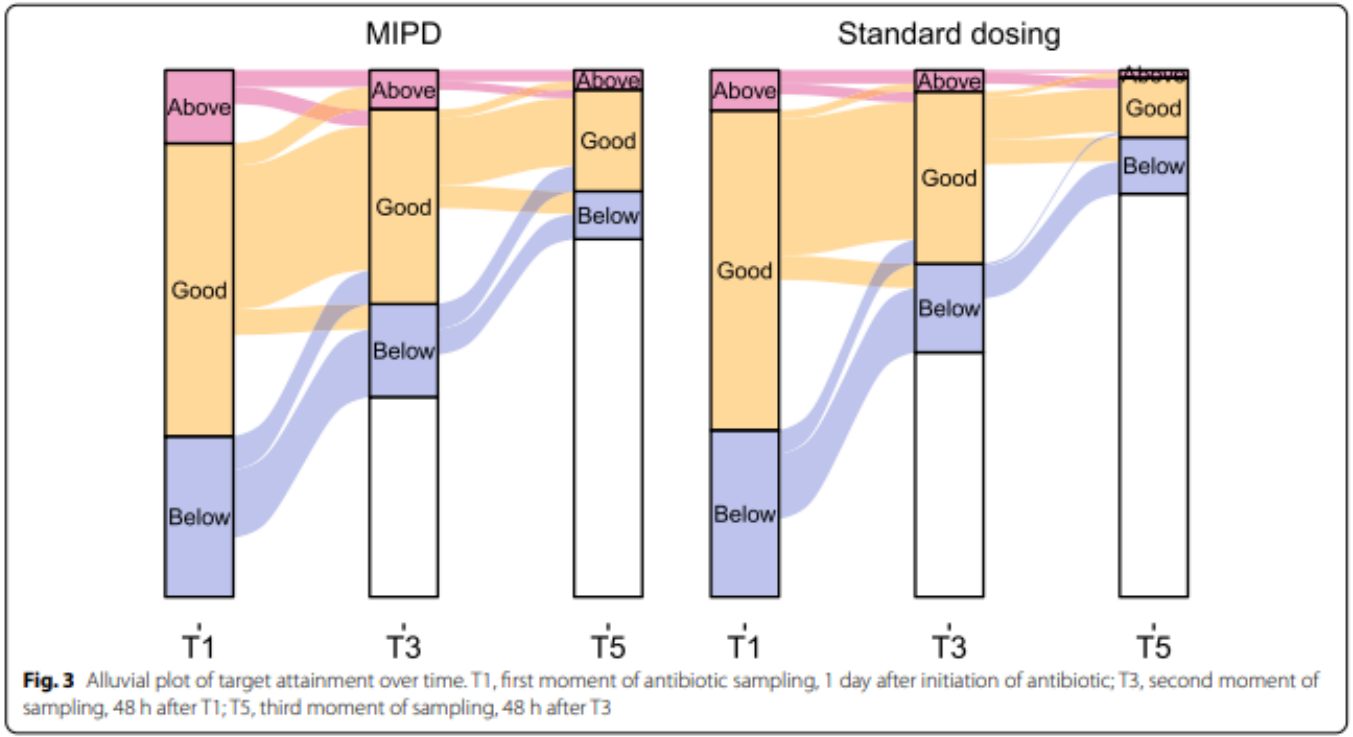


Fig. 3 Alluvial plot of target attainment over time. T1, first moment of antibiotic sampling, 1 day after initiation of antibiotic; T3, second moment of sampling, 48 h after T1; T5, third moment of sampling, 48 h after T3

Pas de différence sur le devenir

Plus de BMR ?

Pathogènes 1ère PAVM

Microorganisms	NC-ARDS (*n* = 36)	C-ARDS (*n* = 58)
Gram-negative bacilli		
Haemophilus sp	4 (11%)	0
Enterobacteriaceae	17 (47%)	42 (72%)
Enterobacter sp	4 (11%)	23 (40%)
Klebsiella pneumoniae	6 (17%)	4 (7%)
Citrobacter sp	1 (3%)	2 (4%)
Escherichia coli	4 (11%)	10 (17%)
Hafnia	0	2 (4%)
Morganella morganii	1 (3%)	0
Serratia	2 (6%)	1 (2%)
Proteus	0	4 (7%)
Extended-spectrum beta-lactamase-producing enterobacteriaceae	7 (19%)	10 (18%)
Carbapenem-resistant enterobacteriaceae	0	1 (2%)
Non-fermenting gram-negative bacilli	20 (56%)	24 (41%)
Acinetobacter sp	1 (3%)	1 (2%)
Pseudomonas sp	17 (47%)	16 (28%)
Burkholderia Cepacia	0	1 (2%)
Stenotrophomonas maltophilia	2 (6%)	3 (5%)

Razazi Crit Care 2020

Plus de BMR ?

RESEARCH Open Access

Risks of ventilator-associated pneumonia and invasive pulmonary aspergillosis in patients with viral acute respiratory distress syndrome related or not to Coronavirus 19 disease

Keyvan Razazi[1,2*], Romain Arrestier[1,2], Anne Fleur Haudebourg[1,2], Brice Benelli[1,2], Guillaume Carteaux[1,2,3], Jean-Winoc Decousser[4,5,6], Slim Fourati[5], Paul Louis Woerther[5,6], Frederic Schlemmer[3,7], Anais Charles-Nelson[8], Francoise Botterel[5,6†], Nicolas de Prost[1,2,3†] and Armand Mekontso Dessap[1,2,3]

Table 1 (continued)

Variables	NC-ARDS ($n=82$)	C-ARDS ($n=90$)	p value
Prone position	34 (42%)	75 (83%)	< 0.001
Neuromuscular blockade	53 (65%)	83 (92%)	< 0.001
Inhaled nitric oxide	10 (12%)	31 (34%)	0.01
Extra-corporeal membrane oxygenation	9 (11%)	23 (26%)	0.014
ICU-acquired infections			
First VAP	36 (44%)	58 (64%)	0.007
Number of days of mechanical ventilation before first VAP	7 [5–9]	8 [5–12]	0.89
Number of VAP during ICU	0 [0–1]	1 [0–2]	< 0.001
Recurrent VAP	10 (12%)	22 (25%)	0.36
MDR VAP during ICU stay	9 (11%)	21 (23%)	0.03
ESBL PE VAP	9 (11%)	18 (20%)	0.10
MRSA VAP	0	1 (1%)	0.99
CRE VAP	0	3 (3%)	0.095

Antibiotics use during intensive care unit stay

Antibiotics	Non COVID (n=82)	COVID (n=90)	P value
Aminopenicillins	22 (27%)	12 (13%)	0.026
amoxicillin/clavulanic acid	28 (34%)	26 (29%)	0.46
Third-generation cephalosporin	48 (59%)	77 (86%)	<0.001
Piperacillin/Tazobactam	52 (63%)	44 (49%)	0.055
Cefepime/ Ceftazidime	14 (17%)	45 (50%)	<0.001
Carbapenem	21 (26%)	48 (53%)	<0.001
Aminoglycoside	31 (38%)	51 (57%)	0.013
Vancomycin	5 (6%)	18 (20%)	0.007
Fluoroquinolones	16 (20%)	22 (24%)	0.44

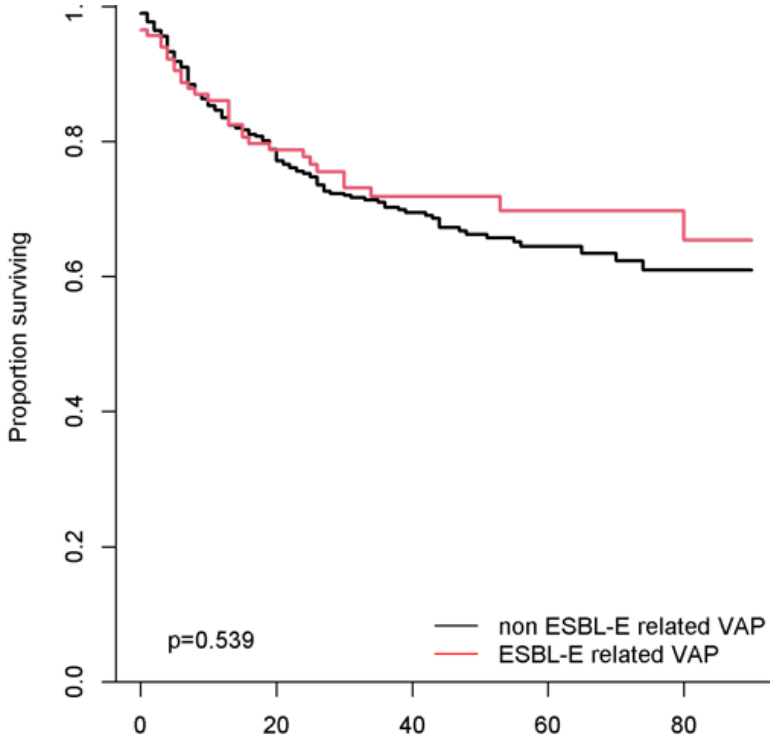
Razazi Crit Care 2020

Tableau 7 – Répartition des micro-organismes isolés et résistances bactériennes aux antibiotiques
(REA-REZO 2019-2020)

Micro-organismes	2019		2020 non-COVID		2020 COVID		2020 tous patients	
	n	%	n	%	n	%	n	%
Cocci Gram +	2392	32,7	1618	30,9	720	27,9	2507	30,1
Staphylococcus aureus	847	11,6	602	11,5	249	9,6	915	11
dont OXA-R	99	11,9	65	10,9	28	11,3	100	11,1
dont VAN-R	2	0,3	1	0,2	0	0,0	1	0,1
Enterococcus faecium	94	1,3	71	1,4	27	1	100	1,2
dont AMPI-R	79	86,8	58	84,1	21	77,8	81	82,7
dont VAN-R (ERG)	3	3,3	2	2,9	2	7,4	4	4,1
Enterococcus faecalis	219	3,0	181	3,5	144	5,6	352	4,2
dont AMPI-R	11	5,4	3	1,7	5	3,5	9	2,6
dont VAN-R (ERG)	2	1,0	0	0,0	1	0,7	1	0,3
Entérobactéries	2783	38,1	2084	39,8	1023	39,6	3286	39,5
dont C3G	713	26,4	557	27,3	312	30,8	915	28,5
dont BLSE	368	13,7	271	13,3	166	16,5	459	14,3
dont CARBA-R	37	1,4	31	1,5	15	1,5	47	1,5
Bacilles Gram – non entérobactéries	1581	21,6	1190	22,7	658	25,5	1965	23,6
Acinetobacter	124	1,7	61	1,2	30	1,2	95	1,1
dont CAZ-R	41	45,6	8	28,6	3	17,6	11	23,9
dont CARBA-R	30	33,0	3	8,8	2	11,8	5	9,6
dont COL-R	6	9,0	1	4,5	0	0,0	1	2,9
Pseudomonas aeruginosa	1022	14,0	821	15,7	479	18,5	1382	16,6
dont PTZ-R	294	29,3	243	29,9	133	28,1	394	28,8
dont CAZ-R	230	23,0	195	24,1	86	18,1	296	21,5
dont CARBA-R	193	19,3	185	22,8	97	20,5	297	21,8
dont COL-R	42	6,0	22	3,8	13	4,4	40	4,3
Champignons / parasites	361	4,9	224	4,3	122	4,7	372	4,5
Virus	20	0,3	5	0,1	16	0,6	22	0,3
Autres MO	172	2,4	92	1,8	46	1,4	144	1,7
Total	7309	100,0	5234	100	2585	100	8326	100

PAVM à entérobactérale

- 591 patients cohort COVID ICU
- 19% de PAVM à BLSE (1er épisode)
- FDR de PAVM à BLSE :
  - origine « africaine »
  - Délai depuis intubation
  - Exposition au Bactrim

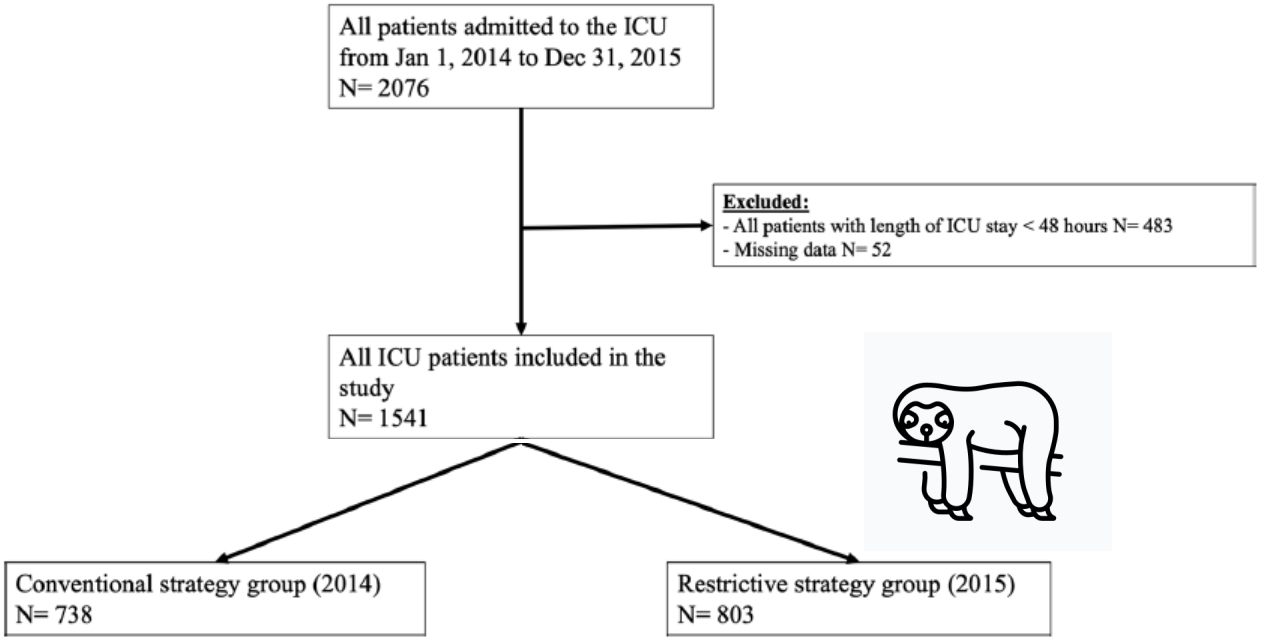


BUA et PAVM

RESEARCH Open Access

Impact of a restrictive antibiotic policy on the acquisition of extended-spectrum beta-lactamase-producing Enterobacteriaceae in an endemic region: a before-and-after, propensity-matched cohort study in a Caribbean intensive care unit

Christophe Le Terrier[1,2*†], Marco Vinetti[1,3†], Paul Bonjean[4], Régine Richard[1], Bruno Jarrige[5], Bertrand Pons[1], Benjamin Madeux[1], Pascale Piednoir[1], Fanny Ardisson[1], Elain Elie[1], Frédéric Martino[1], Marc Valette[1], Edouard Ollier[4], Sébastien Breurec[6,7,8,9], Michel Carles[1,7] and Guillaume Thiéry[10,11*]



Sepsis events and antibiotherapy characteristics	Conventional strategy period 2014 n = 738	Restrictive strategy period 2015 n = 803	*p* value
No. patients with at least one sepsis event n (%) (community or acquired)	**380 (51.5)**	**327 (40.7)**	<0.01
Catecholamines administered for sepsis	179 (24.3)	163 (20.3)	0.06
No. patients receiving antibiotics n (%)	**427 (57.9)**	**376 (46.8)**	<0.01
No. of different antibiotics (median ± IQR)	2 [1–3]	2 [1–3]	0.55
Duration of antibiotic therapy (days, median ± IQR)	6 [4–10]	5 [3–8]	<0.01
Antibiotic-free days until ICU discharge (days, median ± IQR)	0 [0–6]	2 [0–7]	0.03
Antibiotics targeting anaerobic pathogens n (%)[3]	**279 (65.3)**	**126 (33.5)**	<0.01

- **Mortalité et acquisition de BLSE diminuées dans la période restrictive**

Le Terrier Crit Care 2021

mPCR et attente

Article

Potential of Multiplex Polymerase Chain Reaction Performed on Protected Telescope Catheter Samples for Early Adaptation of Antimicrobial Therapy in ARDS Patients

Keyvan Razazi [1,2,*,†], Flora Delamaire [1,†,‡], Vincent Fihman [3,4], Mohamed Ahmed Boujelben [1,2], Nicolas Mongardon [5,6,7], Ségolène Gendreau [1,2], Quentin de Roux [5,6,7], Nicolas de Prost [1,2,8], Guillaume Carteaux [1,2,8], Paul-Louis Woerther [3,4] and Armand Mekontso Dessap [1,2,8]

- 2 réanimations
- Hôpital Henri Mondor
- 125 mPCR parmi 95 patients
  - 48 CAP/HAP
  - 77 PAVM

Table 1. Characteristics of patients.

Clinical Characteristics and Comorbidities	Patients n = 95
Age, years, median [IQR]	60 [52–71]
Male gender, n (%)	79 (80%)
SAPS II at ICU admission, median [IQR]	38 [30–50]
Charlson Comorbidity index, median [IQR]	3 [2–5]
Diabetes mellitus, n (%)	40 (40%)
Congestive heart failure (NYHA 3–4), n (%)	6 (6%)
COPD, n (%)	9 (9%)
Immunosuppression condition, n (%)	21 (22%)
Organ failures and outcome	
ARDS	95 (100%)
Extracorporeal membrane oxygenation	28 (29%)
Dialysis	42 (44%)
White blood cell count ($\times 10^9$/L)	11.4 [8.7–15.9]
C-Reactive Protein, mg/L	143 [91–216]
Procalcitonin, µg/L	1.0 [0.3–4.8]
Death in ICU	42 (44%)

SAPS, simplified acute physiologic score; ICU, intensive care unit; ARDS, acute respiratory distress syndrome.

mPCR pour se rassurer

		Suspected CAP/HAP Cases (*n*= 48)		Suspected VAP Cases (*n*= 77)	
		mPCR − (*n* = 45)	mPCR + (*n* = 3)	mPCR − (*n* = 49)	mPCR + (*n* = 28)
Antibiotic modification after mPCR		**1**	**3**	**2**	**12**
• **De-escalation**		**1**	**3**	**2**	**1**
Narrower spectrum antibiotic		0	3	1	1
Stop antibiotic		1	0	1	0
• **Escalation**			**0**		**11**
Escalation/Adaptation			0		4
Escalation usefulness			0		2
Initiation			0		5
No change after mPCR results		44	**0**	**47**	**16**
• **Continuation of antibiotic initiated after suspecting pneumonia**		15	0	20	14
• **No new antibiotic**	**Continuation of antibiotic initiated before suspecting pneumonia ***	27	0	19	2
	No antibiotic initiation	2	0	8	0

* antibiotic for a previous infectious episode.

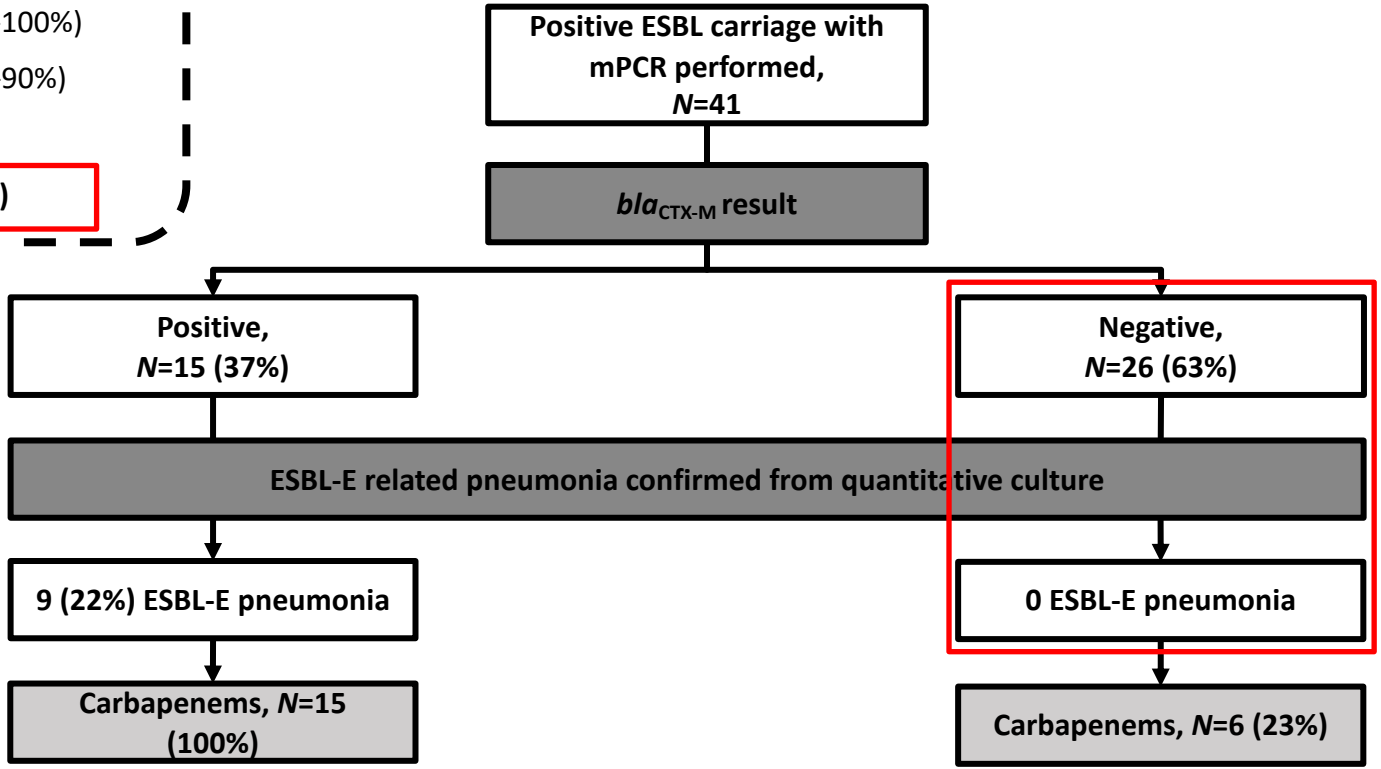
Razazi JCM 2022

mPCR dans certaines situations

Soumis

Performance CTX-M :

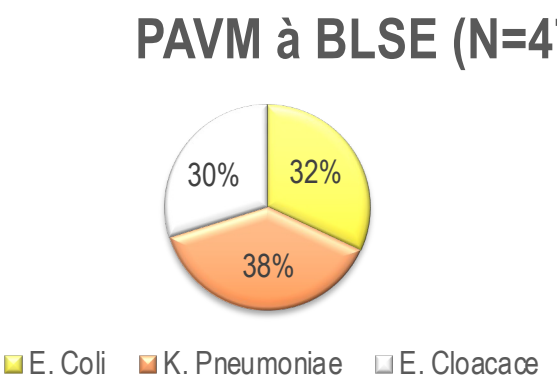
- Sensibilité 90% (55%-100%)
- Spécificité 85% (80%-90%)
- VPP 22% (11%-38%)
- **VPN 99% (97%-100%)**

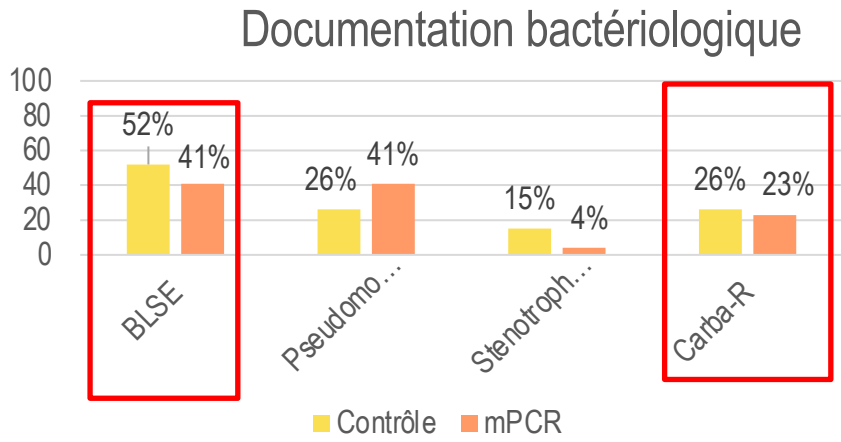


95 VAP in mechanically ventilated ESBL-E carriers

- **22 pneumonia with mPCR performed**
- **73 pneumonia without mPCR performed**

Variables	Controle n=73	mPCR n=22	p
Délai réa-PAVM	25 [10-60]	18 [12-38]	0.3
SOFA	6 [4-9]	10 [7-11]	0.007
PaO_2/FiO_2	151 [83-240]	91 [62-185]	0.1
ECMO	23 (31)	5 (23)	0.4
Etat de choc	30 (41)	15 (68)	0.03
ATB ≤ 72h	45 (62)	12 (54)	0.6



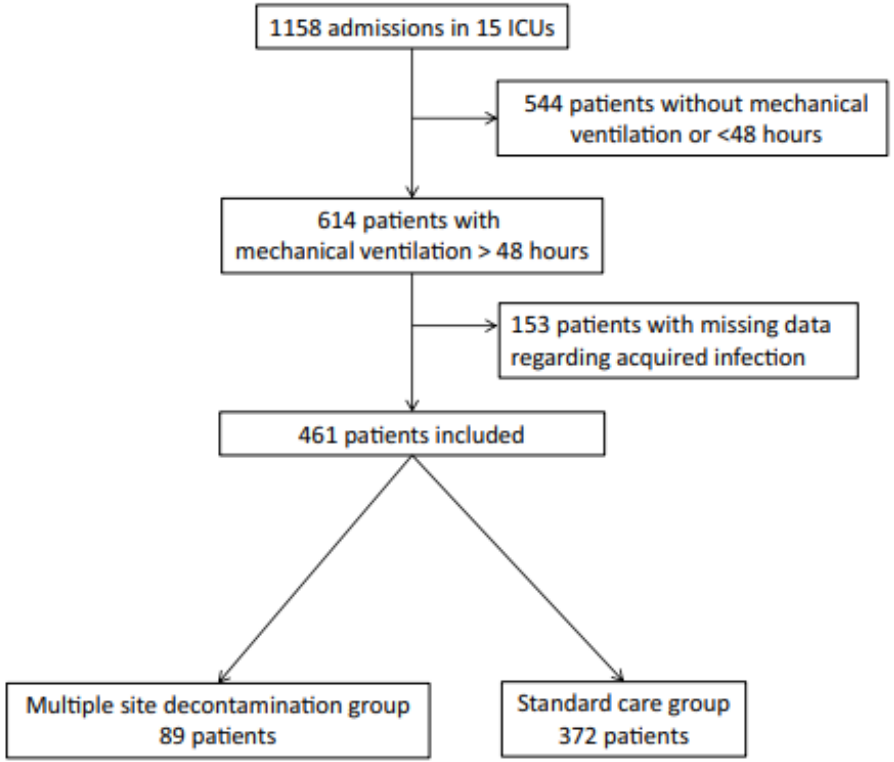


Facteurs associés à une antibiothérapie probabiliste adaptée

- Groupe contrôle *N*=31/73 (42%) vs. groupe mPCR *N*=19/22 (86%), p<0,001

Variable	Crude* *N* = 95		Multivariable analysis† *N* = 95		Propensity-weighted cohort‡ *N* = 95		Matching-cohort *N* = 44	
	OR [95% CI]	p value	ORa [95% CI]	p value	ORa [95% CI]	p value		
mPCR performed								
No	1		1		1			
Yes	**8.6 [2.6-38.9]**	**0.001**	**7.5 [2.1-35.9]**	**0.004**	**5.9 [1.6-22.1]**	**0.008**	**5.8 [1.5-22.1]**	**0.01**
Circulatory failure[1]								
No	1		1					
Yes	3.6 [1.6-8.7]	0.003	3.1 [1.2-8.2]	0.02				
PaO_2/FiO_2 < 150 mmHg								
No	1		1					
Yes	2.5 [1.1-5.7]	0.03	2.2 [0.9-5.9]	0.1				
Carbapenem received within 72h prior to sample								
No	1		1					
Yes	1.4 [0.5-3.9]	0.6	2.0 [0.6-6.7]	0.2				

Décontamination digestive



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Annals of Intensive Care

RESEARCH Open Access

Multiple-site decontamination regimen decreases acquired infection incidence in mechanically ventilated COVID-19 patients

Nicolas Massart[1*†], Florian Reizine[2,3†], Pierre Fillatre[1], Philippe Seguin[4], Béatrice La Combe[5], Aurélien Frerou[6], Pierre-Yves Egreteau[7], Baptiste Hourmant[8], Pierre Kergoat[9], Julien Lorber[10], Jerome Souchard[3,2], Emmanuel Canet[11], Guillaume Rieul[3], Yannick Fedun[3], Agathe Delbove[3†] and Christophe Camus[2†]

- ATB oral et gastrique
- Toilette CHX
- Mupirocine nasal

- VAP et Bactériémie divisées par 2

JAMA | Original Investigation

Association Between Selective Decontamination of the Digestive Tract and In-Hospital Mortality in Intensive Care Unit Patients Receiving Mechanical Ventilation

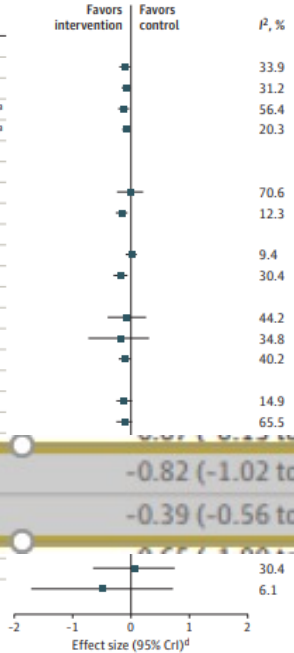
A Systematic Review and Meta-analysis

Naomi E. Hammond, RN, PhD; John Myburgh, MD, PhD; Ian Seppelt, MD; Tessa Garside, MBBS, PhD; Ruan Vlok, MBBS; Sajeev Mahendran, MD; Derick Adigbli, MD, PhD; Simon Finfer, MD; Ya Gao, MM; Fiona Goodman, BN; Gordon Guyatt, MD, PhD; Joseph Alvin Santos, PhD; Balasubramanian Venkatesh, MD; Liang Yao, MM; Gian Luca Di Tanna, PhD; Anthony Delaney, MBBS, PhD

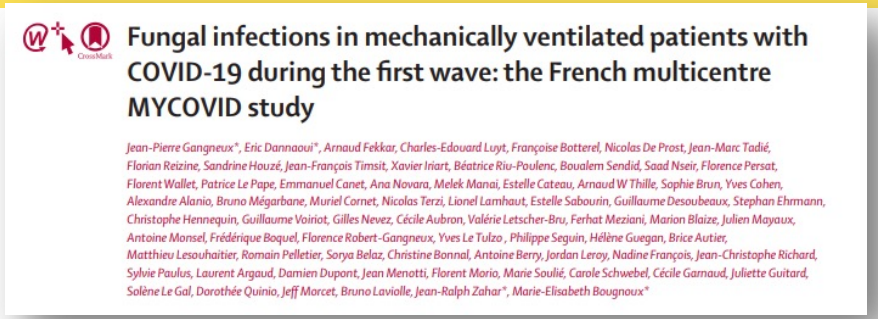
Figure 4. Primary Outcome, Secondary Outcomes, and Subgroup Analyses for the Comparison of Selective Decontamination of the Digestive Tract (SDD) vs Standard Care

A Binary outcomes

Outcomes	Trials	Participants	Effect size (95% CrI)
Primary outcome: hospital mortality			
Vague priors	30	24034	-0.09 (-0.20 to -0.01)
Semi-informative priors	30	24034	-0.08 (-0.16 to -0.01)
Hartung-Knapp-Sidik-Jonkman	30	24034	-0.13 (-0.22 to -0.03)[a]
DerSimonian-Laird	30	24034	-0.08 (-0.15 to -0.02)[a]
Subgroup analysis for the primary outcome			
Study type			
Cluster crossover	3	18335	0.00 (-0.24 to 0.21)
Individual patient randomized	27	5699	-0.16 (-0.26 to -0.06)
Study intervention[b]			
SDD with no IV agent	14	11037	0.01 (-0.09 to 0.10)
SDD with IV agent	17	12997	-0.17 (-0.30 to -0.06)
Study population[c]			
Surgical ICU	5	1544	-0.08 (-0.40 to 0.26)
Trauma ICU	4	717	-0.17 (-0.73 to 0.31)
Mixed population ICU	21	21773	-0.09 (-0.21 to 0.00)
Publication year			
1987 to 1999	19	3115	-0.12 (-0.25 to 0.02)
2000 to 2022	11	20919	-0.09 (-0.25 to 0.02)
Incidence of ventilator-associated pneumonia	22	3619	-0.82 (-1.02 to -0.62)
Incidence of ICU-acquired bacteremia	21	22076	-0.39 (-0.56 to -0.21)
Positive methicillin-resistant *Staphylococcus aureus* culture	5	13240	0.06 (-0.65 to 0.75)
Positive vancomycin-resistant enterococcus culture	3	13287	-0.48 (-1.71 to 0.72)



C’est pas toujours les ATB le traitement



Fungal infections in mechanically ventilated patients with COVID-19 during the first wave: the French multicentre MYCOVID study

Jean-Pierre Gangneux*, Eric Dannaoui*, Arnaud Fekkar, Charles-Edouard Luyt, Françoise Botterel, Nicolas De Prost, Jean-Marc Tadié, Florian Reizine, Sandrine Houzé, Jean-François Timsit, Xavier Iriart, Béatrice Riu-Poulenc, Boualem Sendid, Saad Nseir, Florence Persat, Florent Wallet, Patrice Le Pape, Emmanuel Canet, Ana Novara, Melek Manai, Estelle Cateau, Arnaud W Thille, Sophie Brun, Yves Cohen, Alexandre Alanio, Bruno Mégarbane, Muriel Cornet, Nicolas Terzi, Lionel Lamhaut, Estelle Sabourin, Guillaume Desoubeaux, Stephan Ehrmann, Christophe Hennequin, Guillaume Voiriot, Gilles Nevez, Cécile Aubron, Valérie Letscher-Bru, Ferhat Meziani, Marion Blaize, Julien Mayaux, Antoine Monsel, Frédérique Boquel, Florence Robert-Gangneux, Yves Le Tulzo , Philippe Seguin, Hélène Guegan, Brice Autier, Matthieu Lesouhaitier, Romain Pelletier, Sorya Belaz, Christine Bonnal, Antoine Berry, Jordan Leroy, Nadine François, Jean-Christophe Richard, Sylvie Paufus, Laurent Argaud, Damien Dupont, Jean Menotti, Florent Morio, Marie Soulié, Carole Schwebel, Cécile Garnaud, Juliette Guitard, Solène Le Gal, Dorothée Quinio, Jeff Morcet, Bruno Laviolle, Jean-Ralph Zahar*, Marie-Elisabeth Bougnoux*

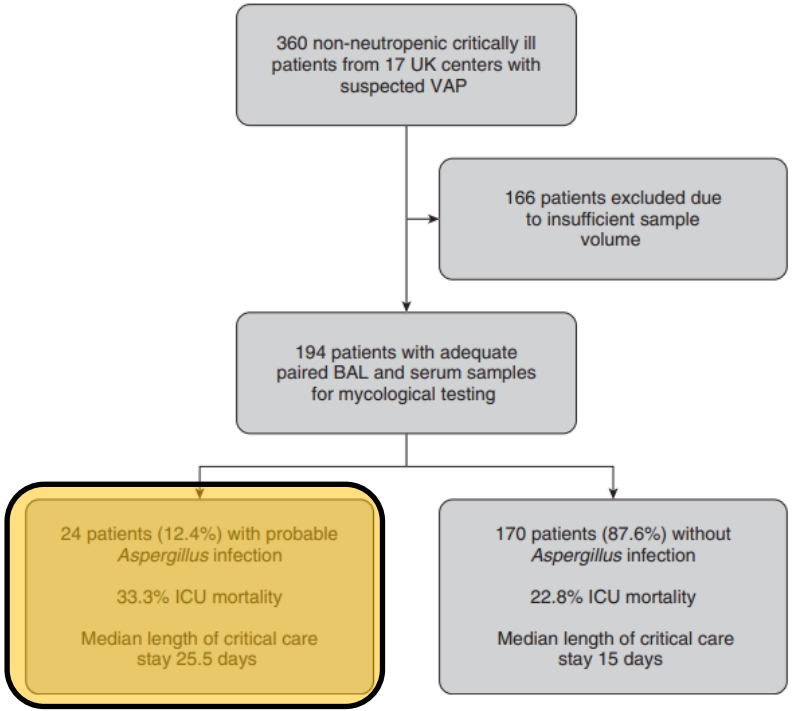
- 18 réanimations en France
- SDRA ventilés
- 1-2 prélèvements par semaine (6 en moyenne)
- CAPA probable/possible 15%
- Délai / admission 11,5 jours (IC11,5)

ORIGINAL ARTICLE

Pulmonary Aspergillosis in Patients with Suspected Ventilator-associated Pneumonia in UK ICUs

Laura Loughlin[1], Thomas P. Hellyer[2], P. Lewis White[3], Danny F. McAuley[1], Andrew Conway Morris[4], Raquel B. Posso[3], Malcolm D. Richardson[5], David W. Denning[6], A. John Simpson[2*], and Ronan McMullan[1*]

On ne trouve que ce qu'on cherche!!!!



Conclusions

- Peu de co-infections ⇨ diminuer antibiothérapie à l'admission
- Beaucoup de PAVM
- Intérêt de décontamination digestive ?
- Place ciblée des nouveaux outils
- Rechercher surinfection fongique + rapidement

La connaissance s'acquiert par l'expérience, tout le reste n'est que de l'information *A. Einstein*