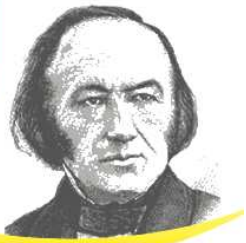
JEUDI 15 NOVEMBRE 2018
UFR Médecine Paris 7 Diderot,
site Xavier-Bichat - Paris 18ème

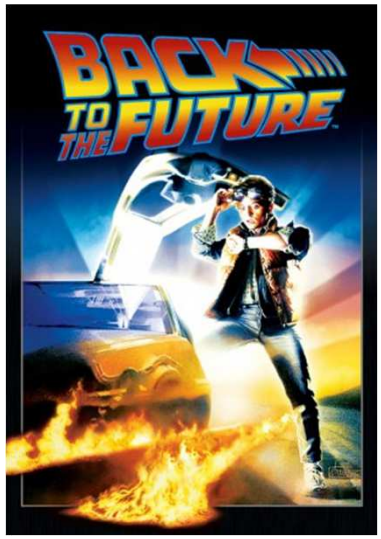
61ème journée de l'hôpital Claude-Bernard



Pneumonies communautaires : jusqu'où peut-on réduire la durée du traitement ?

Aurélien DINH

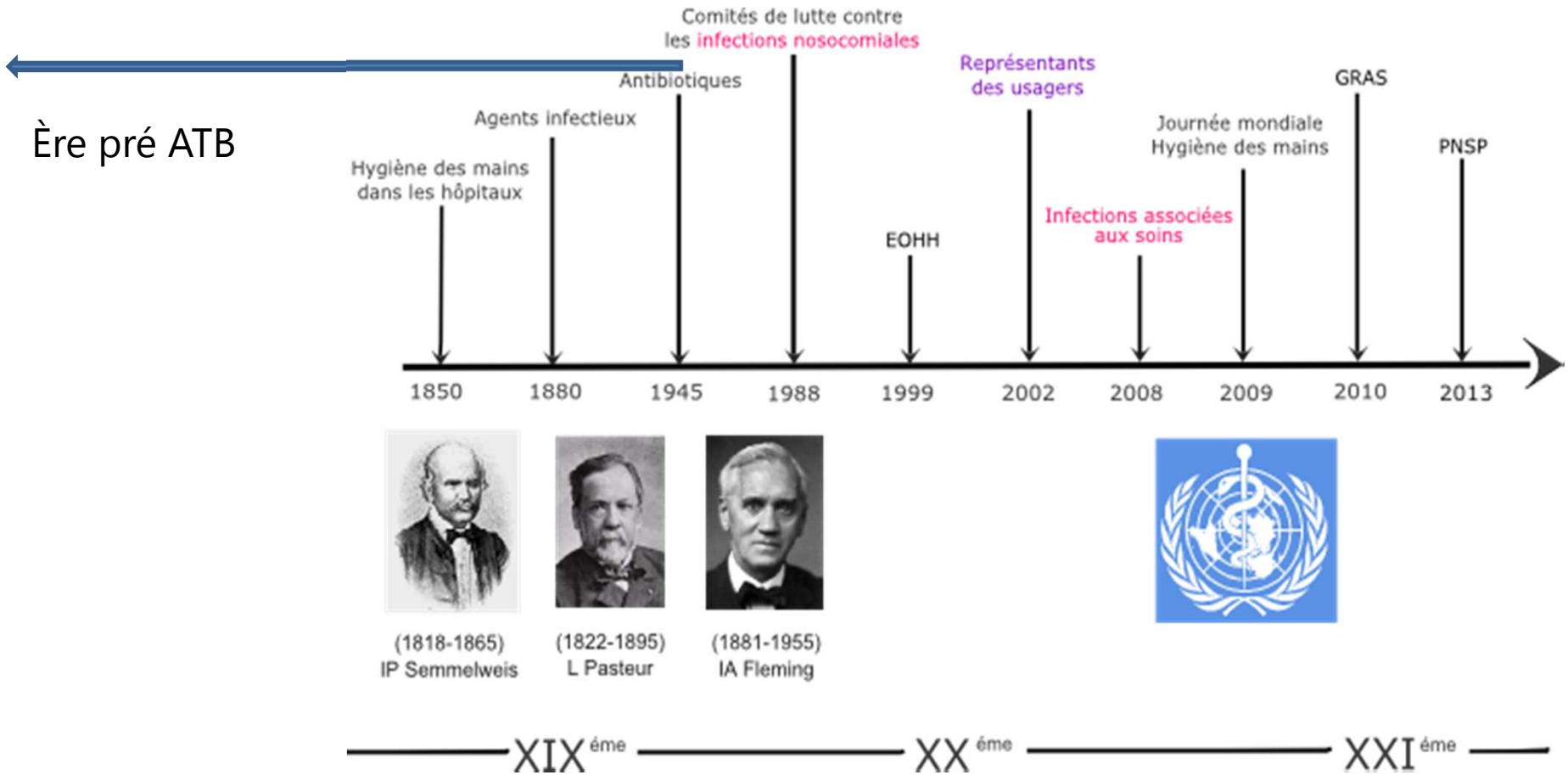
Maladies infectieuses, Hôpital Raymond Poincaré, Garches, APHP

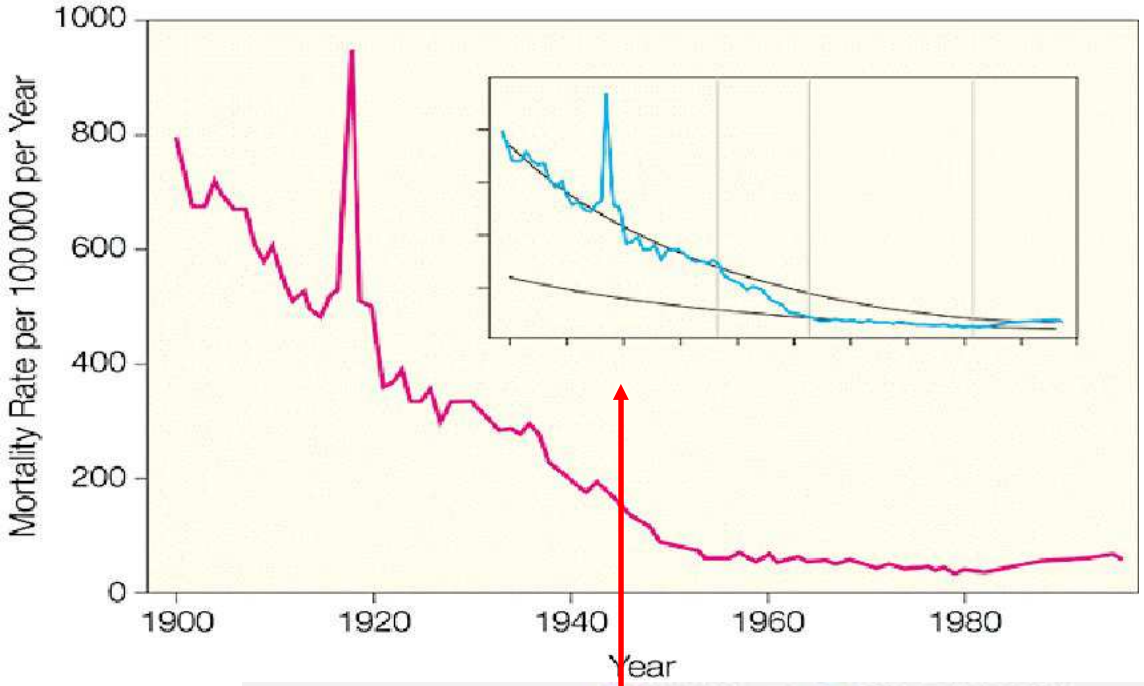


On pourrait ne pas donner d’ATB

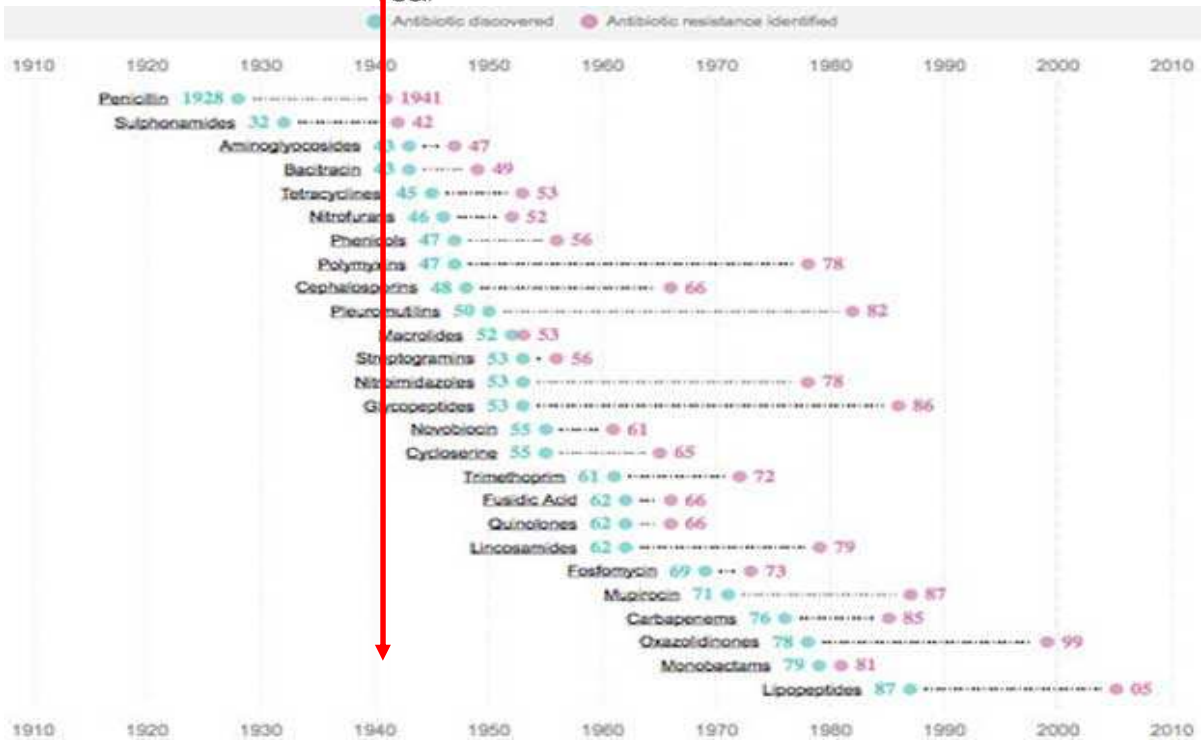
Are you joking ?

- Pas d'ATB avant 1941





Taux de mortalité par maladies infectieuses aux EU



« Avant » On donnait très peu d’ATB

No kidding ?

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 122, No. 18 — CHICAGO, ILLINOIS — AUGUST 28, 1943

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PENICILLIN IN THE TREATMENT OF INFECTIONS

A REPORT OF 500 CASES

STATEMENT BY THE COMMITTEE ON CHEMOTHERAPEUTIC AND OTHER AGENTS, DIVISION OF MEDICAL SCIENCES, NATIONAL RESEARCH COUNCIL

CHESTER S. KEEFER, M.D., BOSTON, CHAIRMAN; FRANCIS G. BLAKE, M.D., NEW HAVEN, CONN.; E. KENNERLY MARSHALL JR., M.D., BALTIMORE; JOHN S. LOCKWOOD, M.D., PHILADELPHIA, AND W. BARRY WOOD JR., M.D., ST. LOUIS.

patients with pneumococcal pneumonia, stated, "It is plain from the reported cases that...many patients have recovered on less than 100,000 units given over a period of two to three days." Dawson and Hobby [23], in their 1944 report on treating

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 124, No. 10 — CHICAGO, ILLINOIS — MARCH 4, 1944

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THE CLINICAL USE OF PENICILLIN

OBSERVATIONS IN ONE HUNDRED CASES

MARTIN HENRY DAWSON, M.D.
AND
GLADYS L. HOBBY, PH.D.
NEW YORK

"In general, the results were satisfactory with doses of 10,000 units every four hours for one and a half to two days."

Keefer CS *et al.* JAMA 1943
Dawson MH & Hobby GL JAMA 1944

Thorax (1970), 25, 241.

One-day treatment for lobar pneumonia

D. R. SUTTON, A. C. B. WICKS, and LINDSAY DAVIDSON

Department of Medicine, University College of Rhodesia

An investigation was undertaken to discover whether a single intramuscular dose of long-acting (or mixed long-acting and crystalline) penicillin or a single day's therapy with oral penicillin was satisfactory treatment for lobar pneumonia. These treatments were compared with standard hospital oral and injection therapies. All the experimental treatment regimes were found to be satisfactory. They provide justification for treating lobar pneumonia on an out-patient basis in order to save hospital admissions.

TABLE III

RESULTS OF TREATMENT

	Treatment Group							
	A	B	C	D	E	F	G	Total
No. of patients	20	28	20	23	19	19	21	150
Radiological and clinical resolution	19	27	18	20	18	18	19	139
Failures (see text)	1	1	2	3	1	1	2	11
Complications								
Effusions	0	0	0	1	1	0	1	3
Pleural thickening	1	1	0	0	0	0	0	2
Deaths	0	0	1	0	0	0	0	1
Days for temperature to return to normal and remain normal (mean ±S.D.)	3·1 ± 1·6	2·6 ± 0·9	3·4 ± 1·7	3·2 ± 1·3	2·6 ± 1·6	2·9 ± 1·7	2·6 ± 1·6	

apart from residual sputum production. Three [illegible] penicillin as a mixture of [illegible]

Merci à Patrick Petitpretz

On ne recommande pas beaucoup d’ATB

Recommandations

IDSA/ATS guidelines (Mandell *et al.* CID 2007)

Patients with CAP should be treated for a minimum of **5 days**. The recommended duration for patients with **good clinical response** within the first 2-3 d of therapy is 5 to 7 days total

NICE recommendations (2014)

5 day course of antibiotic therapy for patients with low severity CAP;
Consider a **7-10** day course of antibiotic therapy for patients with moderate **and high severity** CAP.

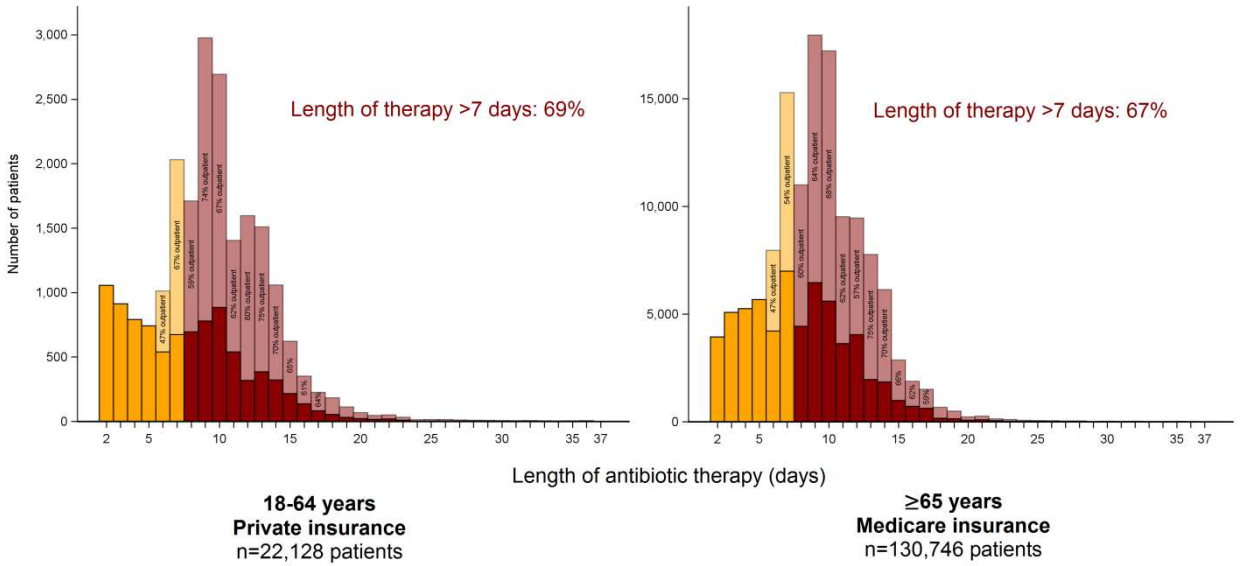
En fait on donne bcp d’ATB

Sur le terrain

Duration of Antibiotic Use Among Adults With Uncomplicated Community-Acquired Pneumonia Requiring Hospitalization in the United States

Sarah H. Yi, Kelly M. Hatfield, James Baggs, Lauri A. Hicks, Arjun Srinivasan, Sujan Reddy, and John A. Jernigan

- Etude rétrospective
- Base de donnée informatique hospitalière (2012-2013)
- PAC simple
- 22 128 patients (2100 hopitaux)
- Durée moyenne 9,5j 70%>7j



Yi *et al*. CID 2017

Are infection specialists recommending short antibiotic treatment durations? An ESCMID international cross-sectional survey

Gabriel Macheda[1], Oliver J. Dyar[2], Amandine Luc[3], Bojana Beovic[4,5], Guillaume Béraud[6–8], Bernard Castan[9], Rémy Gauzit[10], Philippe Lesprit[11], Pierre Tattevin[12], Nathalie Thilly[3,13] and Céline Pulcini[1,13]* on behalf of ESGAP and SPILF

- Enquête internationale
- Interrogatoire (15 situations cliniques)
- 866 participants (experts : infectiologues, EMA, microbiologistes)
- En France 46% ont recommandé une durée courte

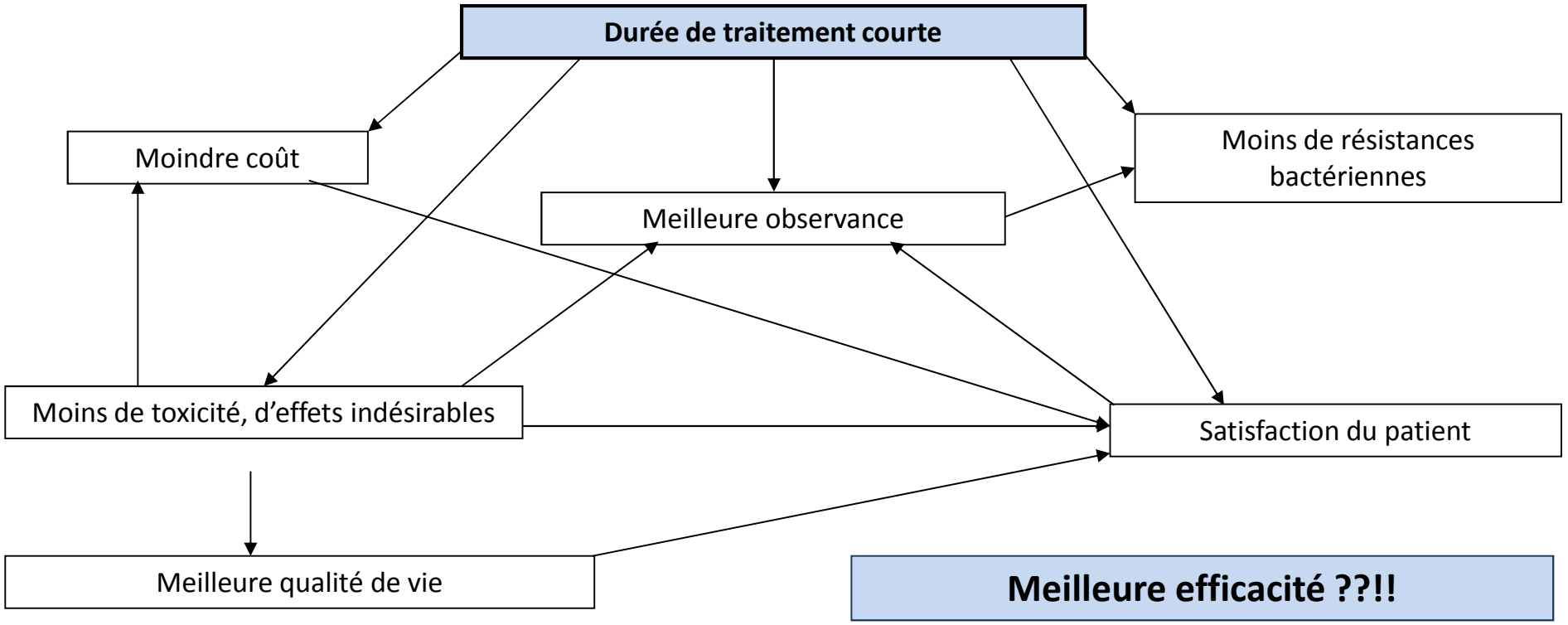
JAC 2018

« We know everything about antibiotics except how much to give »

Maxwell Finland

Et pourtant !

Intérêt d'une durée courte pour une même efficacité !!



D'après Li JZ. Am Med J 2007

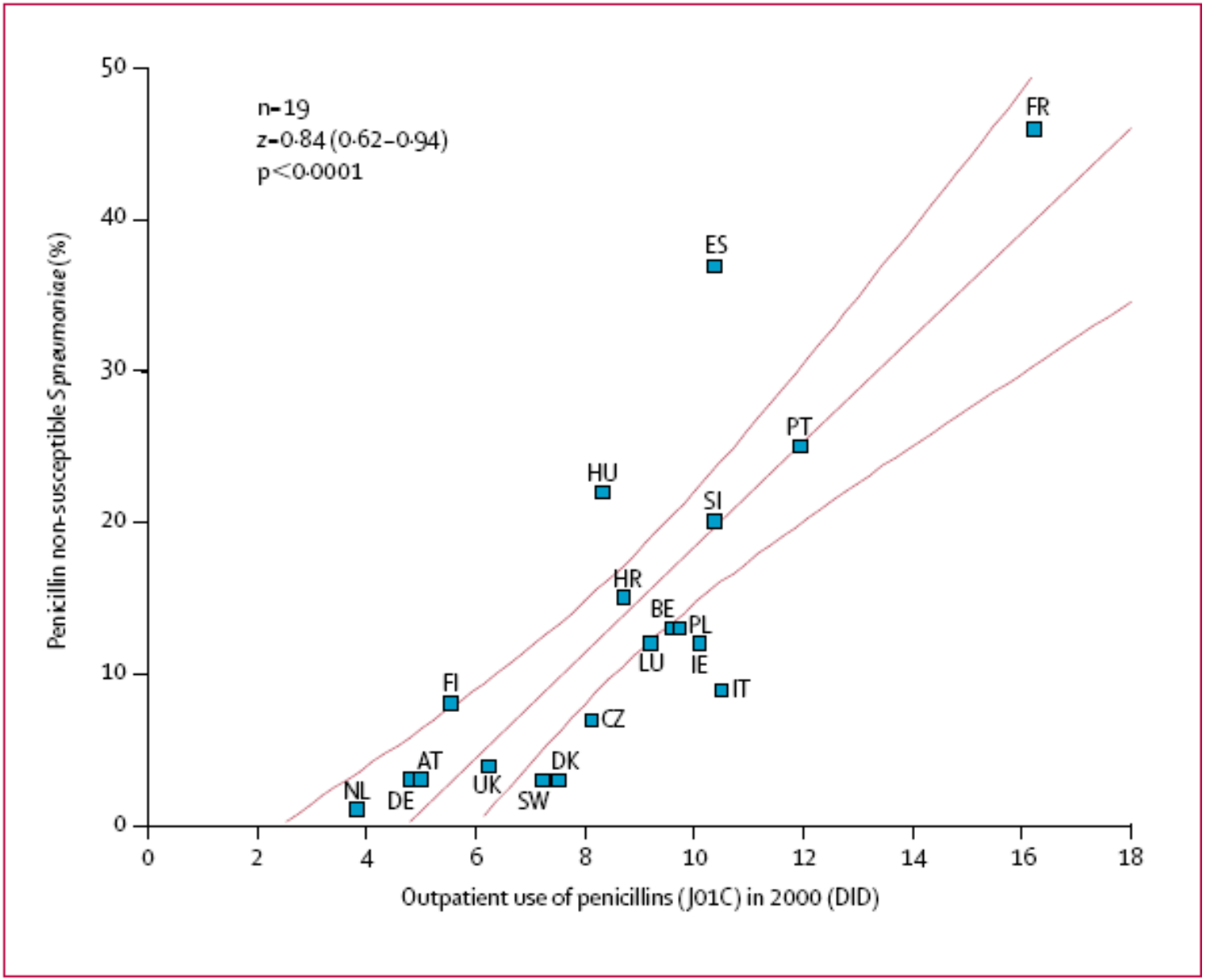


Figure 6: **Correlation between penicillin use and prevalence of penicillin non-susceptible *S pneumoniae***
AT, Austria; BE, Belgium; HR, Croatia; CZ, Czech Republic; DK, Denmark; FI, Finland; FR, France; DE, Germany; HU, Hungary; IE, Ireland; IT, Italy; LU, Luxembourg; NL, The Netherlands; PL, Poland; PT, Portugal; SI, Slovenia; ES, Spain; UK, England only.

H. Goosens
Lancet 2005

FDR de portage de pneumocoque péni R

	OR	95% CI	p
Oral β-lactam during the preceeding 30 d	3.0	1.1-8.3	0.03
Low dosage (below recommendation)	5.9	2.1-16.7	0.002
Drug duration (>5 d)	3.5	1.3-9.8	0.02

Guillemot D, JAMA 1998

Comparison of 8 vs 15 Days of Antibiotic Therapy for Ventilator-Associated Pneumonia in Adults

A Randomized Trial

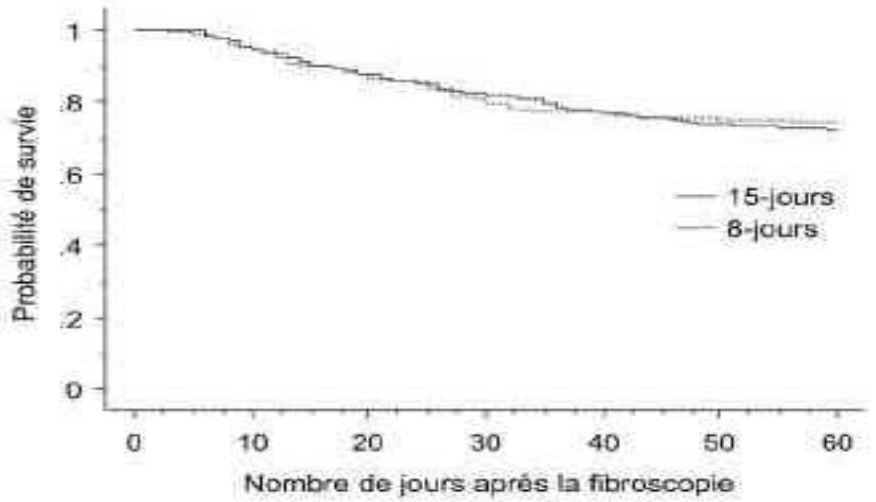


Fig. 2. Probabilité de survie (courbes de Kaplan-Meier) en fonction de la durée de traitement antibiotique (8 vs 15 jours) d'une pneumonie acquise sous ventilation mécanique [16].

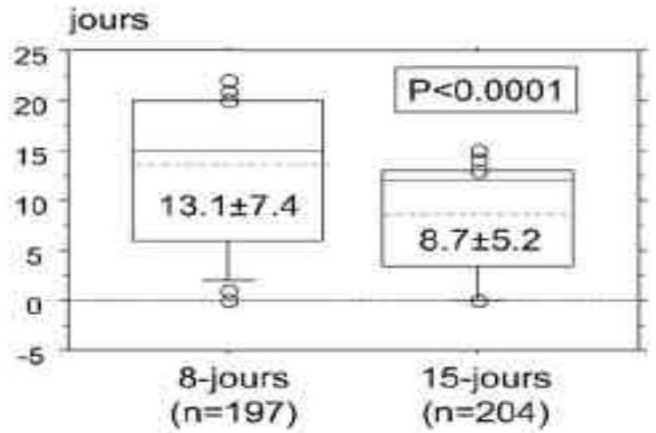
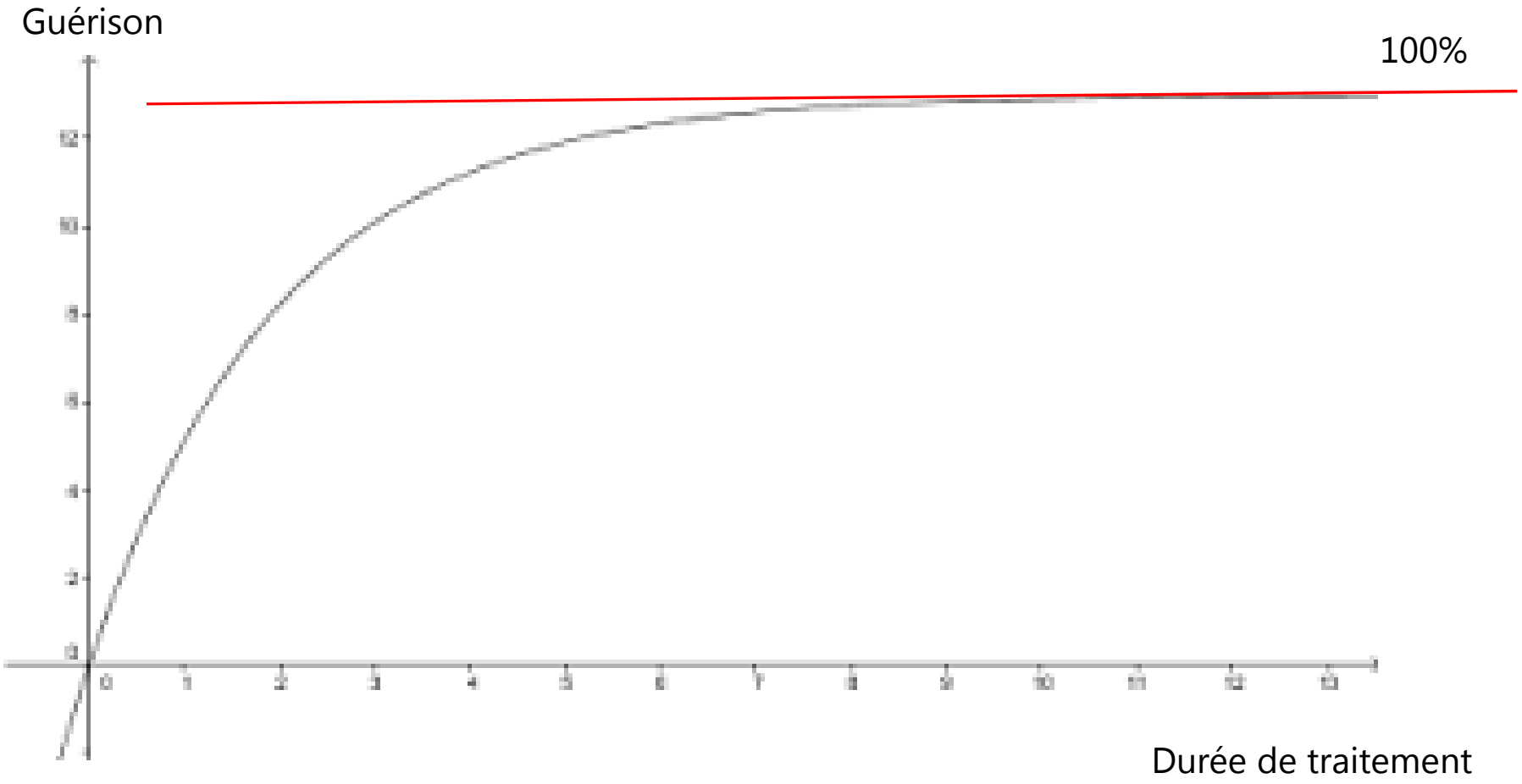


Fig. 3. Nombre de jours vivant sans antibiotique en fonction de la durée de traitement antibiotique d'une pneumonie acquise sous ventilation mécanique (d'après [16]).

Notably, among patients who developed recurrent pulmonary infections, multiresistant pathogens emerged significantly less frequently in those who had received 8 days of antibiotics (42.1% vs 62.3% of recurrent infections; *P*=.04).

J. Chastre *et al.* JAMA 2003

Efficacité ?



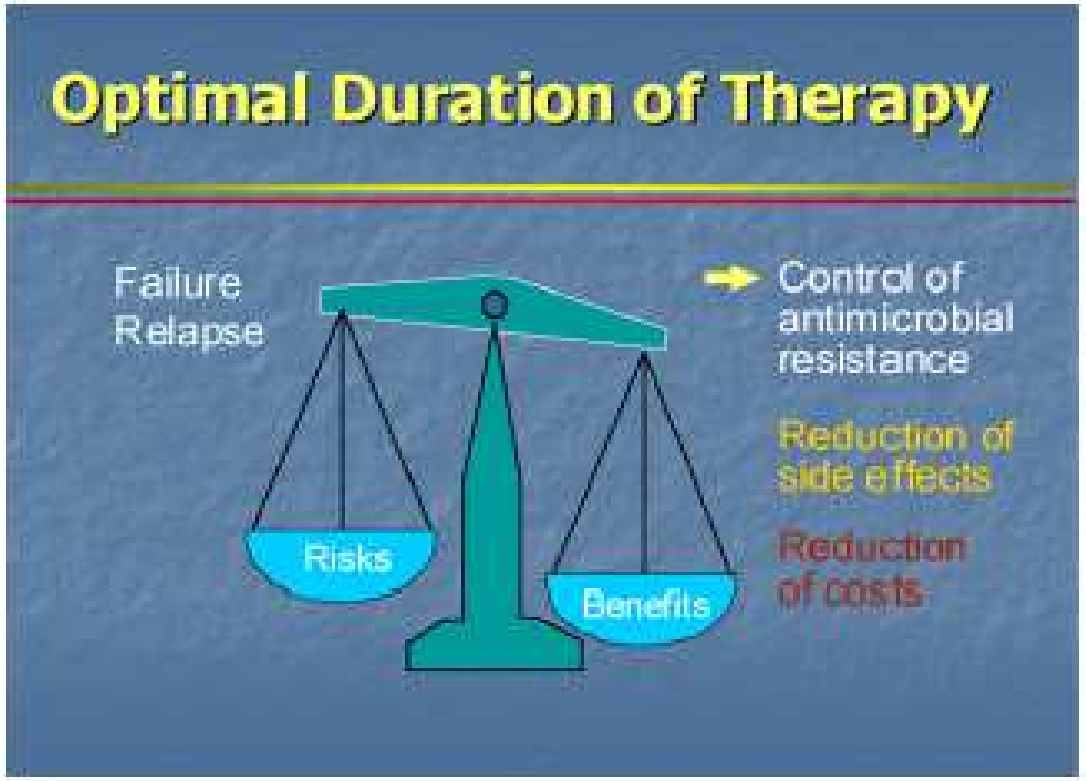
Guérir toujours certainement tous nos patients

Questionnements

- Que s'autorise-t-on ?
- Qu'est ce qui est acceptable ?
- Quelle mortalité/morbidité ?
- De différence par rapport à un traitement de référence ?

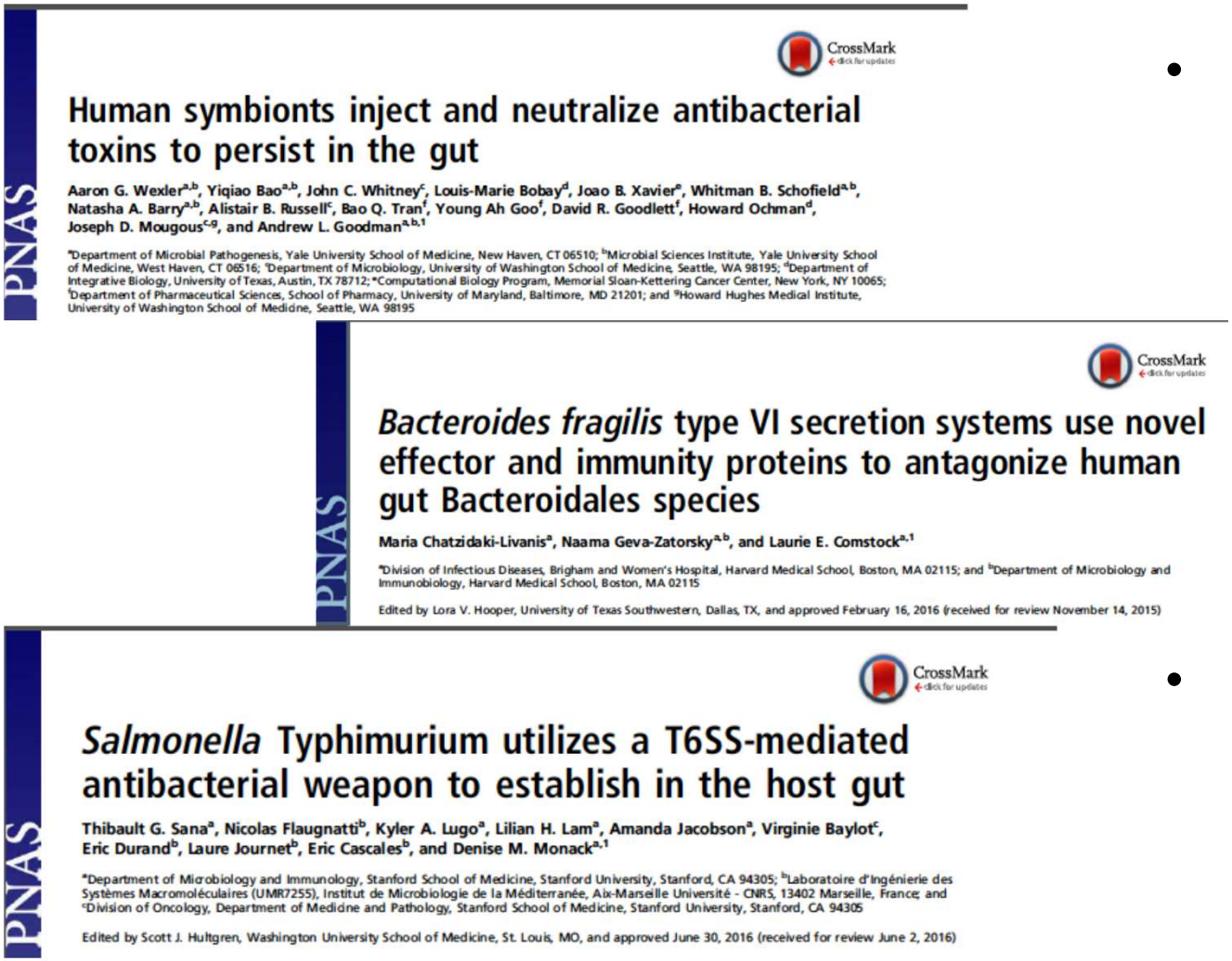
Intérêt individuel/collectif

- Intolérance et EIG = échec et….émergence de résistances
- Balance bénéfice/risque



Rubinstein E. Int J Antimicrob Agents. 2007 Nov;30 Suppl 1:S76-9

Microbiote barrière et risque infectieux



PNAS

CrossMark

Human symbionts inject and neutralize antibacterial toxins to persist in the gut

Aaron G. Wexler[a,b], Yiqiao Bao[a,b], John C. Whitney[c], Louis-Marie Bobay[d], Joao B. Xavier[e], Whitman B. Schofield[a,b], Natasha A. Barry[a,b], Alistair B. Russell[c], Bao Q. Tran[f], Young Ah Goo[f], David R. Goodlett[f], Howard Ochman[d], Joseph D. Mougous[c,g], and Andrew L. Goodman[a,b,1]

[a]Department of Microbial Pathogenesis, Yale University School of Medicine, New Haven, CT 06510; [b]Microbial Sciences Institute, Yale University School of Medicine, West Haven, CT 06516; [d]Department of Microbiology, University of Washington School of Medicine, Seattle, WA 98195; [d]Department of Integrative Biology, University of Texas, Austin, TX 78712; [e]Computational Biology Program, Memorial Sloan-Kettering Cancer Center, New York, NY 10065; [f]Department of Pharmaceutical Sciences, School of Pharmacy, University of Maryland, Baltimore, MD 21201; and [g]Howard Hughes Medical Institute, University of Washington School of Medicine, Seattle, WA 98195

PNAS

CrossMark

***Bacteroides fragilis* type VI secretion systems use novel effector and immunity proteins to antagonize human gut Bacteroidales species**

Maria Chatzidaki-Livanis[a], Naama Geva-Zatorsky[a,b], and Laurie E. Comstock[a,1]

[a]Division of Infectious Diseases, Brigham and Women's Hospital, Harvard Medical School, Boston, MA 02115; and [b]Department of Microbiology and Immunobiology, Harvard Medical School, Boston, MA 02115

Edited by Lora V. Hooper, University of Texas Southwestern, Dallas, TX, and approved February 16, 2016 (received for review November 14, 2015)

PNAS

CrossMark

***Salmonella* Typhimurium utilizes a T6SS-mediated antibacterial weapon to establish in the host gut**

Thibault G. Sana[a], Nicolas Flaugnatti[b], Kyler A. Lugo[a], Lilian H. Lam[a], Amanda Jacobson[a], Virginie Baylot[c], Eric Durand[b], Laure Journet[b], Eric Cascales[b], and Denise M. Monack[a,1]

[a]Department of Microbiology and Immunology, Stanford School of Medicine, Stanford University, Stanford, CA 94305; [b]Laboratoire d'Ingénierie des Systèmes Macromoléculaires (UMR7255), Institut de Microbiologie de la Méditerranée, Aix-Marseille Université - CNRS, 13402 Marseille, France; and [c]Division of Oncology, Department of Medicine and Pathology, Stanford School of Medicine, Stanford University, Stanford, CA 94305

Edited by Scott J. Hultgren, Washington University School of Medicine, St. Louis, MO, and approved June 30, 2016 (received for review June 2, 2016)

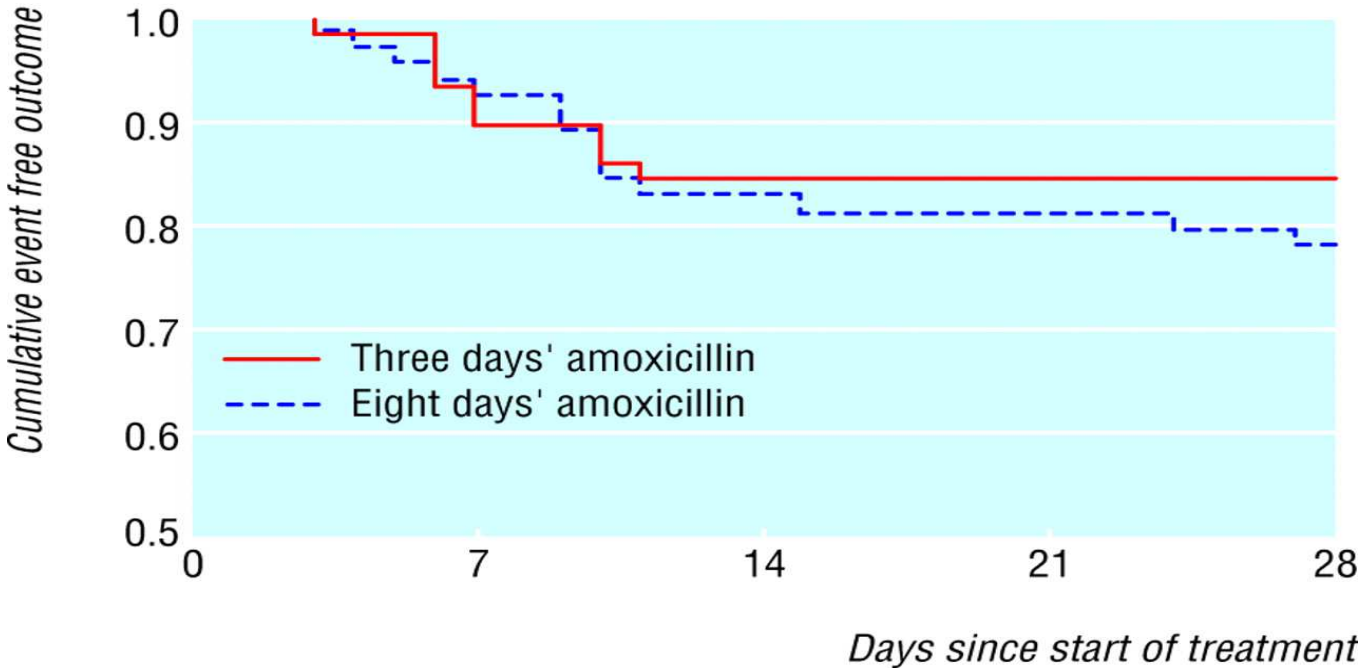
- Effet barrière vis-à-vis des bactéries exogènes "résistance à la colonisation"
  - élimination totale de la souche exogène
  - maintien de la souche exogène en sous-dominance
- La flore digestive stimule l'immunité locale et générale

Research

BMJ

Effectiveness of discontinuing antibiotic treatment after three days versus eight days in mild to moderate-severe community acquired pneumonia: randomised, double blind study

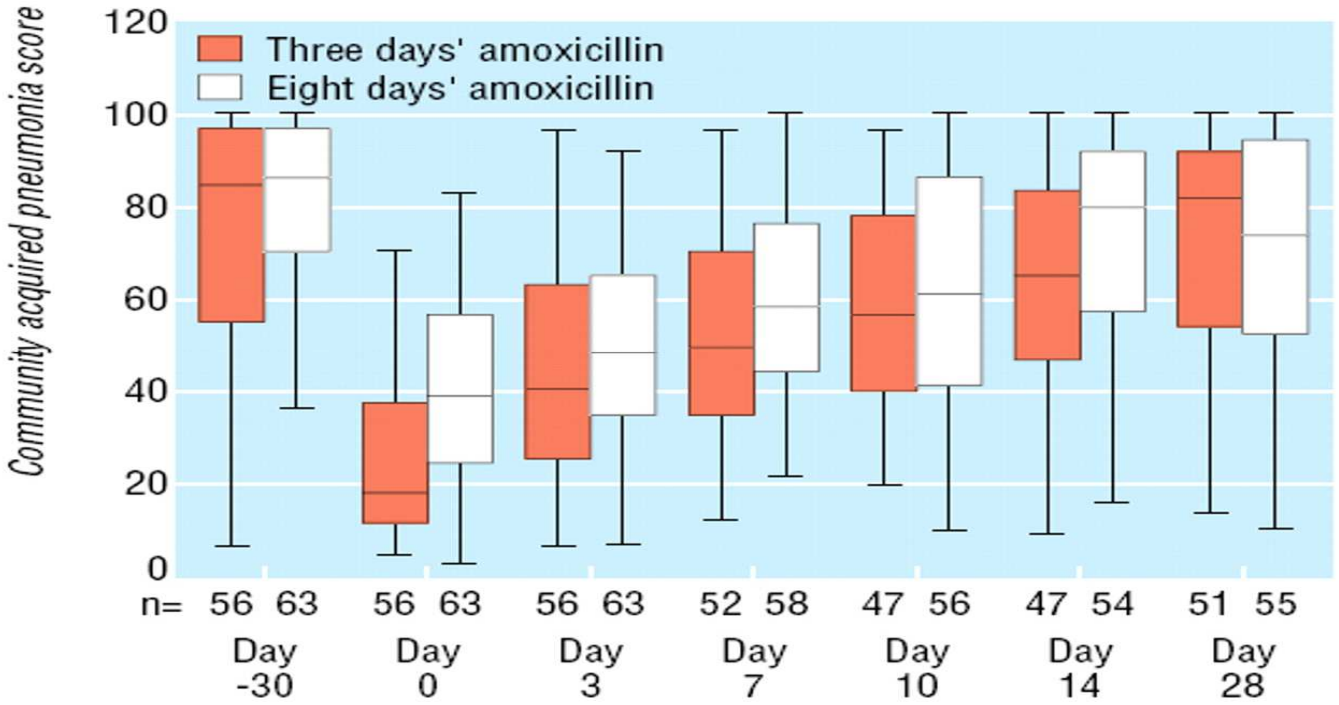
Rachida el Moussaoui, Corianne A J M de Borgie, Peterhans van den Broek, Willem N Hustinx, Paul Bresser, Guido E L van den Berk, Jan-Werner Poley, Bob van den Berg, Frans H Krouwels, Marc J M Bonten, Carla Weenink, Patrick M M Bossuyt, Peter Speelman, Brent C Opmeer, Jan M Prins



El Moussaoui et al. BMJ 2006

Principe

- Diminuer l'inoculum jusqu'au niveau où l'immunité peut contrôler l'infection (*vs.* « stériliser »)



RCT
PAC non sévère
3 vs 8j de peni A

BMJ

R. El Moussaoui, BMJ 2006

Il faut faire des études

28th ECCMID Madrid, Spain 21 – 24 April 2018

Effectiveness of three days of beta-lactam antibiotics for hospitalized community-acquired pneumonia: a randomized non-inferiority double-blind trial

A.Dinh[1], J. Ropers[1] B. Davido[1], C. Duran[1], L. Deconinck[1], M. Matt[1], O. Senard[1], A. Lagrange[2], V. De Lastours[3], F. Bouchand[4], V. Delcey[5], D. Benhamou[6], V. Vitrat[7], P. Rouselot, M.-C. Dombret[8], B. Renaud[9], Y.-E. Claessens[10], J. Labarère[11], J.-P. Bedos[12], Ph Aegerter[13], A.-C. Crémieux[14], The PTC Study group

Données disponibles avril 2018

Analyses toujours en cours

Toutes les analyses n'ont pu être réalisées

Seul critère principal : Guérison à J15

Hôpitaux Universitaires Paris Ile-de-France Ouest
RAYMOND POINCARÉ • BERCK
AMBROISE PARÉ • SAINTE PÉRINE

UNIVERSITÉ DE VERSAILLES ST-QUENTIN-EN-YVELINES

CHV

Hypothèse de l'étude

Une antibiothérapie de 3 jours est suffisante

- chez les patients avec une PAC modérément sévère
- répondant favorablement après 3 jours de C3G ou amoxicilline-ac clav. (Halm *et al.* NEJM 2002)

Méthode

- Étude multicentrique (20 centres)
- contrôlée, randomisée vs placebo (en double aveugle)
- de non infériorité
- sur 2 groupes parallèles
- évaluant 2 durées de TT : **3 j vs 8 j**

Critères d'inclusion

- > 18 ans
- Ayant consulté en urgence 3 jrs avant

J0
- Admis pour PAC
  - 1 des signes: dyspnée, toux, exp. muco-pur., foyer de crépitants
  - + T°C > 38
  - + Nouvel infiltrat à la RX

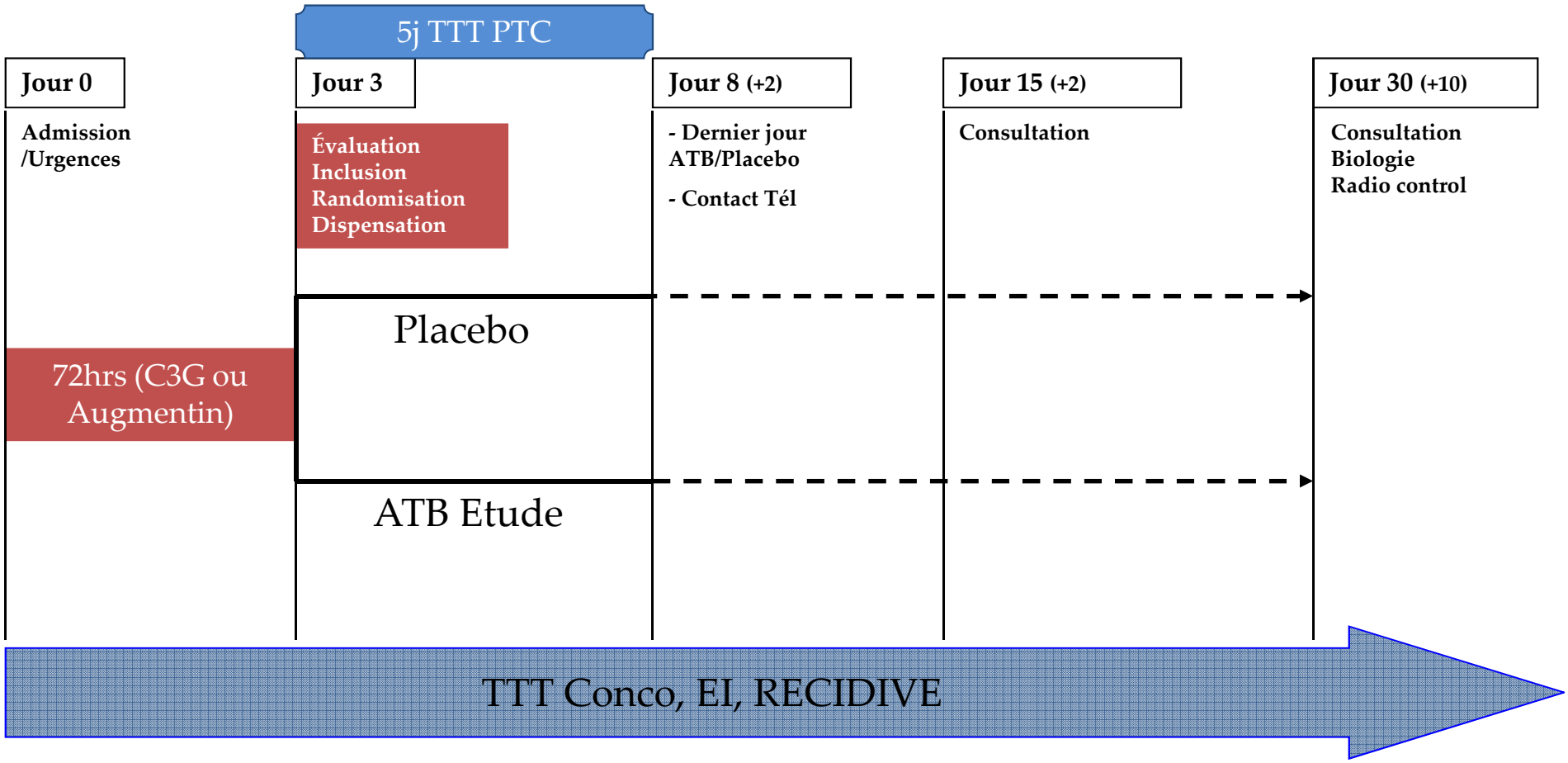
J3
- Ayant répondu à 3 jrs de TT par C3G ou amox-clav.
  - T°C ≤ 37,8
  - + Critères de stabilité IDSA (FC < 100/min et **FR** < 24c/min)
  - + SaO2 ≥ 90% (mode oxygénation normale préalable PAC)
  - + Pa Systolique ≥ 90 mmHg

- Ayant donné son consentement
- Apte à prendre un traitement oral

Critères de non inclusion

- **PAC sévère ou compliquée** (abcès, épanchement pleural significatif, insuffisance respiratoire chronique sévère, choc septique, état respiratoire nécessitant le passage en réanimation)
- **Terrain immunodéprimé connu** (asplénie, neutropénie, agammaglobulinémie, immunosuppresseurs, greffé, corticothérapie, myélome, lymphome, VIH connu, drépanocytose, cirrhose CHILD C)
- **Antibiothérapie préalable de plus de 24 h** avant la consultation aux urgences
- **Bithérapie.** Les patients ayant reçu une seule dose de macrolides ou de fluoroquinolones aux urgences ne seront pas exclus.
- Légionellose suspectée sur les critères clinico-biologiques et radiologiques.
- Clairance de la Créatinine < à 30mL/min
- Antécédents d'ictères/Atteinte hépatique liés à l'amoxicilline/acide clavulanique
- Antécédent d'hypersensibilité à une ß-lactamine
- **Pneumonies liées aux soins**
- Suspicion de **pneumopathie d'inhalation**
- **Infection intercurrente** requérant un traitement antibiotique
- Femmes enceintes
- Allaitement
- Espérance de vie < 1 mois
- Patient sous tutelle ou sans couverture sociale (Patient sous AME ne peut pas participer à la recherche biomed.)
- Personnes sans domicile fixe

Schéma de l'étude



Critère de jugement principal

La **guérison** est définie à J15 par l'association de :

- Apyrexie (température corporelle < 37,8°C)
- Disparition ou amélioration (qui pourra être évaluée par le CAP score) des signes cliniques suivants s'ils étaient initialement présents :
  - dyspnée,
  - toux,
  - expectorations muco-purulentes,
  - foyer de crépitants
- Sans antibiothérapie additionnelle depuis J3

Objectifs secondaires

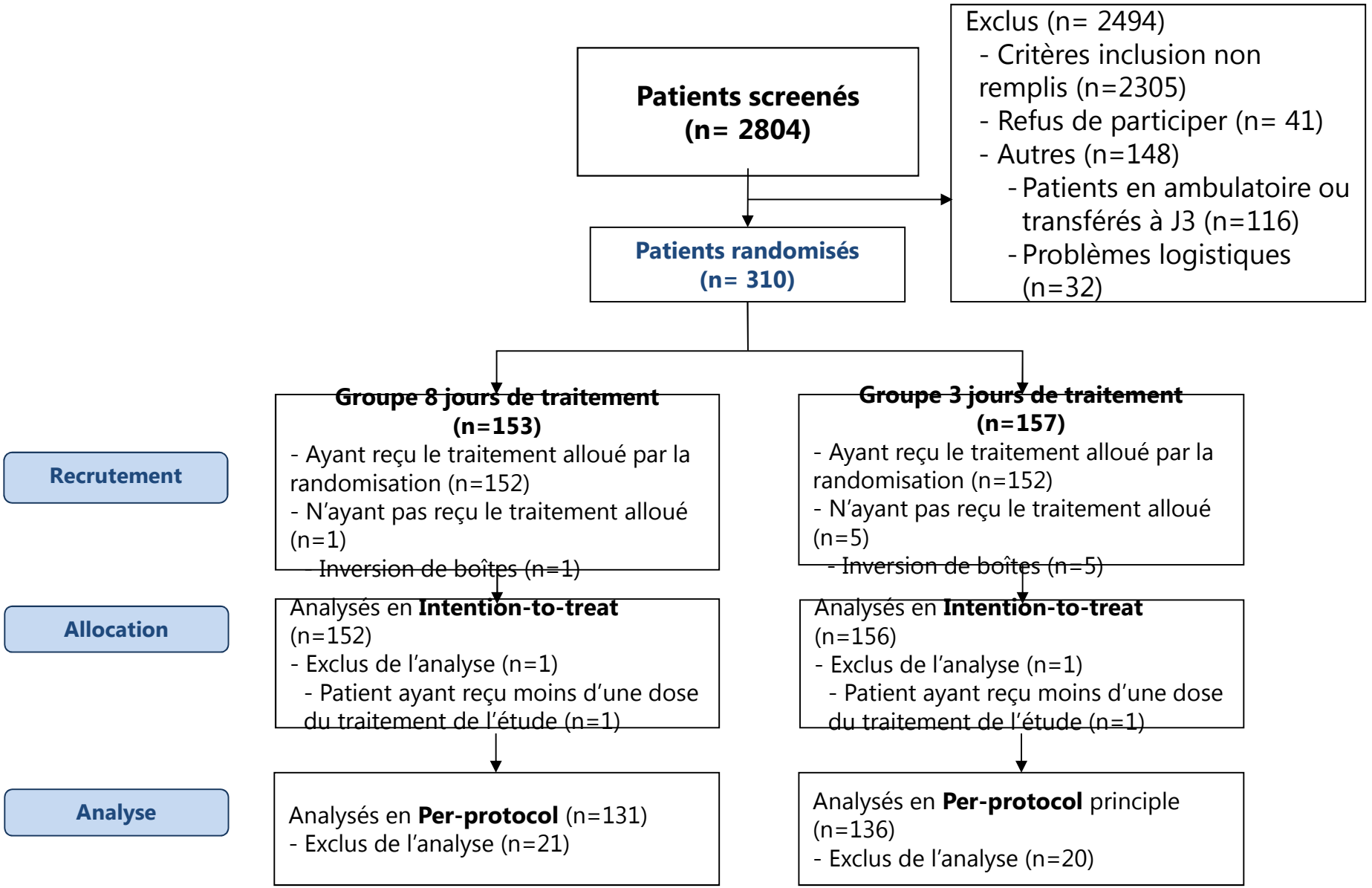
- Comparer l'efficacité clinique à J30
- Comparer la survenue d'EI lié au traitement antibiotique
- Comparer la durée d'hospitalisation
- Comparer la satisfaction globale des patients à J30
- Comparer la reprise de l'activité professionnelle et des activités habituelles à J30

Définitions

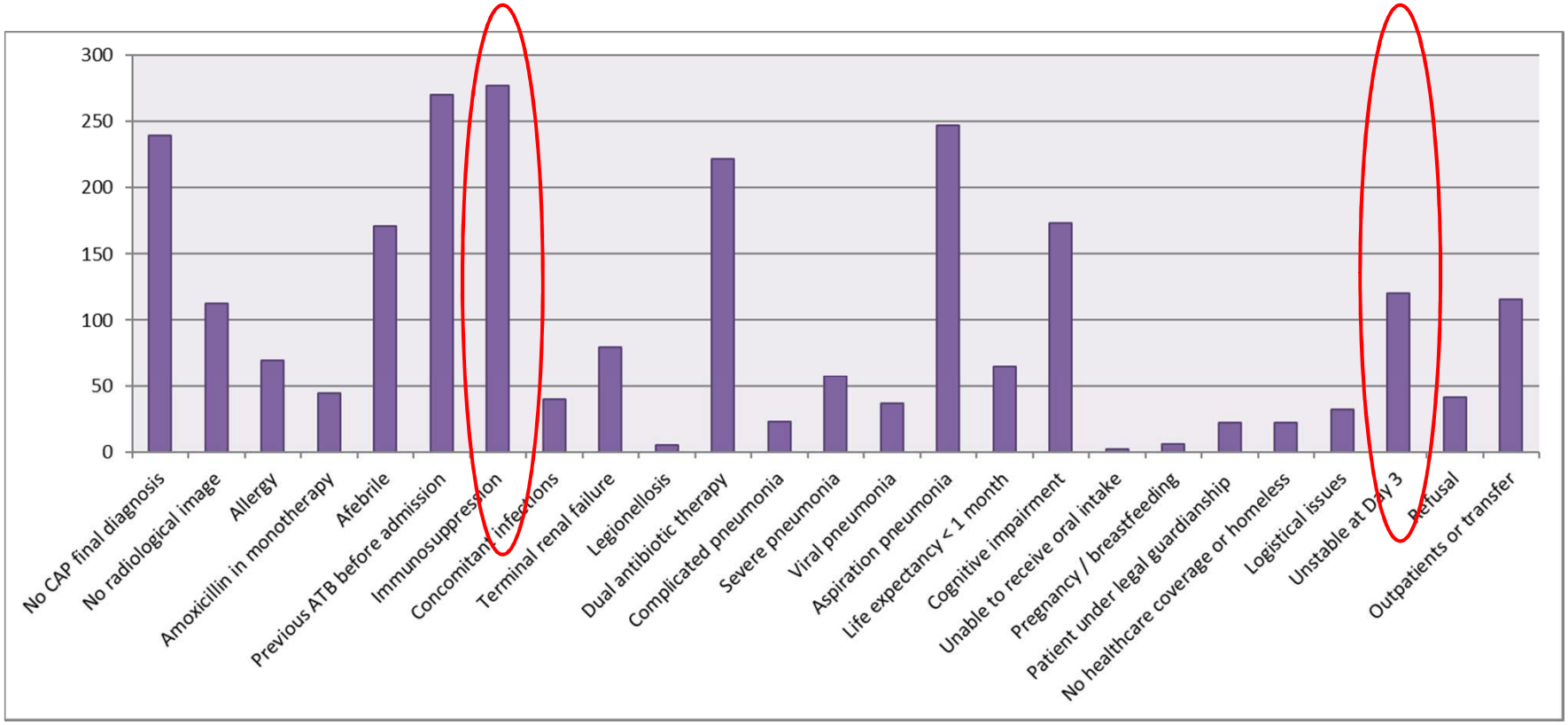
- **Intention-to-treat (ITT):**
  - L'analyse ITT inclura tous les patients randomisés, inclus à tort ou à raison, ayant reçu au moins une dose du traitement de l'étude, dont le statut à J15 pourra être déterminé
  - Les patients dont le statut de guérison à J15 ne pourra être établi (visite manquante) seront toujours considérés comme des échecs.

- **Per protocol (PP)** exclura **:**
  - les patients inclus à tort
  - Les patients n'ayant pas reçu le traitement alloué par la randomisation
  - Les patients dont le statut à J15 ne pourra pas être déterminé, sauf s'ils ont reçu un traitement antibiotique additionnel depuis J3. Ils seront alors considérés comme des échecs.
  - Les patients ayant reçu moins 80% du traitement de l'étude, sauf si l'interruption du traitement est reliée à l'aggravation de leur état et la nécessité d'une autre prise en charge >> échec

Flow chart


Patients screenés
(n= 2804)
Exclus (n= 2494)
- Critères inclusion non remplis (n=2305)
- Refus de participer (n= 41)
- Autres (n=148)
- Patients en ambulatoire ou transférés à J3 (n=116)
- Problèmes logistiques (n=32)
Patients randomisés
(n= 310)
Recrutement
Groupe 8 jours de traitement
(n=153)
- Ayant reçu le traitement alloué par la randomisation (n=152)
- N'ayant pas reçu le traitement alloué (n=1)
Inversion de boîtes (n=1)
Groupe 3 jours de traitement
(n=157)
- Ayant reçu le traitement alloué par la randomisation (n=152)
- N'ayant pas reçu le traitement alloué (n=5)
- Inversion de boîtes (n=5)
Allocation
Analysés en Intention-to-treat
(n=152)
- Exclus de l'analyse (n=1)
- Patient ayant reçu moins d'une dose du traitement de l'étude (n=1)
Analysés en Intention-to-treat
(n=156)
- Exclus de l'analyse (n=1)
- Patient ayant reçu moins d'une dose du traitement de l'étude (n=1)
Analyse
Analysés en Per-protocol (n=131)
- Exclus de l'analyse (n=21)
Analysés en Per-protocol principle
(n=136)
- Exclus de l'analyse (n=20)

Screening


300
250
200
150
100
50
0
No CAP final diagnosis
No radiological image
Allergy
Amoxicillin in monotherapy
Afebrile
Previous ATB before admission
Immunosuppression
Concomitant infections
Terminal renal failure
Legionellosis
Dual antibiotic therapy
Complicated pneumonia
Severe pneumonia
Viral pneumonia
Aspiration pneumonia
Life expectancy < 1 month
Cognitive impairment
Unable to receive oral intake
Pregnancy / breastfeeding
Patient under legal guardianship
No healthcare coverage or homeless
Logistical issues
Unstable at Day 3
Refusal
Outpatients or transfer

Population (1ère inclusion 22 Décembre 2013 - Dernière inclusion 2 Février 2018)

	3 jours de traitement	8 jours de traitement
N patients	157	153
Hommes (n, %)	91 (58.0)	96 (62.7)
Age (médiane, IQR)	73.00 [54.00, 85.00]	74.00 [58.00, 83.00]
Comorbidités (n, %)		
Institutionnalisé	8 (5.1)	2 (1.3)
Néoplasie	2 (1.3)	4 (2.6)
Pathologie hépatique	5 (3.2)	2 (1.3)
Insuffisance cardiaque	31 (19.7)	33 (21.6)
Maladie vasculaire cérébrale	13 (8.3)	10 (6.5)
Insuffisance rénale	15 (9.6)	11 (7.2)
Insuffisance coronarienne	25 (16.1)	20 (13.1)
Diabète	24 (15.4)	34 (22.2)
BPCO	31 (20.0)	42 (27.5)
Tabagisme actif	31 (20.3)	25 (17.2)
Vaccin grippe (< 1 an)	21 (18.4)	19 (18.3)
Vaccin pneumocoque (< 5 ans)	5 (4.6)	8 (8.2)

Admission (J0)

	3 jours de traitement	8 jours de traitement
N patients	157	153
Signes cliniques à J0 (n, %)		
Dyspnée	85 (54.1)	88 (57.5)
Toux	130 (82.8)	122 (79.7)
Expectorations muco-purulentes	62 (39.5)	58 (37.9)
Crépitants	124 (79.5)	114 (74.5)
Score de Glasgow (médiane, IQR)	15.00 [15.00, 15.00]	15.00 [15.00, 15.00]
Confusion	16 (10.3)	11 (7.2)
PSI Score (médiane, IQR)	81.00 [57.00, 106.00]	84.00 [58.00, 104.00]
Premier symptôme (n, %)		
Dyspnée	63 (40.4)	35 (23.0)
Crépitants	53 (34.0)	4 (2.6)

Admission (J0)

Paramètres biologiques (médiane, IQR)	3 jours de traitement	8 jours de traitement
Hématocrite (%)	37.95 [36.00, 41.40]	38.80 [35.30, 42.35]
Hémoglobine (g/dL)	12.80 [11.90, 13.90]	13.10 [11.90, 14.30]
Leucocytes (G/L)	11.50 [8.05, 15.95]	11.78 [8.79, 15.30]
PNN (G/L)	9.71 [6.57, 14.22]	9.70 [6.90, 13.30]
Plaquettes (G/L)	212.00 [167.00, 271.50]	216.00 [166.75, 274.00]
Urée (mmol/L)	6.70 [4.80, 8.80]	5.90 [4.70, 8.30]
Sodium (mmol/L)	137.0 [135.00, 139.00]	138.00 [135.00, 140.50]
Glucose (mmol/L)	6.2 [5.40, 7.00]	6.20 [5.35, 7.75]
Créatinine (µmol/L)	78.00 [65.00, 100.00]	79.00 [63.00, 97.00]
Albumine (g/dL)	3.30 [3.00, 25.90]	3.40 [3.00, 4.00]
C-reactive protein (mg/L)	135.50 [58.50, 235.00]	108.00 [48.25, 212.00]
Procalcitonine (µg/L)	0.60 [0.20, 2.25]	0.20 [0.10, 0.65]

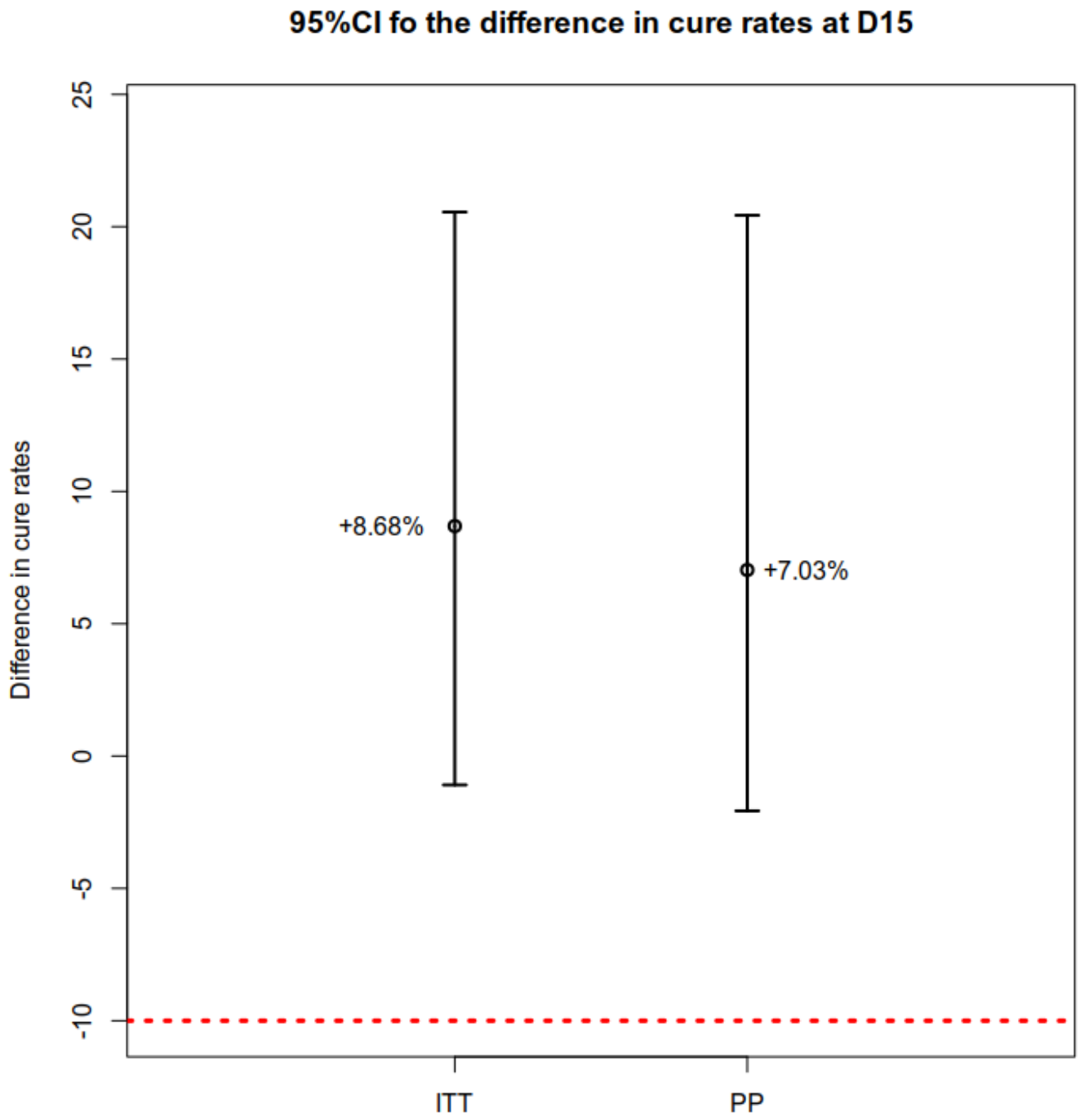
Outcome à J15

	3 jours de traitement	8 jours de traitement	95% CI
Analyse ITT, n	156	152	
Guérison à J15	109 (69.9%)	93 (61.2%)	[-1.09%; 20.55%]
Analyse PP, n	136	131	
Guérison à J15	103 (75.7%)	90 (68.7%)	[-2.07%; 20.43%]

Non inferiorité démontrée !
Une durée de 3 jours n'est pas inférieure à un durée de 8 jours de traitement

En faveur
de 3 jours

En faveur
de 8 jours



Conclusions

- **3 jours de béta-lactamines est suffisant**
  - Pour les PAC modérément sévères
  - Avec les critères de stabilité atteints
  - Parmi les patients non-immunodéprimés
- Limite : pneumonie virale ?


FIFTY SHADES OF GREY
ORIGINAL MOTION PICTURE SOUNDTRACK

Raccourcir les durées de traitements antibiotiques

AGIR

Plan AP-HP pour préserver l'efficacité des antibiotiques

Octobre 2017

Vers une durée courte de l'antibiothérapie à l'AP-HP.

Limiter la durée des traitements antibiotiques au strict nécessaire est un moyen essentiel pour lutter contre l'émergence des résistances bactériennes.

En 2017, le Groupe Recommandations de la Société de Pathologie Infectieuse de Langue Française, en se basant sur une analyse de la littérature récente, a publié des propositions de durées courtes des traitements antibiotiques. **Ces durées s'appliquent aux infections non compliquées qui évoluent favorablement.**

Le tableau suivant présente les durées de traitement recommandées dans les infections les plus souvent à l'origine de prescriptions antibiotiques à l'AP-HP.

PRÉSERVONS LES ANTIBIOTIQUES, CHANGEONS NOS PRATIQUES

ASSISTANCE PUBLIQUE HÔPITAUX DE PARIS

www.aphp.fr

Antibiothérapie : des durées raccourcies pour les infections évoluant favorablement*

Infections		Durée AB (en jour)	Conditions
Infections respiratoires hautes	Sinusite maxillaire de l'adulte	5	
	Angine avec TDR** streptocoque positif	6	Amoxicilline
Infections respiratoires basses	Exacerbation de BPCO	5	seulement si AB requis
	Pneumonie communautaire de l'enfant	5	
	Pneumonie communautaire de l'adulte	5***	Évolution favorable rapide
Bactériémies liées aux cathéters veineux centraux	Staphylocoque coagulase négative	5	Après retrait du cathéter
	Streptocoque, entérocoque, BGN	7	Après retrait du cathéter
	Staphylococcus aureus	14	Après retrait du cathéter
	Thrombophlébite suppurée	21	
Bactériémies primaires non compliquées	Streptocoques oraux	5	
	Entérobactéries, entérocoques	7	
	Staphylococcus aureus, Staphylococcus lugdunensis	14	
Infections urinaires	Cystite aigüe	1	Fosfomycine-trométamol
	Pyélonéphrite	7	Fluoroquinolones ou βlactamines injectables, sinon 10 jours
	Prostatite	14	Cotrimoxazole ou fluoroquinolones, sinon 21 jours
Infections de la peau et des tissus mous	Dermo-hypodermite non nécrosante	7	
Infections intra abdominales	Perforation digestive opérée, appendicite opérée non perforée, cholécystite opérée	≤ 1	
	Péritonite localisée opérée	3	
	Péritonite généralisée opérée	4	
	Infection de liquide d'ascite	5	
	Diarrhées bactériennes nécessitant une antibiothérapie	3	
	Infection à *Clostridium difficile* toxinogène	10	

Dans toutes ces situations, une réévaluation du traitement au 3ème jour est essentielle.
En cas d'évolution non favorable, n'hésitez pas à consulter le référent en antibiothérapie de l'hôpital.

*Extrait d'un document rédigé par le Groupe Recommandations de la SPILF et basé sur la littérature récente. Document source sur le site intranet «Antibiotiques CLIN»

** TDR : test de diagnostic rapide

*** D'après les résultats de l'étude Uranga et al. JAMA Intern Med. 2016;176(9):1257-65

Les messages-clés

- Ne pas réaliser d'examens microbiologiques en l'absence d'argument clinique pour une infection ;
- Ne prescrire un antibiotique qu'en cas d'infection bactérienne prouvée ou fortement suspectée;
- Réévaluer au 3ème jour toute prescription d'antibiotique pour :
  - l'arrêter si le diagnostic d'infection bactérienne n'est pas retenu ;
  - le remplacer par un antibiotique plus adapté (spectre plus étroit, voie orale) ;
- Prescrire des durées de traitement antibiotique les plus courtes possibles ;
- Justifier dans le dossier du patient les rares traitements poursuivis plus de 7 jours ;
- Mettre en œuvre une prévention active des infections :
  - vacciner les patients à risque contre le pneumocoque et la grippe ;
  - limiter les dispositifs invasifs (perfusions, sondes urinaires...) et réévaluer quotidiennement leur indication ;
  - réaliser une friction hydro-alcoolique des mains avant et après chaque contact avec un patient.

Situations ne nécessitant pas d'antibiothérapie

Colonisation urinaire (sauf femme enceinte et pré-opératoire urologique), hémoculture contaminée (ex : hémoculture positive à staphylocoque coagulase négative chez un patient sans cathéter central...), angine avec TDR streptocoque négatif, rhinopharyngite, otite moyenne aigue congestive, otite séromuqueuse, otite externe (sauf maligne survenant chez le patient diabétique ou immunodéprimé), otorrhée sur drain, bronchite aigue du sujet sain, surinfection de BPCO sans dyspnée, diverticulite non compliquée, colonisation à *Clostridium difficile*, furoncle, veinite simple, abcès de paroi, plaies, escarres, morsure de tiques, infections virales, fièvre isolée, augmentation isolée de la CRP, etc.

ASSISTANCE PUBLIQUE HÔPITAUX DE PARIS

www.aphp.fr

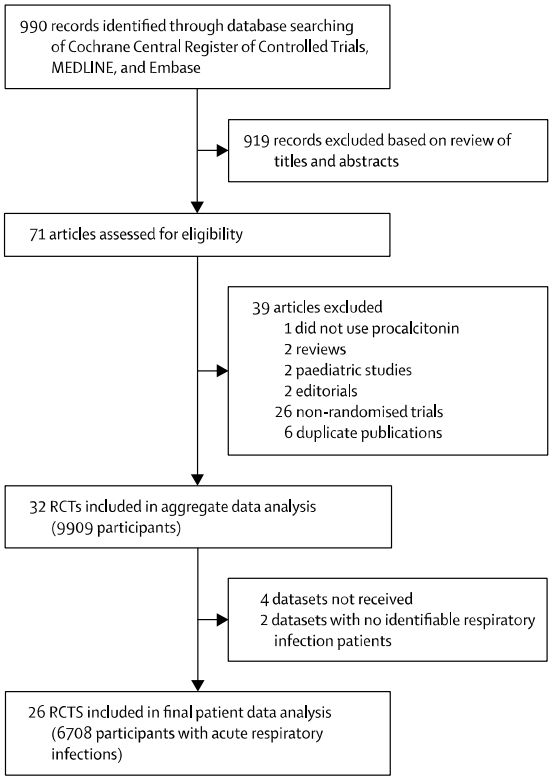
Vers une durée individualisée ?

Inventer des critères d’arrêt ?

PCT ?

Effect of procalcitonin-guided antibiotic treatment on mortality in acute respiratory infections: a patient level meta-analysis

Philipp Schuetz, Yannick Wirz*, Ramon Sager*, Mirjam Christ-Crain, Daiana Stolz, Michael Tamm, Lila Bouadma, Charles E Luyt, Michel Wolff, Jean Chastre, Florence Tubach, Kristina B Kristoffersen, Olaf Burkhardt, Tobias Welte, Stefan Schroeder, Vandack Nobre, Long Wei, Heiner C Bucher, Djillali Annane, Konrad Reinhart, Ann R Falsey, Angela Branche, Pierre Damas, Maarten Nijsten, Dylan W de Lange, Rodrigo O Deliberato, Carolina F Oliveira, Vera Maravić-Stojković, Alessia Verduri, Bianca Beghé, Bin Cao, Yahya Shehabi, Jens-Ulrik S Jensen, Caspar Corti, Jos A H van Oers, Albertus Beishuizen, Armand R J Girbes, Evelien de Jong, Matthias Briel*, Beat Mueller*



Schuetz *et al.* Lancet 2017

	Control (n=3372)	Procalcitonin group (n=3336)
Age, years	61·2 (18·4)	60·7 (18·8)
Sex		
Men	1910 (57%)	1898 (57%)
Women	1462 (43%)	1438 (43%)
Clinical setting		
Primary care	501 (15%)	507 (15%)
Emergency department	1638 (49%)	1615 (48%)
ICU	1233 (37%)	1214 (36%)
Primary diagnosis		
Total upper acute respiratory infection	280 (8%)	292 (9%)
Common cold	156 (5%)	149 (4%)
Rhino-sinusitis, otitis	67 (2%)	73 (2%)
Pharyngitis, tonsillitis	46 (1%)	61 (2%)
Total lower acute respiratory infection	3092 (92%)	3044 (91%)
Community-acquired pneumonia	1468 (44%)	1442 (43%)
Hospital-acquired pneumonia	262 (8%)	243 (7%)
Ventilator-associated pneumonia	186 (6%)	194 (6%)
Acute bronchitis	287 (9%)	257 (8%)
Exacerbation of COPD	631 (19%)	621 (19%)
Exacerbation of asthma	127 (4%)	143 (4%)
Other lower acute respiratory infection	131 (4%)	144 (4%)
Procalcitonin dose on enrolment		
Data available	2590 (77%)	3171 (95%)
<0·1 µg/L	921 (36%)	981 (31%)
0·1–0·25 µg/L	521 (20%)	608 (19%)
>0·25–0·5 µg/L	308 (12%)	383 (12%)
>0·5–2·0 µg/L	358 (14%)	520 (16%)
>2·0 µg/L	482 (19%)	679 (21%)

Data are mean (SD) or n (%). ICU=intensive care unit. COPD=chronic obstructive pulmonary disease.

Résultats

	Control (n=3372)	Procalcitonin group (n=3336)	Adjusted OR (95% CI)*, p value	$p_{interaction}$
Overall				
30-day mortality	336 (10%)	286 (9%)	0·83 (0·7 to 0·99), p=0·037	..
Treatment failure	841 (25%)	768 (23%)	0·90 (0·80 to 1·01), p=0·068	..
Length of ICU stay, days	13·3 (16·0)	13·7 (17·2)	0·39 (–0·81 to 1·58), p=0·524	..
Length of hospital stay, days	13·7 (20·6)	13·4 (18·4)	–0·19 (–0·96 to 0·58), p=0·626	..
Antibiotic-related side-effects	336/1521 (22%)	247/1513 (16%)	0·68 (0·57 to 0·82), p<0·0001	..

	Control (n=3372)	Procalcitonin group (n=3336)	Adjusted OR or difference (95% CI), p value*	$p_{interaction}$
Overall				
Initiation of antibiotics	2894 (86%)	2351 (70%)	0·27 (0·24 to 0·32), p<0·0001	..
Duration of antibiotics, days†	9·4 (6·2)	8·0 (6·5)	–1·83 (–2·15 to –1·5), p<0·0001	..
Total exposure of antibiotics, days‡	8·1 (6·6)	5·7 (6·6)	–2·43 (–2·71 to –2·15), p<0·0001	..

Schuetz *et al.* Lancet 2017

ORIGINAL ARTICLE

Procalcitonin-Guided Use of Antibiotics for Lower Respiratory Tract Infection

D.T. Huang, D.M. Yealy, M.R. Filbin, A.M. Brown, C.-C.H. Chang, Y. Doi, M.W. Donnino, J. Fine, M.J. Fine, M.A. Fischer, J.M. Holst, P.C. Hou, J.A. Kellum, F. Khan, M.C. Kurz, S. Lotfipour, F. LoVecchio, O.M. Peck-Palmer, F. Pike, H. Prunty, R.L. Sherwin, L. Southerland, T. Terndrup, L.A. Weissfeld, J. Yabes, and D.C. Angus, for the ProACT Investigators*

- Objectif effet utilisation PCT pour ATB des infections respiratoires vs PEC comparer prise en charge habituelle
- RCT PCT rendu vs non rendu aux cliniciens pour patient avec suspicion infection respiratoire au SAU (14 hôpitaux)

Outcome	Procalcitonin (N=826)	Usual Care (N=830)	Difference (95% or 99.86% CI)†
Patients with final diagnosis of community-acquired pneumonia			
No. of patients	167	161	
Antibiotic-days by day 30	7.8±7.0	7.2±6.0	0.7 (–1.7 to 3.1)
Received any antibiotics by day 30 — estimated no./total no. (%)¶	148/167 (88.6)	154/161 (95.9)	–7.3 (–16.8 to 2.2)
Antibiotic prescription in ED — estimated no./total no. (%)¶‖	120/167 (71.9)	123/161 (76.3)	–4.4 (–19.9 to 11.0)
Antibiotic-days during hospital stay	3.9±3.0	4.1±3.1	–0.2 (–1.5 to 1.1)
Hospital length of stay — days	5.8±4.9	5.9±4.2	–0.1 (–1.2 to 1.1)

Criteria for Clinical Stability

Temperature ≤100°F
Heart rate ≤100 beats/min
Respiratory rate ≤24 beats/min
Systolic blood pressure ≥90 mmHg
Arterial oxygen saturation ≥90% or Po_2 ≥60 mmHg on room air
Ability to maintain oral intake
Normal mental status

Historique des critères de stabilité

- Associé à bon pronostic (Halm *et al.* 2002)
- Critère de sortie d'hospitalisation (Halm *et al.* 1998 ; 2002)
- Critère de relais per os (Rhew *et al.* 2001)
- Critère d'arrêt après 48h ? (Uranga *et al.* 2016)
- Critère d'arrêt « quasi immédiat » >> PTC, AIR

JAMA Internal Medicine | Original Investigation | LESS IS MORE

Duration of Antibiotic Treatment in Community-Acquired Pneumonia
A Multicenter Randomized Clinical Trial

Ane Uranga, MD; Pedro P. España, MD; Amaia Bilbao, MSc, PhD; Jose María Quintana, MD, PhD; Ignacio Arriaga, MD; Maider Intxausti, MD; Jose Luis Lobo, MD, PhD; Laura Tomás, MD; Jesus Camino, MD; Juan Nuñez, MD; Alberto Capelastegui, MD, PhD

Essai de non infériorité

Multicentrique (4 hôpitaux)
2012-2013

312 patients

Randomisation à J5
- Arrêt à 48h d'obtention des critères de stabilité
- Arrêt selon clinicien en charge

Objectif :
- Guérison clinique J10 et J30
- QdV CAP J5 et J10 (questionnaire 18 items : 0-90)

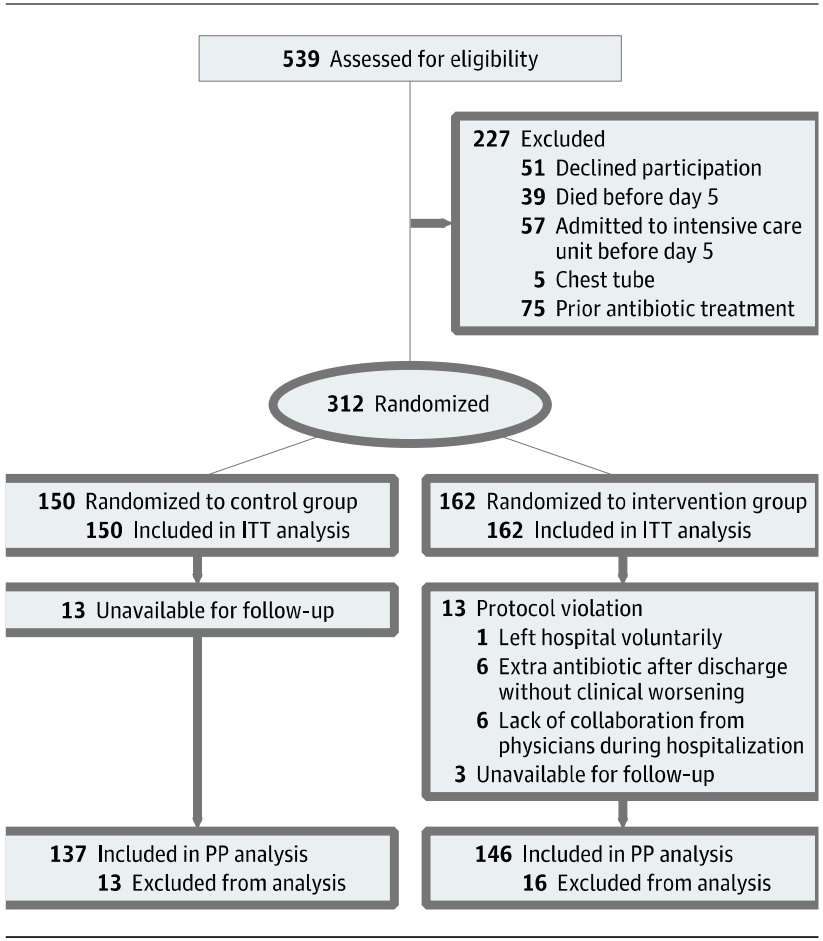


Table 1. Baseline Characteristics of Study Participants[a]

aracteristic	Control Group (n = 150)	Intervention Group (n = 162)
e, mean (SD), y	66.2 (17.9)	64.7 (18.7)
x		
Male	95 (63.3)	101 (62.3)
Female	55 (36.7)	61 (37.7)
bacco		
Current smoker	32 (21.3)	36 (22.6)
Never smoker	68 (45.3)	71 (44.7)
Former smoker	50 (33.3)	52 (32.7)
cohol consumption (yes)	24 (16.1)	17 (10.5)
morbidities		
Liver disease	4 (2.7)	4 (2.5)
Heart disease	38 (25.3)	39 (24.1)
Congestive heart failure	14 (9.3)	12 (7.4)
Cerebrovascular disease	16 (10.7)	9 (5.6)
Renal disease	12 (8.0)	12 (7.4)
COPD	21 (14)	27 (16.7)
Diabetes	25 (16.7)	21 (13.0)
arlson Comorbidity Index, median QR)	1 (0-2)	1 (0-2)
arlson Comorbidity Index, tegorized		
0	61 (40.7)	70 (43.2)
1	37 (24.7)	47 (29.0)
>1	52 (34.7)	45 (27.8)
tz Index, mean (SD)[b]	0.6 (1.6)	0.4 (1.3)
I class		
I-III	89 (59.3)	102 (63.0)
IV-V	61 (40.7)	60 (37.0)
PSI score, mean (SD)	83.7 (33.7)	81.8 (33.8)

Eligibility

Patients ≥ 18 years old, hospitalized with a diagnosis of CAP. Pneumonia is defined as pulmonary infiltrate on chest X-ray not seen previously plus at least one symptom compatible with pneumonia such as cough, fever, dyspnea, and/or chest pain.

ATB :

- 80% des patients traités par FQ
- 10% beta lactamines +ML

Outcome

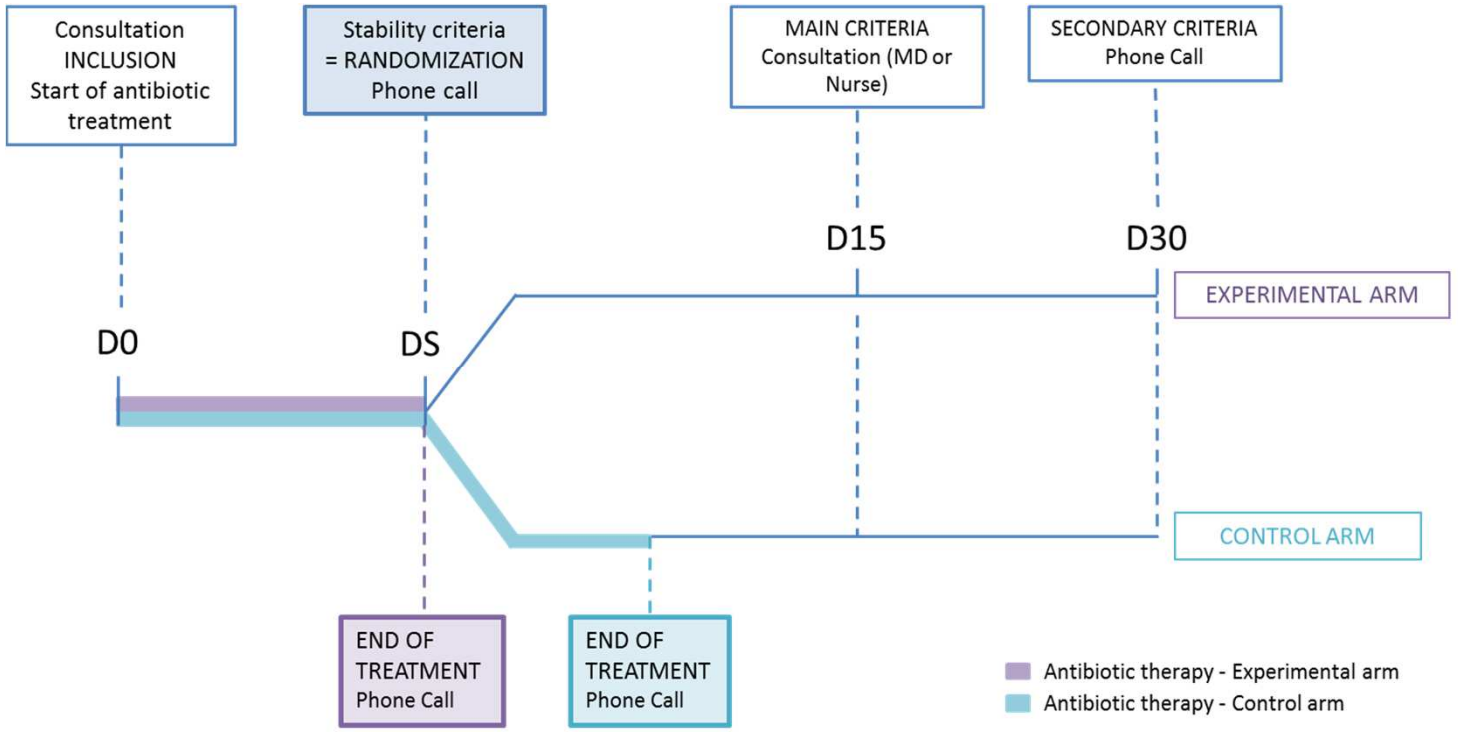
Table 2. Results for the Primary Study Outcomes

Outcome	Control Group	Intervention Group	*P* Value
ent-to-Treat Analysis			
tal No. of participants	150	162	
nical success, No. (%)[a]			
At day 10	71 (48.6)	90 (56.3)	.18
At day 30	132 (88.6)	147 (91.9)	.33
P symptom questionnaire score, mean (SD)[b]			
At day 5	24.7 (11.4)	27.2 (12.5)	.10
At day 10	18.6 (9.0)	17.9 (7.6)	.69
r-Protocol Analysis			
tal No. of participants	137	146	
nical success, No. (%)[a]			
At day 10	67 (50.4)	86 (59.7)	.12
At day 30	126 (92.7)	136 (94.4)	.54
P symptom questionnaire score, mean (SD)[b]			
At day 5	24.3 (11.4)	26.6 (12.1)	.16
At day 10	18.1 (8.5)	17.6 (7.4)	.81

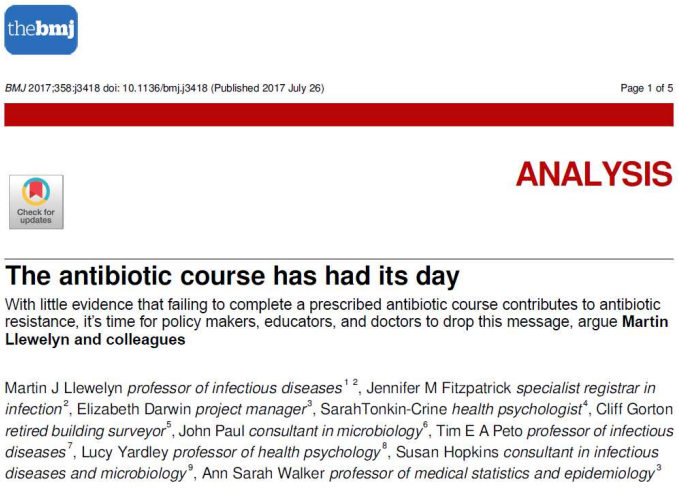
AIR

Antibiothérapie des Infections Respiratoires

PHRC 2016



Allez jusqu'au bout du traitement ?



thebmj

BMJ 2017;358:j3418 doi: 10.1136/bmj.j3418 (Published 2017 July 26) Page 1 of 5

ANALYSIS

Check for updates

The antibiotic course has had its day

With little evidence that failing to complete a prescribed antibiotic course contributes to antibiotic resistance, it's time for policy makers, educators, and doctors to drop this message, argue **Martin Llewelyn and colleagues**

Martin J Llewelyn *professor of infectious diseases*[1 2], Jennifer M Fitzpatrick *specialist registrar in infection*[2], Elizabeth Darwin *project manager*[3], SarahTonkin-Crine *health psychologist*[4], Cliff Gorton *retired building surveyor*[5], John Paul *consultant in microbiology*[6], Tim E A Peto *professor of infectious diseases*[7], Lucy Yardley *professor of health psychology*[8], Susan Hopkins *consultant in infectious diseases and microbiology*[9], Ann Sarah Walker *professor of medical statistics and epidemiology*[3]

Vous avez retweeté

The BMJ @bmj_latest · 31 juil.

Response to our analysis article on completing #antibiotics courses from @BSACandJAC bmj.com/content/358/bm...

À l'origine en anglais

EDITION FR

HUFFPOST EN ASSOCIATION AVEC LE GROUPE Le Monde

POLITIQUE ÉCONOMIE INTERNATIONAL CULTURE LE BON LIEN C'EST LA VIE LE HUFFPLAY PLUS

C'EST LA VIE

Antibiotiques: Non, vous n'êtes pas obligés de finir la boîte si vous vous sentez mieux

Selon une étude, aller systématiquement jusqu'au bout du traitement antibiotique augmenterait le risque de résistance aux médicaments

27/07/2017 11:16 CEST | Actualisé 27/07/2017 11:16 CEST

AFP

EDF EDF pulse

Soutenir l'innovation et s'inscrire dans l'avenir

Smart Home Smart Health

resistance. For example, in materials supporting Antibiotic Awareness Week 2016 WHO advised patients to "always complete the full prescription, even if you feel better, because stopping treatment early promotes the growth of drug-resistant bacteria."[4] Similar advice appears in national campaigns in

Changement de paradigme !!

Conclusions

- Quand peut on arrêter un traitement antibiotique ?

Infection respiratoire : quand/dés que « ça va mieux »

« Less is more»

Robert Browning

More or less…

Acknowledgments

Co-investigators (PTC Study Group):

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- Independent committee
  - Muriel Fartoukh
  - Agnès Lefort
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MERCI DE VOTRE ATTENTION

PNP sévères

Comparison of 8 vs 15 Days of Antibiotic Therapy for Ventilator-Associated Pneumonia in Adults

A Randomized Trial

Jean Chastre, MD
Michel Wolff, MD
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for the PneumA Trial Group

Context The optimal duration of antimicrobial treatment for ventilator-associated pneumonia (VAP) is unknown. Shortening the length of treatment may help to contain the emergence of multiresistant bacteria in the intensive care unit (ICU).

Objective To determine whether 8 days is as effective as 15 days of antibiotic treatment of patients with microbiologically proven VAP.

Design, Setting, and Participants Prospective, randomized, double-blind (until day 8) clinical trial conducted in 51 French ICUs. A total of 401 patients diagnosed as having developed VAP by quantitative culture results of bronchoscopic specimens and who had received initial appropriate empirical antimicrobial therapy were enrolled between May 1999 and June 2002.

Intervention A total of 197 patients were randomly assigned to receive 8 days and 204 to receive 15 days of therapy with an antibiotic regimen selected by the treating physician.

Main Outcome Measures Primary outcome measures—death from any cause, microbiologically documented pulmonary infection recurrence, and antibiotic-free days—were assessed 28 days after VAP onset and analyzed on an intent-to-treat basis.

Results Compared with patients treated for 15 days, those treated for 8 days had neither excess mortality (18.8% vs 17.2%; difference, 1.6%; 90% confidence interval [CI], −3.7% to 6.9%) nor more recurrent infections (28.9% vs 26.0%; difference

JAMA 2003

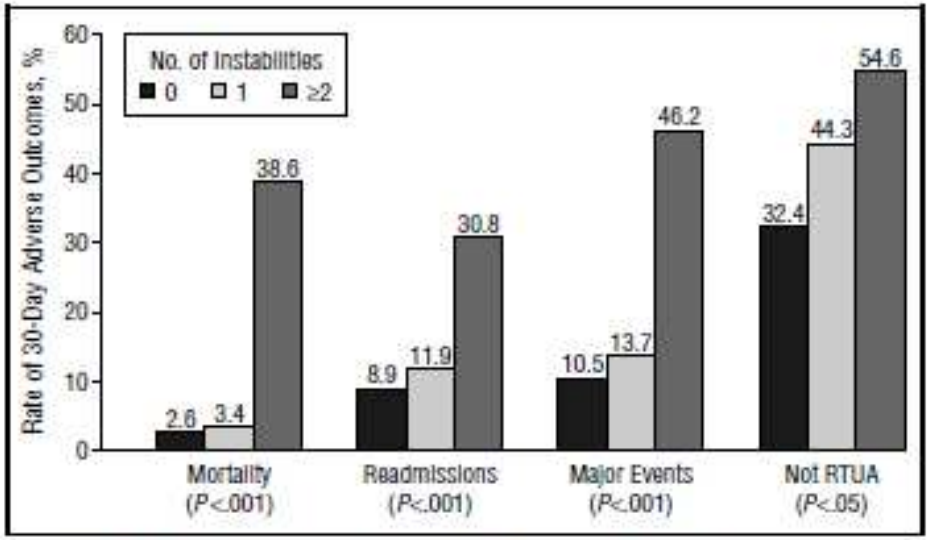
Questions

- Quelle proportion d'échecs s'autorise-t-on ?
- Dépend de la gravité potentielle de l'infection
- Diminution quasi automatique de l'efficacité (sauf si…) mais est ce perceptible ?

Bon pronostic

Instability on Hospital Discharge and the Risk of Adverse Outcomes in Patients With Pneumonia

Ethan A. Halm, MD, MPH; Michael J. Fine, MD, MSc; Wishwa N. Kapoor, MD, MPH; Daniel E. Singer, MD; Thomas J. Marrie, MD; Albert L. Siu, MD, MSPH



Number of instabilities on discharge and rates of 30-day adverse outcomes. Major events were defined as death or readmission within 30 days of discharge. Not RTUA indicates not returned to usual activities within 30 days of discharge.

- Cohorte prospective
- 680 patients
- Si stabilité à la sortie significativement moins de
  - ré hospitalisation
  - décès

Arch intern Med 2002

Time to Clinical Stability in Patients Hospitalized With Community-Acquired Pneumonia

Implications for Practice Guidelines

Ethan A. Halm, MD, MPH; Michael J. Fine, MD, MSc; Thomas J. Marrie, MD; Christopher M. Coley, MD; Wishwa N. Kapoor, MD, MPH; D. Scott Obrosky, MS; Daniel E. Singer, MD

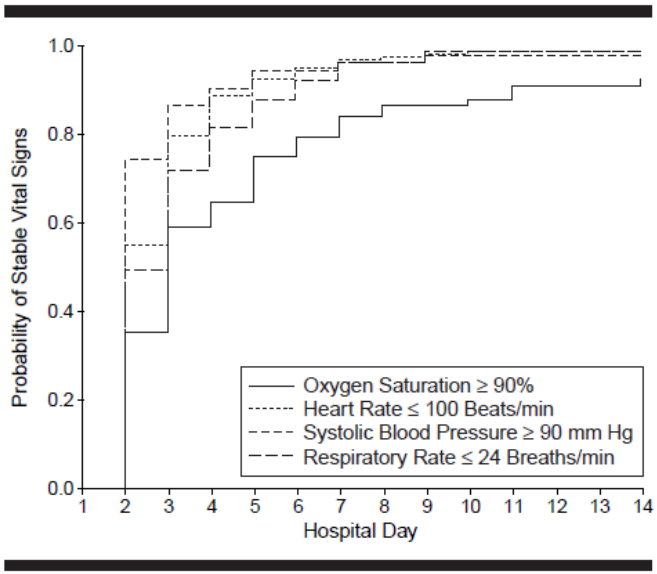


Figure 1.—Time needed to stabilize oxygen saturation, heart rate, respiratory rate, and systolic blood pressure in patients with abnormal vital signs on admission.

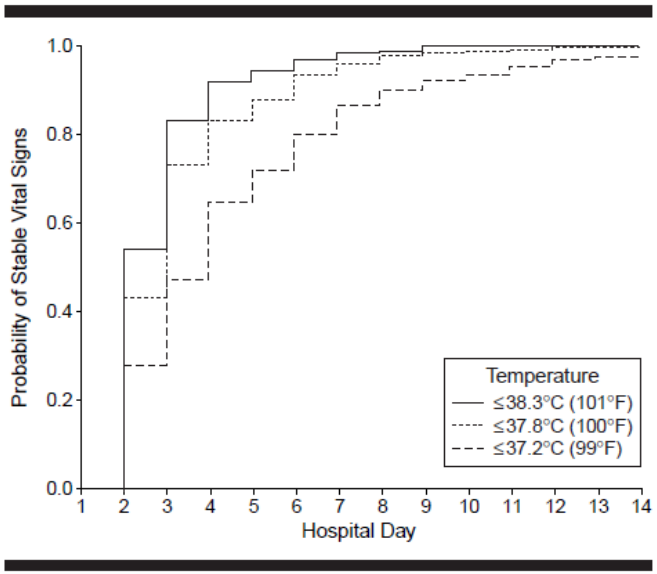


Figure 2.—Time needed to stabilize temperature in patients with fever on admission.

Cohorte prospective multicentrique
686 patients
Délais avant obtention des critères de stabilité : médiane J3
Après obtention aggravation secondaire <1% des cas en réanimation

JAMA 1998

Durée de traitement

Table 4. Results for Secondary Study Outcomes in the Per-Protocol Analysis[a]

ıtcome	Control Group (n = 137)	Intervention Group (n = 146)	*P* Value
ne, median (IQR), d			
Taking antibiotics	10 (10-11)	5 (5-6.5)	<.001
Not taking antibiotics	21 (10-27)	25 (5-32)	.001
Taking intravenous antibiotics	2 (1-4)	3 (2-4)	.22
Until clinical improvement	12 (8-18)	12 (7-15)	.41
Return to normal activity	18 (9-25)	15 (10-21)	.36
Radiographic resolution at day 30	93 (73.2)	112 (81.2)	.12
In-hospital mortality	2 (1.5)	3 (2.1)	>.99
ı-d Mortality	3 (2.2)	3 (2.1)	>.99
currence by day 30	6 (4.4)	4 (2.8)	.53
admission by day 30	9 (6.6)	2 (1.4)	.02
·hospital complications			
Pleural effusion	10 (7.3)	5 (3.4)	.15
Treatment failure[b]	2 (1.5)	3 (2.1)	>.99
Respiratory failure[c]	26 (19.0)	31 (21.2)	.64
Severe sepsis[d]	7 (5.1)	8 (5.5)	.89
Renal failure[e]	5 (3.7)	6 (4.1)	.85
ICU admission	2 (1.5)	1 (0.7)	.61
Use of invasive mechanical ventilation	2 (1.5)	1 (0.7)	.61
Use of noninvasive mechanical ventilation	3 (2.2)	2 (1.4)	.67
Need for vasopressors	2 (1.5)	3 (2.1)	>.99
Antibiotic adverse effects by day 30	18 (13.1)	17 (11.7)	.72
Time with antibiotic adverse effects, mean (SD), d	3 (2.8)	1.7 (2.1)	.24
Length of hospital stay, mean (SD), d	5.5 (2.3)	5.7 (2.8)	.69

Abbreviations: ICU, intensive care unit; IQR, interquartile range; radiographic progression of pneumonia or the appearance of a new infectious

EDITORIAL

The New Antibiotic Mantra—"Shorter Is Better"

Brad Spellberg, MD

Of course, the ultimate goal is to customize duration of therapy to the patient's response. So what should we do when patients are given a prescription for a fixed duration of therapy and their symptoms resolve before they complete the course?

Here we need to change the dogma: patients should no longer be told to keep taking the antibiotic. Patients should be told that if their symptoms resolve before completing the antibiotic they should communicate with their physician to determine if they can stop therapy early. Health care professionals should be encouraged to allow patients to stop antibiotic treatment as early as possible on resolution of symptoms of infection. Ultimately, we should replace the old dogma of continuing therapy past resolution of symptoms with a new, evidence-based dogma of "shorter is better."

Stability in community-acquired pneumonia: one step forward with markers?

R Menéndez,[1] R Martinez,[1] S Reyes,[1] J Mensa,[2] E Polverino,[3] X Filella,[4] C Esquinas,[3] A Martinez,[1] P Ramirez,[5] A Torres[3]

Cohorte prospective

Espagnole

220 patients

Intérêt CRP et PCT

pronostic associé

aux critères de

stabilité

Table 1 Characteristics, comorbidity and initial severity, and clinical stability

Characteristics	Stability ⩽3 days n = 220 (55.8%)	Stability >3 days n = 174 (44.2%)	p Value
Mean (SD) age (years)	65 (17)	67 (18)	0.2
F/M (%)	76/144 (34.5/65.5)	72/102 (41.4/58.6)	0.1
Current smokers, n (%)	46 (20.9)	44 (25.3)	0.3
Excessive alcohol consumption, n (%)	25 (11.4)	21 (12.1)	0.8
Prior influenza vaccination, n (%)	98 (44.5)	66 (37.9)	0.2
Coexisting illnesses, n (%)			
Cardiac insufficiency	40 (18.2)	25 (14.4)	0.3
Renal insufficiency	12 (5.5)	8 (4.6)	0.7
Diabetes	49 (22.3)	29 (16.7)	0.1
Liver disease	5 (2.3)	6 (3.4)	0.4
COPD	39 (17.7)	31 (17.8)	0.9
Neurological disease	38 (17.3)	31 (17.8)	0.8
PSI, n (%)			
I	32 (14.5)	15 (8.6)	0.07
II	42 (19.1)	28 (16.1)	0.4
III	49 (22.3)	39 (22.4)	0.9
IV	79 (35.9)	63 (36.2)	0.9
V	18 (8.2)	29 (16.7)	0.01
CURB-65, n (%)			
0	41 (18.6)	22 (12.6)	0.1
1	84 (38.2)	48 (27.6)	0.1
2	55 (25.0)	54 (31.0)	0.1
3	32 (14.5)	34 (19.4)	0.1
4	8 (3.6)	14 (8.0)	0.06
5	0	2 (1.1)	0.1
Antibiotic therapy, n (%)			
β-lactam/macrolide combination	127 (57.7)	103 (59.2)	0.7
Fluoroquinolone	64 (29.1)	30 (17.2)	0.006
β-lactam/quinolone combination	8 (3.6)	18 (10.3)	0.008
β-lactam monotherapy	12 (5.5)	9 (5.2)	0.9
Other*	9 (4.1)	14 (8.0)	0.09

Thorax 2009

A multicentre stewardship initiative to decrease excessive duration of antibiotic therapy for the treatment of community-acquired pneumonia

Farnaz Foolad[1], Angela M. Huang[2], Cynthia T. Nguyen[3], Lindsay Colyer[4,5], Megan Lim[4,5], Jessica Grieger[6], Julius Li[7], Sara Revolinski[2,8], Megan Mack[9], Tejal Gandhi[10], J. Njeri Wainaina[11], Gregory Eschenauer[4,5], Twisha S. Patel[4,5], Vincent D. Marshall[4,5] and Jerod Nagel[4,5]*

- Objectif : évaluer l'impact d'une intervention promotion durée courte chez les PAC hospitalisées
- Etude avant/après multicentrique 3 hôpitaux
- Intervention par
  - actualisation + diffusion des recommandations
  - séances de formation dans les services
  - audit prospectif des prescriptions d'antibiotiques par des
  - pharmaciens qui proposaient si nécessaire des modifications de durées de traitement

- Patients éligibles à une durée d'antibiothérapie de 5j :
  - apyrétiques depuis au moins 3 jours et n'ayant pas plus d'un signe d'instabilite´clinique (FC ≥ 100/min, FR ≥ 24/min, PAS ≤90 mm Hg, SaO2 ≤ 90% ou PA O2 ≤ 60 mm Hg en air ambiant, troubles de conscience)

JAC 2018

A multicentre stewardship initiative to decrease excessive duration of antibiotic therapy for the treatment of community-acquired pneumonia

Farnaz Foolad[1], Angela M. Huang[2], Cynthia T. Nguyen[3], Lindsay Colyer[4,5], Megan Lim[4,5], Jessica Grieger[6], Julius Li[7], Sara Revolinski[2,8], Megan Mack[9], Tejal Gandhi[10], J. Njeri Wainaina[11], Gregory Eschenauer[4,5], Twisha S. Patel[4,5], Vincent D. Marshall[4,5] and Jerod Nagel[4,5]*

Dans les 2 périodes, : 96,4% et 91,5%, élibibles à traitement ourts respectivement).

Aucune différence réadmission pour pneumonie (7,1% vs. 3,8%) ou mortalité (2,3% vs 1,0%)

Table 3. DOT comparisons

	Historical control group ($N = 307$)	Intervention group ($N = 293$)	P
Total duration of antibiotic therapy, median (IQR)	9 (7–10)	6 (5–7)	<0.001
Guideline-concordant therapy[a], *n* (%)	17 (5.6)[c]	120 (42)[d]	<0.001
Guideline-concordant therapy +1 day[b], *n* (%)	28 (9.2)[c]	121 (42)[d]	<0.001
Excess antibiotic days, median (IQR)	3 (2–5)	1 (0–2)	<0.001

JAC 2018

VOUS AVEZ AIMÉ LA PCT ?

Vous adorerez PTC !

ETUDE PTC

NEWSLETTER JANVIER 2016

Dans une galaxie proche, très proche, l'étude PTC a réussi à inclure 160 patients, soit plus de 50% de l'effectif total.

Pour pouvoir atteindre nos objectifs, nous devons inclure 13 patients par mois.

Donc, ne passez pas du côté obscur de la Force : raccourcissez la durée de traitement antibiotique !!!

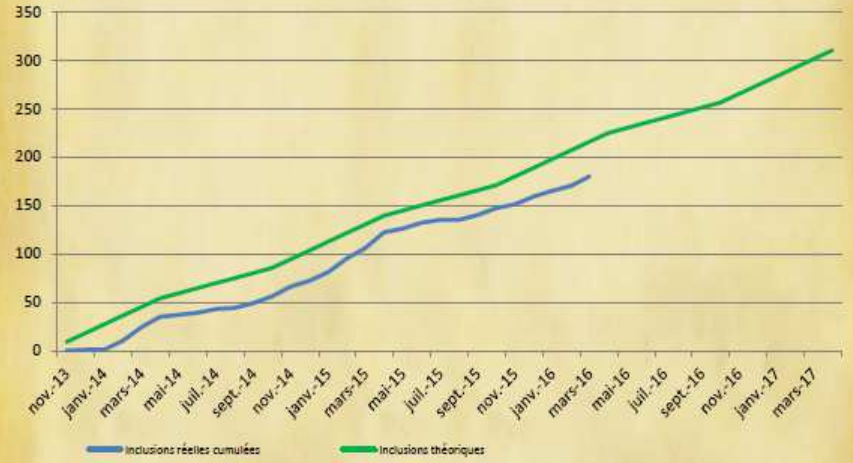
QUE LA FORCE D'INCLURE SOIT AVEC VOUS !!!

« Dans PTC tu incluras et 3 jours d'antibiotiques tu prescriras ! »
Yoda

PNEUMONIE TRAITEMENT COURT

ETUDE PTC SAISON 2

WINTER IS LEAVING BUT...



FLU SEASON IS COMING

Étude PTC GO

Devenez Chasseurs de PTC !!

Comment ? C'est très simple !

1) Trouvez votre potentiel PTC

2) Capturez-le !!

Vous avez jusqu'à Octobre 2017 !!!

PTC = 198 patients !!

Remerciements

Ambroise Paré, Boulogne-Billancourt : ATTAL-BEHAR Julie, BEAUNE Sebastien, BLIVET Sandra, CHINET Thierry, CUDENNEC Tristan, DUMOULIN Jennifer, DUPONT Caroline, GIRAUT Violaine, GREFFE Ségolène, GRENET Julie, GUYOT Caroline, LABRUNE Sylvie, MOULIAS Sophie, NALINE Charlotte, ROUVEIX Elisabeth, SAHUT-D'IZARN Marine, SEFSSAFI Abel, TEILLET Laurent, TRAD Salim

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CH Saint-Denis : COMPAIN Caroline, CORDEL Hugues, DOUMENC Benoit, FOIS Elena, GAMBIER Nicolas, KHUONG Marie-Aude, PASQUALONI Elisa, POUPARD Marie

Quels critères de stabilité pour les autres pathologies ?

- Qu'est ce « qu'aller mieux » ?
- IU >> fièvre
- SSTI >> CF CMI (Factors associated with time to clinical stability in commplicated skin and skin structure infections (CMI 2017 Jääskeläinen et al)
- IOA ?
- Infections subintrantes/chroniques >> difficile d'évaluer ex bronchite
- Gravité initiale probablement pas critère de prolongation >> seule compte la réponse au traitement

« One size does not fits all »

- Individualisation de la durée de traitement
- Car
  - Présentation (forme compliquée)
  - Bactérie (plus ou moins sensible) importance de l'inoculum
  - Molécule Atb activité diffusion
  - Immunité naturelle de l'hôte

PTC

- X non inclus pour non stabilité à J3
- Stabilité 50% selon les études à J3 (USA) ou J4 (Hernandez ?)

Comment évaluer tous ces paramètres ?

Historique des critères de Halm

- Associé à bon pronostic
- Critère de sortie d'hospitalisation
- Critère d'arrêt après 48h ? Uranga
- Critère d'arrêt « quasi immédiat » >> A. Dinh et AC Crémieux (AIR, PTC)

Instability on Hospital Discharge and the Risk of Adverse Outcomes in Patients With Pneumonia

Ethan A. Halm, MD, MPH; Michael J. Fine, MD, MSc; Wishwa N. Kapoor, MD, MPH; Daniel E. Singer, MD; Thomas J. Marrie, MD; Albert L. Siu, MD, MSPH

Background: Investigating claims that patients are being sent home from the hospital "quicker and sicker" requires a way of objectively measuring appropriateness of hospital discharge.

Objective: To define and validate a simple, usable measure of clinical stability on discharge for patients with community-acquired pneumonia.

Methods: Information on daily vital signs and clinical status was collected in a prospective, multicenter, observational cohort study. Unstable factors in the 24 hours prior to discharge were temperature greater than 37.8°C, heart rate greater than 100/min, respiratory rate greater than 24/min, systolic blood pressure lower than 90 mm Hg, oxygen saturation lower than 90%, inability to maintain oral intake, and abnormal mental status. Outcomes were deaths, readmissions, and failure to return to usual activities within 30 days of discharge.

Results: Of the 680 patients, 19.1% left the hospital with 1 or more instabilities. Overall, 10.5% of patients with no instabilities on discharge died or were readmitted compared with 13.7% of those with 1 instability and 46.2% of those with 2 or more instabilities ($P<.003$). Instability on discharge (≥1 unstable factor) was associated with higher risk-adjusted rates of death or readmission (odds ratio [OR], 1.6; 95% confidence interval [CI], 1.0-2.8) and failure to return to usual activities (OR, 1.5; 95% CI, 1.0-2.4). Patients with 2 or more instabilities had a 5-fold greater risk-adjusted odds of death or readmission (OR, 5.4; 95% CI, 1.6-18.4).

Conclusions: Instability on discharge is associated with adverse clinical outcomes. Pneumonia guidelines and pathways should include objective criteria for judging stability on discharge to ensure that efforts to shorten length of stay do not jeopardize patient safety.

Arch Intern Med. 2002;162:1278-1284

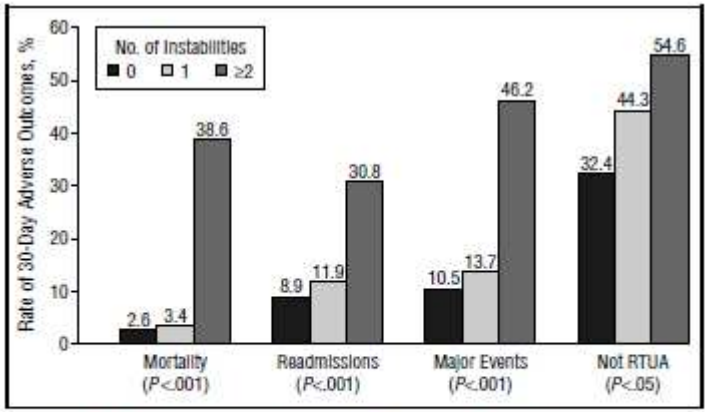
Table 1. Characteristics of 680 Patients Hospitalized With Community-Acquired Pneumonia*

Sociodemographic Characteristics	
Age, y	
18-44	202 (30)
45-64	179 (26)
≥65	299 (44)
Female sex	349 (51)
White race	564 (83)
Type of insurance	
Medicare/private	412 (61)
Medicaid	75 (11)
Canadian medical insurance	155 (23)
Uninsured	35 (5)
Married	292 (43)
Education (>high school)	256 (38)
Admitted from nursing home	60 (9)
Clinical Characteristics	
Comorbidities on presentation	
Chronic obstructive pulmonary disease	143 (21)
Coronary artery disease	133 (20)
Diabetes mellitus	90 (13)
Congestive heart failure	78 (11)
Asthma	64 (9)
Cerebrovascular disease	61 (9)
Renal insufficiency	54 (8)
Active cancer	36 (5)
Liver disease	12 (2)
Severity of illness on admission†	
Risk class I	148 (22)
Risk class II	187 (28)
Risk class III	151 (22)
Risk class IV	138 (20)
Risk class V	56 (8)

Table 2. Frequency of Unstable Vital Sign and Clinical Status Factors on Discharge*

Temperature >37.8°C	23 (3%)
Respiratory rate >24/min	26 (4%)
Heart rate >100/min	24 (4%)
Systolic blood pressure ≤90 mm Hg	7 (1%)
Oxygen saturation <90%†	40 (6%)
Altered mental status	11 (2%)
Inability to maintain oral intake	13 (2%)
No. of unstable factors per patient	
0	550 (81%)
1	117 (17%)
≥2	13 (2%)

*Data are number (percentage) of patients (N = 680).
†Hypoxemia defined as an oxygen saturation rate lower than 90% or a Pa_{O_2} lower than 60 mm Hg.



Number of instabilities on discharge and rates of 30-day adverse outcomes. Major events were defined as death or readmission within 30 days of discharge. Not RTUA indicates not returned to usual activities within 30 days of discharge.

Table 3. Effects of Instability on Discharge on Unadjusted and Risk-Adjusted 30-Day Outcomes*

Outcome	Definition of Disability on Discharge (N = 680)				*P* Value‡
	Any†	0	1	≥2	
Death					
Unadjusted	2.8 (1.2-6.7)	1.0	1.4 (0.4-4.2)	23.9 (6.9-82.4)	<.001
Adjusted	2.1 (0.8-5.4)	1.0	1.1 (0.3-3.5)	14.1 (3.1-69.0)	
Readmission					
Unadjusted	1.6 (0.9-2.9)	1.0	1.4 (0.7-2.6)	4.5 (1.4-15.3)	.02
Adjusted	1.5 (0.8-2.7)	1.0	1.3 (0.7-2.5)	3.5 (1.0-12.4)	
Major event					
Unadjusted	1.8 (1.0-3.0)	1.0	1.4 (0.8-2.5)	7.4 (2.4-22.8)	.003
Adjusted	1.6 (1.0-2.8)	1.0	1.3 (0.7-2.4)	5.4 (1.6-18.4)	
Failure to return to usual activities					
Unadjusted	1.7 (1.1-2.6)	1.0	1.6 (1.1-2.5)	2.5 (0.8-8.3)	.007
Adjusted	1.5 (1.0-2.4)	1.0	1.5 (1.0-2.4)	1.6 (0.4-6.1)	

Time to Clinical Stability in Patients Hospitalized With Community-Acquired Pneumonia

Implications for Practice Guidelines

Ethan A. Halm, MD, MPH; Michael J. Fine, MD, MSc; Thomas J. Marrie, MD; Christopher M. Coley, MD; Wishwa N. Kapoor, MD, MPH; D. Scott Obrosky, MS; Daniel E. Singer, MD

Context.—Many groups have developed guidelines to shorten hospital length of stay in pneumonia in order to decrease costs, but the length of time until a patient hospitalized with pneumonia becomes clinically stable has not been established.

Objective.—To describe the time to resolution of abnormalities in vital signs, ability to eat, and mental status in patients with community-acquired pneumonia and assess clinical outcomes after achieving stability.

Design.—Prospective, multicenter, observational cohort study.

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Patients.—Six hundred eighty-six adults hospitalized with community-acquired pneumonia.

Main Outcome Measures.—Time to resolution of vital signs, ability to eat, mental status, hospital length of stay, and admission to an intensive care, coronary care, or telemetry unit.

Results.—The median time to stability was 2 days for heart rate (≤100 beats/min) and systolic blood pressure (≥90 mm Hg), and 3 days for respiratory rate (≤24 breaths/min), oxygen saturation (≥90%), and temperature (≤37.2°C [99°F]). The median time to overall clinical stability was 3 days for the most lenient definition of stability and 7 days for the most conservative definition. Patients with more severe cases of pneumonia at presentation took longer to reach stability. Once stability was achieved, clinical deterioration requiring intensive care, coronary care, or telemetry monitoring occurred in 1% of cases or fewer. Between 65% to 86% of patients stayed in the hospital more than 1 day after reaching stability, and fewer than 29% to 46% were converted to oral antibiotics within 1 day of stability, depending on the definition of stability.

Conclusions.—Our estimates of time to stability in pneumonia and explicit criteria for defining stability can provide an evidence-based estimate of optimal length of stay, and outline a clinically sensible approach to improving the efficiency of inpatient management.

JAMA. 1998;279:1452-1457

Individualizing duration of antibiotic therapy in community-acquired pneumonia

Stefano Aliberti [a, *], Julio Ramirez [b], Fabio Giuliani [a], Timothy Wiemken [b], Giovanni Sotgiu [c], Sara Tedeschi [d], Manuela Carugati [e], Vincenzo Valenti [f], Marco Marchioni [g], Marco Camera [h], Roberto Piro [i], Manuela Del Forno [j], Giuseppe Milani [k], Paola Faverio [l], Luca Richeldi [m], Martina Deotto [n], Massimiliano Villani [o], Antonio Voza [p], Eleonora Tobaldini [q, r], Mauro Bernardi [s], Andrea Bellone [t], Matteo Bassetti [u], Francesco Blasi [a]

RCT Italie

Patients randomisés à partir de J5 si stabilité ≧ 48h

Interruption prématurée 260/892 (marge de non-infériorité de 5%)

	Standard group n = 135	Individualized group n = 125	P
Early failure, n (%)	10 (7.4)	14 (11.2)	0.200
Single components of early failure			
Pneumonia-related complications, n (%)	1 (0.7)	2 (1.6)	0.471
Clinical failure during hospitalization, n (%)	1 (0.7)	5 (4.0)	0.090
A new course of antibiotics given for the pneumonia, n (%)	5 (3.7)	8 (6.4)	0.238
Re-hospitalization, n (%)	7 (5.2)	6 (4.8)	0.558
Mortality, n (%)	1 (0.7)	4 (3.2)	0.162

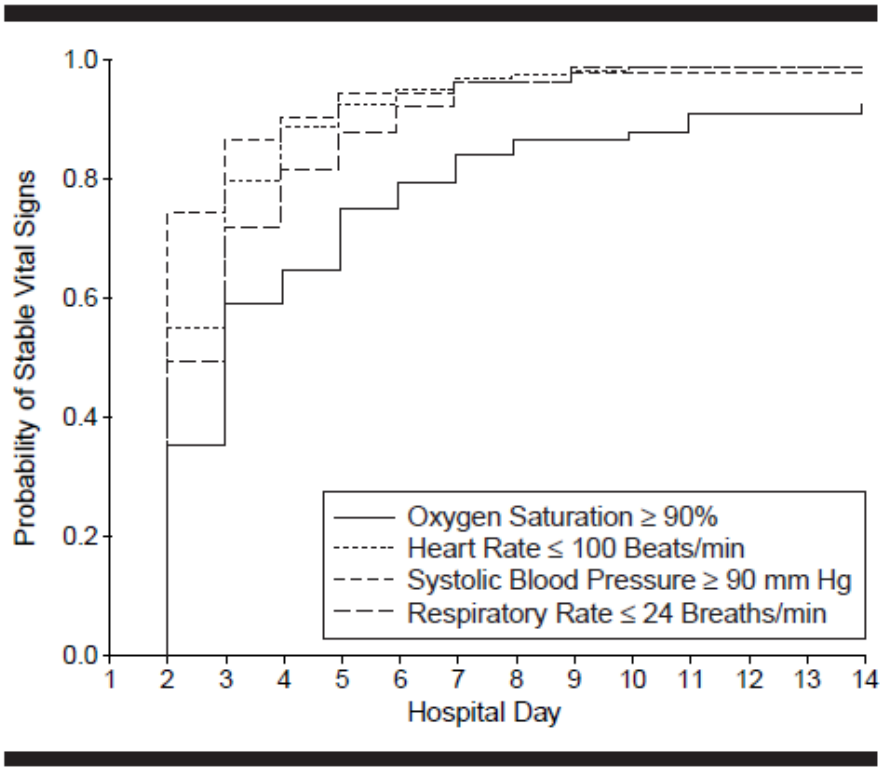

Figure 1.—Time needed to stabilize oxygen saturation, heart rate, respiratory rate, and systolic blood pressure in patients with abnormal vital signs on admission.

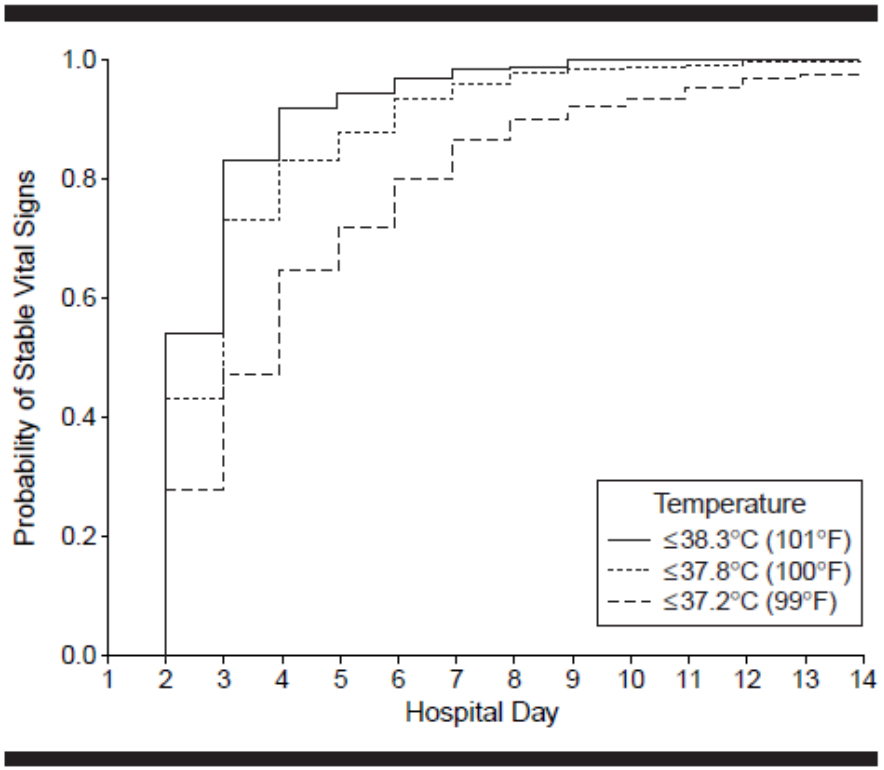

Figure 2.—Time needed to stabilize temperature in patients with fever on admission.

Stability in community-acquired pneumonia: on forward with markers?

R Menéndez,[1] R Martinez,[1] S Reyes,[1] J Mensa,[2] E Polverino,[3] X Filella,[4] C A Martinez,[1] P Ramirez,[5] A Torres[3]

Background: Biological markers as an expression of systemic inflammation have been recognised as useful for evaluating the host response in community-acquired pneumonia (CAP). The objective of this study was to evaluate whether the biological markers procalcitonin (PCT) and C-reactive protein (CRP) might reflect stability after 72 h of treatment and the absence of subsequent severe complications.

Methods: A prospective cohort study was performed in 394 hospitalised patients with CAP. Clinical stability was evaluated using modified Halm's criteria: temperature $\leqslant$37.2°C; heart rate $\leqslant$100 beats/min; respiratory rate $\leqslant$24 breaths/min; systolic blood pressure $\geqslant$90 mm Hg; oxygen saturation $\geqslant$90%; or arterial oxygen tension $\geqslant$60 mm Hg. PCT and CRP levels were measured on day 1 and after 72 h. Severe complications were defined as mechanical ventilation, shock and/or intensive care unit (ICU) admission, or death after 72 h of treatment.

Results: 220 patients achieved clinical stability at 72 h and had significantly lower levels of CRP (4.2 vs 7 mg/dl) and of PCT (0.33 vs 0.48 ng/ml). Regression logistic analyses were performed to calculate several areas under the ROC curve (AUC) to predict severe complications. The AUC for clinical stability was 0.77, 0.84 when CRP was added ($p = 0.059$) and 0.77 when PCT was added ($p = 0.45$). When clinical stability was achieved within 72 h and marker levels were below the cut-off points (0.25 ng/ml for PCT and 3 mg/dl for CRP), no severe complications occurred.

Conclusions: Low levels of CRP and PCT at 72 h in addition to clinical criteria might improve the prediction of absence of severe complications.

Thorax 2009

Table 1 Characteristics, comorbidity and initial severity, and clinical stability

	Stability		
	⩽3 days	>3 days	
Characteristics	n = 220 (55.8%)	n = 174 (44.2%)	p Value
Mean (SD) age (years)	65 (17)	67 (18)	0.2
F/M (%)	76/144 (34.5/65.5)	72/102 (41.4/58.6)	0.1
Current smokers, n (%)	46 (20.9)	44 (25.3)	0.3
Excessive alcohol consumption, n (%)	25 (11.4)	21 (12.1)	0.8
Prior influenza vaccination, n (%)	98 (44.5)	66 (37.9)	0.2
Coexisting illnesses, n (%)			
Cardiac insufficiency	40 (18.2)	25 (14.4)	0.3
Renal insufficiency	12 (5.5)	8 (4.6)	0.7
Diabetes	49 (22.3)	29 (16.7)	0.1
Liver disease	5 (2.3)	6 (3.4)	0.4
COPD	39 (17.7)	31 (17.8)	0.9
Neurological disease	38 (17.3)	31 (17.8)	0.8
PSI, n (%)			
I	32 (14.5)	15 (8.6)	0.07
II	42 (19.1)	28 (16.1)	0.4
III	49 (22.3)	39 (22.4)	0.9
IV	79 (35.9)	63 (36.2)	0.9
V	18 (8.2)	29 (16.7)	0.01
CURB-65, n (%)			
0	41 (18.6)	22 (12.6)	0.1
1	84 (38.2)	48 (27.6)	0.1
2	55 (25.0)	54 (31.0)	0.1
3	32 (14.5)	34 (19.4)	0.1
4	8 (3.6)	14 (8.0)	0.06
5	0	2 (1.1)	0.1
Antibiotic therapy, n (%)			
β-lactam/macrolide combination	127 (57.7)	103 (59.2)	0.7
Fluoroquinolone	64 (29.1)	30 (17.2)	0.006
β-lactam/quinolone combination	8 (3.6)	18 (10.3)	0.008
β-lactam monotherapy	12 (5.5)	9 (5.2)	0.9
Other*	9 (4.1)	14 (8.0)	0.09

Thorax 2009

Management of Community-Acquired Pneumonia

Ethan A. Halm, M.D., M.P.H.,
and Alvin S. Teirstein, M.D.

- Overall, the median time to clinical stability is three days among low-risk patients, four days among moderate-risk patients, and six days among those at high risk.33 Once a patient's condition becomes stable, the risk of serious clinical deterioration is 1 percent or less, even among the sickest subgroup of patients.
- Conversely, patients who are discharged before their condition has stabilized have higher risk-adjusted rates of death or readmission and return more slowly to their usual activities.37 Several randomized controlled trials and observational studies corroborate the safety of this type of discharge criteria.25,38-43
- Although these studies used various designs and ways of defining clinical stability, they all stressed the importance of the resolution of fever, improving respiratory signs or symptoms, the ability to take oral antibiotics, and the absence of other active medical problems. Similar stability criteria can be used to determine when patients can be switched from parenteral to oral antibiotics. This topic has recently been systematically reviewed.43
- In brief, data from randomized controlled trials and prospective studies indicate that early conversion from intravenous to oral therapy does not adversely affect outcomes.25,38-41,44-46
- In addition, evidence from observational studies suggests that there is no need to observe patients for 24 hours after a switch to oral therapy.47,48
- The condition of individual patients will stabilize at different times depending on the initial severity of pneumonia, the presence or absence of coexisting conditions, and the response to therapy

NEJM 2002

AIR

- Surveillance quotidienne y compris en ville

Arrêter quand tout va bien ?

Opinion

EDITORIAL

The New Antibiotic Mantra—"Shorter Is Better"

Brad Spellberg, MD

can be traced to 1945. Meads et al wrote that they administered penicillin to patients with pneumonia, "until there was definite clinical improvement and the temperature had remained below 100°F for 12 hours...then given for another two to three days."[5(p748)] The perceived need to treat beyond resolution of symptoms was driven by a desire to prevent relapses. However, the recurrent infections seen in the case series were caused by isolates with distinct bacterial serotypes, indicative of reinfection rather than relapse. It is unclear how this confused desire to prevent reinfections subsequently transformed into the illogical dogma that antibiotic resistance could be prevented by continuing therapy beyond resolution of symptoms.[4]

Allez jusqu'au bout du traitement ?

thebmj

BMJ 2017;358:j3418 doi: 10.1136/bmj.j3418 (Published 2017 July 26)

ANALYSIS

Check for updates

The antibiotic course has had its day

With little evidence that failing to complete a prescribed antibiotic course contributes to antibiotic resistance, it's time for policy makers, educators, and doctors to drop this message, argue **Martin Llewelyn and colleagues**

Martin J Llewelyn *professor of infectious diseases*[1 2], Jennifer M Fitzpatrick *specialist registrar in infection*[2], Elizabeth Darwin *project manager*[3], SarahTonkin-Crine *health psychologist*[4], Cliff Gorton *retired building surveyor*[5], John Paul *consultant in microbiology*[6], Tim E A Peto *professor of infectious diseases*[7], Lucy Yardley *professor of health psychology*[8], Susan Hopkins *consultant in infectious diseases and microbiology*[9], Ann Sarah Walker *professor of medical statistics and epidemiology*[3]

resistance. For example, in materials supporting Antibiotic Awareness Week 2016 WHO advised patients to "always complete the full prescription, even if you feel better, because stopping treatment early promotes the growth of drug-resistant bacteria."[4] Similar advice appears in national campaigns in

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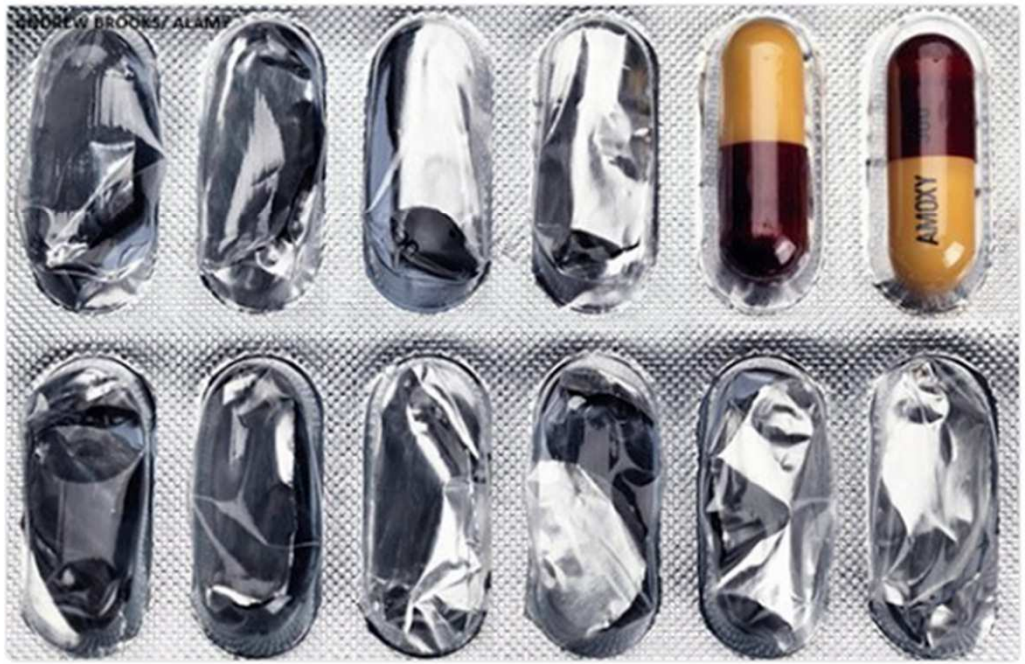
Response to our analysis article on completing #antibiotics courses from @BSACandJAC bmj.com/content/358/bm...

À l'origine en anglais



C'EST LA VIE

Antibiotiques: Non, vous n'êtes pas obligés de finir la boîte si vous vous sentez mieux

Selon une étude, aller systématiquement jusqu'au bout du traitement antibiotique augmenterait le risque de résistance aux médicaments

27/07/2017 11:16 CEST | **Actualisé** 27/07/2017 11:16 CEST

AFP

IAN HOOTON

EDF EDF pulse

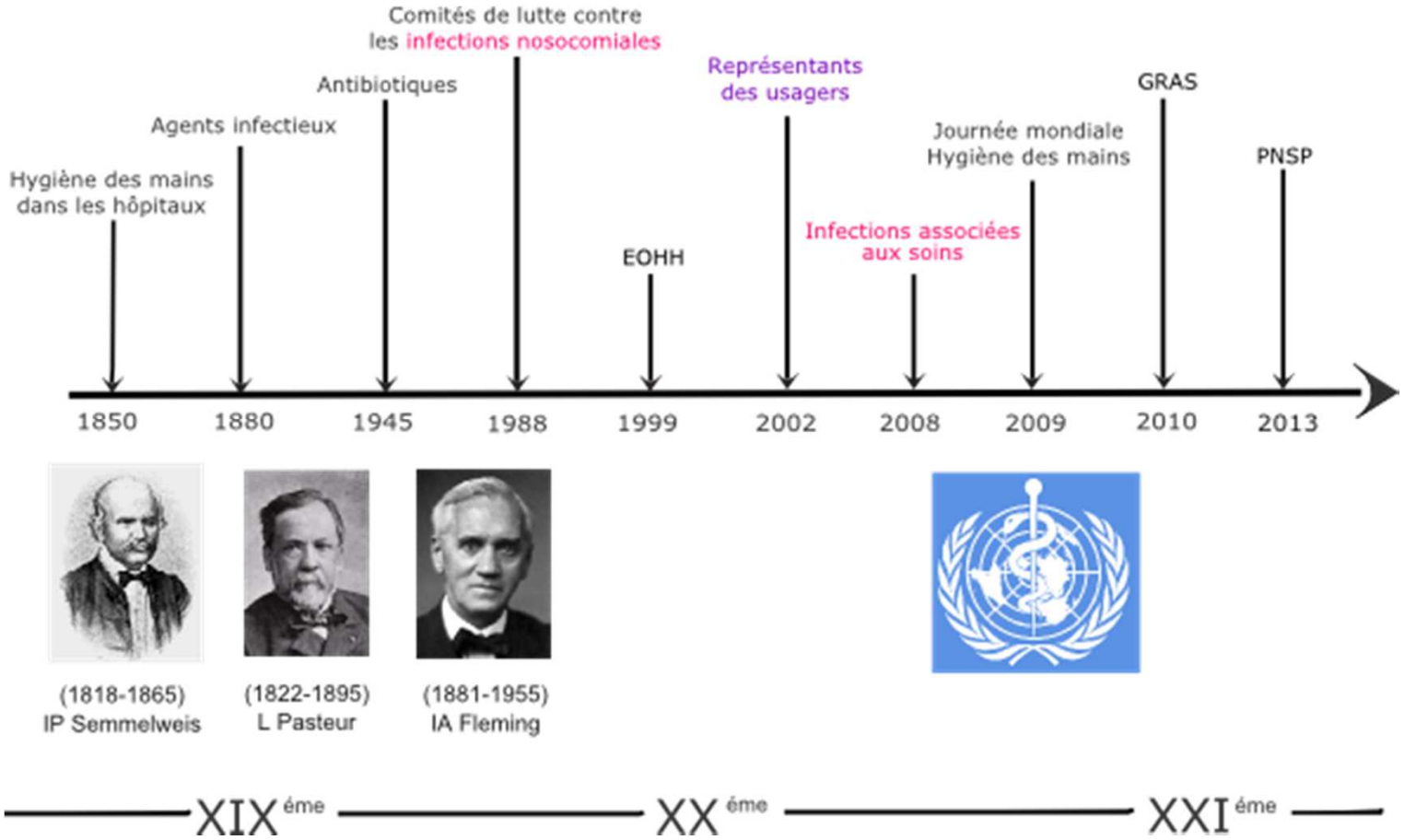
Soutenir l'innovation et s'inscrire dans l'avenir

Smart Home Smart Health

Pew Health @pewhealth · 7 août

U.S. deaths from antibiotic resistance are "equivalent to a jumbo jet of people crashing every week."—@AMahadevia pew.org/2veWdaf

À l'origine en anglais


Hygiène des mains dans les hôpitaux
Agents infectieux
Antibiotiques
Comités de lutte contre les infections nosocomiales
EOHH
Représentants des usagers
Infections associées aux soins
Journée mondiale Hygiène des mains
GRAS
PNSP
1850
1880
1945
1988
1999
2002
2008
2009
2010
2013
(1818-1865) IP Semmelweis
(1822-1895) L Pasteur
(1881-1955) IA Fleming
XIX éme
XX éme
XXI éme

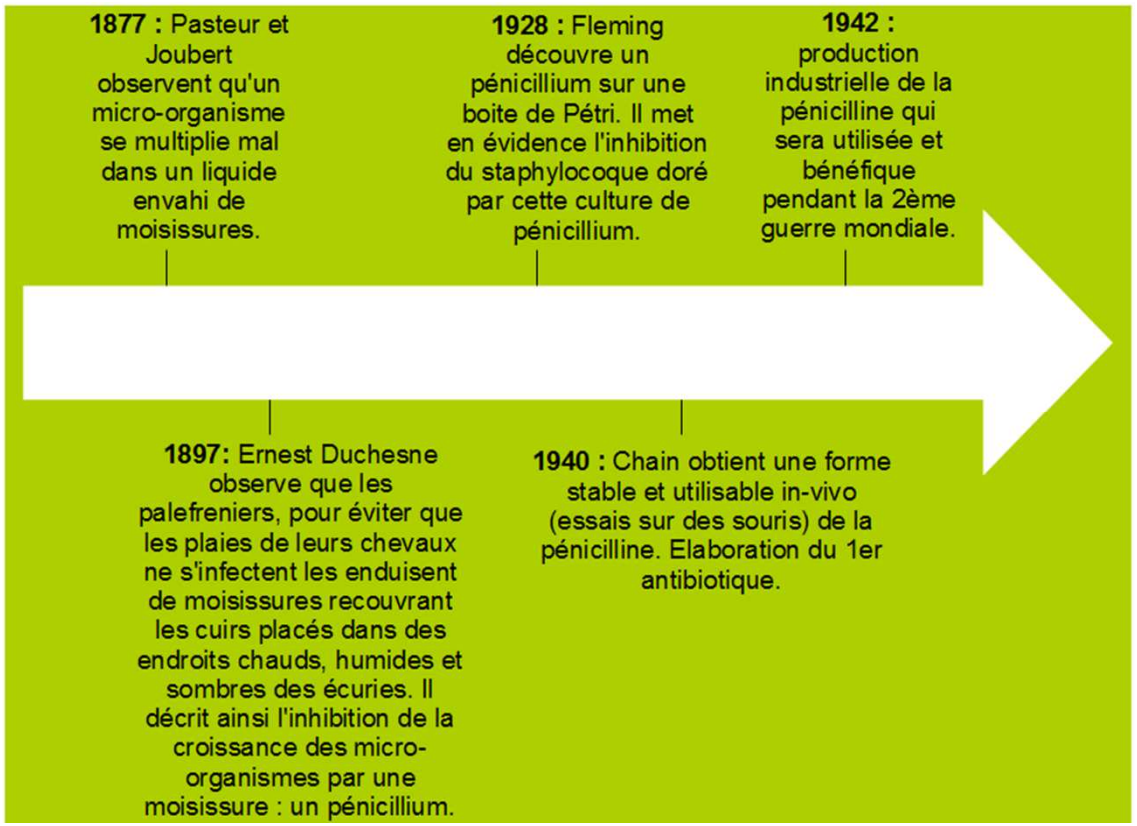

1877 : Pasteur et Joubert observent qu'un micro-organisme se multiplie mal dans un liquide envahi de moisissures.
1928 : Fleming découvre un pénicillium sur une boite de Pétri. Il met en évidence l'inhibition du staphylocoque doré par cette culture de pénicillium.
1942 : production industrielle de la pénicilline qui sera utilisée et bénéfique pendant la 2ème guerre mondiale.
1897: Ernest Duchesne observe que les palefreniers, pour éviter que les plaies de leurs chevaux ne s'infectent les enduisent de moisissures recouvrant les cuirs placés dans des endroits chauds, humides et sombres des écuries. Il décrit ainsi l'inhibition de la croissance des micro-organismes par une moisissure : un pénicillium.
1940 : Chain obtient une forme stable et utilisable in-vivo (essais sur des souris) de la pénicilline. Elaboration du 1er antibiotique.

Figure 1. Taux d'incidence et cas déclarés (pour 100 000 habitants) de coqueluche au Canada, par année, de 1924 à 2012 [*].

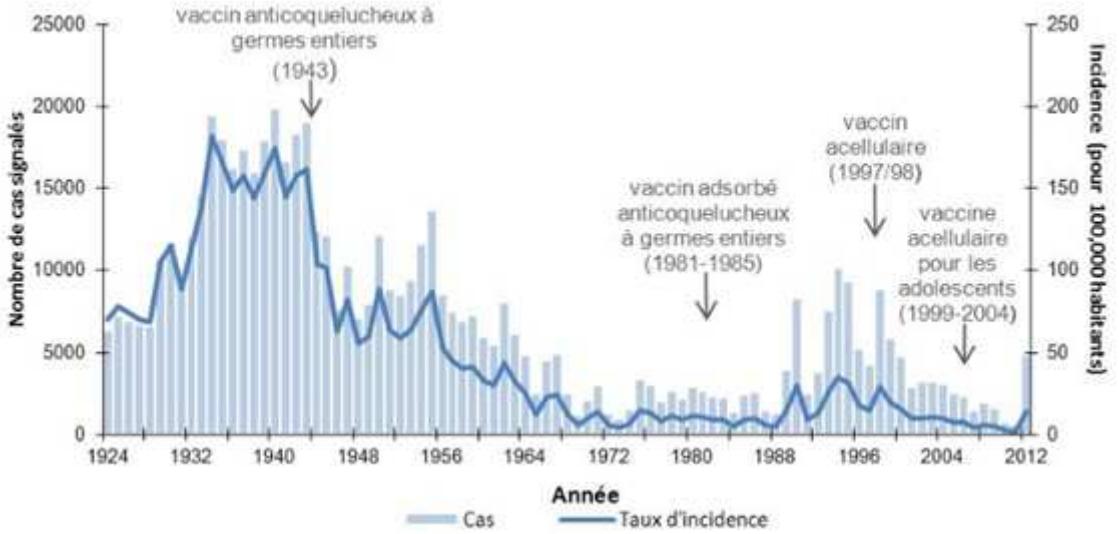


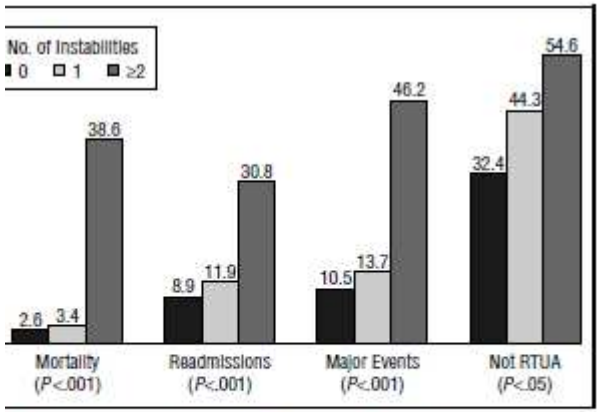
Table 1. Characteristics of 680 Patients Hospitalized With Community-Acquired Pneumonia*

Sociodemographic Characteristics	
Age, y	
18-44	202 (30)
45-64	179 (26)
≥65	299 (44)
Female sex	349 (51)
White race	564 (83)
Type of insurance	
Medicare/private	412 (61)
Medicaid	75 (11)
Canadian medical insurance	155 (23)
Uninsured	35 (5)
Married	292 (43)

Table 2. Frequency of Unstable Vital Sign and Clinical Status Factors on Discharge*

Temperature >37.8°C	23 (3%)
Respiratory rate >24/min	26 (4%)
Heart rate >100/min	24 (4%)
Systolic blood pressure ≤90 mm Hg	7 (1%)
Oxygen saturation <90%†	40 (6%)
Altered mental status	11 (2%)
Inability to maintain oral intake	13 (2%)
No. of unstable factors per patient	
0	550 (81%)
1	117 (17%)
	13 (2%)

number (percentage) of patients (N = 680).
ia defined as an oxygen saturation rate lower than 90% or a
an 60 mm Hg.



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s were defined as death or readmission within 30 days of
Not RTUA indicates not returned to usual activities within 30 days
.

Background: Investigating claims that patients are being sent home from the hospital "quicker and sicker" requires a way of objectively measuring appropriateness of hospital discharge.

Objective: To define and validate a simple, usable measure of clinical stability on discharge for patients with community-acquired pneumonia.

Methods: Information on daily vital signs and clinical status was collected in a prospective, multicenter, observational cohort study. Unstable factors in the 24 hours prior to discharge were temperature greater than 37.8°C, heart rate greater than 100/min, respiratory rate greater than 24/min, systolic blood pressure lower than 90 mm Hg, oxygen saturation lower than 90%, inability to maintain oral intake, and abnormal mental status. Outcomes were deaths, readmissions, and failure to return to usual activities within 30 days of discharge.

Results: Of the 680 patients, 19.1% left the hospital with 1 or more instabilities. Overall, 10.5% of patients with no instabilities on discharge died or were readmitted compared with 13.7% of those with 1 instability and 46.2% of those with 2 or more instabilities ($P<.003$). Instability on discharge (≥1 unstable factor) was associated with higher risk-adjusted rates of death or readmission (odds ratio [OR], 1.6; 95% confidence interval [CI], 1.0-2.8) and failure to return to usual activities (OR, 1.5; 95% CI, 1.0-2.4). Patients with 2 or more instabilities had a 5-fold greater risk-adjusted odds of death or readmission (OR, 5.4; 95% CI, 1.6-18.4).

Conclusions: Instability on discharge is associated with adverse clinical outcomes. Pneumonia guidelines and pathways should include objective criteria for judging stability on discharge to ensure that efforts to shorten length of stay do not jeopardize patient safety.

Arch Intern Med. 2002;162:1278-1284

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Adjusted	2.1 (0.8-5.4)	1.0	1.1 (0.3-3.5)	14.1 (3.1-69.0)	
Readmission					
Unadjusted	1.6 (0.9-2.9)	1.0	1.4 (0.7-2.6)	4.5 (1.4-15.3)	.02
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Failure to return to usual activities					
Unadjusted	1.7 (1.1-2.6)	1.0	1.6 (1.1-2.5)	2.5 (0.8-8.3)	.007
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Excessive alcohol consumption, n (%)	25 (11.4)	21 (12.1)	0.8
Prior influenza vaccination, n (%)	98 (44.5)	66 (37.9)	0.2
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Renal insufficiency	12 (5.5)	8 (4.6)	0.7
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Neurological disease	38 (17.3)	31 (17.8)	0.8
PSI, n (%)			
I	32 (14.5)	15 (8.6)	0.07
II	42 (19.1)	28 (16.1)	0.4
III	49 (22.3)	39 (22.4)	0.9
IV	79 (35.9)	63 (36.2)	0.9
V	18 (8.2)	29 (16.7)	0.01
CURB-65, n (%)			
0	41 (18.6)	22 (12.6)	0.1
1	84 (38.2)	48 (27.6)	0.1
2	55 (25.0)	54 (31.0)	0.1
3	32 (14.5)	34 (19.4)	0.1
4	8 (3.6)	14 (8.0)	0.06
5	0	2 (1.1)	0.1
Antibiotic therapy, n (%)			
β-lactam/macrolide combination	127 (57.7)	103 (59.2)	0.7
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Thorax 2009

Management of Community-Acquired Pneumonia

Ethan A. Halm, M.D., M.P.H.,
and Alvin S. Teirstein, M.D.

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NEJM 2002

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Journal of Antimicrobial Chemotherapy

A multidisciplinary intervention to reduce antibiotic duration in lower respiratory tract infections

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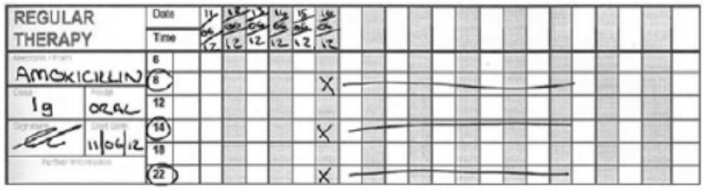
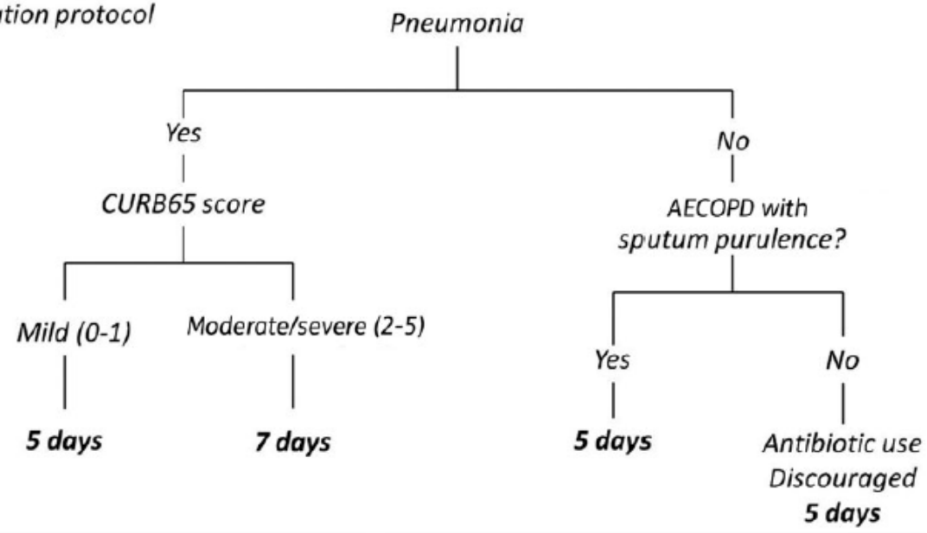
Study design

Automatic stop dates



Antibiotic duration protocol



- 280 patients avant interventions
- 221 après
- Réduction durée de traitement : 8,3 vs 6,8j ($P < 0.001$, 18.1% réduction relative).
- EI liés aux atb réduit : 31% vs 19% ($P = 0.03$, 39.3% reduction relative).
- -Pas d'augmentation mortalité ni de LOS

Should Patients With VAP Receive 7 Days or 8–15 Days of Antibiotic Therapy? Recommendation

- For patients with VAP, we recommend a 7-day course of antimicrobial therapy rather than a longer duration (strong recommendation, moderate-quality evidence).

- Remarks: There exist situations in which a shorter or longer duration of antibiotics may be indicated, depending upon the rate of improvement of clinical, radiologic, and laboratory parameters.

Management of Adults With HAP/VAP • CID 2016

Clinical Infectious Diseases

MAJOR ARTICLE

Ultra-Short-Course Antibiotics for Patients With Suspected Ventilator-Associated Pneumonia but Minimal and Stable Ventilator Settings

Michael Klompas,[1,2] Lingling Li,[1] John T. Menchaca,[1] and Susan Gruber[1]; for the Centers for Disease Control and Prevention Epicenters Program

Background. Many patients started on antibiotics for possible ventilator-associated pneumonia (VAP) do not have pneumonia. Patients with minimal and stable ventilator settings may be suitable candidates for early antibiotic discontinuation. We compared outcomes among patients with suspected VAP but minimal and stable ventilator settings treated with 1–3 days vs >3 days of antibiotics.

Methods. We identified consecutive adult patients started on antibiotics for possible VAP with daily minimum positive end-expiratory pressure of ≤5 cm H_2O and fraction of inspired oxygen ≤40% for at least 3 days within a large tertiary care hospital between 2006 and 2014. We compared time to extubation alive vs ventilator death and time to hospital discharge alive vs hospital death using competing risks models among patients prescribed 1–3 days vs >3 days of antibiotics. All models were adjusted for patient demographics, comorbidities, severity of illness, clinical signs of infection, and pathogens.

Results. There were 1290 eligible patients, 259 treated for 1–3 days and 1031 treated for >3 days. The 2 groups had similar demographics, comorbidities, and clinical signs. There were no significant differences between groups in time to extubation alive (hazard ratio [HR], 1.16 for short- vs long-course treatment; 95% confidence interval [CI], .98–1.36), ventilator death (HR, 0.82 [95% CI, .55–1.22]), time to hospital discharge alive (HR, 1.07 [95% CI, .91–1.26]), or hospital death (HR, 0.99 [95% CI, .75–1.31]).

Conclusions. Very short antibiotic courses (1–3 days) were associated with outcomes similar to longer courses (>3 days) in patients with suspected VAP but minimal and stable ventilator settings. Assessing serial ventilator settings may help clinicians identify candidates for early antibiotic discontinuation.

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Table 2. Clinical Characteristics and Outcomes of Possible Pneumonias

Characteristic	All Patients Prescribed 1–3 Days of Antibiotics (n = 259)	All Patients Prescribed >3 Days of Antibiotics (n = 1031)	*P* Value	Propensity-Matched Patients Prescribed 1–3 Days of Antibiotics (n = 257)	Propensity-Matched Patients Prescribed >3 Days of Antibiotics (n = 257)	*P* Value
Clinical characteristics on the day antibiotics started						
Days since start of mechanical ventilation, mean (SD)	8.1 (8.4)	7.3 (6.1)	.08	8.1 (8.4)	7.6 (6.3)	.45
Maximum temperature, mean (SD)	99.9 (1.4)	100.1 (1.4)	.15	99.9 (1.4)	99.9 (1.4)	.78
Maximum WBC count, mean (SD)	14.0 (9.0)	13.2 (6.8)	.13	14.0 (8.9)	14.7 (8.4)	.36
≥25 neutrophils per low-power field on Gram stain of respiratory secretions	121 (46.7)	545 (52.9)	.08	121 (47.1)	127 (49.4)	.60
Vasopressors required	25 (9.7)	132 (12.8)	.17	25 (9.7)	25 (9.7)	1.00
Organisms isolated from pulmonary specimens						
Staphylococcus aureus	39 (15.1)	264 (25.6)	.0003	39 (15.2)	34 (13.2)	.53
Pseudomonas aeruginosa	21 (8.1)	95 (9.2)	.58	21 (8.2)	23 (9.0)	.75
Klebsiella species	8 (3.1)	78 (7.6)	.01	8 (3.1)	8 (3.1)	1.00
Enterobacter species	8 (3.1)	56 (5.4)	.12	8 (3.1)	10 (3.9)	.63
Serratia species	8 (3.1)	39 (3.8)	.59	8 (3.1)	3 (1.2)	.13
Haemophilus species	4 (1.5)	40 (3.9)	.06	4 (1.6)	5 (2.0)	1.00
Escherichia coli	8 (3.1)	36 (3.5)	.75	8 (3.1)	9 (3.5)	.81
Acinetobacter species	6 (2.3)	27 (2.6)	.78	6 (2.3)	7 (2.7)	.78
Oral flora	158 (61.0)	592 (57.4)	.30	156 (60.7)	160 (62.3)	.72
Outcomes						
Duration of antibiotics, d						
Mean (SD)	2.0 (0.8)	10.0 (5.9)	<.0001	2.0 (0.8)	9.6 (5.8)	<.0001
Median (IQR)	2 (1–3)	9 (6–12)	<.0001	2 (1–3)	8 (5–12)	<.0001
Days from antibiotic start to extubation						
Mean (SD)	9.0 (15.6)	9.3 (11.0)	.77	9.0 (15.6)	9.2 (10.1)	.83
Median (IQR)	4 (2–10)	6 (3–11)	.004	4 (2–10)	6 (3–11)	.01
Days from antibiotic start to hospital discharge						
Mean (SD)	17.1 (17.3)	17.7 (14.5)	.52	17.1 (17.4)	16.5 (11.7)	.63
Median (IQR)	13 (8–22)	14 (9–22)	.03	13 (8–22)	13 (9–20)	.45
Hospital death	75 (29.0)	258 (25.0)	.20	73 (28.4)	78 (30.4)	.63

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Table 3. Competing Risk Analyses of Outcomes Among Patients Prescribed 1–3 Days Versus >3 Days of Antibiotics

		Time to Extubation Alive		Ventilator Death		Time to Hospital Discharge Alive		Hospital Death	
Patient Population	No.	HR (95% CI)	*P* Value	HR (95% CI)	*P* Value	HR (95% CI)	*P* Value	HR (95% CI)	*P* Value
All patients	1290	1.16 (.98–1.36)	.08	0.82 (.55–1.22)	.32	1.07 (.91–1.26)	.43	0.99 (.75–1.31)	.96
Propensity-matched population	514	1.15 (.97–1.38)	.12	0.89 (.57–1.38)	.60	1.08 (.88–1.32)	.45	0.92 (.67–1.27)	.62
Patients with VAP diagnosis codes (propensity-matched population)	104	1.27 (.86–1.88)	.24	0.69 (.26–1.79)	.44	0.94 (.59–1.51)	.80	1.24 (.66–2.34)	.51
Patients with ≥25 neutrophils per low-power field and positive cultures for potentially pathogenic organisms (propensity-matched population)	100	1.00 (.67–1.49)	.98	0.85 (.29–2.50)	.77	1.33 (.85–2.07)	.21	0.60 (.27–1.31)	.20

The NEW ENGLAND JOURNAL of MEDICINE

Procalcitonin-Guided Use of Antibiotics for Lower Respiratory Tract Infection

Objectif de l'étude

Comparer l'effet de l'utilisation de la procalcitonine pour guider l'antibiothérapie dans les Infections Respiratoire Basse avec une prise en charge usuelle

D.T. Huang et al
N Engl J Med Published on Line 20 may 2018 DOI: 10.1056/NEJMoa1802670

The NEW ENGLAND JOURNAL of MEDICINE

Procalcitonin-Guided Use of Antibiotics for Lower Respiratory Tract Infection

Essai prospectif randomisé dans 14 hôpitaux des USA

Patients avec une suspicion d'IRB admis dans les services d'accueil urgence
Bras PCT le cliniciens disposait des résultats immédiats
Bras non PCT les résultats n'étaient fournis au cliniciens qu'à leur demande

Critère principal de jugement
Nombre de jours d'antibiothérapie

Critère secondaire
Evolution défavorable

D.T. Huang et al N Engl J Med Published on Line 20 may 2018

The NEW ENGLAND JOURNAL of MEDICINE

Procalcitonin-Guided Use of Antibiotics for Lower Respiratory Tract Infection

Table 1. (Continued.)

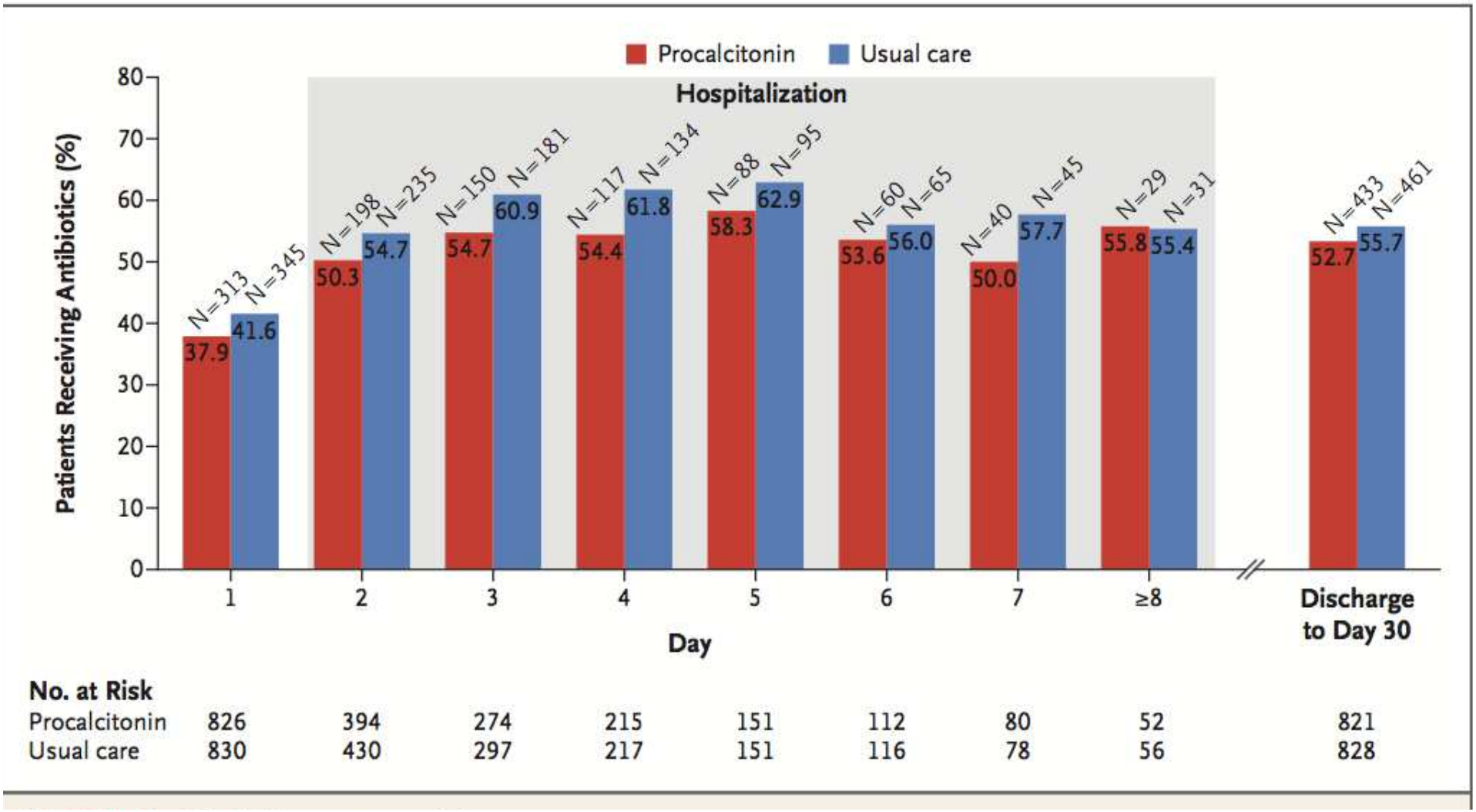
Characteristic	Procalcitonin (N=826)	Usual Care (N=830)
Final diagnosis — no./total no. (%)††		
Asthma	310/822 (37.7)	336/823 (40.8)
COPD	265/822 (32.2)	259/823 (31.5)
Acute bronchitis	208/822 (25.3)	190/823 (23.1)
Community-acquired pneumonia	167/822 (20.3)	161/823 (19.6)
PSI class I	48/167 (28.7)	34/161 (21.1)
PSI class II	52/167 (31.1)	52/161 (32.3)
PSI class III	30/167 (18.0)	33/161 (20.5)
PSI class IV	29/167 (17.4)	38/161 (23.6)
PSI class V	7/167 (4.2)	3/161 (1.9)
Other lower respiratory tract infection	42/822 (5.1)	42/823 (5.1)
Non–lower respiratory tract infection	20/822 (2.4)	21/823 (2.6)
Hospitalized — no. (%)‡‡	378 (45.8)	404 (48.7)

Table 2. Antibiotic Exposure.*

Outcome	Procalcitonin (N=826)	Usual Care (N=830)	Difference (95% or 99.86% CI)†
Intention-to-treat population‡			
Antibiotic-days by day 30§	4.2±5.8	4.3±5.6	−0.05 (−0.6 to 0.5)
Received any antibiotics by day 30 — estimated no. (%)¶	471 (57.0)	513 (61.8)	−4.8 (−12.7 to 3.0)
Antibiotic prescription in ED — estimated no. (%)¶‖	282 (34.1)	321 (38.7)	−4.6 (−12.2 to 3.0)
Antibiotic-days during hospital stay	2.6±3.3	2.7±3.0	−0.1 (−0.8 to 0.6)
Hospital length of stay — days	5.0±4.4	4.7±3.5	0.3 (−0.2 to 0.9)

The NEW ENGLAND JOURNAL of MEDICINE

Procalcitonin-Guided Use of Antibiotics for Lower Respiratory Tract Infection



The NEW ENGLAND JOURNAL of MEDICINE

Procalcitonin-Guided Use of Antibiotics for Lower Respiratory Tract Infection

Conclusion

La mise à disposition immédiate (77 mn) des résultats des dosages de PCT lors de la prise en charge des IRB aux SAU n'a pas conduit à moins d'utilisation d'antibiotiques comparé à une prise en charge habituelle

Interprétation / commentaires

Les 14 hôpitaux ont été sélectionnés sur leur qualité d'adhérence aux recommandations de prise en charge des IRB

L'essai a été accompagné d'une intervention de diffusion des recommandations

D.T. Huang et al N Engl J Med Published on Line 20 may 2018

Journal of Antimicrobial Chemotherapy

Are infection specialists recommending short antibiotic treatment durations? An ESCMID international cross-sectional survey

étude internationale

- interrogatoire sur leurs pratiques à partir de 15 situations cliniques bien caractérisées
- 866 participants (tous hospitaliers) étaient des infectiologues (58.7%) ou des microbiologistes cliniciens (22.8%). ¾ d'entre eux faisaient partie d'Antimicrobial Stewardship (AMS) Team.

36% ont recommandé une durée courte de traitement pour 50 % des situations cliniques.
Pour la France, (165 participants) 46% des participants, recommandaient une courte durée…..

la promotion des traitements courts au sein de cette population est urgente et cruciale.

Gabriel Macheda J Antimicrob Chemother 2018; 73: 1084–1090

Background. Previous studies suggest that duration of antibiotic therapy for community-acquired pneumonia exceeds national recommendations and might represent an important opportunity to improve antibiotic stewardship na objective was to determine the average length of antibiotic therapy (LOT) for patients treated for uncomplicated CAP in and the proportion of patients with excessive durations.

Methods. Records of retrospective cohorts of patients aged 18–64 years with private insurance and aged ≥65 years w hospitalized for CAP in 2012–2013 were used. Inpatient LOT was estimated as a function of length of stay. Outpatie based on prescriptions filled post discharge based on data from outpatient pharmacy files. Excessive duration was defin tient LOT >3 days.

Results. Inclusion criteria were met for 22 128 patients aged 18–64 years across 2100 hospitals and 130 746 p ≥65 years across 3227 hospitals. Median total LOT was 9.5 days. LOT exceeded recommended duration for 74% of p 18–64 years and 71% of patients aged ≥65 years. Patients aged 18–64 years had a median (quartile 1–quartile 3) 6 (3–7) tient LOT and those aged ≥65 years had 5 (3–7) days.

Conclusions. In this nationwide sample of patients hospitalized for CAP, median total LOT was just under 10 day than 70% of patients having likely excessive treatment duration. Better adherence to recommended CAP therapy duratio ing prescribing at hospital discharge may be an important target for antibiotic stewardship programs.

Keywords. antibiotic use; community-acquired pneumonia; length of therapy; treatment duration.

Journal of Antimicrobial Chemotherapy

A multicentre stewardship initiative to decrease excessive duration of antibiotic therapy for the treatment of community-acquired pneumonia

Objectif de l'étude

Evaluer l'impact d'une intervention destinée à promouvoir une durée d'antibiothérapie courte chez les patients hospitalisés en médecine pour une PAC.

Foolad F. et al.
J Antimicrob Chemother 2018; 73: 1402–1407.

Journal of Antimicrobial Chemotherapy

A multicentre stewardship initiative to decrease excessive duration of antibiotic therapy for the treatment of community-acquired pneumonia

Etude multicentrique de type avant/après dans 3 hôpitaux

Intervention par

- actualisation + diffusion des recommandations
- séances de formation dans les services
- audit [illegible] pharmaciens qui proposaient si nécessaire des modifications de durées de traitement

Patients éligibles à une durée d'antibiothérapie de 5j : apyrétiques [illegible] O_2 [illegible]

Foolad F. et al. J Antimicrob Chemother 2018; 73: 1402–1407.

Table 3. DOT comparisons

	Historical control group ($N = 307$)	Intervention group ($N = 293$)	P
Total duration of antibiotic therapy, median (IQR)	9 (7–10)	6 (5–7)	<0.001
Guideline-concordant therapy[a], *n* (%)	17 (5.6)[c]	120 (42)[d]	<0.001
Guideline-concordant therapy +1 day[b], *n* (%)	28 (9.2)[c]	121 (42)[d]	<0.001
Excess antibiotic days, median (IQR)	3 (2–5)	1 (0–2)	<0.001

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A multicentre stewardship initiative to decrease excessive duration of antibiotic therapy for the treatment of community-acquired pneumonia

Résultats

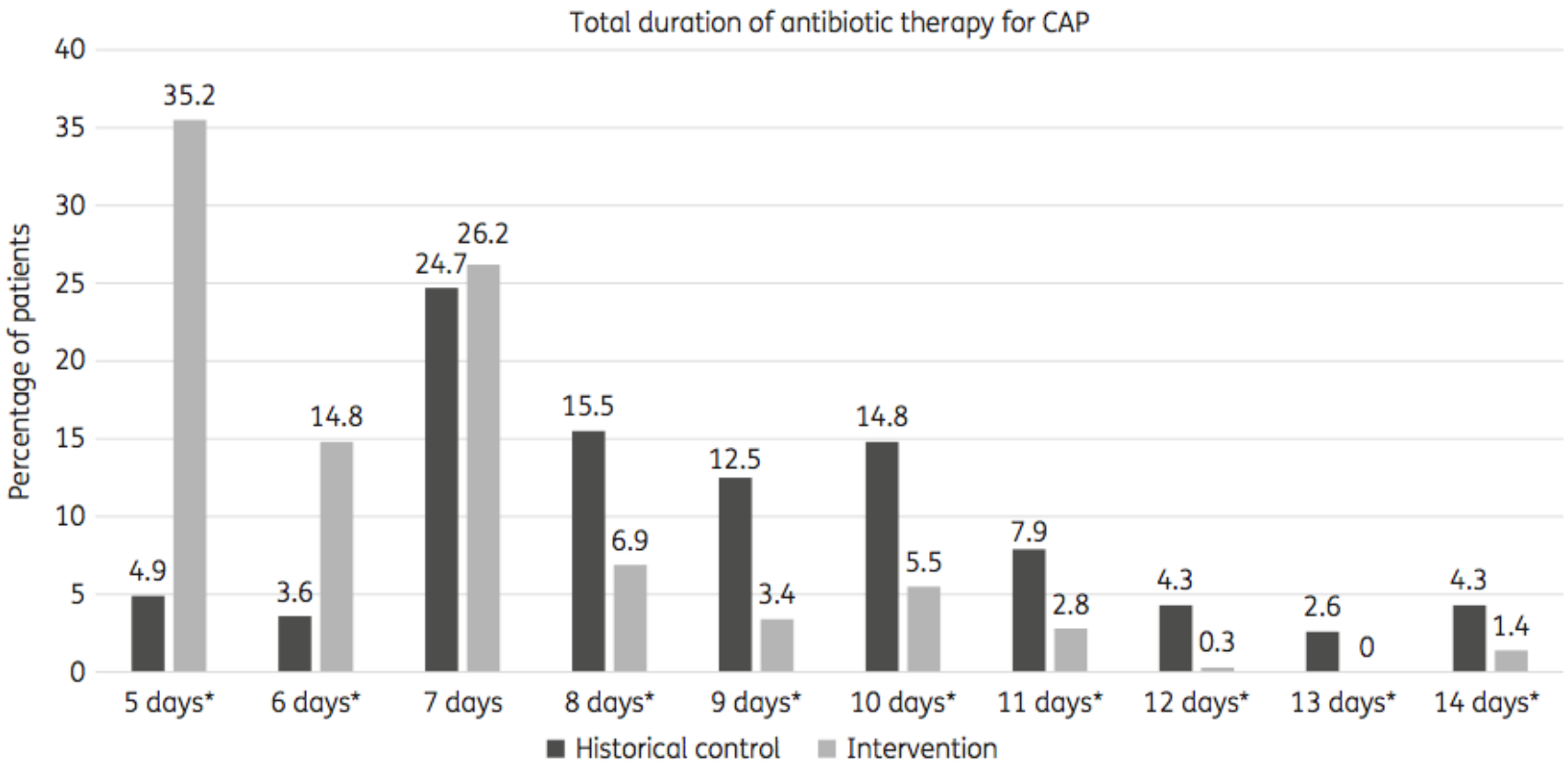

Figure 1. Actual DOT in the historical control group versus stewardship intervention. An asterisk denotes a significant difference.

Foolad F. et al. J Antimicrob Chemother 2018; 73: 1402–1407.

Journal of Antimicrobial Chemotherapy

A multicentre stewardship initiative to decrease excessive duration of antibiotic therapy for the treatment of community-acquired pneumonia

Résultats

- Dans les 2 périodes, la grande majorité des patients présentaient les critères d'éligibilité à une durée courte (96,4% et 91,5%, respectivement).

- Aucune différence observée entre les 2 groupes en termes de réadmission pour pneumonie (7,1% vs. 3,8%) ou de mortalité (2,3% vs 1,0%)
(50% des patients suivis à J+30)

Foolad F. et al. J Antimicrob Chemother 2018; 73: 1402–1407.

Journal of Antimicrobial Chemotherapy

A multicentre stewardship initiative to decrease excessive duration of antibiotic therapy for the treatment of community-acquired pneumonia

Conclusions

L'intervention a permis de réduire la durée de traitement des PAC sans affecter l'évolution

Interprétation / commentaires

- le suivi des recommandations basées sur des critères d'amélioration cliniques simples (et sans contrôle de la CRP …) permet de diminuer la durée de l'antibiothérapie de 10 à 5 jours sans conséquences cliniques négatives pour les patients.
- Les résultats de cette étude rejoignent ceux d'études précédentes dont celle randomisée de Uranga et al. (JAMA Intern Med 2016; 176: 1257–65).
- La majorité des patients sont éligibles à une durée d'antibiothérapie courte

Foolad F. et al. J Antimicrob Chemother 2018; 73: 1402–1407.