Infections aux urgences

de l'épidémiologie à l'organisation des services

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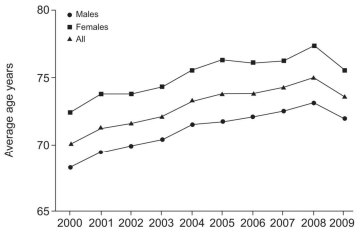
ResO 2016

Lien d'intérêt

La force de l'exemple : pneumonie aiguë communautaire



Age years										
Males	68.3	69.4	69.9	70.4	71.5	71.7	72.1	72.5	73.1	72.0
Females	72.4	73.8	73.8	74.3	75.5	76.3	76.1	76.2	77.3	75.5
All	70.1	71.3	71.6	72.1	73.3	73.8	73.8	74.2	75.0	73.6

Définition radio-clinique

Recommandations paracliniques

Règles antibiotiques

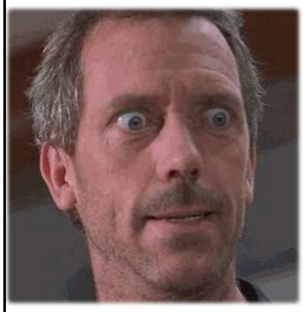
Aides à la décision

Froes F et al. Hospital admissions of adults with community-acquired pneumonia in Portugal between 2000 and 2009. Eur Respir J. 2013;41:1141-6.

La force de l'exemple : pneumonie aiguë communautaire

« Almost all of the major decisions regarding management of CAP, including diagnostic and treatment issues, revolve around the initial assessment »

Mandell LA et al. IDSA/ATS Guidelines for CAP in adults. Clin Infect Dis. 2007;44:S27-72.



La consultation aux urgences,

c'est **7 minutes** de contact

entre le médecin et le patient

Rhodes *et al*. Ann Emerg Med. 2004.

Poser un diagnostic

Le diagnostic de pneumonie aiguë communautaire

« **Le diagnostic de PAC est difficile**. »

« repose sur un faisceau d'arguments »
« données cliniques tributaires de l'expérience de l'examinateur »
« signes cliniques rarement au complet »

« toux, dyspnée, douleur latéro-thoracique, expectoration, fièvre, tachycardie, polypnée, impression globale de gravité, matité localisée, foyer de crépitants »

Prise en charge des infections respiratoires basses de l'adulte immunocompétent. 15ème conférence de consensus en thérapeutique anti-infectieuse. 2006.

Le diagnostic de pneumonie aiguë communautaire

Classiquement deux grands tableaux radio-cliniques

→ **La PFLA**

→ **La pneumopathie atypique**

Très mauvaise corrélation entre tableau clinique, tableau radiologique et germe en cause

Pneumonie aiguë communautaire, un diagnostic radio-clinique

Combinaison radio-clinique

We enrolled consecutive consenting adults (18 years old or above) with a diagnosis of CAP based on the following criteria: temperature ≥38°C, acute respiratory symptoms (at least two of the following symptoms: fever, cough, sputum production, dyspnea, chest pain, altered breath sounds at auscultation), and presence of a new radiological pulmonary infiltrate.

Pneumonie aiguë communautaire, un diagnostic radio-clinique

Clean ProCT

PHRC 2011

- Début brutal
- Au moins 2 critères :
  - ✓ Toux,
  - ✓ Dyspnée,
  - ✓ Douleur latéro-thoracique,
  - ✓ Expectoration purulente ou de caractéristique modifiée,
  - ✓ Tachycardie,
  - ✓ Crépitants à l'auscultion
  - ✓ Souffle tubaire,
  - ✓ Température >38°,
  - ✓ Frissons,
  - ✓ Leucocytes >10000/mm^3 ou <4000/mm^3
- RP compatible avec diagnostic de PAC

DTPAC

PHRC 2012

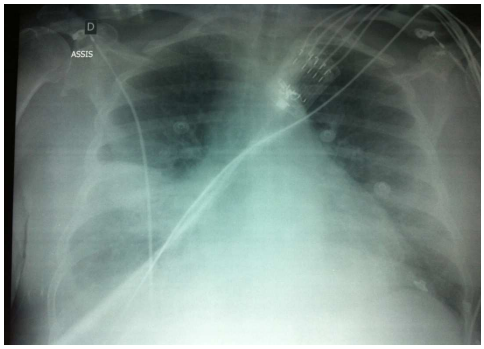
- Au moins 2 critères :
  - ✓ Toux,
  - ✓ Dyspnée,
  - ✓ Douleur latéro-thoracique,
  - ✓ Expectoration purulente ou de caractéristique modifiée,
  - ✓ Crépitants à l'auscultion
  - ✓ Souffle tubaire,
- ET T°>38°C
  - ✓ Température >38°,
  - ✓ Frissons,
  - ✓ Leucocytes >10000/mm^3 ou <4000/mm^3
- RP nouvel infiltrat

Pneumonie aiguë communautaire, un diagnostic radio-clinique

Qualité du cliché

1. Couché strict

ou Debout de face



2. Complété par cliché profil si besoin

Pneumonie aiguë communautaire, un diagnostic radio-clinique

Quelles anomalies ?

1. Opacités alvéolaires à limites floues, sous-pleurales,
. évolution vers une opacité systématisée
. avec ou sans bronchogramme aérien

2. Opacités interstitielles localisées ou diffuses
3. Opacités alvéolaires multiples en mottes péribronchiques
4. Normal (2-7%)

Metlay J *et al*. Influence of age on symptoms at presentation in patients with community-acquired pneumonia. Arch Intern Med 1997;157:1453-9.

Pneumonie aiguë communautaire, un diagnostic radio-clinique

Quelles anomalies ?

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Claessens YE *et al.* Early Chest Computed Tomography Scan to Assist Diagnosis and Guide Treatment Decision for Suspected Community-acquired Pneumonia.. AJRCCM 2015;192:174-82.

Radiographie de thorax et difficultés d'interprétation

Qualité de l'interprétation

Concordance entre 2 radiologues concernant le diagnostic de PAC (282 patients).

Question posée	Réponses	Agrément	Kappa
Infiltrat ?	Oui Non	79,4% 6%	0,37 (0,22-0,52)
Distribution ?	Unilobaire Multilobaire	41,50% 33,90%	0,51 (0,28-0,62)
Pleurésie ?	Oui Non	10,70% 73,20%	0,46 (0,33-0,50)
Caractère ?	Alvéolaire Interstitiel	93,60% 100%	- 0.01 (-0,03 – 0,00)
Bronchogramme ?	Oui Non	7,60% 52,90%	0,01 (-0,13-0,15)

Concordance faible entre 2 examinateurs

Delrue L *et al.* Difficulties in the Interpretation of Chest Radiography. 27-42. in E.E. Coche et al. (eds.), Comparative Interpretation of CT and Standard Radiography of the Chest, Medical Radiology

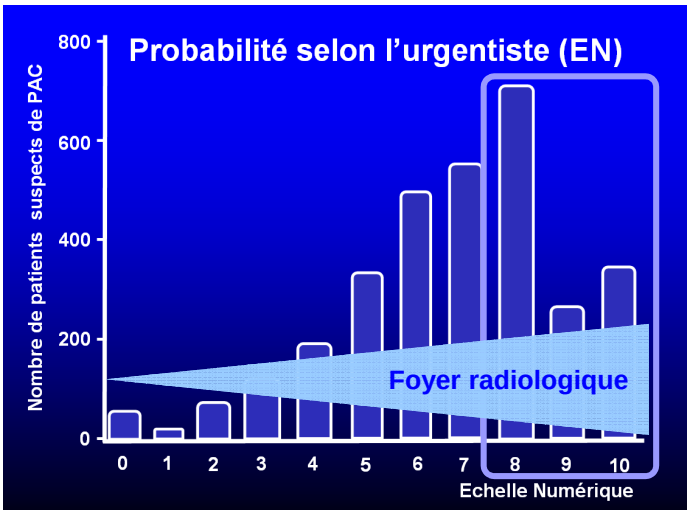
Radiographie de thorax et difficultés d'interprétation

Audit HAS

•3166 CAP

• 72 ED

• 2 months



Ducasse JL et al. Antimicrobial therapy for patients with community-acquired pneumonia in the emergency department: results from a French national audit. EIEJM. In press

Radiographie de thorax et difficultés d'interprétation

"Nineteen of 86 patients (22%; 95% CI, 13.7 to 32.2) presented in a manner that had the potential to result in delayed antibiotic treatment due to diagnostic uncertainty. Diagnostic uncertainty was significantly associated with the lack of rales, normal pulse oximetry findings, and lack of an infiltrate seen on the chest radiograph. There was a nonsignificant trend toward a longer time until antibiotic treatment in patients with diagnostic uncertainty."

Metersky ML *et al*. Antibiotic Timing and Diagnostic Uncertainty in Medicare Patients With Pneumonia. Is it Reasonable to Expect All Patients to Receive Antibiotics Within 4 Hours? Chest. Chest. 2006;130:16-21.

Scanner thoracique et pneumonie aiguë communautaire

… peut être envisager en cas de doute

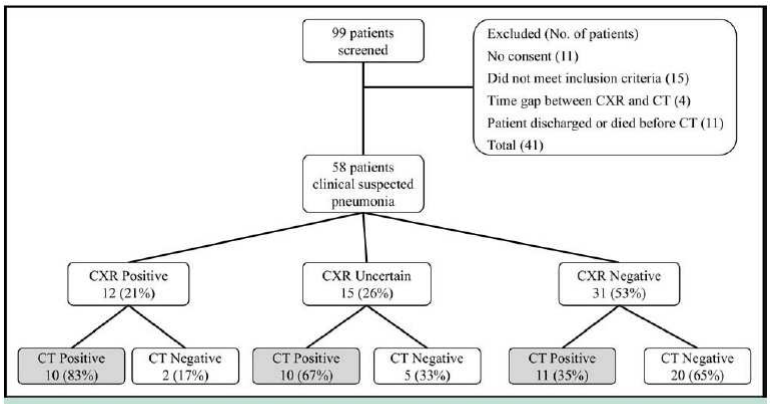


Figure Patient enrollment and classification according to CXR (chest radiograph) and CT (chest computed tomography) findings.

Esayag Y et al. Diagnostic Value of Chest Radiographs in Bedridden Patients Suspected of Having Pneumonia. Am J Emerg Med 2010;123:88e1-e6.

Scanner thoracique et pneumonie aiguë communautaire

… change d'autant plus le diagnostic qu'il est incertain

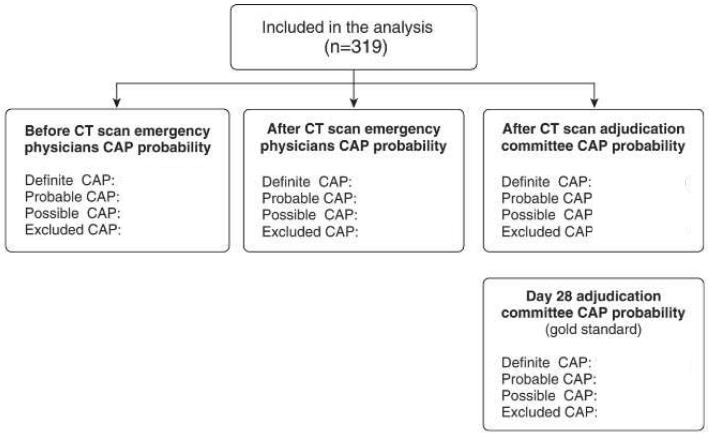
Pre-CT Leading Diagnosis	Frequency (%)	Change in Leading Diagnosis (%) **(+)**	Change in Leading Diagnosis (%) **(-)**
Chest pain or shortness of breath (n = 387)			
Pulmonary embolus	27 (106/387)	73 (77/106)	27 (29/106)
Pulmonary infection and/or pneumonia	18 (69/387)	23 (16/69)	77 (53/69)
Musculoskeletal or atypical chest pain	16 (61/387)	31 (19/61)	69 (42/61)
Tumor	6 (24/387)	38 (9/24)	63 (15/24)
Asthma and/or COPD	6 (23/387)	26 (6/23)	74 (17/23)
Diagnoses with ≤5.0% frequency†	27 (104/387)	35 (36/104)	65 (68/104)

1280 patients des urgences
245 médecins
387 douleur thoracique / dyspnée
+ Δ / - certitude

Pandharipande PV et al. CT in the Emergency Department: A Real-Time Study of Changes in Physician Decision Making. Radiology 2016;78:812-21.

Scanner thoracique et pneumonie aiguë communautaire

… modifie les décisions du médecin



Claessens YE *et al.* Early Chest Computed Tomography Scan to Assist Diagnosis and Guide Treatment Decision for Suspected Community-acquired Pneumonia. AJRCCM 2015;192:174-82.

Imagerie et précision diagnostique

Modifications thérapeutiques après CT-scan ; n=194 (61,0%)

	Pré CT-scan			Post CT-scan		
Traitement antibiotique	Initiation	n=207	(65%)	Arrêt Instauration Modification de classe	n=29 n= 51 n=70	(9%) (16%) (22%)
Autres traitements				Anti-coagulation (EP) Diurétiques (IC)	n=3 n=11	
Lieu de prise en charge	Admission	n=250	(78%)	Admission Modifications - ambulatoire → admis - admis → ambulatoire	n=249 n=45 n=22 n=23	(78%) (14%)

Claessens YE *et al.* Early Chest Computed Tomography Scan to Assist Diagnosis and Guide Treatment Decision for Suspected Community-acquired Pneumonia. AJRCCM 2015;192:174-82.

Choisir (de ne pas demander) des examens biologiques

Bilan paraclinique et pneumonie aiguë communautaire

Hémoculture

Réalisation 1704 / 3165 PAC (54%)

Pour les pneumonies acquises en ville, en dehors d'une institution, il apparaît inutile de proposer un bilan microbiologique pour les patients ayant des critères de faible gravité (PSI : I et II) :

- les détections d'antigènes urinaires pneumocoque et/ou légionelle ne sont pas recommandées d'emblée. La recherche des antigènes urinaires de légionelle peut se justifier :
  - chez les malades présentant des symptômes évocateurs de légionellose ;
  - ou présentant une instabilité hémodynamique et/ou une hypoxémie ;
  - ou en situation épidémique pour toutes les PAC.

Ducasse JL et al. Antimicrobial therapy for patients with community-acquired pneumonia in the emergency department: results from a French national audit. EIEJM. In press

Bilan paraclinique et pneumonie aiguë communautaire

Hémoculture

	Bactériémie	Critères	N (%)	Hémocultures +/-
Marrie *(Can Respir 2003)* 450 PAC	56 (12,4%)	Mortalité J30	3 (5,4%)	NS
		Admis SI	11 (19,6%)	NS
Bordon *(Chest 2008)* 1972 PAC	125 (4,4%)	Mortalité J28	11 (8,8%)	OR=0,86 [0,35-2,06] P=0,73

Critères d'évaluation et d'amélioration des pratiques: prise en charge du sepsis grave. 2008

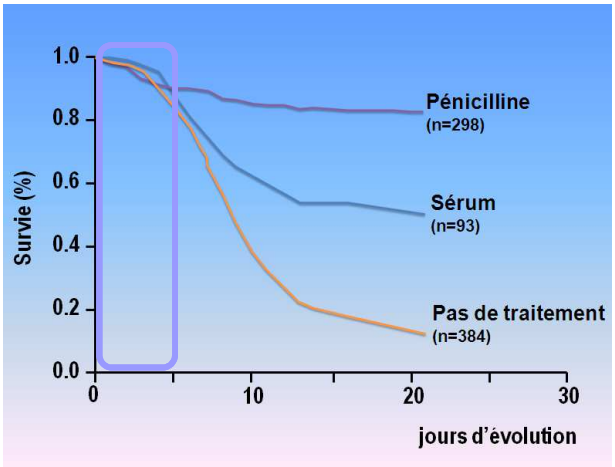
Connaître l'écologie pour choisir l'antibiotique

Connaître l'écologie pour choisir l'antibothérapie

Infectious agents	Outpatients with CAP	CAP admitted	CAP admitted in ICU
Non determined	49.8%	43.8%	41.5%
S pneumonia	19.3%	25.9%	21.7%
S aureus	0.2%	1.4%	7.6%
H influenzae	3.3%	4%	5.1%
M catharralis	0.5%	2.5%	-
Enterobacteriaccae	0.4%	2.7%	7.5%
Legionella spp	1.9%	4.9%	7.9%
Mycoplasma pn.	11.1%	7.5%	2%
Chlamydia pn.	8%	7%	-
Virus	11.7%	10.9%	5.1%

Woodhead M. Community-acquired pneumonia in Europe: causative pathogens and resistance patterns. Eur Respir J. 2002;36:s20-27.

Antibiothérapie et pneumonie aigue communautaire



Austrian R et al. Pneumococcal bacteremia with reference to pneumococcal pneumonia. Ann Intern Med. 1964;60:759-76.

Connaître les recommandations

pour choisir la molécule

Connaître les recommandations pour choisir la molécule

MISE AU POINT

Antibiothérapie par voie générale dans les infections respiratoires basses de l'adulte
Pneumonie aiguë communautaire
Exacerbations de Bronchopneumopathie Chronique Obstructive

Antibiothérapie par voie générale dans les infections respiratoires basses de l'adulte. Pneumonie aiguë communautaire. Exacerbations de Bronchopneumopathie Chronique Obstructive Juillet 2010.

Connaître les recommandations pour choisir la molécule

Groupes	1	2		3	4		5	6
Age (ans)	< 65	< 65	>65	< 65	< 65	>65	+/-	+/-
Comorbidité	No	Yes	+/-	No	Yes	+/-	+/-	+/-
BPCO	No	No	No	No	No	No	No	Yes
Sévérité	No	No	No	No	No	No	Yes	Yes
Grippe	No	No	No	Yes	Yes	Yes	+/-	+/-
1ère ligne	Amox	Amoxiclav		Amoxiclav	Amoxiclav		Cefotaxime OU Ceftriaxone	b-LCT anti-Pyo
	OU Pristinia	OU Levoflox		OU Pristinia	OU Levofloxacin		ET Macrolide	ET Aminoside
	OU Telithro	OU Cefotaxime		OU Telithro	OU Cefotaxime		OU Levoflox	ET Macrolide
	OU Macrolide	OU Ceftriaxone			OU Ceftriaxone			

Antibiothérapie par voie générale dans les infections respiratoires basses de l'adulte. Pneumonie aiguë communautaire. Exacerbations de Bronchopneumopathie Chronique Obstructive Juillet 2010.

Connaître les recommandations pour choisir la molécule

Le choix des armes

- 6 groupes
- 17 combinaisons

Groupe de travail

L'Afssaps et la SPILF ont élaboré cette Mise au point à partir des évaluations d'un groupe multidisciplinaire d'experts présidé par C.Chidiac, infectiologue (Lyon) et composé de :
JD. Cavallo, microbiologiste (Paris), N. Dumarcet (Afssaps), T. Galpérine, infectiologue (Paris), F. Goebel (Afssaps), C. Mayaud, pneumologue (Paris), I. Pellanne (Afssaps), C. Perronne, infectiologue (Garches), P. Petitpretz, pneumologue (Le Chesnay), M. Reidiboym (Afssaps), I. Robine (Afssaps), E. Varon, microbiologiste (Paris).

Ce document a été présenté au Groupe de Travail des Médicaments Anti-Infectieux du 4 novembre et 7 décembre 2009 présidé par R.Cohen. Il a été validé par la commission d'AMM du 3 juin 2010 présidée par D.Vittecoq.

Nous remercions les Assistants - Chefs de clinique et Internes des hôpitaux qui ont contribué par leur relecture attentive à l'amélioration du texte : R Asencio, A Basch, T Baudry, L Bertoletti, C Caralp, J Clottes, M Coudurier, S Couraud, T Ferry, M Fontaine, N Girard, A Grouet, C Guichon, P Heudel, V Jahandiez, S Poutrel, S Quetant

Précision diagnostique et qualité du traitement antibiotique

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Modifications antibiotiques adéquates après CT-scan : + 30% (urgentistes et CVE)

Claessens YE *et al*. Early Chest Computed Tomography Scan to Assist Diagnosis and Guide Treatment Decision for Suspected Community-acquired Pneumonia. AJRCCM 2015;192:174-82.
Duval X, Toubiana S, Claessens YE, Escaped study group. unrealesed data.

Lire un peu de littérature médicale

Étude randomisée en cluster (4mois), Pays-Bas

- **Étude de non-infériorité**
- **Critère évaluation principale : Mortalité 90 jours**
- **Patients admis pour PAC non réanimatoire**

- **3 stratégies**
  - **β-lactamine (n=656)**
  - **vs. β-lactamine-macrolide (n=739)**
  - **vs. quinolone (n=888)**

- **Pas de différence sur la mortalité J90 (9% vs. 11.1% vs. 8.8%)**
- **Pas de différence sur durée de séjour (6j vs. 6j vs. 6j)**
- **Différence sur le relai oral (3j vs. 4j vs. 4j)**

Postma DF. Antibiotic treatment strategies for community acquired pneumonia in adults. N Engl J Med. 2015;372:1312-23.

Connaître la littérature pour le délai antibiotique

Connaître la littérature pour le délai antibiotique

« Le traitement antibiotique doit être instauré dès le diagnostic porté, idéalement dans les 4 heures. »

BTS (GB) (4)	IDSA/ATS (US) (5)	ACEP (US) (6)	SWAB/NVALT (NL) (7)	SIGN (SCT) (8)	ERS/ESCMID (Europe) (9)
Within 4 hours	In the emergency department	As early as possible	Within 4 hours	Early	Early

Abbreviations: ACEP, American College of Emergency Physicians; ATS, American Thoracic Society; BTS, British Thoracic Society; CAP, community-acquired pneumonia; ERS, European Respiratory Society; ESCMID, European Society for Clinical Microbiology and Infection Diseases; GB, Great Britain; IDSA, Infectious Disease Society of America; NL, The Netherlands; NVALT, Dutch Association of Chest Physicians; SCT, Scotland; SIGN, Scottish Intercollegiate Guidelines Network; SWAB, Dutch Working Party on Antibiotic Policy; US, United States.

Antibiothérapie par voie générale dans les infections respiratoires basses de l'adulte. Pneumonie aiguë communautaire. Exacerbations de Bronchopneumopathie Chronique Obstructive Juillet 2010.

Connaître la littérature pour le délai antibiotique

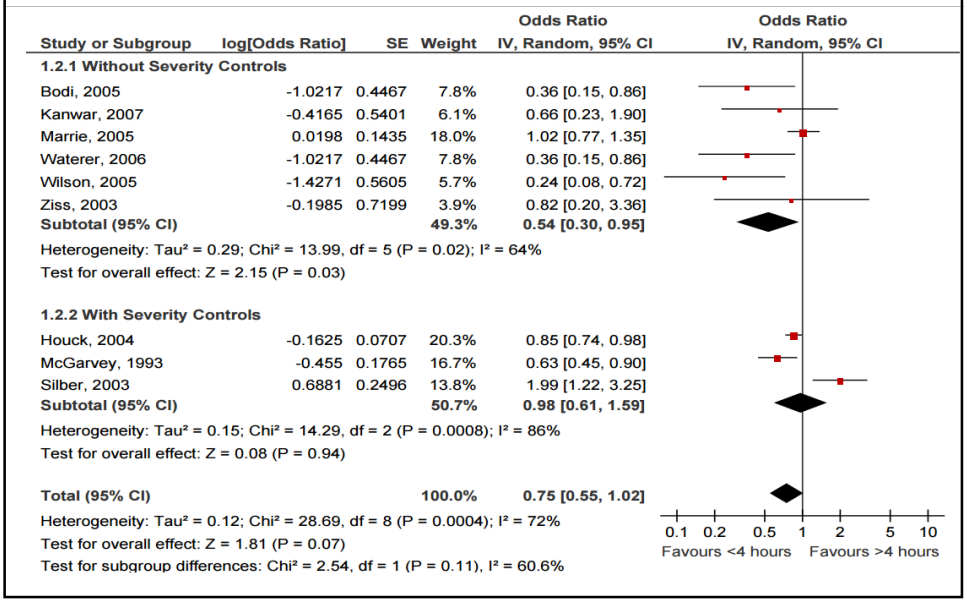
18 209 Medicare patients older than 65 years admitted for CAP

Time to First Dose, h	Patients, No.	In-hospital Mortality, % (95% CI)	30-d Mortality, % (95% CI)	30-d Readmission, % (95% CI)	Median LOS, d (IQR)	LOS Above the Median (5 d), % (95% CI)
0-2	3578	7.4 (6.6-8.3)	12.5 (11.5-13.7)	12.6 (11.5-13.8)	5.0 (3.0-8.0)	43.6 (41.9-45.2)
>2-4	4810	6.3 (5.6-7.0)	10.9 (10.0-11.8)	13.5 (12.5-14.5)	5.0 (3.0-7.0)	41.0 (39.6-42.4)
>4-6	2331	6.9 (6.0-8.1)	11.7 (10.4-13.0)	13.3 (11.9-14.8)	5.0 (3.0-7.0)	42.9 (40.9-45.0)
>6-8	1095	7.2 (5.8-8.9)	13.0 (11.0-15.1)	13.1 (11.1-15.3)	5.0 (3.0-8.0)	46.1 (43.1-49.1)
>8	1957	8.0 (6.9-9.3)	13.8 (12.3-15.5)	15.0 (13.4-16.8)	5.0 (4.0-8.0)	47.2 (45.0-49.5)

… moins de 50% (46%) des patients ont une antibiothérapie dans les 4h.

Houck PM *et al*. Timing of antibiotic administration and outcomes for Medicare patients hospitalized with community-acquired pneumonia. Arch Intern Med 2004; 164:637-644.

Connaître la littérature pour le délai antibiotique



Connaître la littérature pour le délai antibiotique

Etude monocentrique **694 PAC**
U.S **304 AB <4hrs**
390 AB > 4hrs

Table 3. Adjusted predicated probability of delayed (or no) antibiotics by quartiles of waiting room number, new ED patients and mean length of stay for admitted patients (n=694).*

		LOS for admitted patients			
		Lowest Quartile	2nd Quartile	3rd Quartile	Highest Quartile
Waiting Room Number	Lowest Quartile	0.31 (0.21–0.42)	0.44 (0.34–0.54)	0.50 (0.40–0.59)	0.59 (0.47–0.70)
	2nd Quartile	0.37 (0.26–0.49)	0.62 (0.49–0.72)	0.57 (0.47–0.67)	0.65 (0.52–0.76)
	3rd Quartile	0.45 (0.32–0.59)	0.56 (0.44–0.69)	0.62 (0.51–0.73)	0.75 (0.66–0.83)
	Highest Quartile	0.53 (0.40–0.66)	0.61 (0.49–0.71)	0.65 (0.55–0.74)	0.72 (0.61–0.81)

LOS, Length of stay.
†In the 6 hours before triage of a patient with pneumonia.
*Predicted probabilities are adjusted for the Pneumonia Severity Index Class (1, 2, 3 and compared to 4, 5), triage class, arrival mode, and patient demographics (age, sex, and race), and CIs account for clustering on individual attending physicians.

Pines JM *et al*. The Impact of Emergency Department Crowding Measures on Time to Antibiotics for Patients With Community-Acquired Pneumonia. Ann Emerg Med 2007; 50:510-6.

Connaître la littérature pour le délai antibiotique

	2003	2005	P value
PSI	-----	-----	NS
CURB65	-----	-----	NS
Mortality	-----	-----	NS
Hémocultures avant AB	93 [46.7%]	220 [69.6%]	< 0.001
AB < 4hrs	107 [53.8%]	210 [65.8%]	0.007
AB/patient	1.39 (0.58)	1.66 (0.54)	< 0.001
Radiographie normale	41 [20.6%]	91 [28.5%]	0.04
Diagnostic PAC [+]	75.9%	58.9%	< 0.001

Kanwart M. Misdiagnosis of Community-Acquired Pneumonia and Inappropriate Utilization of Antibiotics. Chest . 2007; 131:1865-9.

Reconnaître les graves

Reconnaître les graves

Base de donnée PAC 'PMSI'

14 199 hospitalisés

Base PAC 'PMSI' (38 039 PAC hospitalisés)

Cohorte PORT (2 287 hosp et ambu)

Score PSI

ICU	PSI	Mortalité
4,3%	I	0,0-0,5%
4,3%	II	0,4-0,9%
5,9%	III	0,0-2,8%
11,3%	IV	8,2-9,3%
17,9%	V	0,6-10,6%

Critères	Points
Démographiques :	
âge : Homme	âge (an)
Femme	âge-10
instutionnalisation	10
Pathologies chroniques :	
néoplasie	30
cirrhose	20
insuffisance cardiaque	10
A.V.C.	10
insuffisance rénale	10

Critères	Points
Cliniques :	
encéphalopathie	20
F.R. ≥ 30/min.	20
PA < 90 mmHg	20
T°C < 35° C ou ≥40°C	15
F.C. ≥125/min.	10
Biologiques :	
pH < 7,35	30
Urée ≥ 11 mmol/l	20
Na^+ < 130 mmol/l	20
Gly ≥ 14 mmol/l	10
Ht < 30%	10
PaO_2 < 60 mmHg	10
épanchement pleural	10

Fine MJ *et al*. A prediction rule to identify low-risk patients with community-acquired pneumonia.N Engl J Med. 1997;336:243-50.

Reconnaître les graves

8 services d'urgences

France

925 PAC

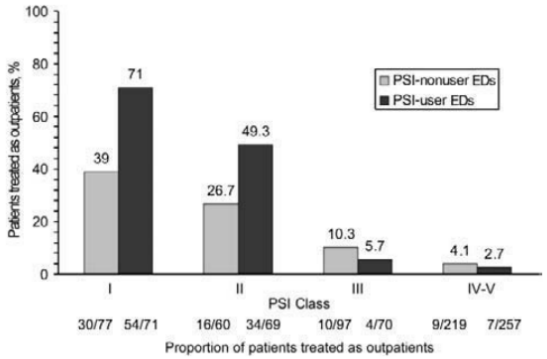
472 (51%) PSI [+]

453 (49%) PSI [-]

Bas risque ambulatoire

PSI [+] 92/215 (42.8%)

PSI [-] 56 (23.9%)



Renaud B *et al*. Routine use of the Pneumonia Severity Index for guiding the site-of-treatment decision of patients with pneumonia in the emergency department: a multicenter, prospective, observational, controlled cohort study. Clin Infect Dis. 2007;44:41-9.

Reconnaître les graves

Un outil complexe (>20 variables)

PSI I-II-III & hypoxémie (PaO2<60mmHg; SpO2 <90%)

Barrières à la prise en charge ambulatoire

- **Choc**
- **Comorbidités décompensées**
- **Pleurésie**
- **Incapacité à prendre le traitement PO et à s'alimenter**
- **Dépendance, altération des fonctions supérieures**
- **Problèmes sociaux, SDF**
- **Pathologie psychiatriques ou addictives**
- **Absence de réponse à un traitement préalable**

« Dans les services d'urgences disposant de ressources permettant l'utilisation en routine du PSI, et compte tenu d'une validation plus large et d'une plus grande expérience, l'utilisation de celui-ci doit être favorisée pour identifier les patients candidats à une prise en charge ambulatoire. »

IDSA/ATS Guidelines for CAP in Adults • CID 2007:44 (Suppl 2) • S35

Reconnaître les graves

The Sixth Sense. *« The higher observed mortality rate among all low-risk inpatients suggests that physician judgement is an important complement to objective risk stratification in the site-of-treatment decision for patients with pneumonia. »*

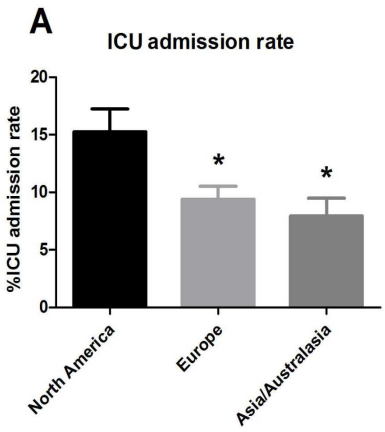
Table 4—*Comparison of 30-Day Mortality for Low-Risk Outpatients and Low-Risk Inpatients Without a Contraindication to Outpatient Treatment**

Variables	30-d Mortality†		p Value‡
	Outpatients	Inpatients	
Quintile of propensity score§			
I	0/41 (0.0)	11/256 (4.3)	0.37
II	1/126 (0.8)	2/168 (1.2)	1.00
III	0/204 (0.0)	1/83 (1.2)	0.29
IV	0/260 (0.0)	0/26 (0.0)	
V	0/275 (0.0)	0/9 (0.0)	
All strata	1/906 (0.1)	14/542 (2.6)	< 0.01
Propensity-matched patients	1/242 (0.4)	2/242 (0.8)	0.99

Labarere J *et al*. Comparison of outcomes for low-risk outpatients and inpatients with pneumonia: A propensity-adjusted analysis. Chest. 2007;131:480-8.

Reconnaître les très graves

Reconnaître les très graves



- **Indications / limitations**
  - d'un pays à l'autre
  - d'un service à l'autre
  - des conditions d'exercice
- **Délai d'admission ≥ 6 h**
  ➔ perte de chance

Chalmers, Intensive care med, 2011;Garrouste-Orgeas M, Intensive Care Med, 2003; Garrouste MT, CCM, 2005; Chalfin D, CCM, 2007; Simchen E, CCM, 2007

Reconnaître les très graves

- **ATS rule**
  - Admission en réanimation
- **Modified ATS rule / IDSA**
  - Admission en réanimation
- **Espana rule**
  - Admission en réanimation
- **SMART-COP**
  - Ventilation mécanique et support vasopresseurs
- **Espana rule**
  - Admission en réanimation
  - Ventilation mécanique, choc septique, décès

- **Biais protopathique**
- **Délai inadapté aux urgences**

Reconnaître les très graves

Adjusted coefficients and odd ratios for admission to ICU within three days of presentation and points assigned in the predictive model

Characteristics	β parameter	95% CI (β parameter)	OR	95% CI (OR)	Points assigned
Male	0.39	(0.08 to 0.70)	1.47	(1.08 to 2.01)	1
Comorbid condition ≥ 1	0.45	(0.11 to 0.78)	1.57	(1.12 to 2.19)	1
Respiratory rate ≥ 30 breaths/minutes	0.53	(0.18 to 0.88)	1.70	(1.20 to 2.41)	1
White blood cell count < 3 or ≥ 20 G/L	0.54	(0.14 to 0.94)	1.71	(1.15 to 2.55)	1
Heart rate ≥ 125 beats/minute	0.55	(0.14 to 0.95)	1.73	(1.15 to 2.60)	1
Age < 80 years	0.57	(0.18 to 0.95)	1.76	(1.19 to 2.59)	1
Multilobar infiltrates or pleural effusion	0.79	(0.48 to 1.09)	2.19	(1.62 to 2.97)	2
Oxygen saturation< 90% or PaO_2 < 60 mmHg	0.85	(0.53 to 1.17)	2.35	(1.71 to 3.23)	2
Arterial pH < 7.35	0.91	(0.38 to 1.44)	2.49	(1.47 to 4.22)	2
Blood urea nitrogen ≥ 11 mmol/L	0.94	(0.61 to 1.28)	2.56	(1.84 to 3.58)	2
Sodium < 130 mEq/L	1.06	(0.58 to 1.53)	2.88	(1.79 to 4.63)	3

CI = confidence Interval; OR = odds ratio; PaO_2 = arterial partial pressure of oxygen.

Renaud B *et al.* Risk stratification of early admission to the intensive care unit of patients with no major criteria of severe community-acquired pneumonia: development of an international prediction rule. Crit Care. 2009;13:R54.

Reconnaître les très graves

Population and outcomes stratification according to the risk of early ICU admission index (REA-ICU index) of patients with community acquired pneumonia

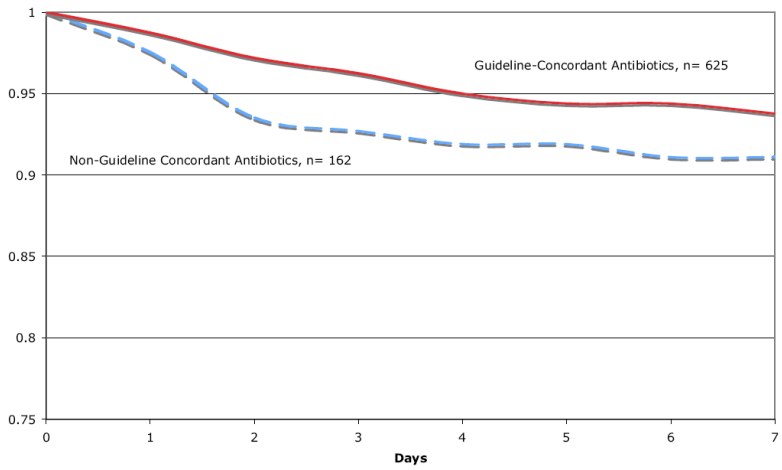
		Derivation population			Validation population		
Risk class	Score	N	ICU ≤ 3 days, % (95% CI)	Death ≤ 28 days, % (95% CI)	n	ICU ≤ 3 days, % (95% CI)	Death ≤ 28 days, % (95% CI)
I	≤ 3	2510	1.1 (0.7 to 1.6)	1.2 (0.8 to 1.8)	1099	1.3 (0.7 to 2.1)	1.9 (1.2 to 2.9)
II	4 to 6	1498	5.5 (4.4 to 6.8)	6.0 (4.8 to 7.3)	633	7.1 (5.2 to 9.4)	4.4 (3.0 to 6.3)
III	7 to 8	419	11.0 (8.2 to 14.4)	9.1 (6.5 to 12.2)	164	12.2 (7.6 to 18.2)	7.9 (4.2 to 13.2)
IV	≥ 9	166	27.1 (20.5 to 34.5)	15.1 (10.0 to 21.4)	71	32.4 (21.7 to 44.5)	22.5 (13.5 to 34.0)
Total		4593	4.4 (6.0 to 7.4)	4.0 (3.4 to 4.6)	1967	5.2 (5.8 to 8.0)	4.0 (3.1 to 4.9)

ICU ≤ 3 days and death ≤ 28 days refer to patients who were admitted to an ICU within three days of presentation to the emergency department or who died within 28 days of presentation, respectively. Results are expressed as percentages of each outcome within each REA-ICU risk class. CI = confidence interval; ICU = intensive care unit.

Renaud B *et al.* Risk stratification of early admission to the intensive care unit of patients with no major criteria of severe community-acquired pneumonia: development of an international prediction rule. Crit Care. 2009;13:R54.

Protocoliser la prescription antibiotique

Protocoliser la prescription antibiotique



Mortensen EM *et al.* Antibiotic therapy and 48-hour mortality for patients with pneumonia. Am J Med. 2006;119:859-64.

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IDSA FEATURES

Implementing an Antibiotic Stewardship Program: Guidelines by the Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America

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Evidence-based guidelines for implementation and measurement of antibiotic stewardship interventions in inpatient populations including long-term care were prepared by a multidisciplinary expert panel of the Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America. The panel included clinicians and investigators representing internal medicine, emergency medicine, microbiology, critical care, surgery, epidemiology, pharmacy, and adult and pediatric infectious diseases specialties. These recommendations address the best approaches for antibiotic stewardship programs to influence the optimal use of antibiotics.

Keywords. antibiotic stewardship; antibiotic stewardship programs; antibiotics; implementation.

Protocoliser la prescription antibiotique

5 hôpitaux **6 mois**
631 PAC **357 traitées selon les recommandations**

Table 3 Health Care Endpoints for Community-Acquired Pneumonia Patients Initially Treated with Guideline-Concordant and Guideline-Discordant Antibiotic Therapy*

	Guideline-Concordant Antibiotics			
Health care endpoint	Yes (n = 357)‡	No (n = 274)‡	Per Protocol *P* Value‡	Intention to Treat *P* Value§
Time to clinical stability (d)†	2.1 ± 1.5	2.3 ± 1.8	.25	.03
Time to switch therapy (d)†	4.5 ± 3.0	5.9 ± 3.6	<.01	<.01
Length of hospital stay (d)†	5.0 ± 3.8	6.2 ± 4.2	<.01	<.01
In-hospital mortality	3%	7%	.04	.04

*Regression models included the listed outcome as the dependent variable, antibiotic therapy as the independent variable, and Pneumonia Severity Index score as a covariate.

†Values reflect mean ± standard deviation.

‡For the per-protocol analysis, patients who died (n = 29) or left against medical advice (n = 7) were excluded from the time to clinical stability, time to switch therapy, and length of hospital stay regression models.

§For the intention-to-treat analysis, patients who left against medical advice (n = 7) were excluded from the time to clinical stability, time to switch therapy, and length of hospital stay regression models; however, patients who died (n = 29) were assigned a time to clinical stability, time to switch therapy, and length of hospital stay of 6 days.

Frei CR *et al*. Impact of Guideline-Concordant Empiric Antibiotic Therapy in Community-Acquired Pneumonia. Am J Med. 2006;119:865-71.

Protocoliser la prescription antibiotique

Audit français multicentrique

72 Services d'urgence

3166 PAC

39 (54%) procédure pour AB/PAC

Patients' groups	Definition of groups	Antimicrobial therapy	Patients with adequate antimicrobial therapy N (%)
Total	Total	**Adequate antibiotics**	**895 (31,8)**
N=2 812			
Group 1	Age <65 yrs	**Adequate antibiotics**	**122 (36,0)**
N=339		*Amoxicillin*	*96*
		Pristiniamycin	*5*
		Telithromycin	*10*
		Macrolid	*11*
Group 2	Age < 65 yrs and underlying disorders	**Adequate antibiotics**	**711 (66,9)**
N=1 063	or	*Amoxicillin-clavulanic acid*	*481*
	Age >= 65 yrs	*Levofloxacin*	*52*
		Cefotaxim	*19*
		Ceftriaxon	*159*
Group 3	Seasonal influenza	**Adequate antibiotics**	**22 (41,5)**
N=53	and	*Amoxicillin-clavulanic acid*	*18*
	Age <65 yrs	*Pristiniamycin*	*3*
		Telithromycin	*1*
Group 4	Seasonal influenza	**Adequate antibiotics**	**22 (64,7)**
N=34	and	*Amoxicillin-clavulanic acid*	*18*
	Age < 65 yrs and underlying disorders	*Levofloxacin*	*1*
	or	*Cefotaxim*	*2*
	Age >= 65 yrs	*Ceftriaxon*	*1*
Group 5	Symptoms of severity	**Adequate antibiotics**	**18 (1,8)**
N=978		*Ceftriaxon + Macrolid*	*0*
		Cefotaxim + Macrolid	*18*
		Ceftriaxon + Levofloxacin	*0*
		Cefotaxim + Levofloxacin	*0*
Group 6	Symptoms of severity	**Adequate antibiotics**	**0 (0,0)**
N=345	and	*Anti-Pseudomonas b-lactam + Aminoglycosid + Macrolids*	*0*
	COPD or cystic fibrosis		

Ducassé JL *et al*. Antimicrobial therapy for patients with community-acquired pneumonia in the emergency department: results from a French national audit. submitted.

7 minutes

Experience-based medicine

Eminence-based medicine

Evidence-based medicine

Post-evidence-based medicine

Nathan C. Antibiotics at the cross road. Nature 2004;431:899-902.

CAP definition pattern	Inclusion criteria for CAP	Number of included patients among the 319 Escaped patients	Sensitivity (%)	Specificity (%)	Positive Predictive Value (%)	Negative Predictive Value (%)
1	Infiltrate on chest X-ray and ≥ 1 respiratory symptom and fever and biological inflammatory syndrome	61	31.3	93.6	83.6	55.6
2	Infiltrate on chest X-ray and ≥ 1 respiratory symptom and fever	103	47.2	83.3	74.8	60.2
3	Infiltrate on chest X-ray and ≥ 1 respiratory symptom	187	73.0	56.4	63.6	66.7
4	Infiltrate on chest X-ray and ≥ 2 respiratory symptoms	170	67.5	61.5	64.7	64.4
5	Infiltrate on chest X-ray and ≥ 1 or ≥ 2 criteria among Dyspnoea or polypnoea Chest pain Cough Sputum Abnormal pulmonary auscultation Biological inflammatory syndrome	178	71.2	60.3	65.2	66.7
6	Fever and dyspnoea / polypnoea and new cough and purulent sputum Abnormal pulmonary auscultation	20	9.8	97.4	80.0	50.8
7	Fever and new sputum and ≥ 2 criteria among Dyspnoea Polypnoea Chest pain	50	23.3	92.3	76.0	53.5

Flateau C *et al*. Discrepancies in Community-Acquired Pneumoniae Definition in Randomized Clinical Trial: Possible Impact on Trial Validity. submitted

7 minutes

Experience-based medicine

Eminence-based medicine

Evidence-based medicine

Post-evidence-based medicine

"It makes no sense to use twenty-first century technology to develop drugs targeted at specific infections, whose diagnosis is delayed by nineteenth-century methods."

Nathan C. Antibiotics at the cross road. Nature 2004;431:899-902.