Biologie et urgences

Pr Emmanuel Montassier
Urgences SAMU44 CHU de Nantes

Je n’ai aucun conflit d’intérêt à déclarer

Les examens complémentaires …

Afin d'optimiser la prise en charge diagnostique de l'usager-acteur de sa maladie, celui-ci a bénéficié des examens suivants: NFS, Gazométrie artérielle, iono, bilan hépatique, VS, électrophorèse, CRP, etc….

Comme on savait pas ce qu'avait le malade, on a demandé des tas d'examens dont la signification exacte nous échappe, mais qui avaient le mérite de retarder l'heure de la décision...

LA DEMARCHE DIAGNOSTIQUE AUX URGENCES

Le raisonnement **INTUITIF** faisant appel à l'expérience et à ce que l'on a appris.

Le raisonnement **OBJECTIF** plus scientifique, qui repose sur les probabilités bayésiennes, mais qui suppose une bonne connaissance de la valeur prédictive des signes dans la population étudiée

… et quelle que soit la démarche, **LE TEMPS** est une dimension supplémentaire, spécifique et contraignante…

10 Questions clés à se poser avant de prescrire un examen complémentaire

1. A quelle question précise cet examen doit-il m'aider à répondre?
2. La réponse à cette question va-t-elle vraiment modifier la prise en charge du patient?
3. Avant de réaliser l'examen, quelle probabilité *a priori* (probabilité pré-test) j'attribue à mon hypothèse?
4. Ne puis-je pas avancer dans ma réflexion en complétant l'interrogatoire et l'examen physique?
5. Ai-je exploité complètement les examens complémentaires dont je dispose à ce stade?

10 Questions clés à se poser avant de prescrire un examen complémentaire

6. Quels sont les risques de cet examen ?
7. Puis-je prévenir ou limiter ces risques?
8. Ai-je expliqué au patient la justification de cet examen, le bénéfice que j'en attends, les risques qu'il comporte?
9. Lui ai-je décrit concrètement comment allait se passer cet examen?
10. Est-il d'accord? …

Le préalable à la demande d'examens complémentaires

Diagnostic cliniquement évident = aucun examen complémentaire à visée diagnostique (éventuellement pour juger du retentissement). Ex : pneumopathies, PNA, infections cutanées...

L 'examen complémentaire doit :

Aider au diagnostic

Aider à la prise en charge et à l 'orientation...

LES EXAMENS BIOLOGIQUES AUX URGENCES: POUR QUOI FAIRE ?

Pour confirmer une probabilité pré-test moyenne ou forte

Pour éliminer définitivement une faible probabilité pré-test

Pour aider à l ’orientation du patient et à la décision thérapeutique (antibiothérapie ou abstention)

VALEUR DIAGNOSTIQUE DES MARQUEURS ?

Définition de la valeur “normale”

définition du biologiste (CRP<5mg/l, PCT<0,1ng/ml)

Définition des valeurs “cliniquement significatives”

contributives pour la prise en charge par le clinician

seuil de CRP?? Seuil de PCT??

LA MESURE DE L ’IMPACT DES DONNEES

L’utilisation du nomogramme de Fagan

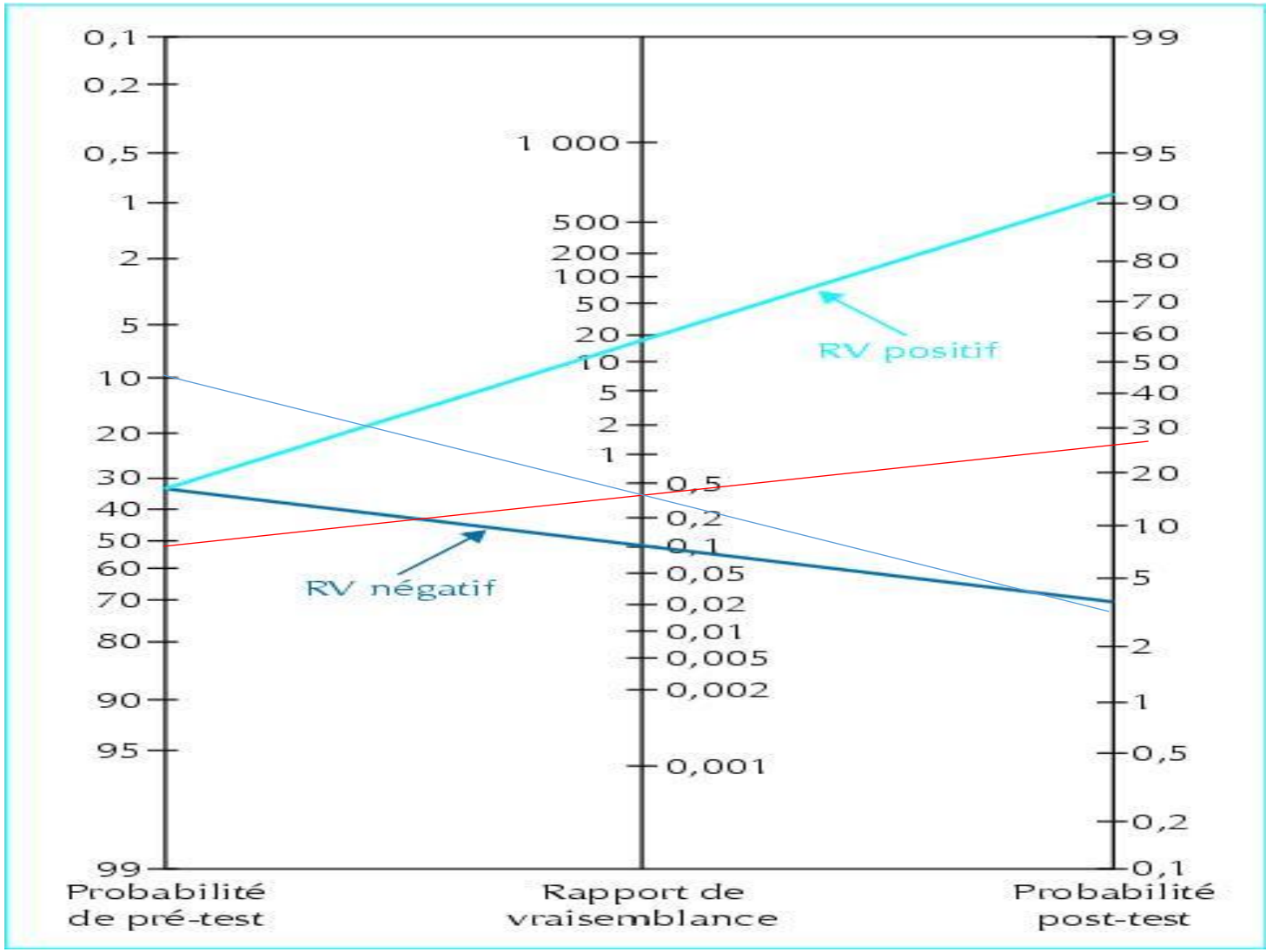
- Détermination de la probabilité pré-test
- La probabilité post-test dépend du rapport de vraisemblance du test.
- La probabilité post-test devient la probabilité pré-test préalable au test suivant etc ...

LES RAPPORTS DE VRAISEMBLANCE

- Le rapport de vraisemblance positif
  - rapport entre la probabilité de présenter un test positif quand la personne est malade et la probabilité de présenter un test positif quand la personne n'est pas malade = impact d’un test positif

- Le rapport de vraisemblance négatif
  - rapport entre la probabilité de présenter un test négatif quand la personne est malade et la probabilité de présenter un test négatif quand la personne n'est pas malade = impact d’un test négatif

La démarche diagnostique: le nomogramme de Fagan



La N-acétylcystéine a prouvé son efficacité pour prévenir l'hépatotoxicité des intoxications par le paracétamol. La N-acétylcystéine est indiquée au cours des intoxications graves au paracétamol (dose supposée ingérée $\geq$ 125 mg/kg), confirmées par le dosage de paracétamol interprété sur le nomogramme de Rumack et Matthew (zones de toxicité possible ou probable) (accord fort).

Si la date d'ingestion du paracétamol n'est pas connue, il convient de répéter le dosage 4 h plus tard pour mesurer la demi-vie plasmatique d'élimination. La demi-vie, de 2–3 h, est augmentée en cas d'intoxication et l'hépatite est probable lorsqu'elle dépasse 4 h (accord fort).

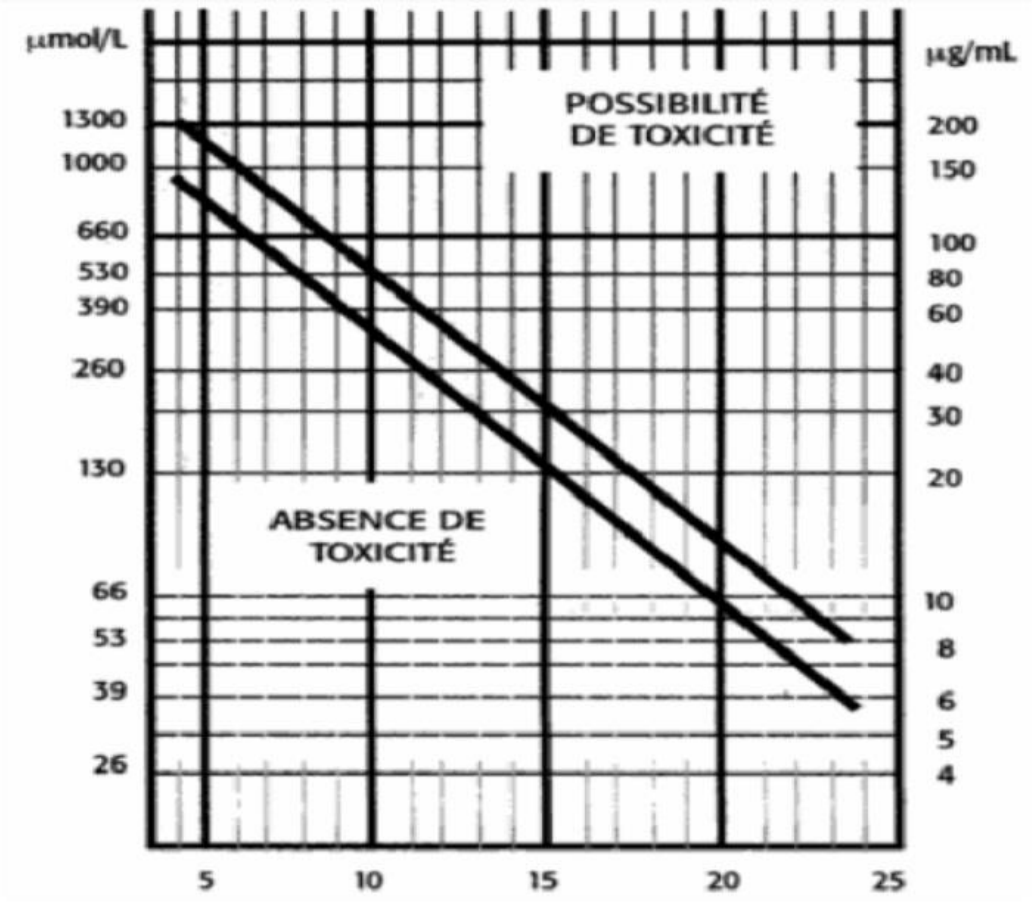
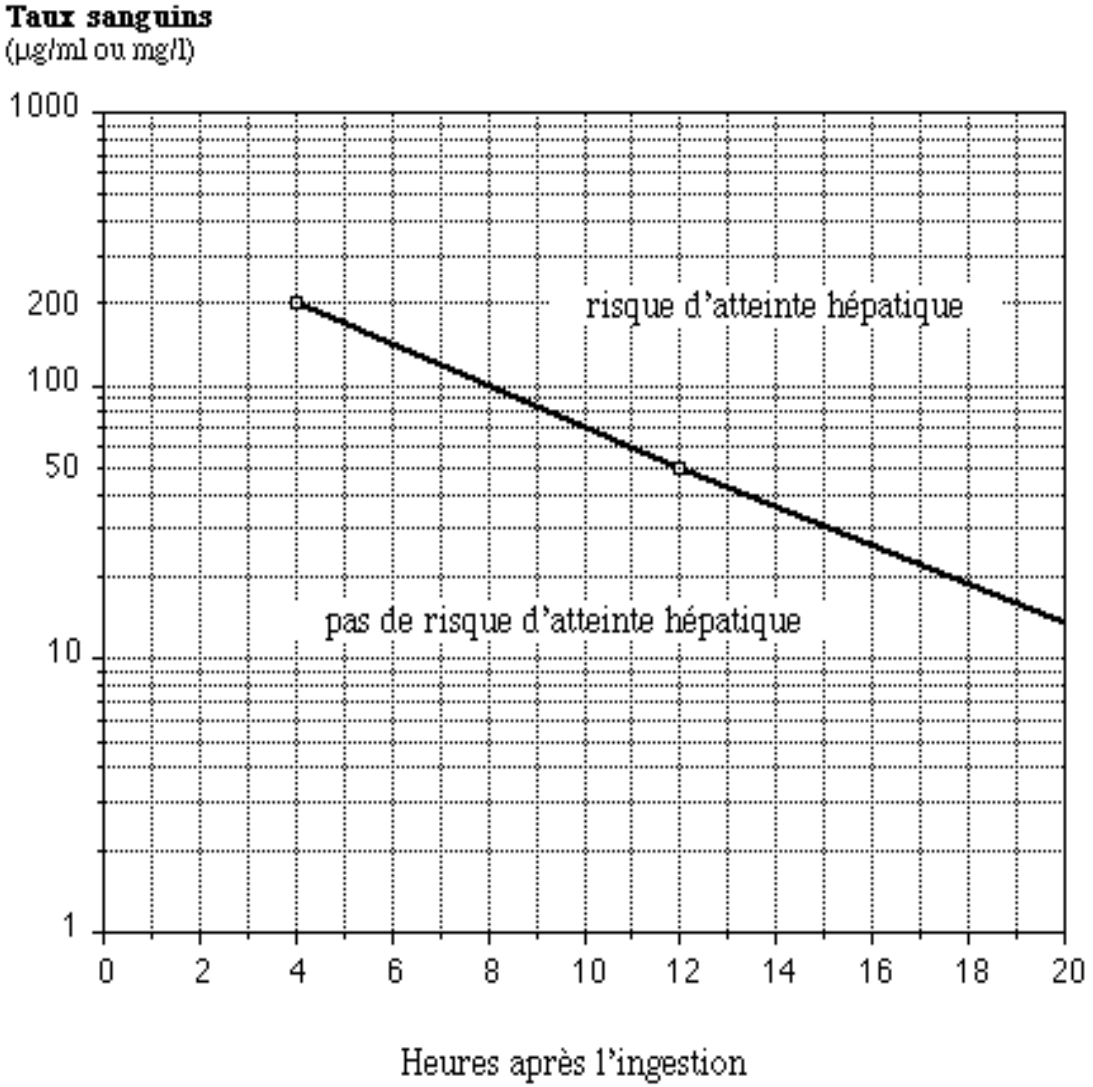


Figure 10 : Nomogramme de RUMACK-MATTHEWS mettant en relation la concentration plasmatique du paracétamol (ordonnées), le temps en heures après l'ingestion (abscisses) et la gravité de l'intoxication (surface du graphe), d'après LACROIX et *al* (2007).

- Non fiable si: OH chronique, malnutrition, prises répétées, inducteurs enzymatiques, ralentisseurs de la vidange gastrique ou formes LP

Nomogramme de Prescott

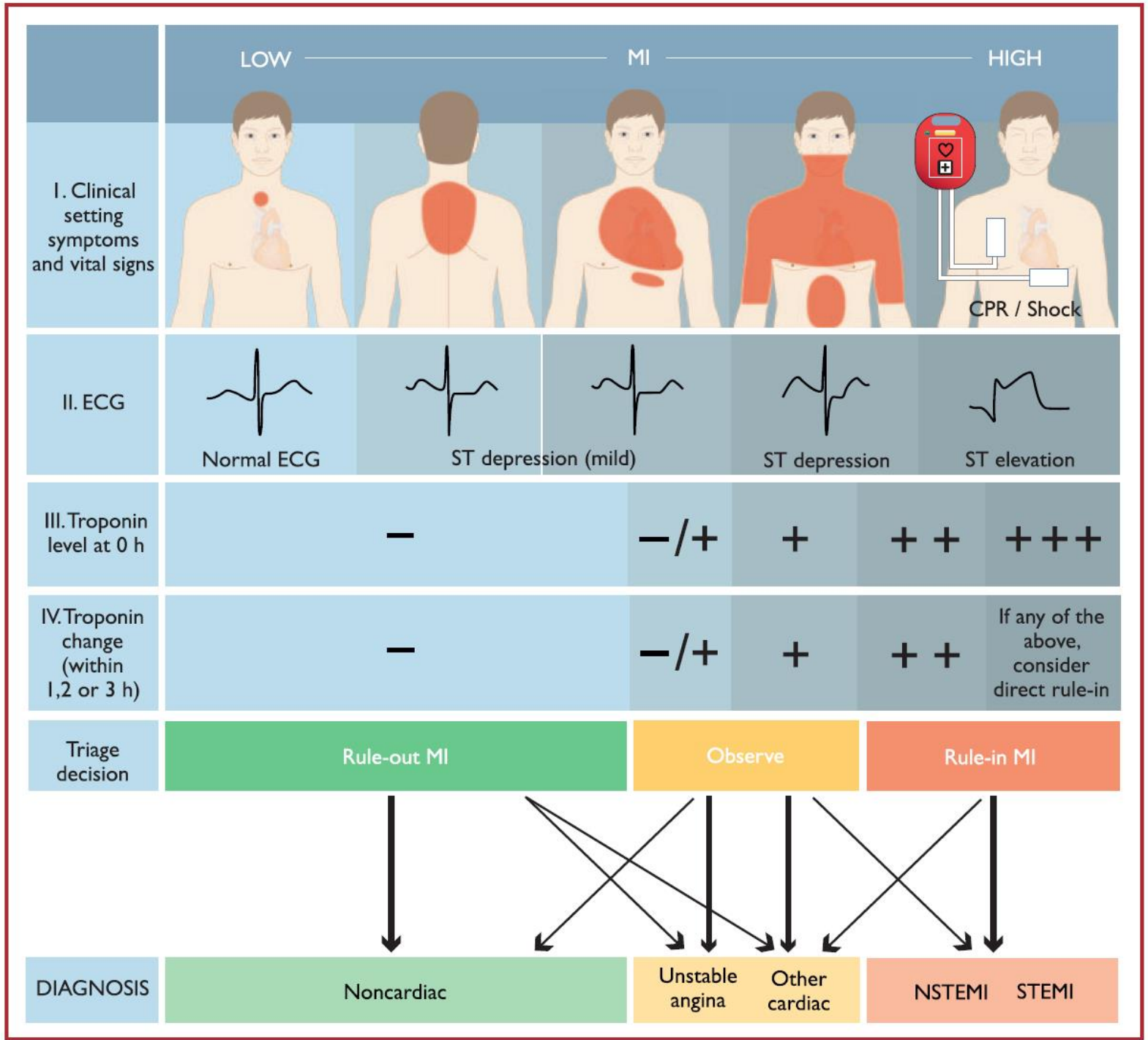


ESC
European Society of Cardiology
European Heart Journal (2020) **00**, 1–79
doi:10.1093/eurheartj/ehaa575

ESC GUIDELINES

2020 ESC Guidelines for the management of acute coronary syndromes in patients presenting without persistent ST-segment elevation

The Task Force for the management of acute coronary syndromes in patients presenting without persistent ST-segment elevation of the European Society of Cardiology (ESC)


LOW
MI
HIGH
I. Clinical setting symptoms and vital signs
CPR / Shock
II. ECG
Normal ECG
ST depression (mild)
ST depression
ST elevation
III. Troponin level at 0 h
−
−/+
+
+ +
+ + +
IV. Troponin change (within 1,2 or 3 h)
−
−/+
+
+ +
If any of the above, consider direct rule-in
Triage decision
Rule-out MI
Observe
Rule-in MI
DIAGNOSIS
Noncardiac
Unstable angina
Other cardiac
NSTEMI
STEMI

- cycle H0H1 (ou H0H2) recommandé préférentiellement à H0H3
- la tropo H1 doit être prélevée à 1h +/- 10 minutes. Si on ne respecte pas cette fenêtre de prélèvement, il faut passer au cycle H0H2.
- cas des rares « very early presenters » (douleur qui remonte à moins d’1h) : faire tropo à H3 en plus d’H0H1

Table 5 Assay specific cut-off levels in ng/l within the 0 h/1 h and 0 h/2 h algorithms

0 h/1 h algorithm	Very low	Low	No 1hΔ	High	1hΔ
hs-cTn T (Elecsys; Roche)	<5	<12	<3	≥52	≥5
hs-cTn I (Architect; Abbott)	<4	<5	<2	≥64	≥6
hs-cTn I (Centaur; Siemens)	<3	<6	<3	≥120	≥12
hs-cTn I (Access; Beckman Coulter)	<4	<5	<4	≥50	≥15
hs-cTn I (Clarity; Singulex)	<1	<2	<1	≥30	≥6
hs-cTn I (Vitros; Clinical Diagnostics)	<1	<2	<1	≥40	≥4
hs-cTn I (Pathfast; LSI Medience)	<3	<4	<3	≥90	≥20
hs-cTn I (TriageTrue; Quidel)	<4	<5	<3	≥60	≥8
0 h/2 h algorithm	**Very low**	**Low**	**No 2hΔ**	**High**	**2hΔ**
hs-cTn T (Elecsys; Roche)	<5	<14	<4	≥52	≥10
hs-cTn I (Architect; Abbott)	<4	<6	<2	≥64	≥15
hs-cTn I (Centaur; Siemens)	<3	<8	<7	≥120	≥20
hs-cTn I (Access; Beckman Coulter)	<4	<5	<5	≥50	≥20
hs-cTn I (Clarity; Singulex)	<1	TBD	TBD	≥30	TBD
hs-cTn I (Vitros; Clinical Diagnostics)	<1	TBD	TBD	≥40	TBD
hs-cTn I (Pathfast; LSI Medience)	<3	TBD	TBD	≥90	TBD
hs-cTn I (TriageTrue; Quidel)	<4	TBD	TBD	≥60	TBD

La PCT peut elle aider dans les infections respiratoires basses? Analyse critique de la littérature

Les infections respiratoires basses

- Diagnostic difficile aux urgences:
  - **1 patient sur 4** diagnostiqué PAC aux urgences sort de l'hôpital avec un diagnostic différent
  - **1/3** des antibiothérapies injustifiée

- Limites des examens complémentaires
  - Radio: sensibilité entre 70% et 80%
  - Biologie: CRP seuil 33 mg/l sensibilité 83% spécificité 44%

- Comment optimiser l'antibiothérapie?

Chandra et al., 2010; Almirall et al., 2004; Syrjälä et al., 1998 ; Hagaman et al., 2009

Un biomarqueur: la PCT

Effect of Procalcitonin-Based Guidelines vs Standard Guidelines on Antibiotic Use in Lower Respiratory Tract Infections

The ProHOSP Randomized Controlled Trial

JAMA. 2009;302(10):1059-1066

Procalcitonin guidance and reduction of antibiotic use in acute respiratory tract infection

O. Burkhardt*, S. Ewig#, U. Haagen¶, S. Giersdorf¶, O. Hartmann¶, K. Wegscheider+, E. Hummers-Pradier§ and T. Welte*

Eur Respir J 2010; 36: 601–607

Effect of procalcitonin-guided treatment on antibiotic use and outcome in lower respiratory tract infections: cluster-randomised, single-blinded intervention trial

Lancet 2004; **363:** 600–07.

Procalcitonin Guidance of Antibiotic Therapy in Community-acquired Pneumonia

A Randomized Trial

Mirjam Christ-Crain, Daiana Stolz, Roland Bingisser, Christian Müller, David Miedinger, Peter R. Huber, Werner Zimmerli, Stephan Harbarth, Michael Tamm, and Beat Müller

Am J Respir Crit Care Med Vol 174. pp 84–93, 2006

Procalcitonin-Guided Antibiotic Use vs a Standard Approach for Acute Respiratory Tract Infections in Primary Care

Matthias Briel, MD; Philipp Schuetz, MD; Beat Mueller, MD; Jim Young, PhD; Ursula Schild, RN; Charly Nusbaumer, PhD; Pierre Périat, MD; Heiner C. Bucher, MD, MPH; Mirjam Christ-Crain, MD

Arch Intern Med. 2008;168(18):2000-2007

JAMA Clinical Evidence Synopsis

Procalcitonin Testing to Guide Antibiotic Therapy in Acute Upper and Lower Respiratory Tract Infections

Philipp Schuetz, MD, MPH; Yannick Wirz, MD; Beat Mueller, MD

JAMA March 6, 2018 Volume 319, Number 9

No. of studies: 26 randomized clinical trials

Study years: published: 2004-2016; conducted, 2002-2015

Last search date: February 10, 2017

No. of patients: 6708 (men: 3808 [57%]; women: 2900 [43%]) with acute infections of the upper or lower respiratory tract, which included community-acquired pneumonia (n = 2910), exacerbation of chronic obstructive pulmonary disease due to infections (n = 1252), bronchitis (n = 544), ventilator-associated pneumonia (n = 380), hospital-acquired pneumonia (n = 505), upper respiratory infection (n = 552)

Race/ethnicity: Not reported

Age: mean, 61 years (range, 19-92 years)

Settings: Primary care, emergency department, medical ward, medical and surgical intensive care unit

Countries: Australia, Belgium, Brazil, China, Denmark, France, Germany, Italy, the Netherlands, Serbia, Switzerland, United States

Comparison: Procalcitonin-guided antibiotic management vs routine clinical care

Primary outcome: 30-day mortality

Secondary outcomes: Antibiotic use, adverse effects from antibiotics, length of stay

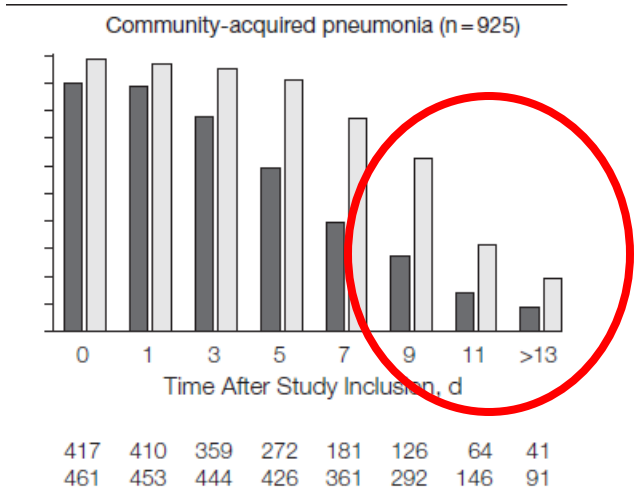
	Procalcitonin Group (n = 3336)	Control Group (n = 3372)	Between-Group Difference (95% CI)	Adjusted OR (95% CI)[a]	*P* Value
Clinical Outcomes					
30-d mortality, No. (%)	286 (8.6)	336 (10.0)		0.83 (0.70 to 0.99)	.04
Treatment failure, No. (%)[b]	768 (23.0)	841 (24.9)		0.90 (0.80 to 1.01)	.07
Length of ICU stay, median (IQR), d	8.0 (4.0 to 17.0)	8.0 (4.0 to 17.0)	0.39 (−0.81 to 1.58)		.52
Length of hospital stay, median (IQR), d	8.0 (2.0 to 17.0)	8.0 (2.0 to 17.0)	−0.19 (−0.96 to 0.58)		.63
Antibiotic-related adverse effects, No./total (%)	247/1513 (16.3)	336/1521 (22.1)		0.68 (0.57 to 0.82)	.001
Antibiotic Exposure					
Rates for initiation of antibiotics, No./total (%)	2351/3288 (71.5)	2894/3353 (86.3)		0.27 (0.24 to 0.32)	.001
Duration of antibiotics, median (IQR), d	6.0 (4.0 to 10.0)	8.0 (6.0 to 12.0)	−1.83 (−2.15 to −1.50)		.001
Total exposure of antibiotics, median (IQR), d	5.0 (0 to 8.0)	7.0 (3.0 to 11.0)	−2.43 (−2.71 to −2.15)		.001

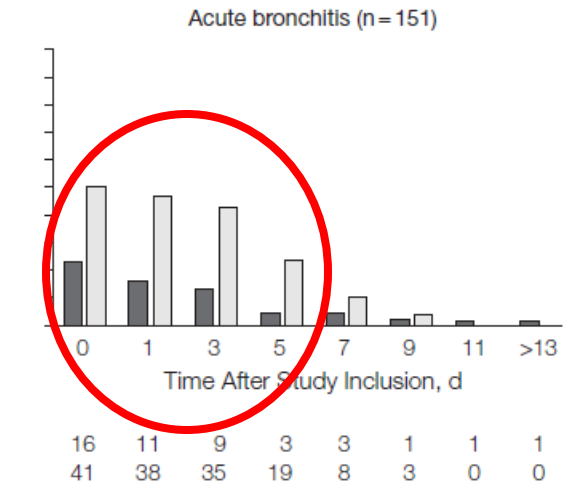

TOO GOOD
TO BE TRUE

Des situations où l'antibiothérapie n'est clairement pas indiquée: pourquoi les inclure dans les essais?

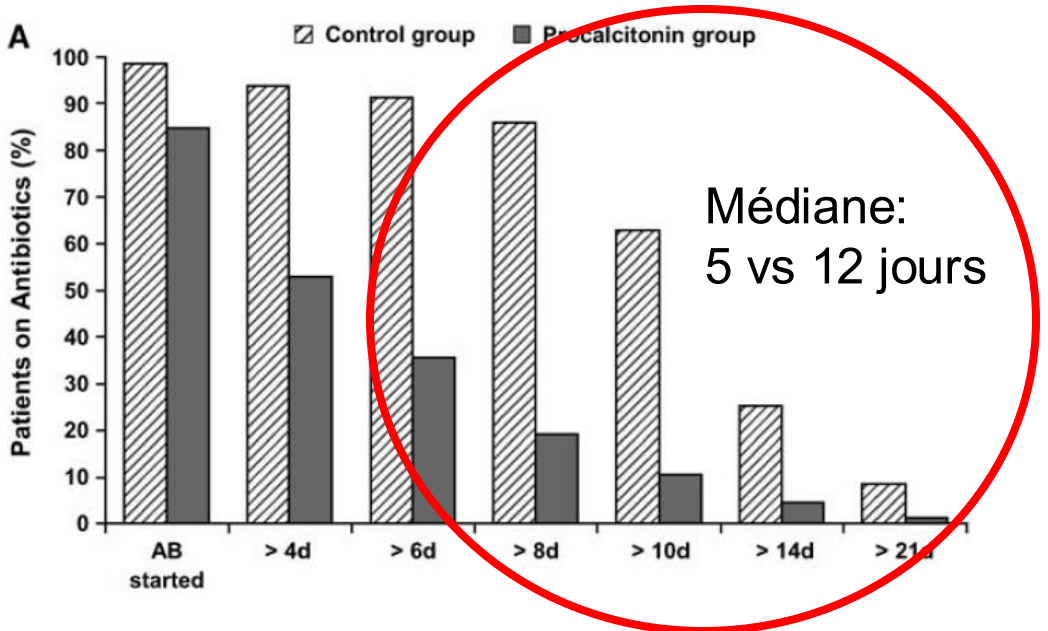
Characteristic	PCT-Guided Therapy Group (n=232)	Standard Therapy Group (n=226)
Diagnosis		
Common cold	13 (5.6)	18 (8.0)
Acute rhinosinusitis	52 (22)	52 (23)
Acute pharyngitis or tonsillitis	42 (18)	33 (15)
Acute laryngitis or tracheitis	8 (3.5)	4 (1.8)
Acute otitis media	0	5 (2.2)
Acute bronchitis	58 (25)	70 (31)
Influenza	3 (1.3)	1 (0.4)
Exacerbated COPD	12 (5.2)	9 (4.0)
Exacerbated asthma	6 (2.6)	3 (1.3)
Community-acquired pneumonia	38 (16)	31 (14)
Prescribed antibiotics, No. (%)	58 (25)	219 (97)

Durée pas optimale dans le groupe contrôle





	Standard group (n=119)		Procalcitonin group (n=124)		p*
	Initial	Final	Initial	Final	
Quality-of-life score (mean [SD])	39·3 (13·2)	22·9 (15·1)	41·3 (14·3)	21·9 (14·7)	0·60
Visual analogue scale (mean [SD], %)	43·1 (21·0)	64·1 (21·5)	42·5 (20·4)	65·1 (21·8)	0·78
Body temperature (mean [SD], °C)	37·7 (1·1)	37·0 (0·4)	37·8 (1·0)	36·9 (0·3)	0·06
White-blood-cell count (mean [SD], $\times 10^9$/L)	12·4 (6·7)	10·3 (5·1)	11·7 (6·5)	9·7 (4·4)	0·26
C-reactive protein (mean [SD], mg/L)	97·8 (106·1)	25·8 (43·7)	82·8 (93·9)	18·2 (33·3)	0·24
Procalcitonin (mean [SD], µg/L)	1·6 (4·2)	0·12 (0·2)	1·6 (7·7)	0·12 (0·4)	0·10
Admitted	88 (74%)		101 (81%)		0·16
Number of days admitted (mean [SD])	11·2 (10·6)		10·7 (8·9)		0·89
Need for stay in intensive care unit	6 (5%)		5 (4%)		0·71
Died	4 (3%)		4 (3%)		0·95
Follow-up	110 (92%)		112 (90%)		0·56
Follow-up of survivors	110/115 (96%)		112/120 (93%)		0·44
Antibiotic prescription foreseen	99 (83%)		99 (80%)		0·50
Antibiotics prescribed	99 (83%)		55 (44%)		<0·0001
Duration of antibiotic treatment (mean [SD], days)	12·8 (5·5)		10·9 (3·6)		0·03
Antibiotic use per 1000 days of follow-up (mean [SD])	661 (398)		332 (433)		<0·0001
Antibiotic costs per patient (mean [SD], US$)	202·5 (250·6)		96·3 (172·8)		<0·0001



American College of Emergency Physicians
ADVANCING EMERGENCY CARE
Annals *of* Emergency Medicine
An International Journal

Volume 60, NO. 4 : October 2012

Procalcitonin of Questionable Value

To the Editor:

A more critical review of the literature indicates that the clinical synopsis by Sandifer and Jones[1] misportrays procalcitonin's value by suggesting that its use may reduce antibiotic exposure without affecting outcome.

However, the comparison group was clinicians passively following outdated pneumonia guidelines that recommended a longer minimum treatment duration than current strategies (ie, 7 to 10 versus 5 days)

David A. Talan, MD

Un algorithme PCT compliqué: Quelle application en routine ?

Procalcitonin (PCT) algorithm for stewardship of antibiotic therapy in patients with LRTI

< 0.1 µg/l	0.1 - 0.25 µg/l	>0.25 – 0.5 µg/l	>0.5 µg/l
Bacterial etiology **very unlikely**	Bacterial etiology **unlikely**	Bacterial etiology **likely**	Bacterial etiology **Very likely**
NO antibiotics !	**no antibiotics**	**Antibiotics yes**	**Antibiotics YES !**

Control PCT after 6-24 hours

Initial antibiotics can be considered in case of:
- Respiratory or hemodynamic instability
- Life-threatening comorbidity
- Need for ICU admission
- **PCT < 0.1** µg/l: CAP with PSI V or CURB65 >3, COPD with GOLD IV
- **PCT < 0.25** µg/l: CAP with PSI ≥IV or CURB 65>2, COPD with GOLD > III
- Localised infection (abscess, empyema), L.pneumophilia
- Compromised host defense (e.g. immuno-suppression other than corticosteroids)
- Concomitant infection in need of antibiotics

Consider the course of PCT

If antibiotics are initiated:
- Repeated measurement of PCT on days 3, 5, 7
- Stop antibiotics using the same cut offs above
- If initial PCT levels are >5-10 µg/l, then stop when 80-90% decrease of peak PCT
- If initial PCT remains high, consider treatment failure (e.g. resistant strain, empyema, ARDS)
- **Outpatients**: duration of antibiotics according to the last PCT result:
  - **>0.25-0.5 µg/l:** 3 days
  - **>0.5 - 1.0 µg/l:** 5 days
  - **>1.0 µg/l:** 7 days

Abbreviations: PCT *procalcitonin*, CAP *community-acquired pneumonia*, PSI *pneumonia severity index*, COPD *chronic obstructive pulmonary disease*, GOLD *global initiative for obstructive lung disease*,

Des cutoffs PCT différents

- Intensive care trials:
  - PCT stop of antibiotic treatment PCT decreased to below 0.5 µg/L or decreased by at least 80% of its peak level.
- In emergency department and primary care trials:
  - PCT initiation and stopping of antibiotic therapy at a cutoff of 0.25 µg/L

Des liens d'intérêt

Financial Disclosures: Drs Schuetz, Christ-Crain, and Mueller reported receiving support from BRAHMS Inc to attend meetings and fulfilling speaking engagements. Dr Mueller reported serving as a consultant and receiving research support from BRAHMS Inc. All other authors declared no financial disclosures.

BRAHMS Inc, the major manufacturer of the procalcitonin assay, provided all assay-related material, Kryptor machines if not already available onsite, and kits and maintenance required for 10 000 measurements related to the study.

Conflict of interest statement
B Müller has served as consultant and received payments from BRAHMS (the manufacturer of procalcitonin assays) to attend meetings related to the trial and for travel expenses, speaking engagements, or research.

. We thank BRAHMS (Hennigsdorf, Germany) and Orgenium Laboratories (Turku, Finland) for providing assay material and partial support of this investigator initiated project. Additional support, which provided more than two-

B.M. received from Brahms AG, the manufacturer of the procalcitonin assay, from 2003 to 2005 a total of U.S. $20,000 for advisory board activities and $50,000

Financial support. This study was supported by unrestricted rese grants from BRAHMS/Thermo Fisher Scientific; the Gottfried and Bangerter-Rhyner-Foundation; the Swiss Foundation for Grants

Financial support. This work was funded by B·R·A·H·M·S GmbH (ThermoFisher, Hennigsdorf, Germany), Grant Number 125346.

Potential conflicts of interest. J. T. received a grant from B·R·A·H·M·S GmbH to conduct this study. All authors have submitted the ICMJE Form

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Declarations of interest

Philipp Schuetz received support (paid to his employer) from Thermo Fisher, Roche Diagnostics, Abbott and bioMerieux to attend meetings and fulfil speaking engagements. These conflicts breach Cochrane's Commercial Sponsorship Policy (Clause 3), therefore Philipp Schuetz will step down as lead author at the next update of the review. Dr Schuetz's declared conflicts were referred to the Funding Arbiter Panel and Cochrane's Deputy Editor-in-Chief who have agreed this course of action but as an exception which does not set a precedent for similar situations in the future.

Des essais indépendants négatifs

P

early appropriate antibiotics and improve survival in the intensive care unit: A randomized trial*

Jens U. Jensen, MD, PhD; Lars Hein, MD; Bettina Lundgren, MD, DMSc; Morten H. Bestle, MD, PhD; Thomas T. Mohr, MD, PhD; Mads H. Andersen, MD; Klaus J. Thornberg, MD; Jesper Løken, MD; Morten Steensen, MD; Zoe Fox, MD, PhD; Hamid Tousi, MD; Peter Søe-Jensen, MD; Anne Ø. Lauritsen, MD; Ditte Strange, MD; Pernille L. Petersen, MD; Nanna Reiter, MD; Søren Hestad, MD; Katrin Thormar, MD; Paul Fjeldborg, MD; Kim M. Larsen, MD; Niels E. Drenck, MD; Christian Østergaard, MD, PhD, DMSc; Jesper Kjær, MSc; Jesper Grarup, DVM; Jens D. Lundgren, MD, DMSc; for The Procalcitonin And Survival Study (PASS) Group

Critical Care Medicine®

Crit Care Med. 2011 Sep;39(9):2048-58.

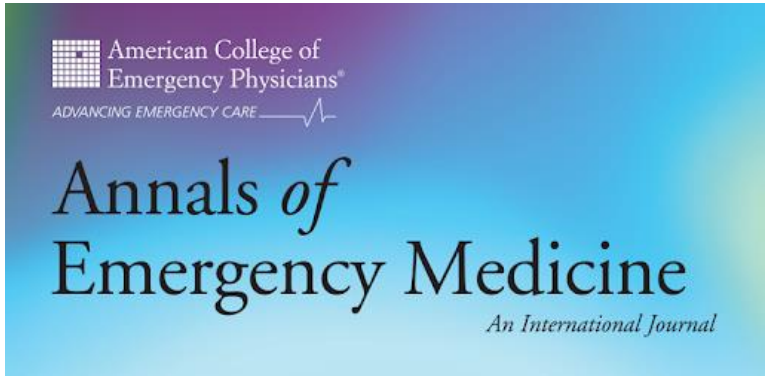
although mortality was similar, procalcitonin use led to greater duration of antibiotics and mechanical ventilation, number of cultures, length of stay, and costs. The study's authors stated that "all these measures suggest a harm effect from the procalcitonin strategy" and concluded that procalcitonin "cannot be recommended

Des essais indépendants négatifs

INFECTIOUS DISEASE/ORIGINAL RESEARCH

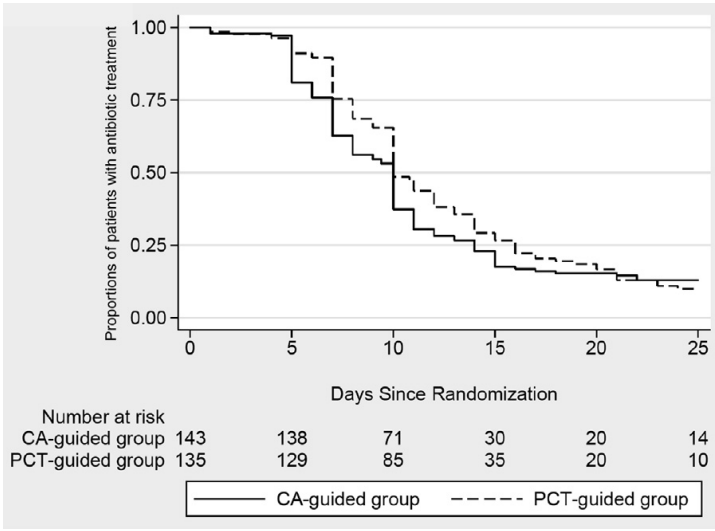
Guideline-Based Clinical Assessment Versus Procalcitonin-Guided Antibiotic Use in Pneumonia: A Pragmatic Randomized Trial

Emmanuel Montassier, MD, PhD*; François Javaudin, MD, MSc; Farès Moustafa, MD, PhD; Demeno Nandjou, MD; Maxime Maignan, MD, PhD; Jean-Benoit Hardouin, PhD; Caroline Annoot, MD; Maja Ogielska, MD; Pascal-Louis Orer, MD; Thibault Schotté, MD; Jacques Bouget, MD, PhD; Syamak Agha Babaei, MD; Pierre-Alexis Raynal, MD; Antoine Eche, MD; Albert Trinh Duc, MD, PhD; Ruxandra-Aimée Cojocaru, MD; Nesrine Benaouicha, MD; Gilles Potel, MD, PhD; Eric Batard, MD, PhD; David A. Talan, MD*



Intention-to-treat population:

- antibiotic duration was not significantly different between the clinical assessment– and procalcitonin-guided groups (median 9 days versus 10 days).
- Clinical success rate was 92% in each group
- Serious adverse outcome rates similar (15% versus 20%)



Des essais indépendants négatifs

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Procalcitonin-Guided Use of Antibiotics for Lower Respiratory Tract Infection

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1664 patients
- Procalcitonin group = 830
- Usual care group = 834

Final diagnoses
- Asthma exacerbation: 39.3%
- COPD exacerbation: 31.9%
- Acute bronchitis: 24.2%
- Community acquired pneumonia: 19.9%

ProACT

NATIONAL ANTIBIOTIC GUIDELINES

COMMUNITY-ACQUIRED PNEUMONIA
Antibiotic duration - 5d min, afebrile 48-72h, and ≤ 1 sign of clinical instability (Moderate recommendation, level II evidence, IDSA/ATS 2007)

COPD
Antibiotics if all 3 cardinal symptoms* (Evidence B) or 2 symptoms if one is sputum purulence (Evidence C), for 5-10 days (Evidence D) (GOLD 2015). (*increased dyspnea, sputum volume, sputum purulence)

ASTHMA
Antibiotics not generally recommended for the treatment of acute asthma exacerbations (Evidence B) (NIH Expert Panel Report 3, 2007); Do not initiate antibiotics (GINA 2015)

ACUTE BRONCHITIS
Antibiotics not recommended for uncomplicated bronchitis (CDC/ACP 2016)

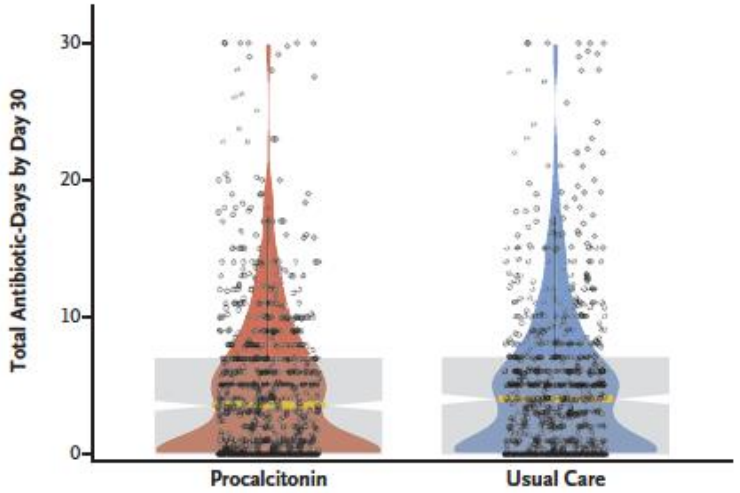
PROCALCITONIN ANTIBIOTIC GUIDELINE

PROCALCITONIN LEVEL (µg/L)	BACTERIAL ETIOLOGY	RECOMMENDATION
< 0.1	Very Unlikely	Antibiotics Strongly Discouraged
0.1 - 0.25	Unlikely	Antibiotics Discouraged
> 0.25 - 0.5	Likely	Antibiotics Recommended
> 0.5	Very Likely	Antibiotics Strongly Recommended

1. Initial antibiotics can be considered for Legionella, empyema, critical illness. Procalcitonin should be evaluated in context with all data; clinical judgment always necessary.
2. For outpatients, antibiotic duration based on level (> 0.25-0.5 ug/L: 3 days; > 0.5-1.0 ug/L: 5 days; >1.0 ug/L: 7 days).

No significant difference in antibiotic exposure during the first 30 days:

- mean antibiotic-days, 4.2 days (PCT) and 4.3 days (usual care)
- difference,-0.05 day;
- 95% CI: -0.6 to 0.5; P = 0.87



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)

CONCLUSIONS

The provision of procalcitonin assay results, along with instructions on their interpretation, to emergency department and hospital-based clinicians did not result in less use of antibiotics than did usual care among patients with suspected lower respiratory tract infection. (Funded by the National Institute of General Medical Sciences; ProACT ClinicalTrials.gov number, NCT02130986.)

AMERICAN THORACIC SOCIETY
DOCUMENTS

Diagnosis and Treatment of Adults with Community-acquired Pneumonia

An Official Clinical Practice Guideline of the American Thoracic Society and Infectious Diseases Society of America

Joshua P. Metlay*, Grant W. Waterer*, Ann C. Long, Antonio Anzueto, Jan Brozek, Kristina Crothers, Laura A. Cooley, Nathan C. Dean, Michael J. Fine, Scott A. Flanders, Marie R. Griffin, Mark L. Metersky, Daniel M. Musher, Marcos I. Restrepo, and Cynthia G. Whitney; on behalf of the American Thoracic Society and Infectious Diseases Society of America

THIS OFFICIAL CLINICAL PRACTICE GUIDELINE WAS APPROVED BY THE AMERICAN THORACIC SOCIETY MAY 2019 AND THE INFECTIOUS DISEASES SOCIETY OF AMERICA AUGUST 2019

Use of procalcitonin	Not recommended to determine need for initial antibacterial therapy

Recommendation. We recommend that empiric antibiotic therapy should be initiated in adults with clinically suspected and radiographically confirmed CAP regardless of initial serum procalcitonin level (strong recommendation, moderate quality of evidence).

En résumé …

- Note 1
  - There is no role for PCT in ED management of LRTI. Clinicians should continue to base antibiotic treatment on established guidelines keeping in mind concepts of antibiotic stewardship ➔ clinical reassessment +++
- Note 2
  - PCT continues to be a test looking for an indication. It’s use only serves to increase resource utilization without offering improvements in care.

CONCLUSIONS

A QUOI SERVENT LES MARQUEURS AU SAU?

- Peu de travaux consacrés à l'impact sur la prise de décision immédiate
- Quel seuil discriminant pour la CRP ?
- A QUOI POURRAIT SERVIR LA PCT ?
- Etudes complémentaires nécessaires: quels seuils pour quelles pathologies? Quels rapports de vraisemblance?

CONCLUSIONS

Les paramètres biologiques viennent compléter (et affiner?) le jugement du clinicien.

Le pré-requis à la bonne utilisation des marqueurs:

- C’est la FORMATION A LA PRISE DE DECISION en URGENCE
- C’est l’ACTUALISATION des connaissances
- C’est la détermination de la PROBABILITE pré-test à l’issue de l’examen clinique.

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