

INFECTIONS PULMONAIRES CHEZ LE SUJET ÂGÉ :

Quels examens radiologiques pour un meilleur diagnostic?

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GInGer
Groupe Infectio-Gériatrie



« The friend of the aged » Sir W. Osler

Most frequent conditions causing hospitalizations among the elderly, 2003 (USA)

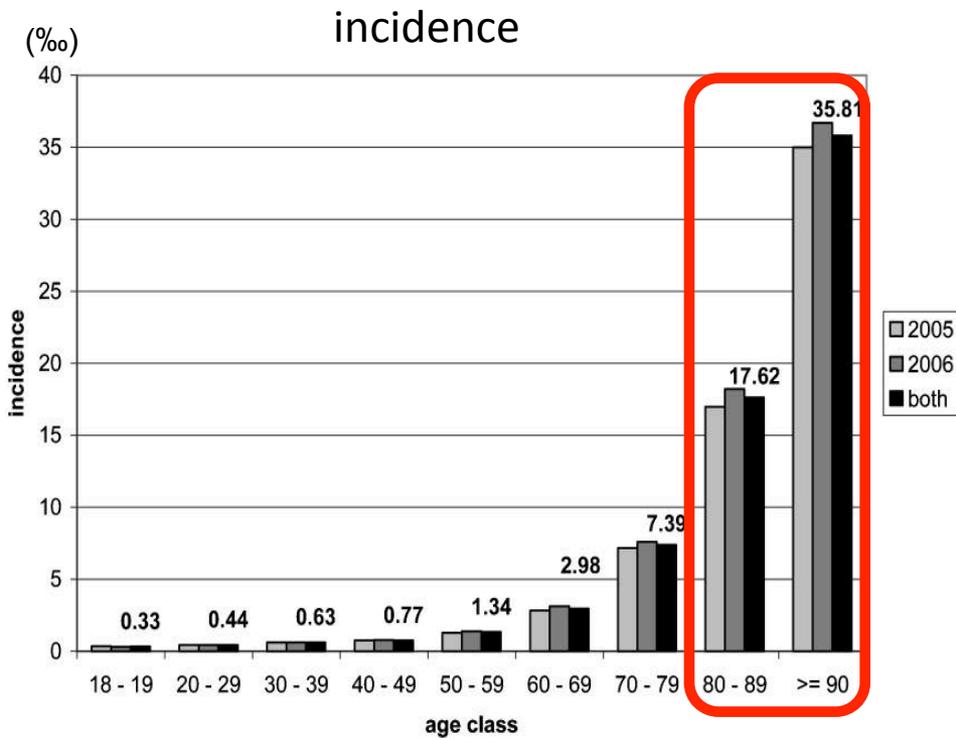
Rank	Principal diagnosis	Number of hospitalizations in the elderly	Percentage of all hospitalizations in the elderly
1	Congestive heart failure	839,300	6.3
2	Pneumonia	770,400	5.8
3	Coronary atherosclerosis	675,700	5.1
4	Cardiac dysrhythmias	484,200	3.7
5	Acute myocardial infarction	449,000	3.4

CA Russo et al, Healthcare Cost and Utilization Project (HCUP) Statistical Briefs, 2006

Diagnostiques les plus fréquents associés aux hospitalisations du sujet âgé, 2015 (Bourgogne)

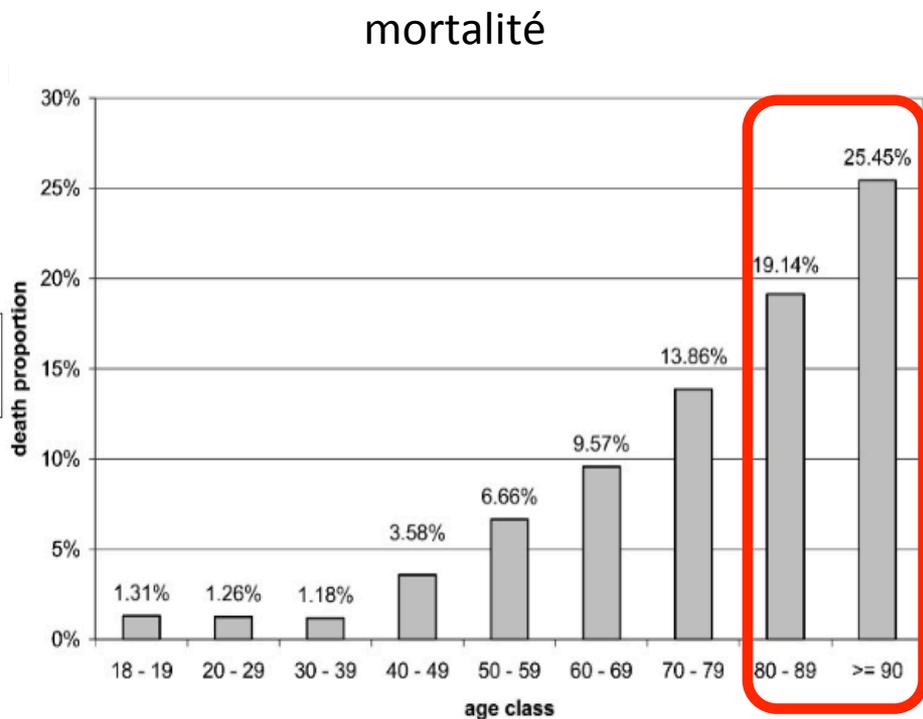
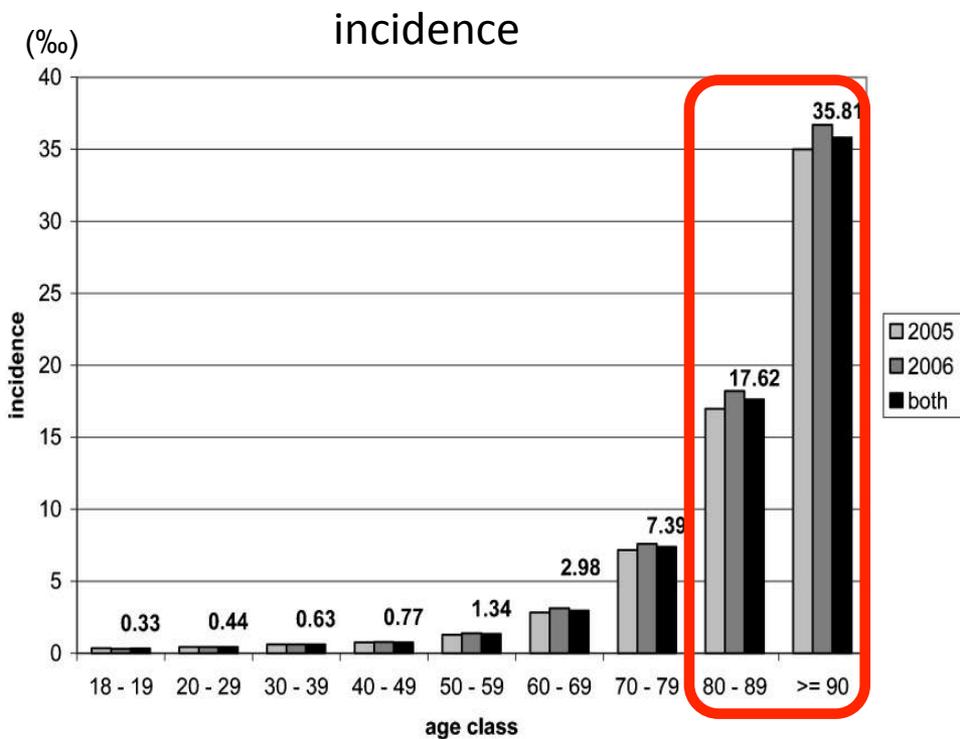
	Libellé GHM	Nombre d'hospitalisation	Pourcentage
1	Insuffisances cardiaques et états de choc circulatoire	4280	8.1
2	Pneumonies et pleurésies banales	2467	4.6
3	Autres symptômes et motifs de recours aux soins	1581	3.0

« The friend of the aged » Sir W. Osler



Recueil CAPNETZ

« The friend of the aged » Sir W. Osler

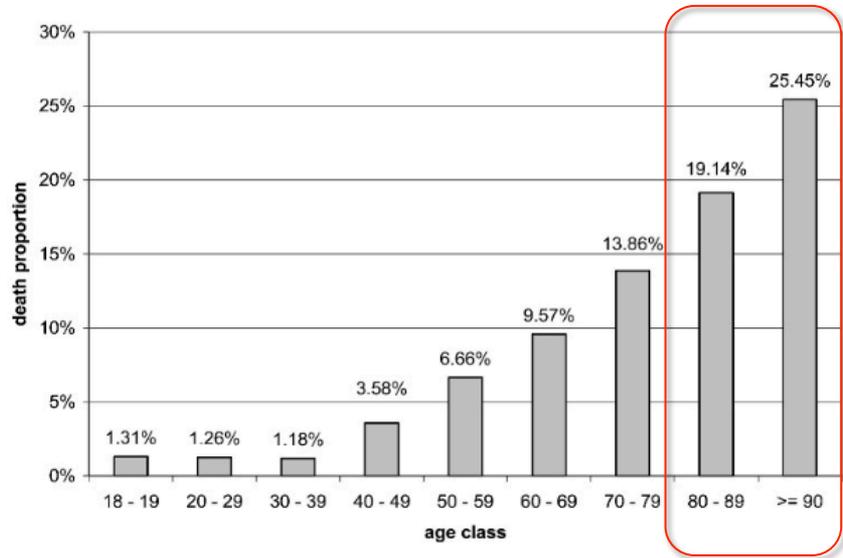


Recueil CAPNETZ

Ecueils de l'erreur diagnostique

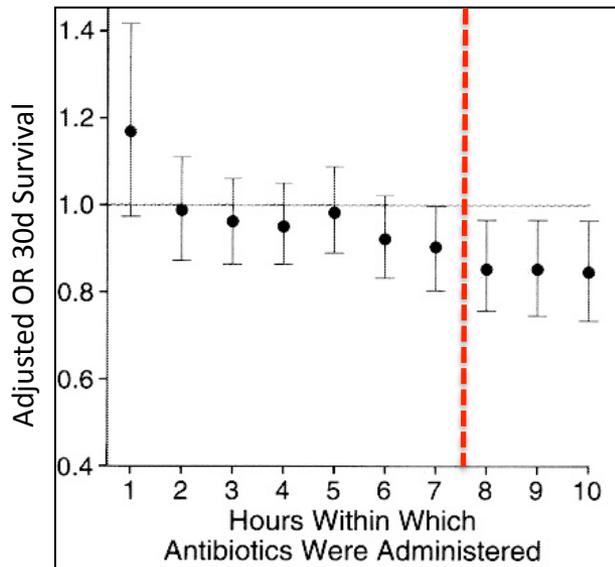
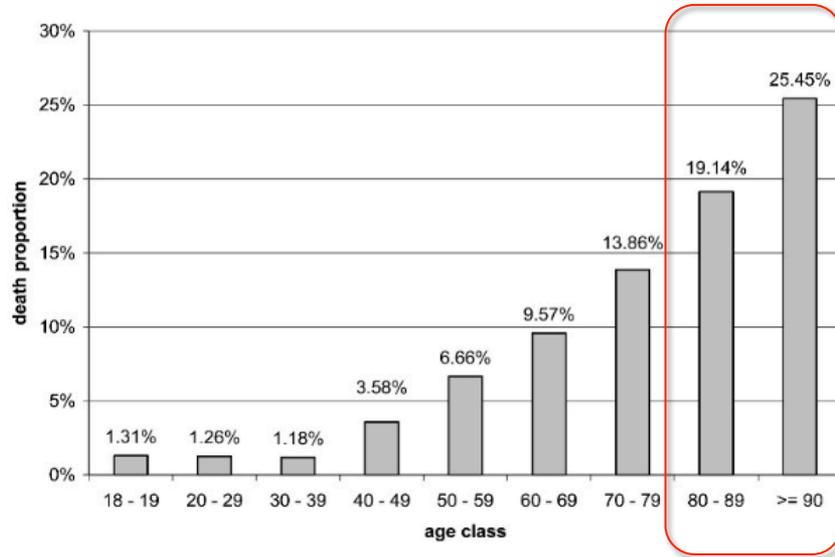
Ecueils de l'erreur diagnostique

Sous-diagnostic



Ecueils de l'erreur diagnostique

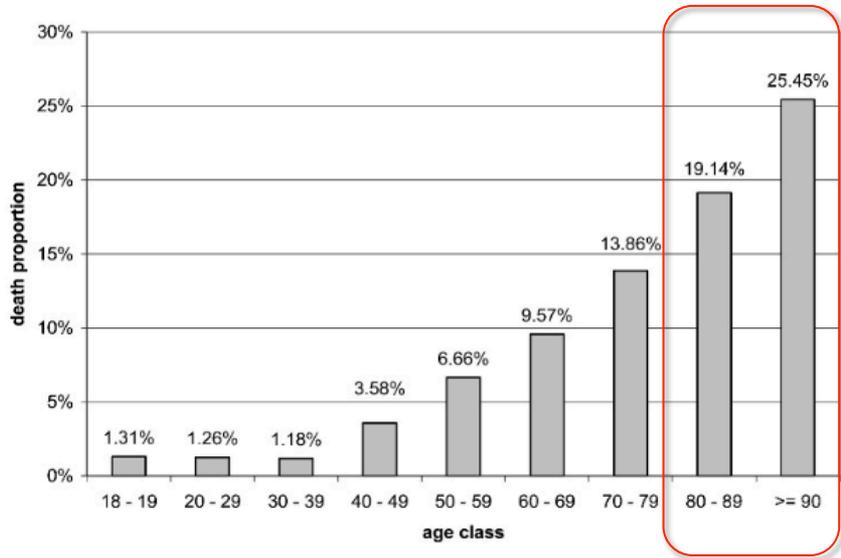
Sous-diagnostic



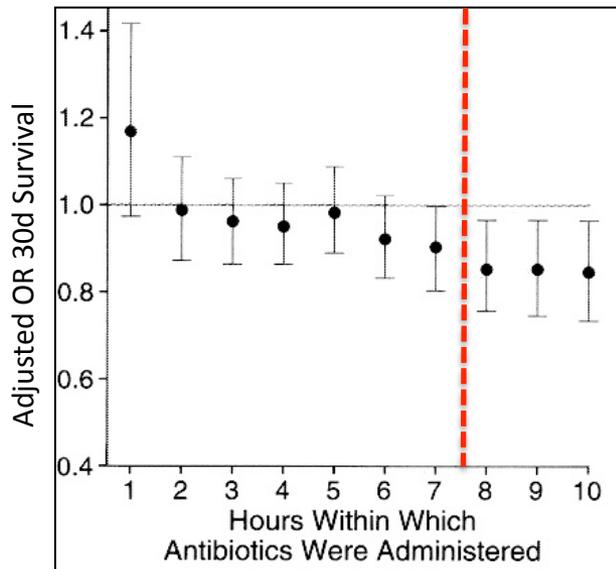
*Meehan,
JAMA 1997*

Ecueils de l'erreur diagnostique

Sous-diagnostic



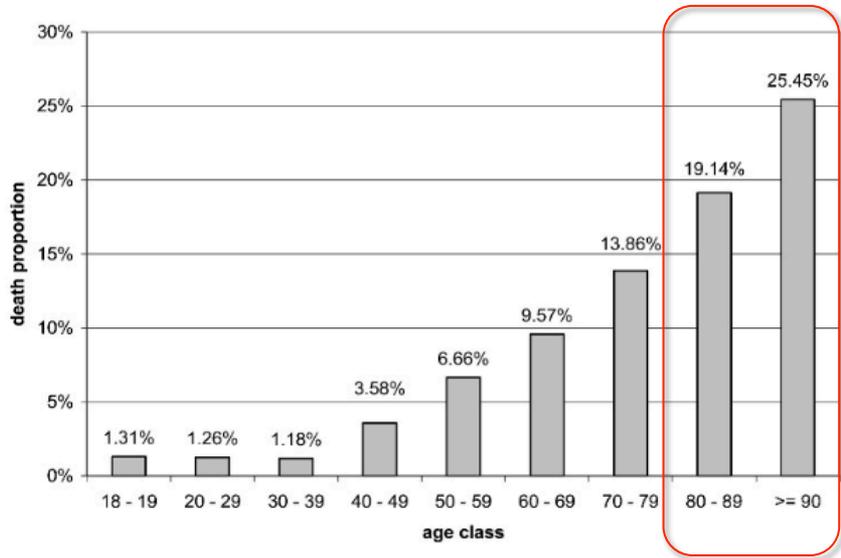
Sur-diagnostic



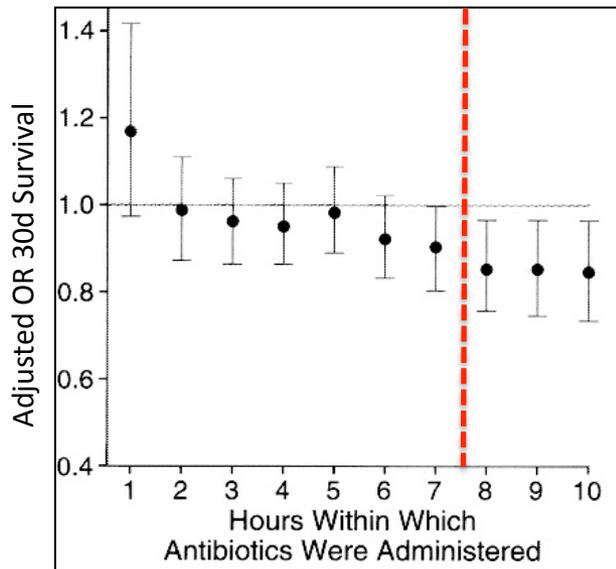
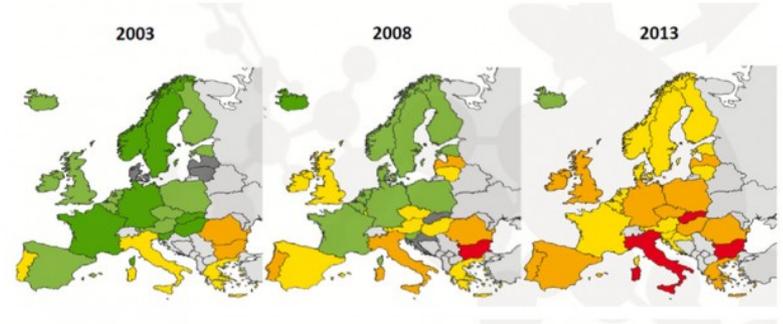
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Ecueils de l'erreur diagnostique

Sous-diagnostic



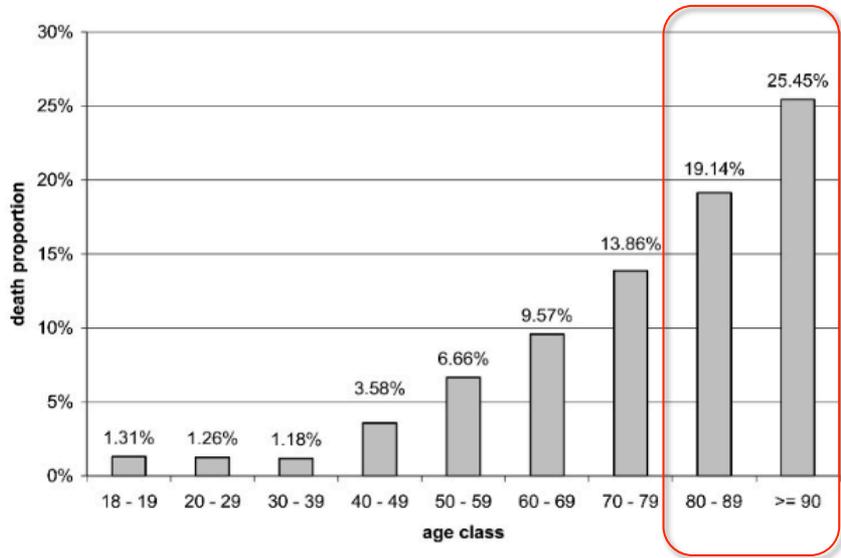
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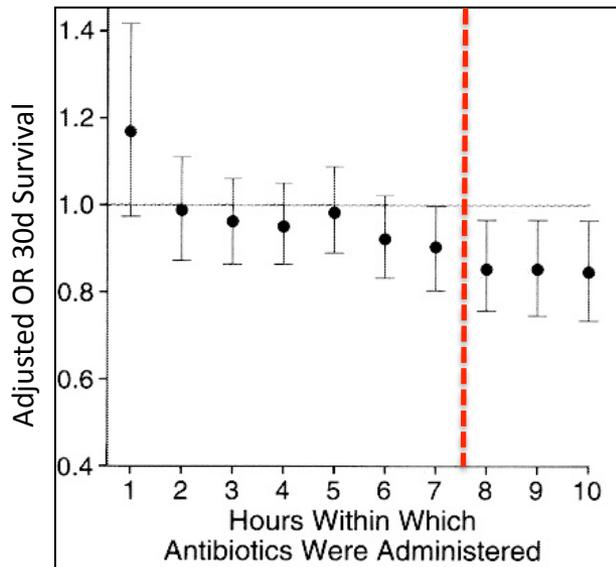
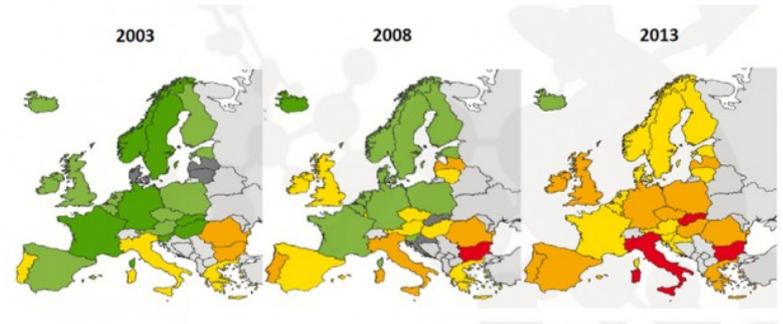
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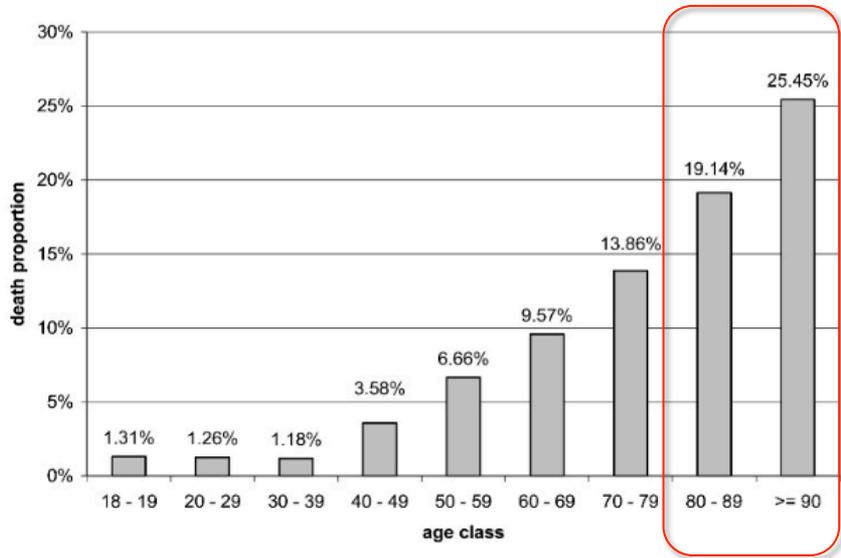
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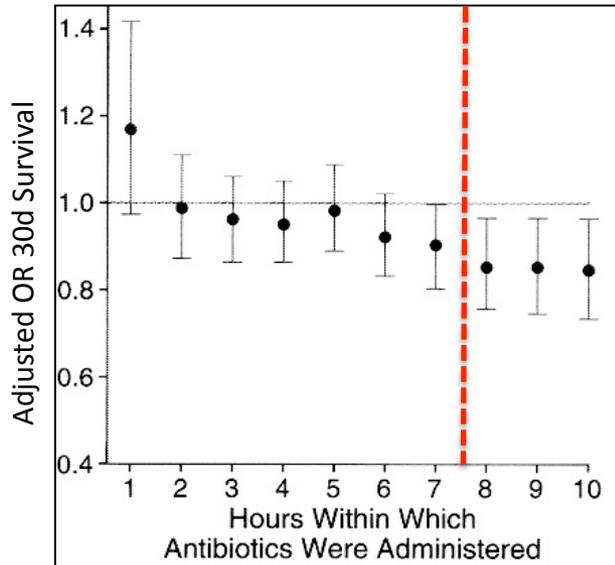
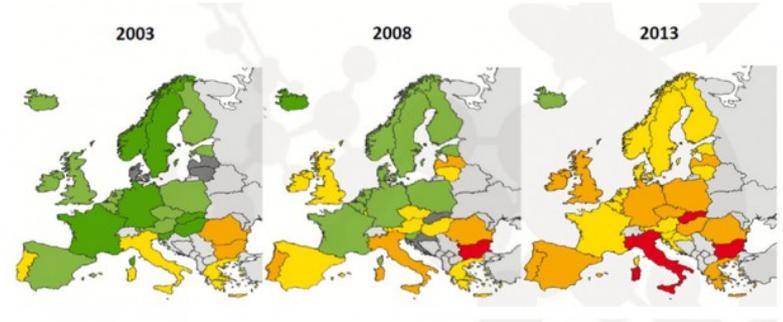
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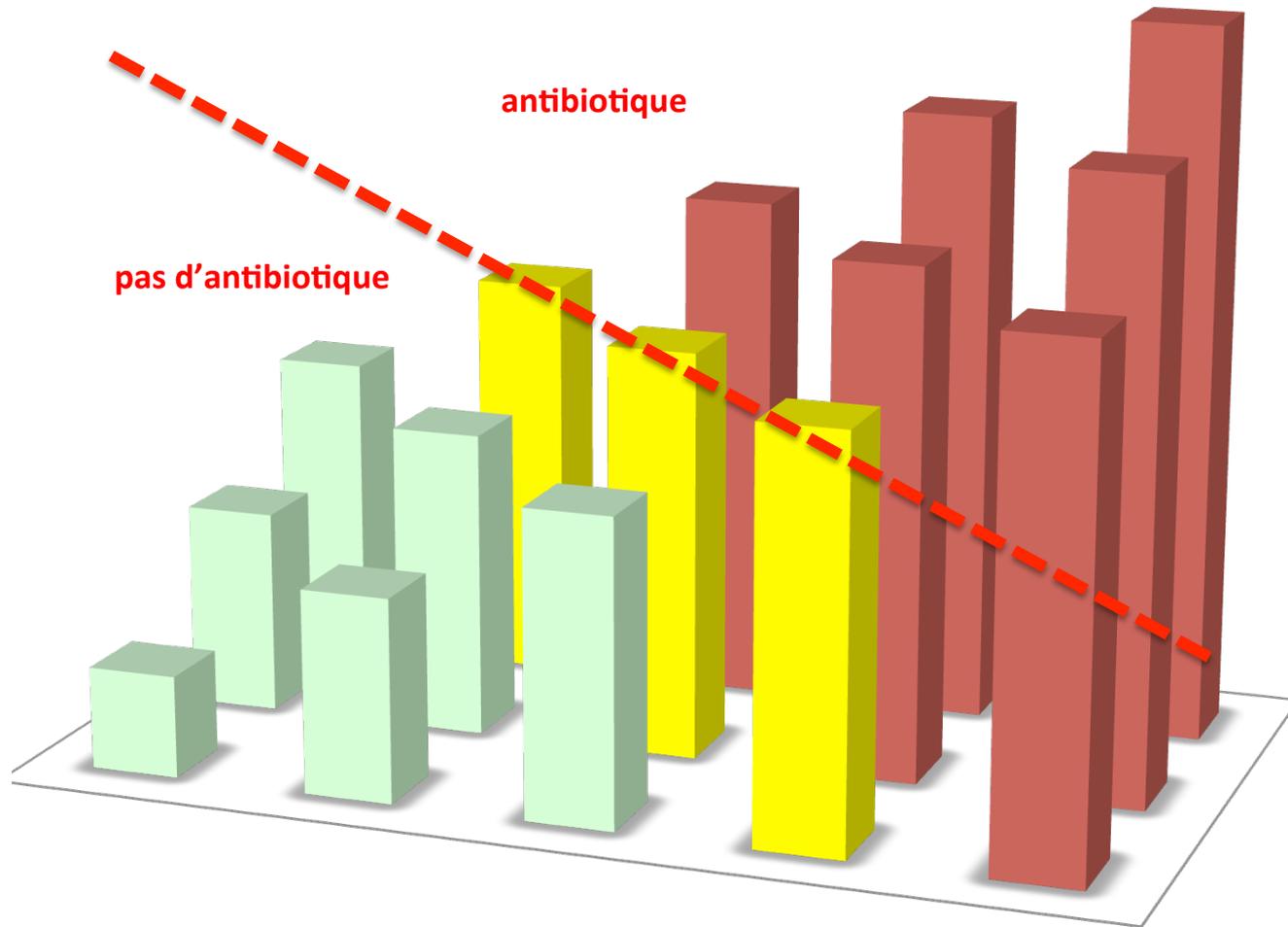
Sur-diagnostic



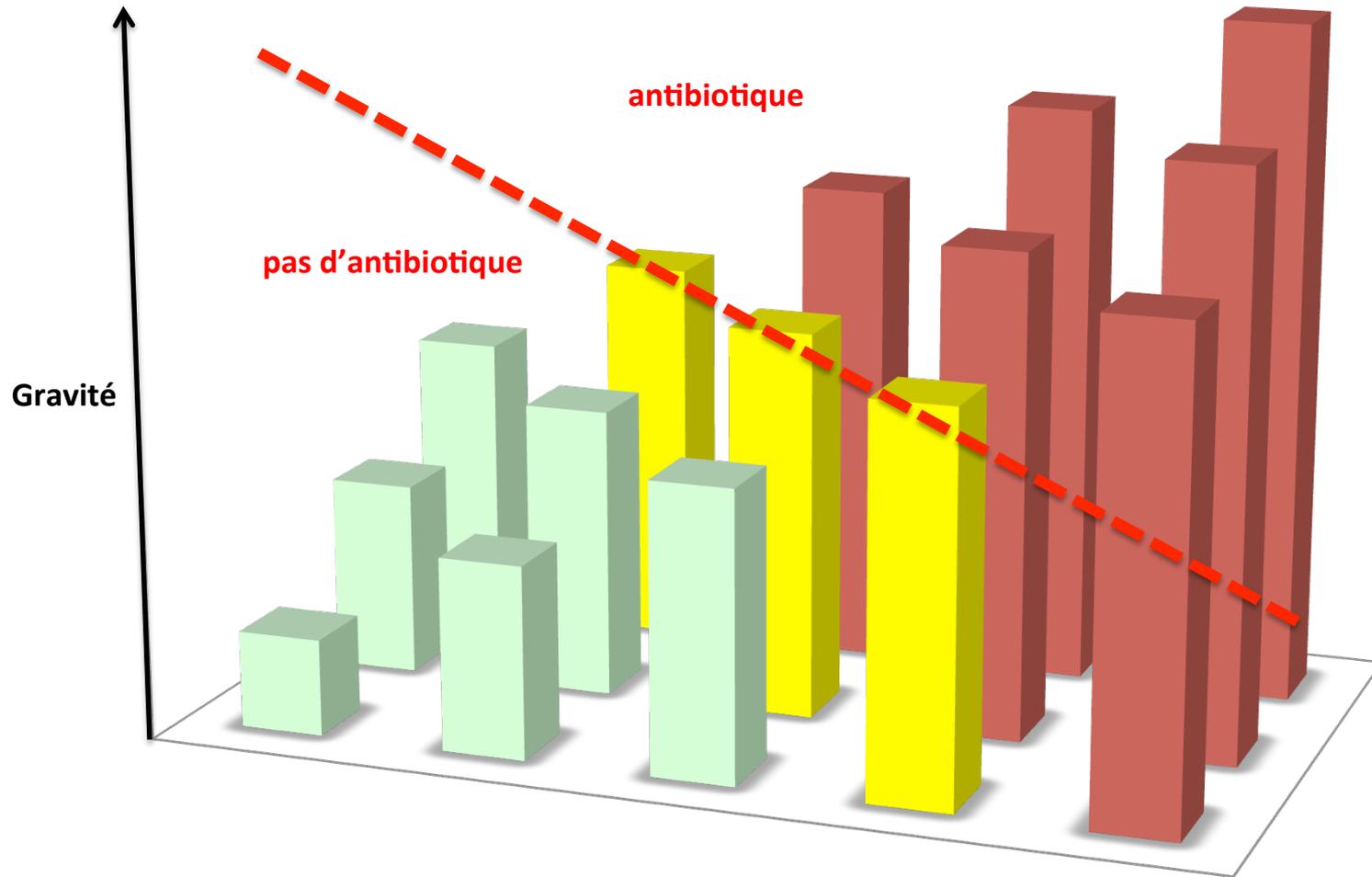
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Critères décisionnels de l'antibiothérapie

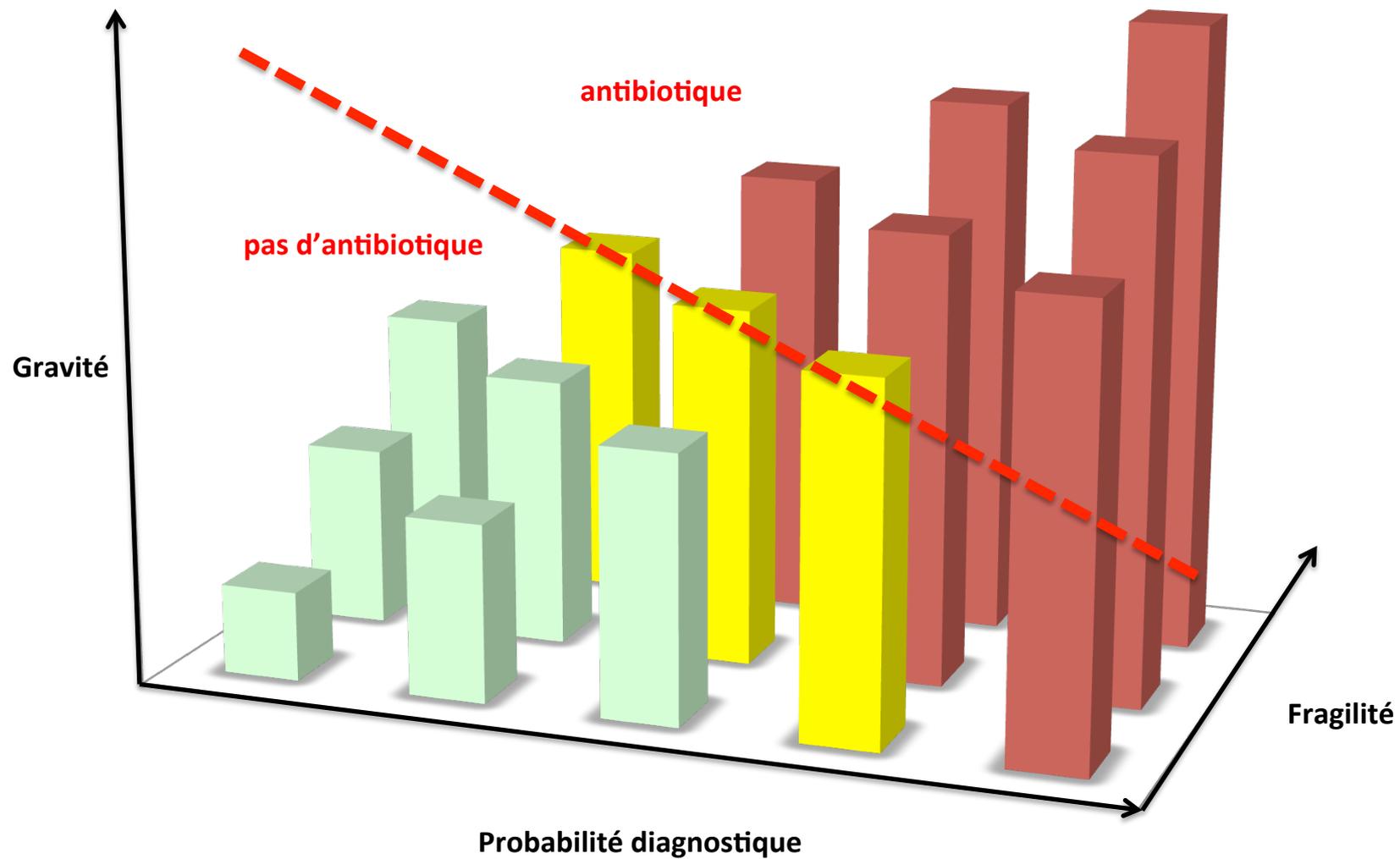
Critères décisionnels de l'antibiothérapie



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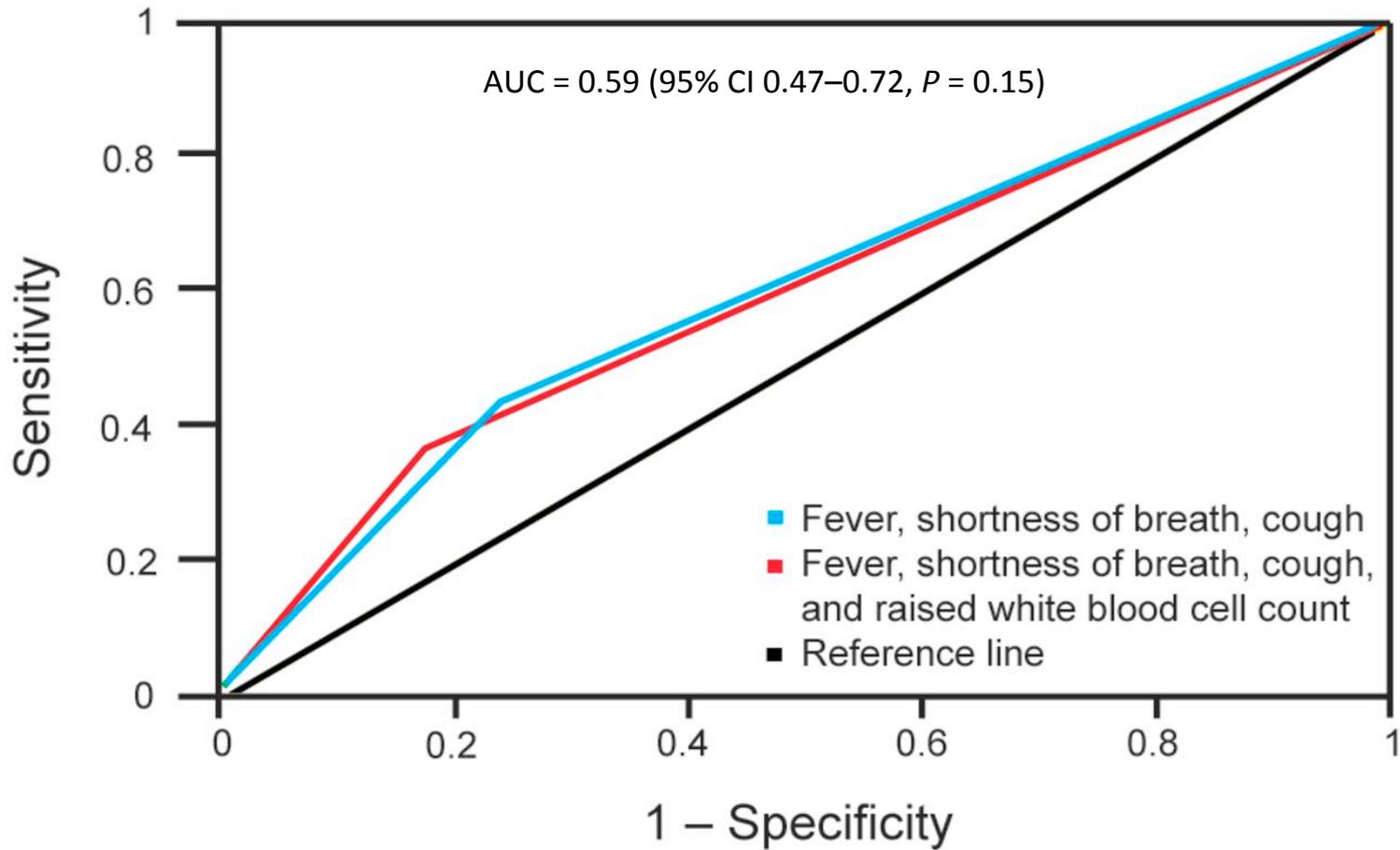


Critères décisionnels de l'antibiothérapie



DIAGNOSTIC POSITIF

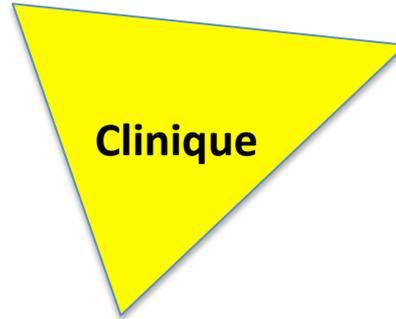
Clinique aspécifique



Outils diagnostiques



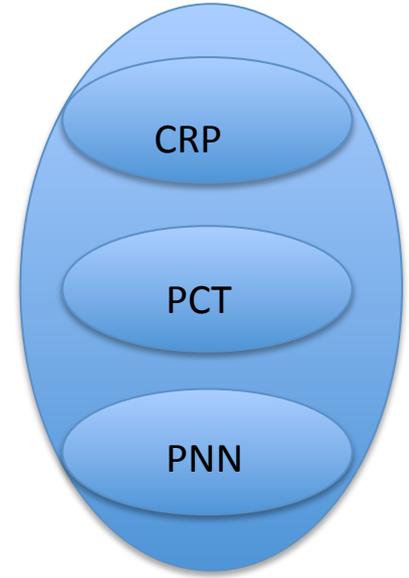
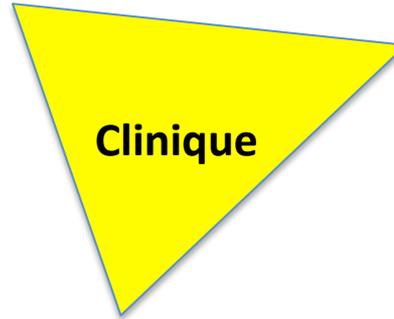
Probabilité
diagnostique



Outils diagnostiques

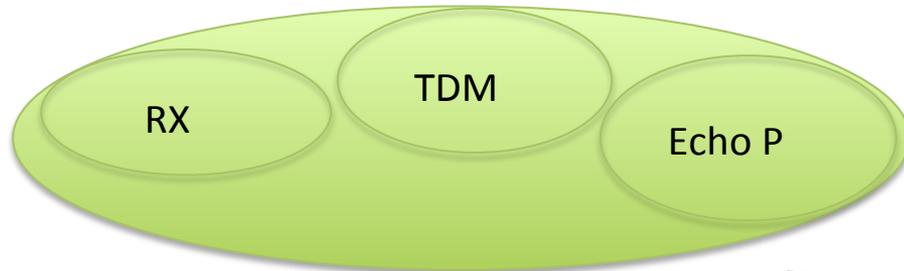


Probabilité
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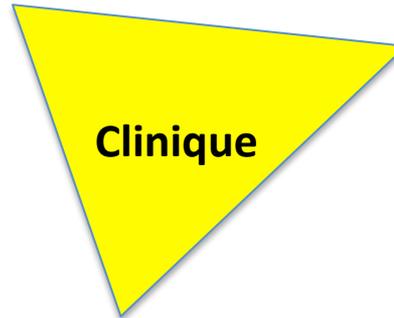


Biologie

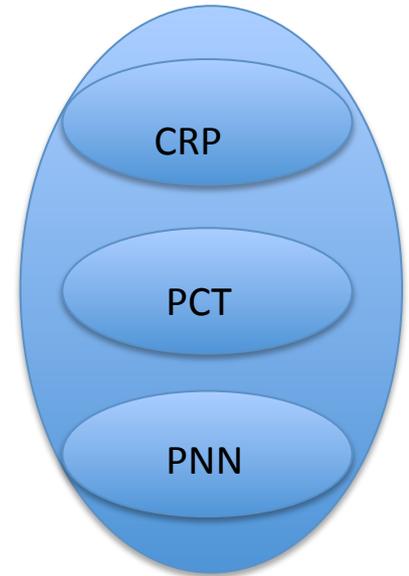
Outils diagnostiques



Imagerie



Clinique

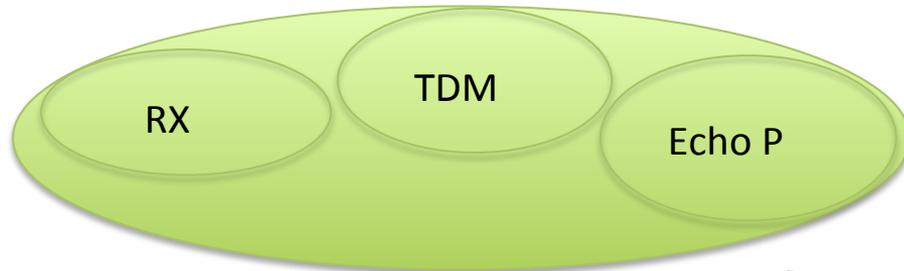


Biologie

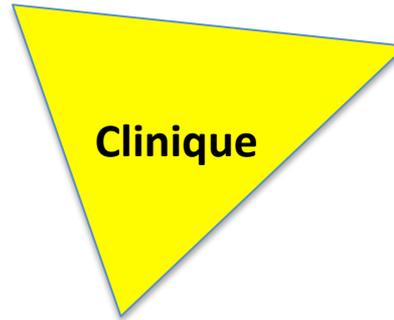


**Probabilité
diagnostique**

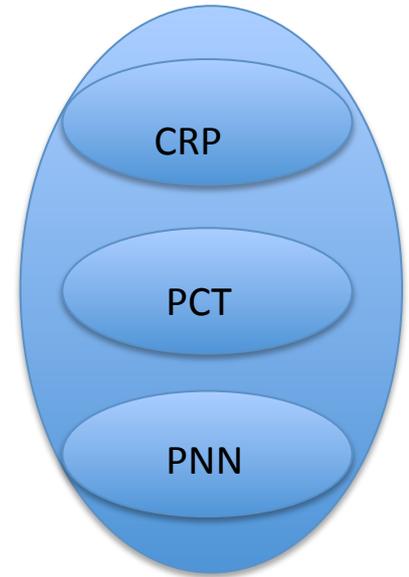
Outils diagnostiques



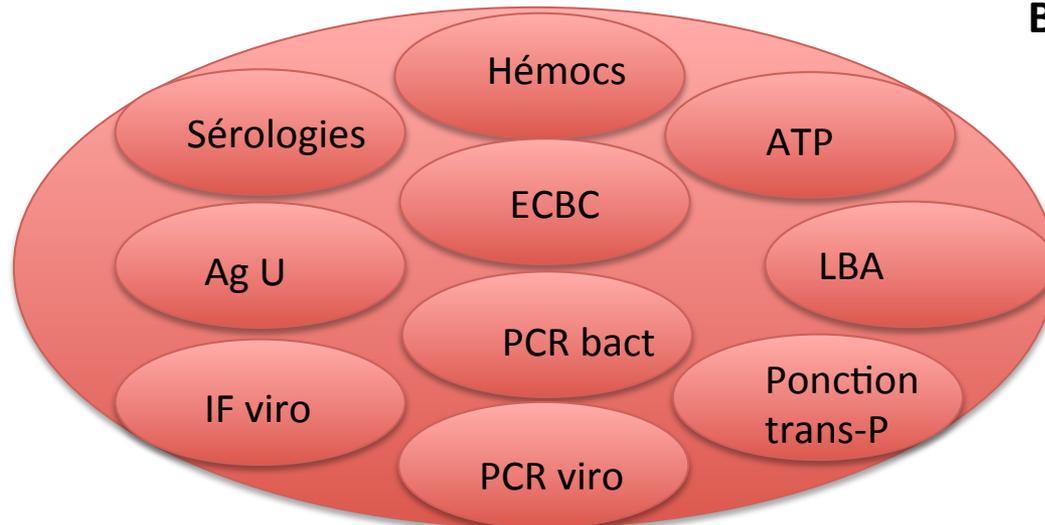
Imagerie



Clinique



Biologie



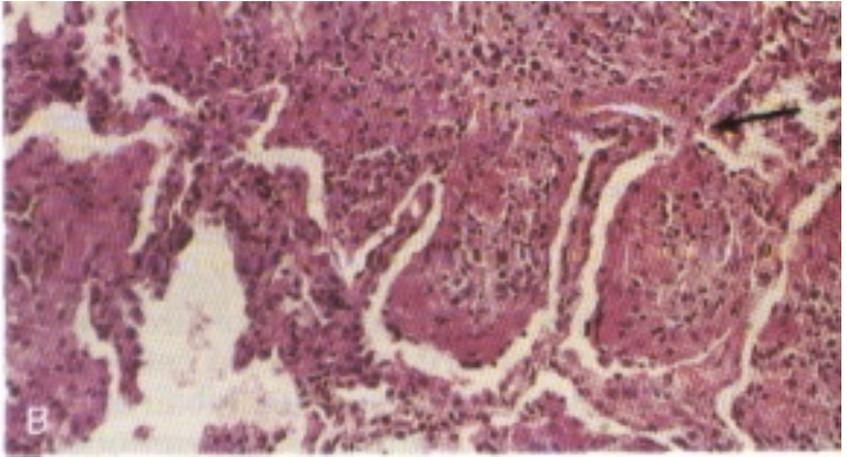
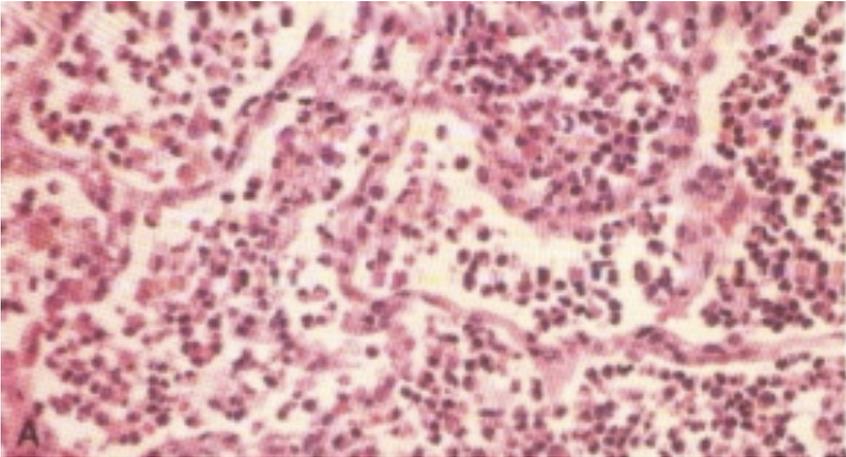
Microbiologie



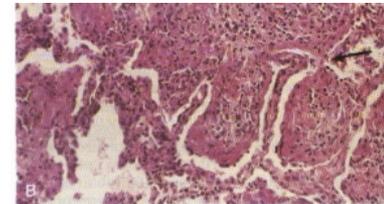
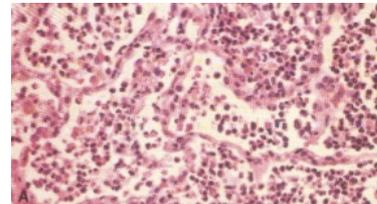
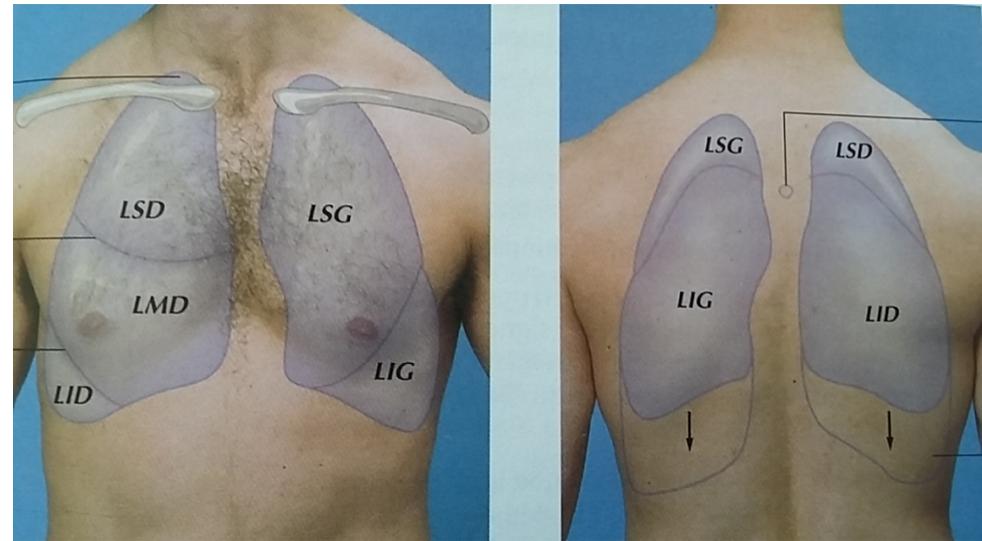
**Probabilité
diagnostique**

IMAGERIE

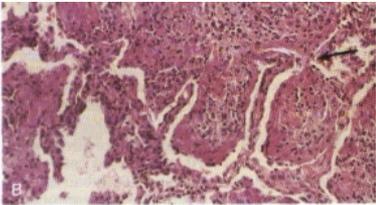
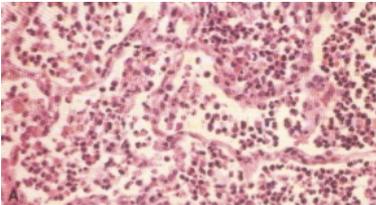
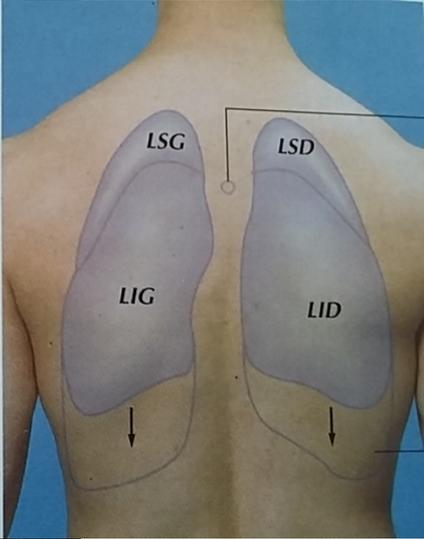
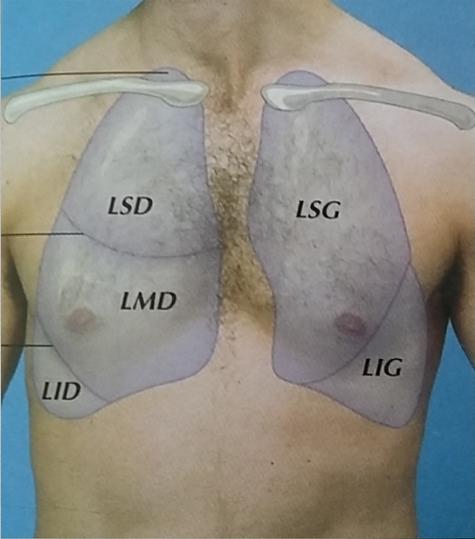
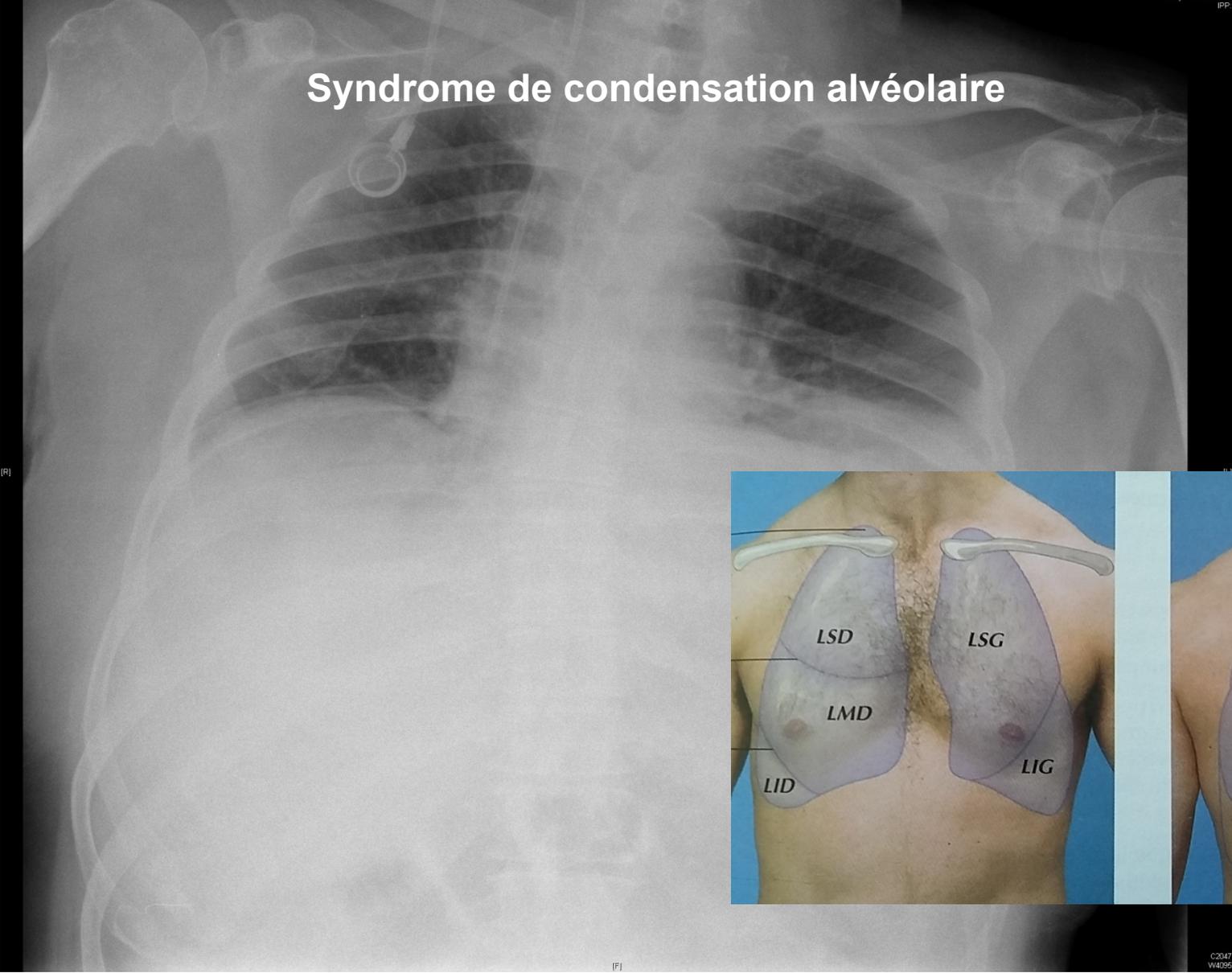
Syndrôme de condensation alvéolaire



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Syndrôme de condensation alvéolaire

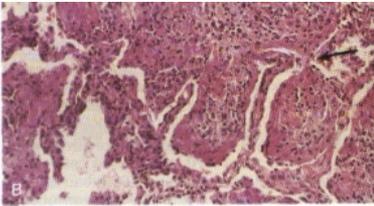
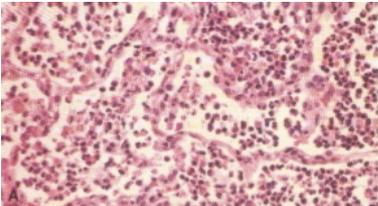
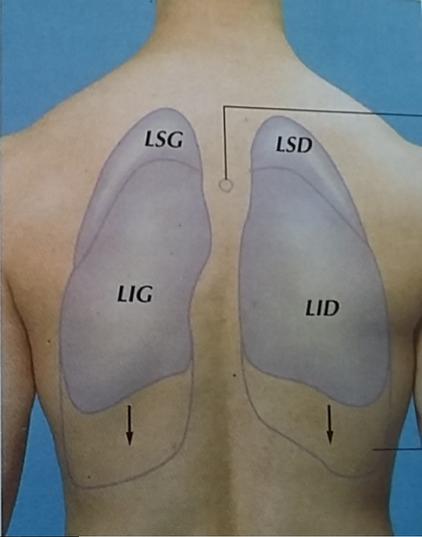
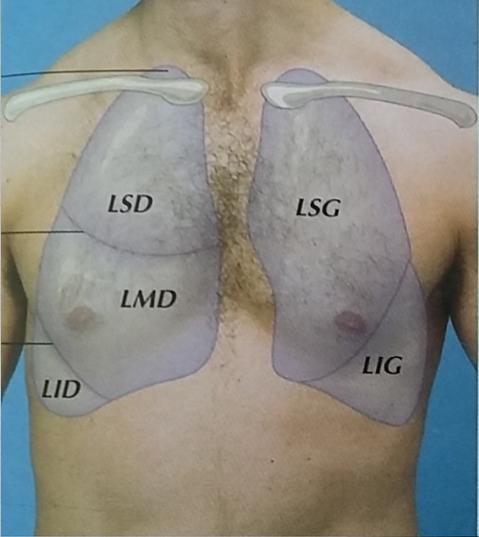


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C2047
W4295

Syndrôme de condensation alvéolaire



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Radio thoracique

Radio thoracique



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Radio thoracique

Table 2—Agreement on the Presence of a Radiographic Pulmonary Infiltrate by Two Staff Radiologists

Radiographic Assessment (Radiologist 2)	Radiographic Assessment (Radiologist 1)			
	No	Possible	Probable	Definite
No, No. (%)	17 (6.0)*	19 (6.7)	5 (1.8)	0 (0.0)
Possible, No. (%)	7 (2.5)	21 (7.4)*	16 (5.7)	6 (2.1)
Probable, No. (%)	6 (2.1)	10 (3.5)	20 (7.1)*	15 (5.3)
Definite, No. (%)	4 (1.4)	11 (3.9)	20 (7.1)	105 (37.2)*

*The total agreement rate between radiologists was 57.7%, representing the proportions of radiographs read as no (6.0% of total), possible (7.4%), probable (7.1%), and definite (37.2%) infiltrate by both reviewers. The corresponding kappa statistic was 0.38 (95% CI=0.31 to 0.46).

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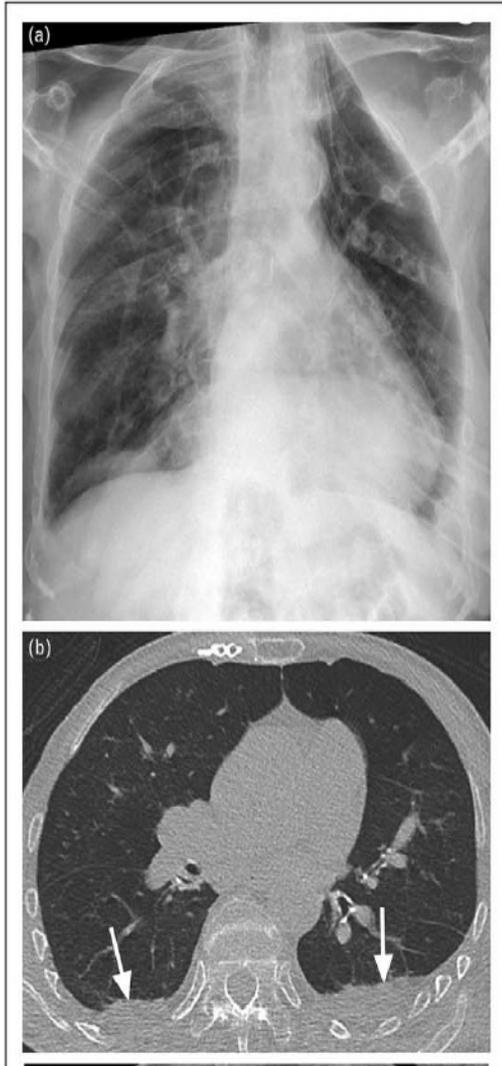
Variabilité inter-observateur majeure

Scanner thoracique

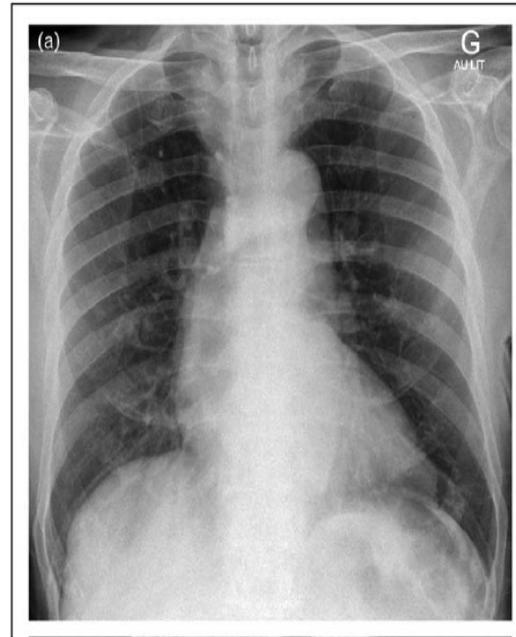
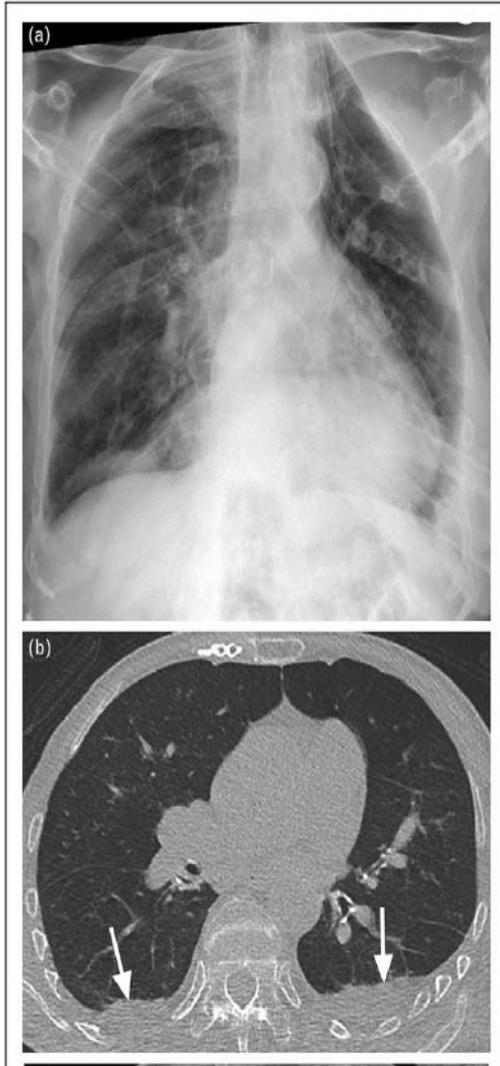
Scanner thoracique



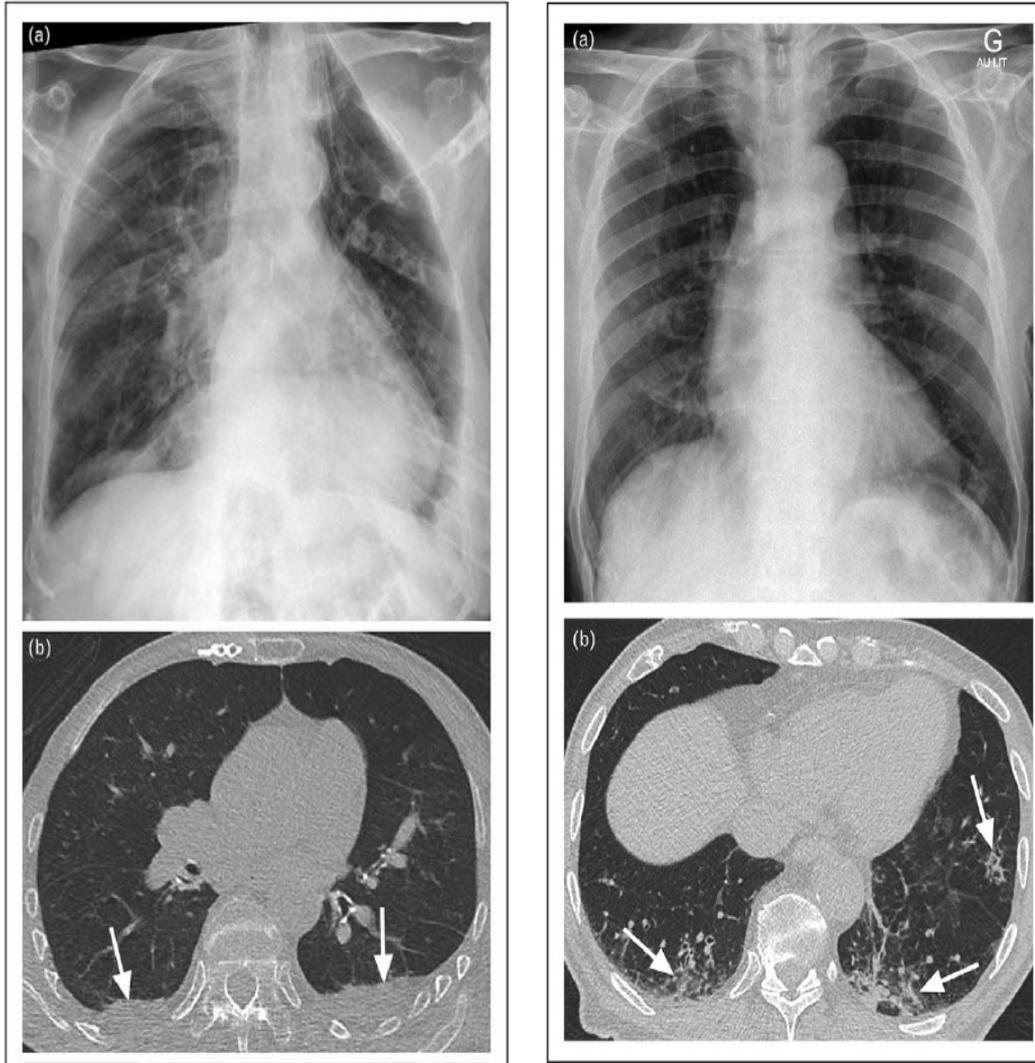
Scanner thoracique



Scanner thoracique



Scanner thoracique



Early Chest Computed Tomography Scan to Assist Diagnosis and Guide Treatment Decision for Suspected Community-acquired Pneumonia

- Etude prospective multicentrique française
- 319 patients pour suspicion clinique de CAP, âge moyen 65 ans
- CT réalisé aux urgences dans les 4h
- Objectif principal: mesure de l'impact du CT sur la probabilité de pneumonie aux urgences (avant/après CT)
- Modification du diagnostic post-CT dans 59% des cas:
 - diagnostic moins probable dans 40% des cas
 - diagnostic plus probable dans 19% des cas



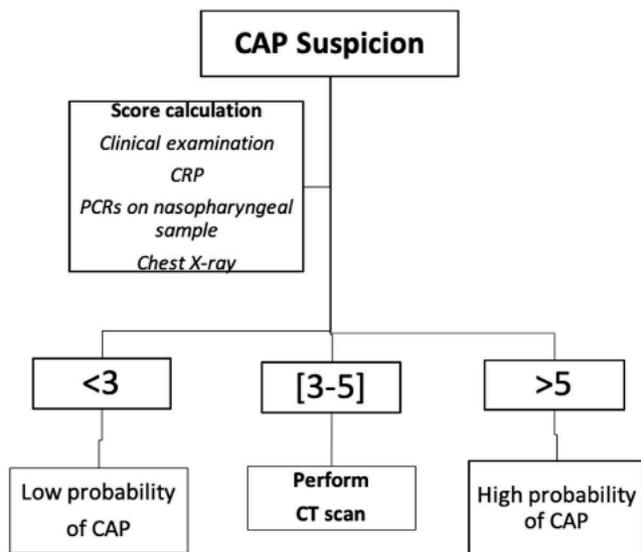
Low-dose computed tomography for the diagnosis of pneumonia in elderly patients: a prospective, interventional cohort study

PneumOLDCT

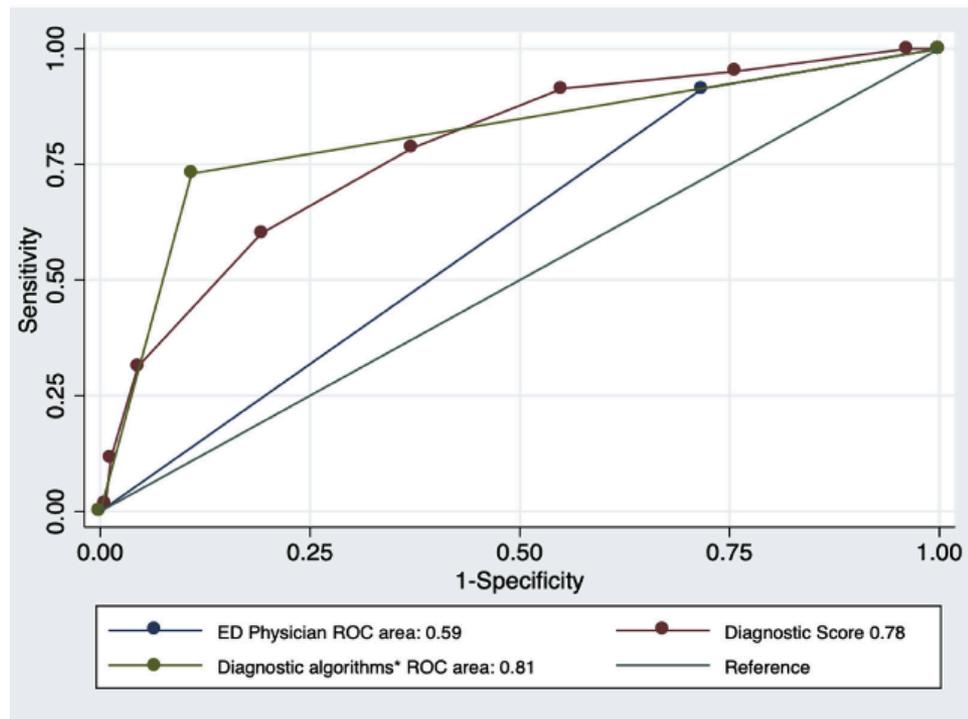
- 200 patients, âgé médian 84 ans
- Changement de probabilité diagnostique: 45%
 - ✓ 60 (30%) avec une probabilité diminuée
 - ✓ 30 (15%) avec probabilité augmentée
- Plus fréquent quand probabilité pré-test intermédiaire (80%)
- Reclassification adéquate selon les experts permettant le plus souvent d'exclure la pneumonie
- Taux d'agrément:
 - Entre les experts cliniciens : 0,31
 - Entre deux experts radiologues: 0,76
- Stop antibiotique dans 17/57 cas avec probabilité faible



Scores diagnostiques



Score calculation: cough=1, chest pain=1, fever $\geq 38^{\circ}\text{C}$ =1, PCR positive result (except rhinovirus) in nasopharyngeal swab = 1, CRP ≥ 50 mg/L = 2 and parenchymal infiltrate on chest X-ray = 2.



Echographie pulmonaire

Echographie pulmonaire

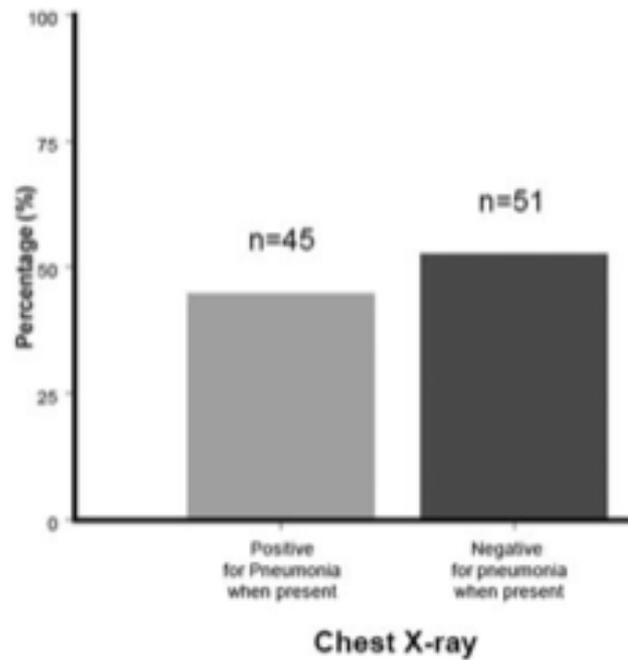
Unité de gériatrie

Gold standard : expert +/- TDM si doute

Echographie pulmonaire

Unité de gériatrie

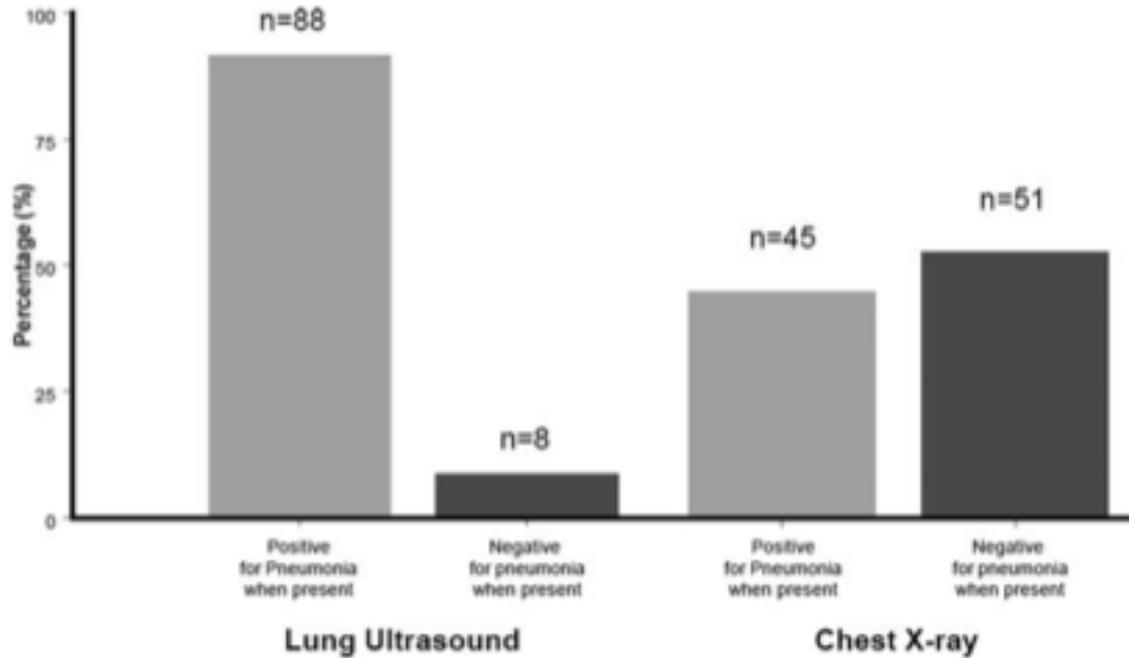
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Echographie pulmonaire

Unité de gériatrie

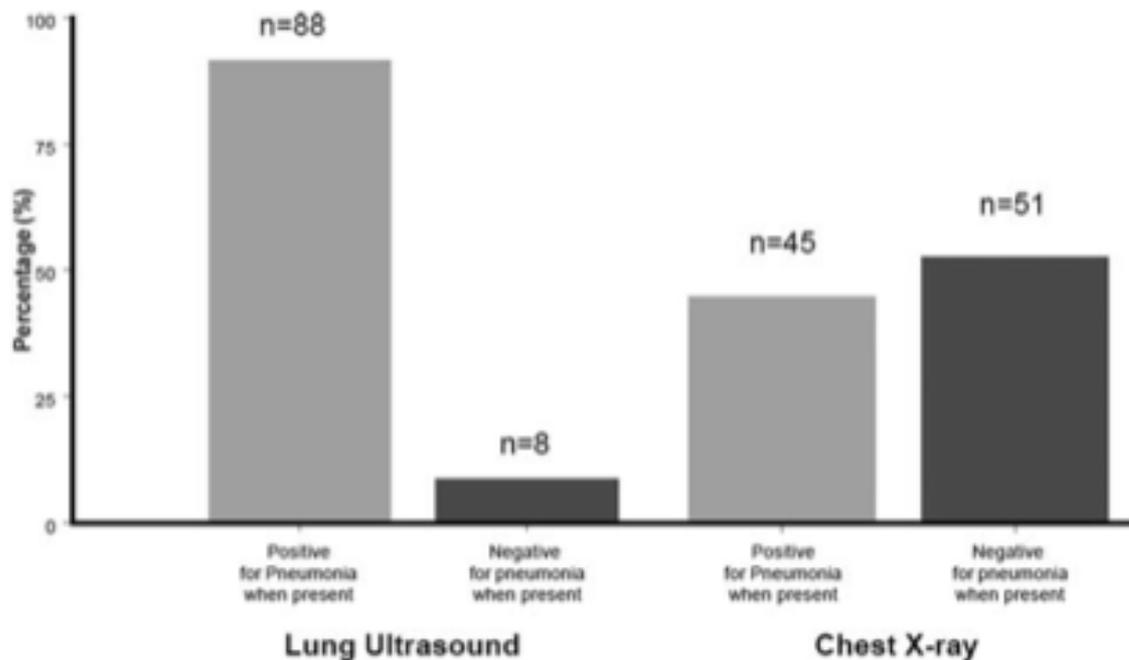
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Echographie pulmonaire

Unité de gériatrie

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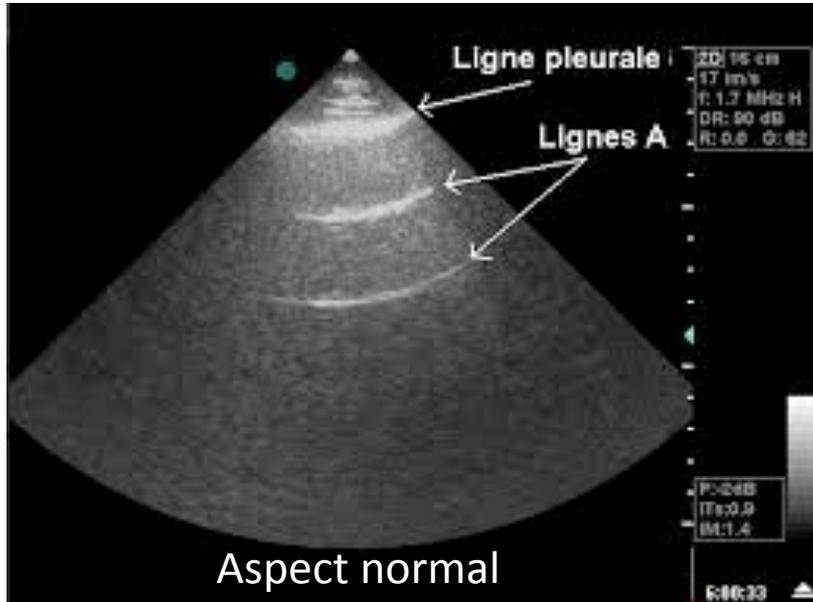
Lung ultrasound

Sensitivity	0.92 [0.86–0.97]
Specificity	0.94 [0.89–0.99]
PPV	0.95 [0.91–0.99]
NPV	0.95 [0.83–0.96]
Accuracy	0.90 [0.83–0.96]*

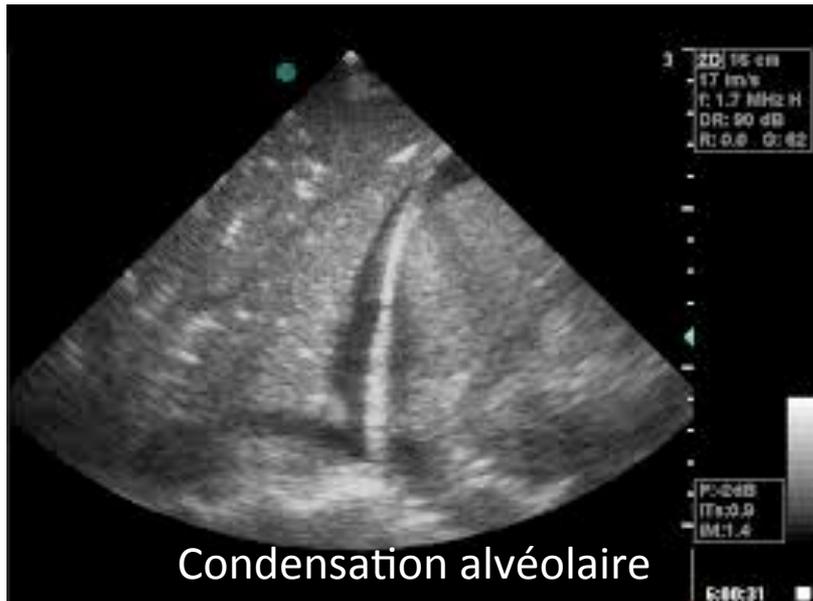
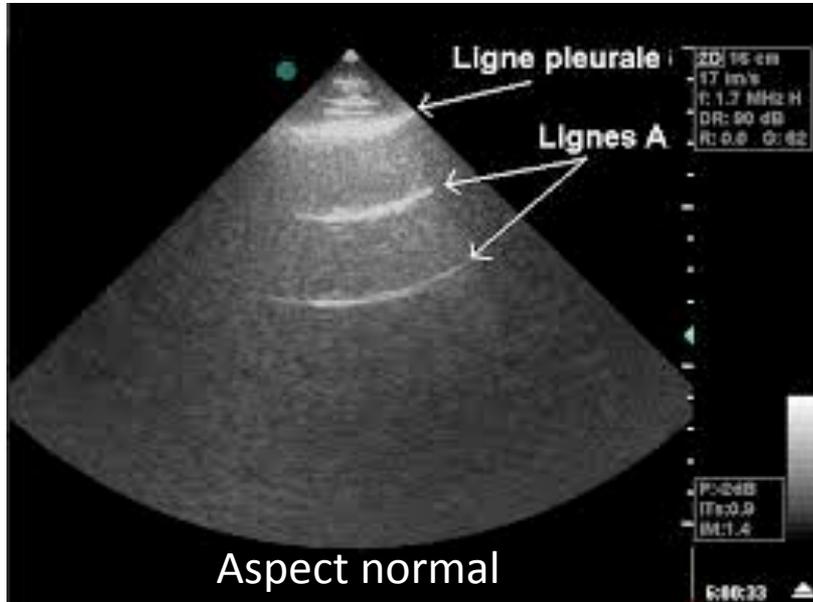
Chest x-ray

Sensitivity	0.47 [0.37–0.57]
Specificity	0.93 [0.87–0.99]
PPV	0.90 [0.82–0.98]
NPV	0.57 [0.48–0.66]
Accuracy	0.67 [0.60–0.74]*

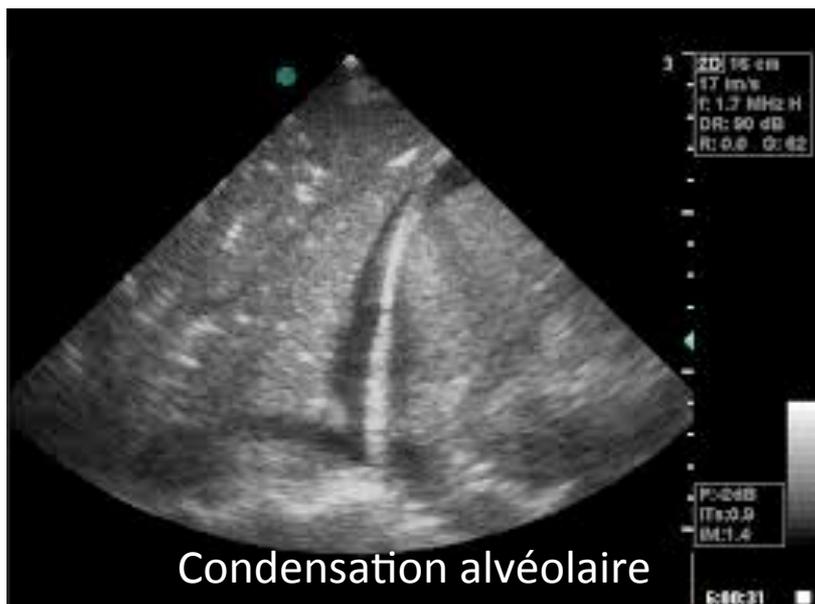
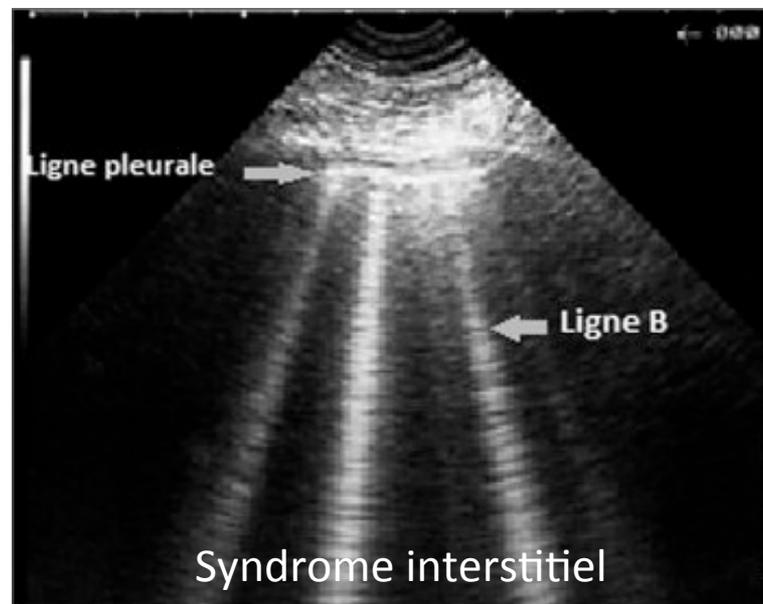
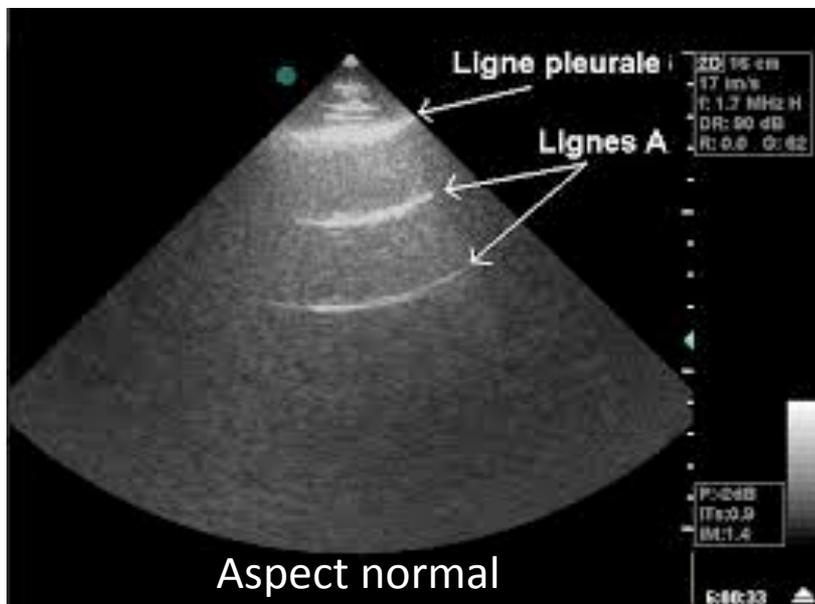
Echographie pulmonaire



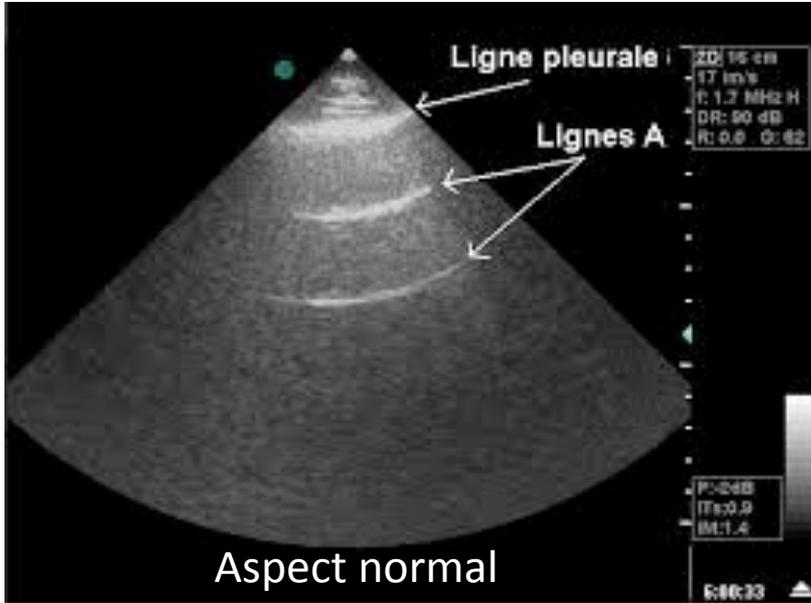
Echographie pulmonaire



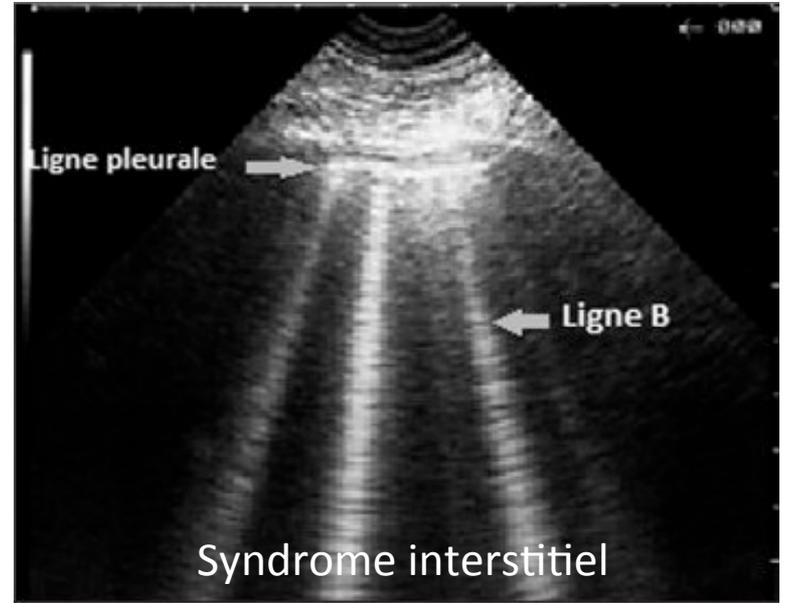
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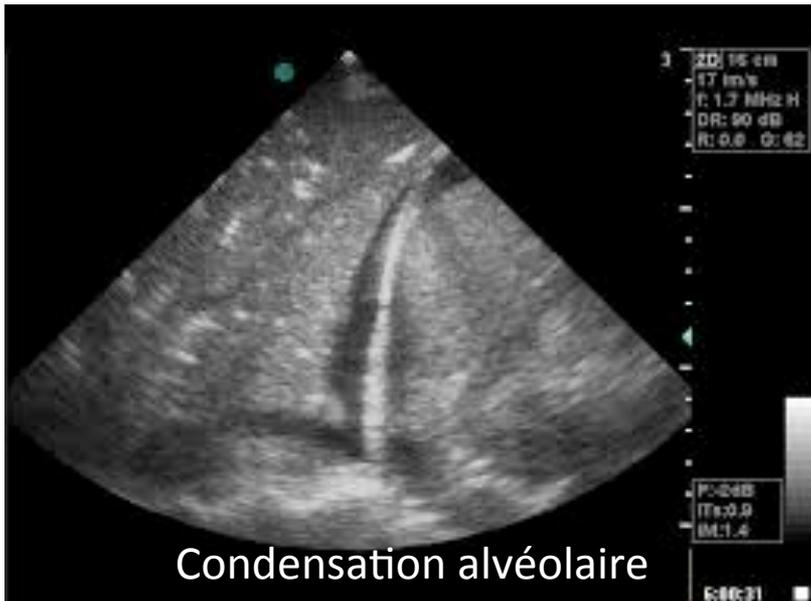
Echographie pulmonaire



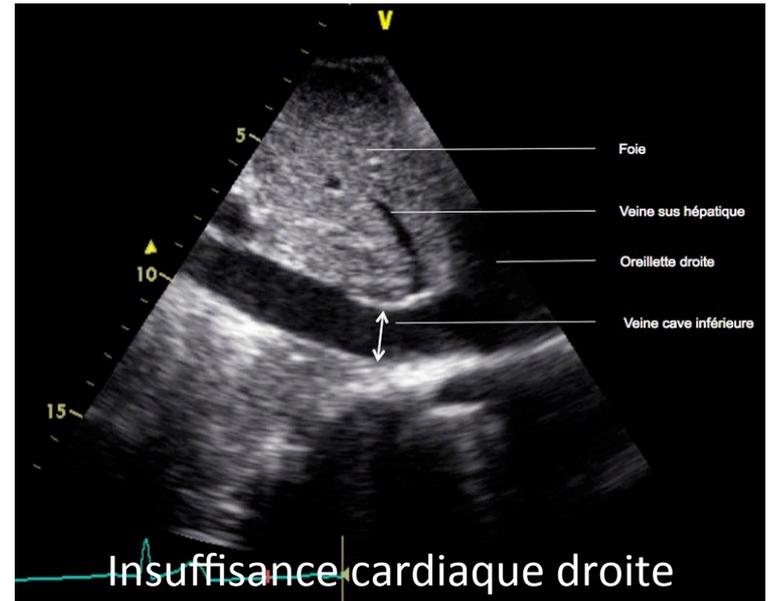
Aspect normal



Syndrôme interstitiel



Condensation alvéolaire



Insuffisance cardiaque droite

CONCLUSION

- Pneumonies : 1ère cause infectieuse d'hospitalisation et de décès

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- Ne plus se contenter d'une présomption clinique faible pour débiter les antibiotiques

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- En cas de radio non conclusive, penser à l'écho ou au scanner pulmonaire

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- Ne plus se contenter d'une présomption clinique faible pour débiter l'antibiothérapie
- En cas de radio non conclusive, penser à l'écho ou au scanner pulmonaire
- Il existe des scores diagnostiques récents pour aider à définir la place du scanner

- Pneumonies : 1ère cause infectieuse d'hospitalisation et de décès
- Ne plus se contenter d'une présomption clinique faible pour débiter l'antibiothérapie
- En cas de radio non conclusive, penser à l'écho ou au scanner pulmonaire
- Il existe des scores diagnostiques récents pour aider à définir la place du scanner
- L'imagerie n'est pas un outil suffisamment discriminant pour un diagnostic microbiologique et guider l'antibiothérapie probabiliste