# Révision pour infection

## Pertinence des examens complémentaires lors d'une suspicion d'infection (Biologie)

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Centre Interrégional Rhône-Alpes Auvergne
de Référence des IOA complexes

Hospices Civils de Lyon

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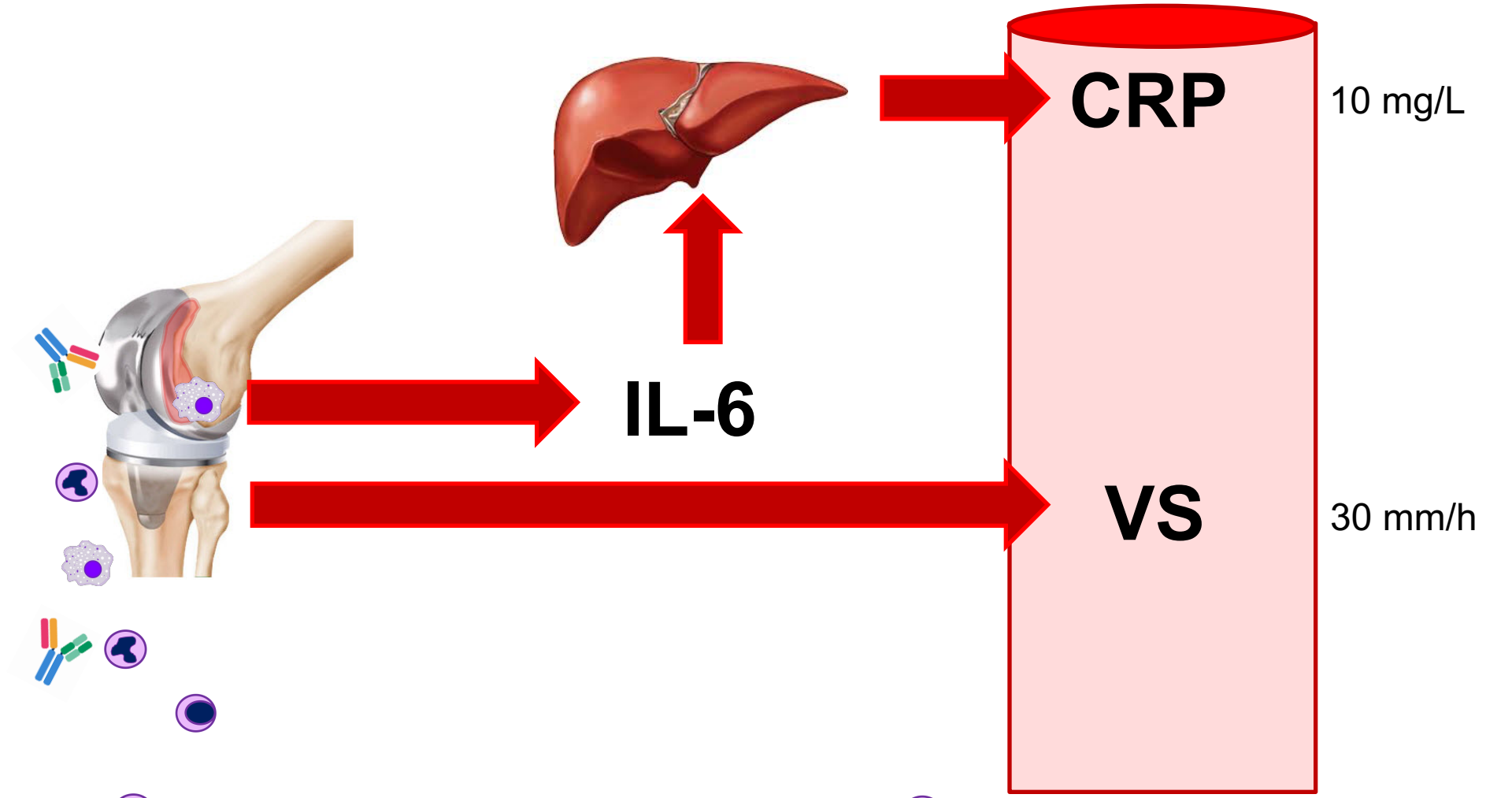
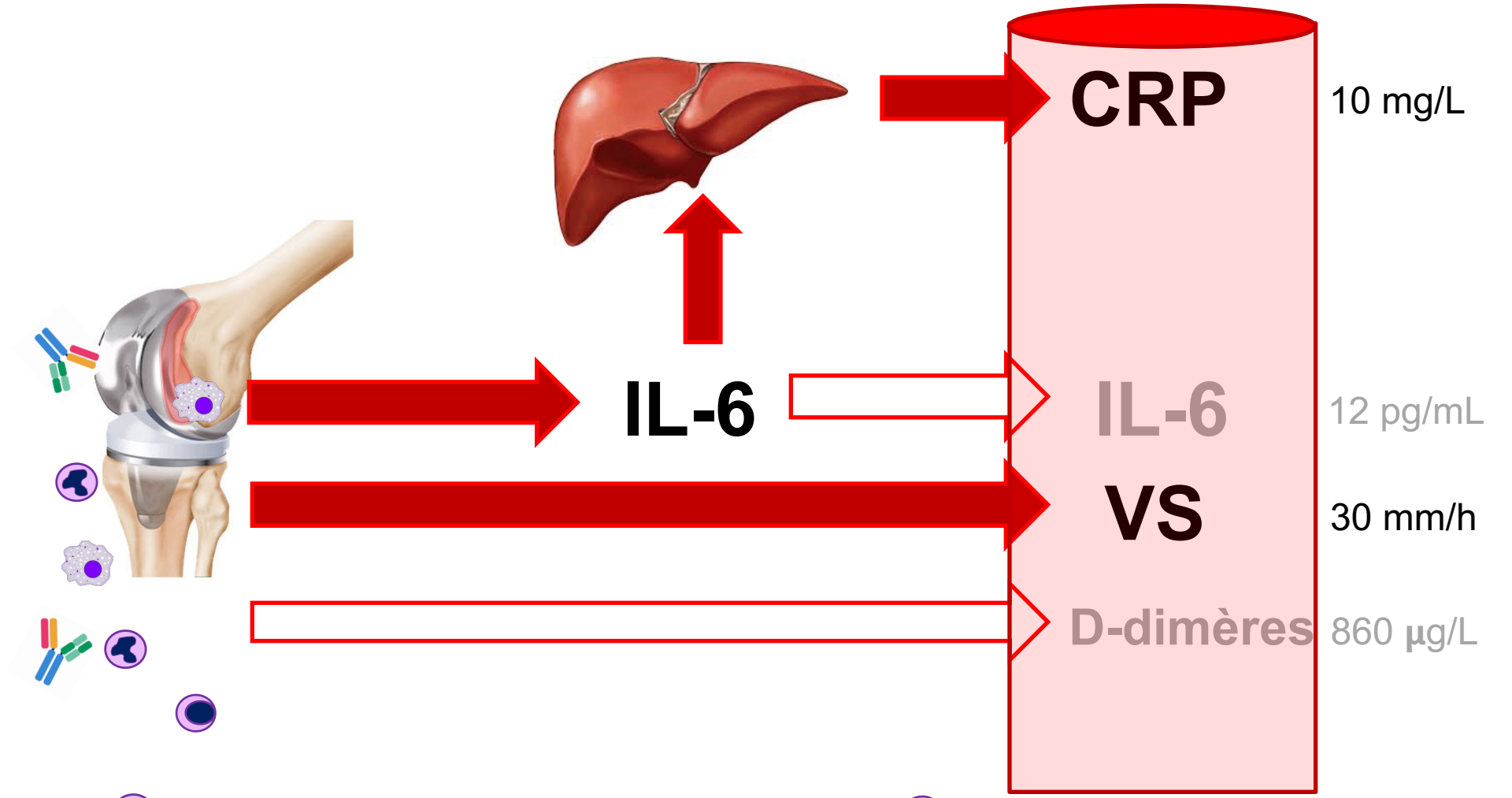
# Biologie sanguine



# Biologie sanguine



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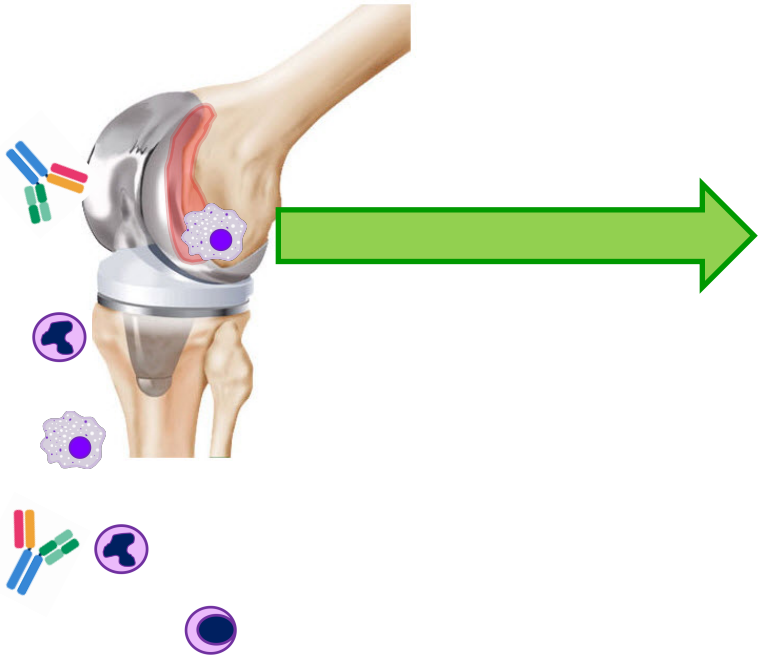


Cytologie

**Liquide articulaire**

Polynucléaires neutrophiles

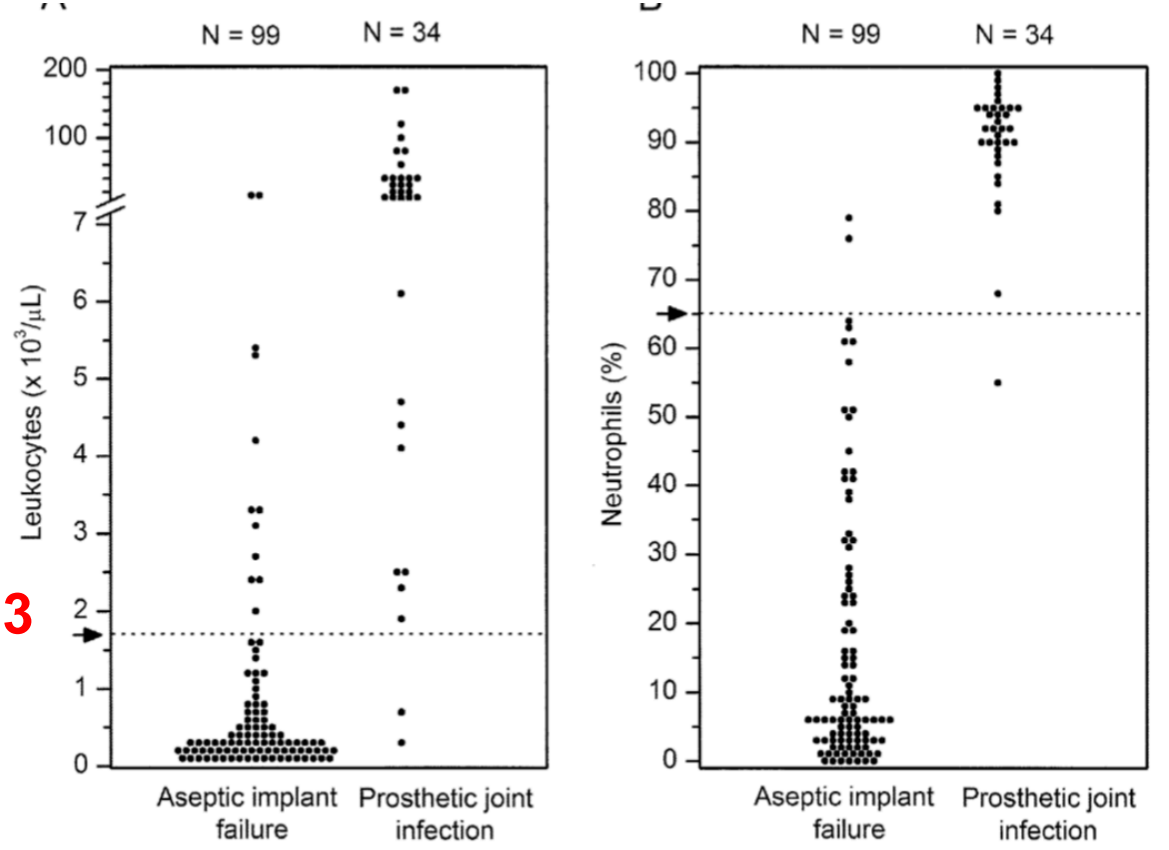
Monocytes / Macrophages

Plasmocytes

Anticorps

# Synovial Fluid Leukocyte Count and Differential for the Diagnosis of Prosthetic Knee Infection

Andrej Trampuz, MD, Arlen D. Hanssen, MD, Douglas R. Osmon, MD, MPH,
Jayawant Mandrekar, PhD, James M. Steckelberg, MD, Robin Patel, MD




1800/mm³

>65% PNN

**Figure 1.** Distribution of synovial fluid leukocyte count (A) and neutrophil percentage (B), by type of prosthetic knee arthroplasty failure. Dotted lines indicate proposed cutoff values to differentiate aseptic failure from prosthetic joint infection.

THE AMERICAN JOURNAL OF MEDICINE 2004

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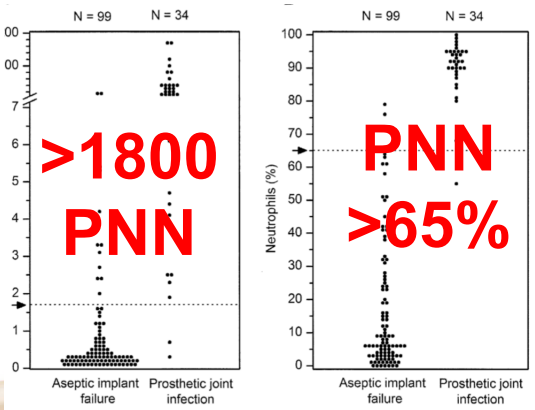
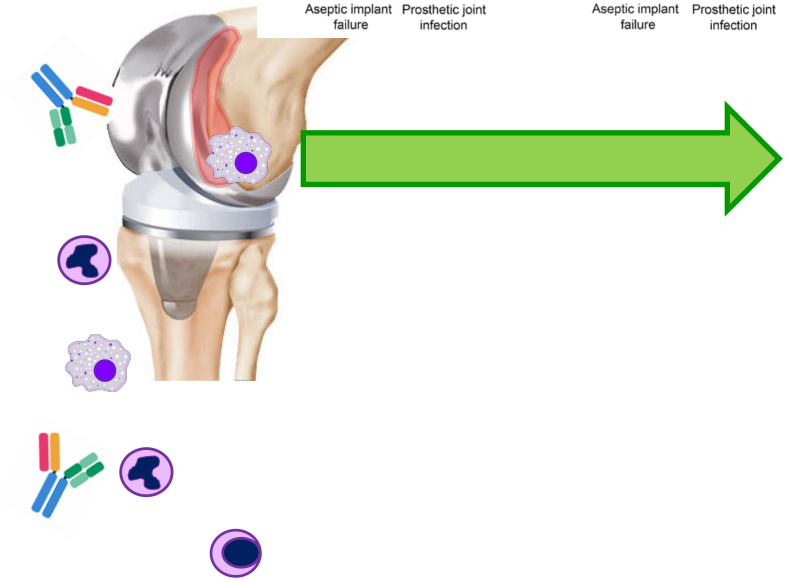






Cytologie



**Liquide articulaire**

Bactériologie

Polynucléaires neutrophiles

Monocytes / Macrophages

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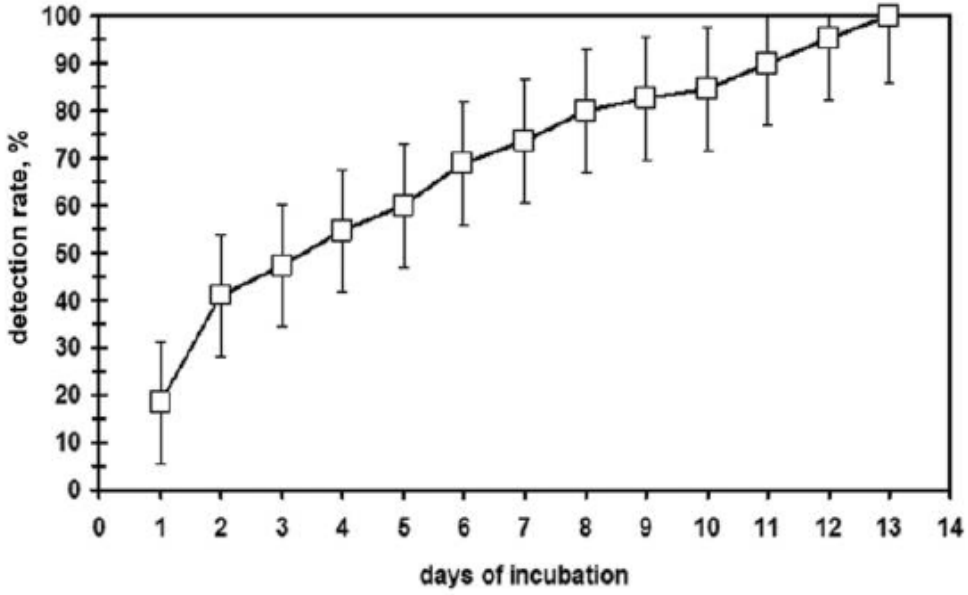
Anticorps

# Prolonged Bacterial Culture to Identify Late Periprosthetic Joint Infection: A Promising Strategy

**Peter Schäfer,[1] Bernd Fink,[2] Dieter Sandow,[1] Andreas Margull,[1] Irina Berger,[3] and Lars Frommelt[4]**

[1]Ambulatory Healthcare Center, Labor Ludwigsburg, Ludwigsburg, [2]Clinic of Joint Replacement, General and Rheumatic Orthopaedics, Orthopaedic Clinic Markgröningen, Markgröningen, [3]Institute of Pathology, Klinikum Kassel, Kassel, and [4]ENDO-Klinik, Hamburg, Germany

Clin Infect Dis. 2008, 47(11):1403-9.



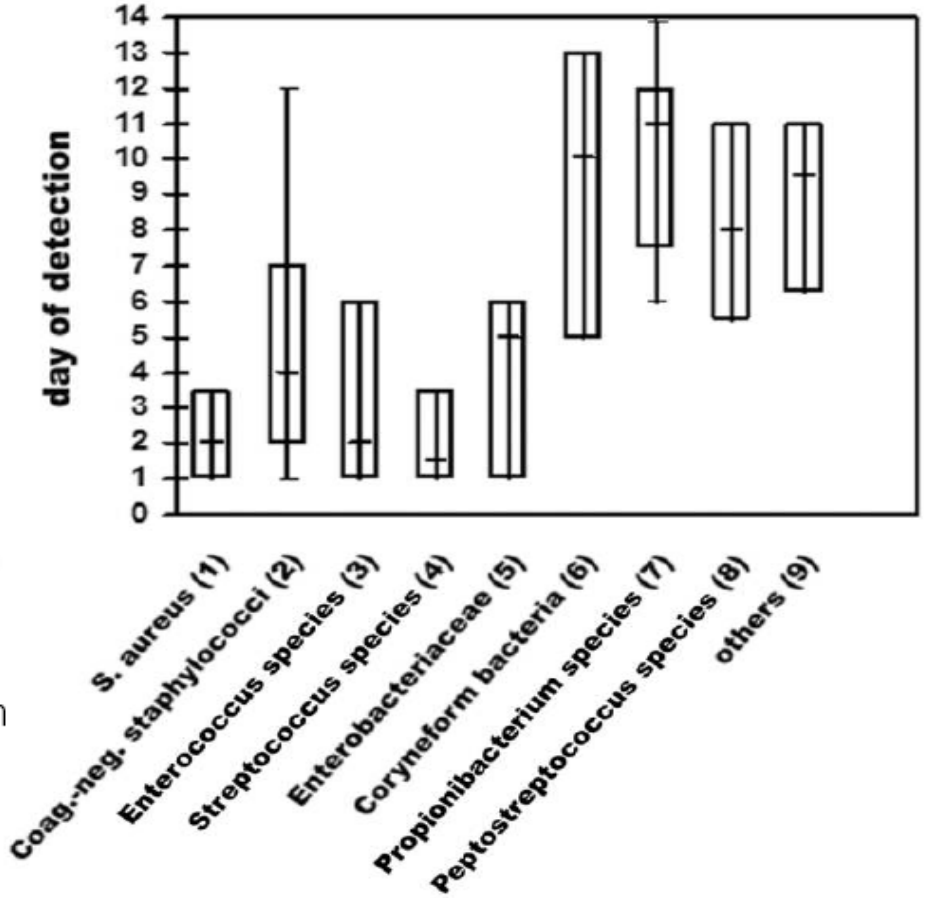




**Figure 1.** Time to diagnosis of infection by culture. Whisker lines span the 95% Hall-Wellner CI.

# Prolonged Bacterial Culture to Identify Late Periprosthetic Joint Infection: A Promising Strategy

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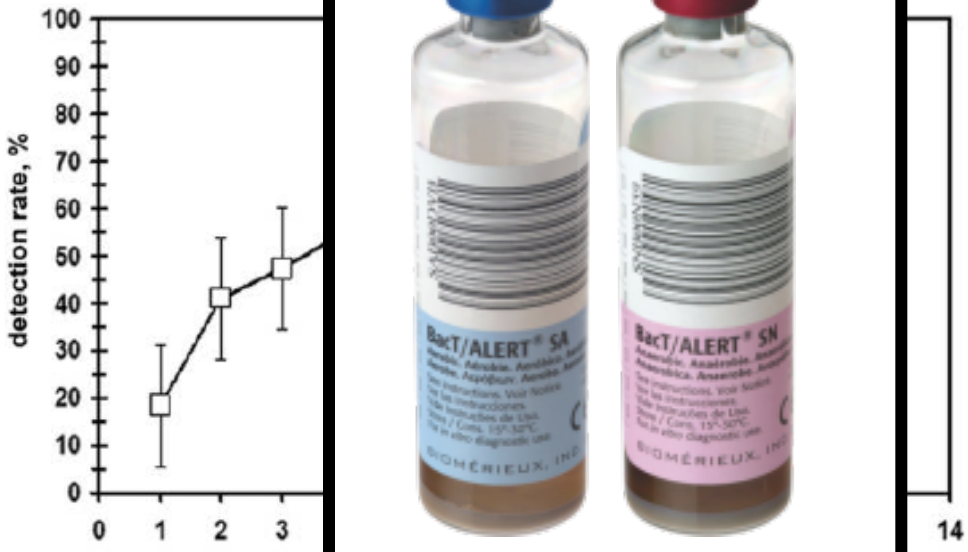
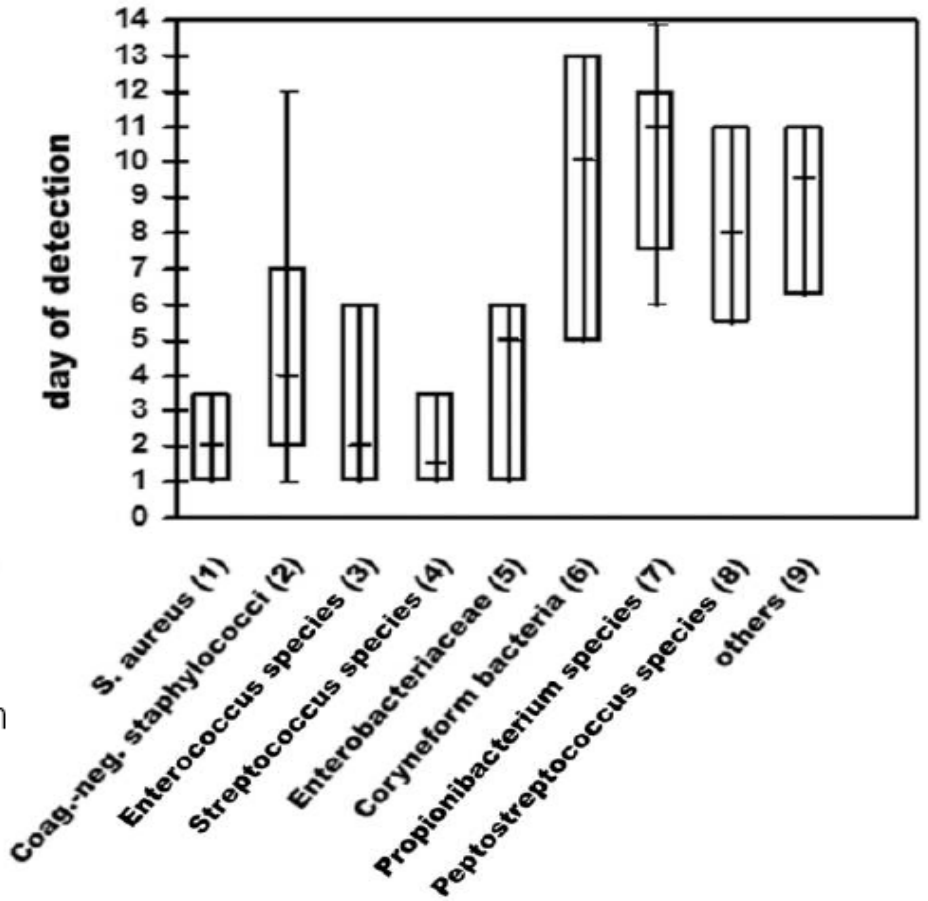



**Figure 1.** Time to dia span
the 95% Hall-Wellner C



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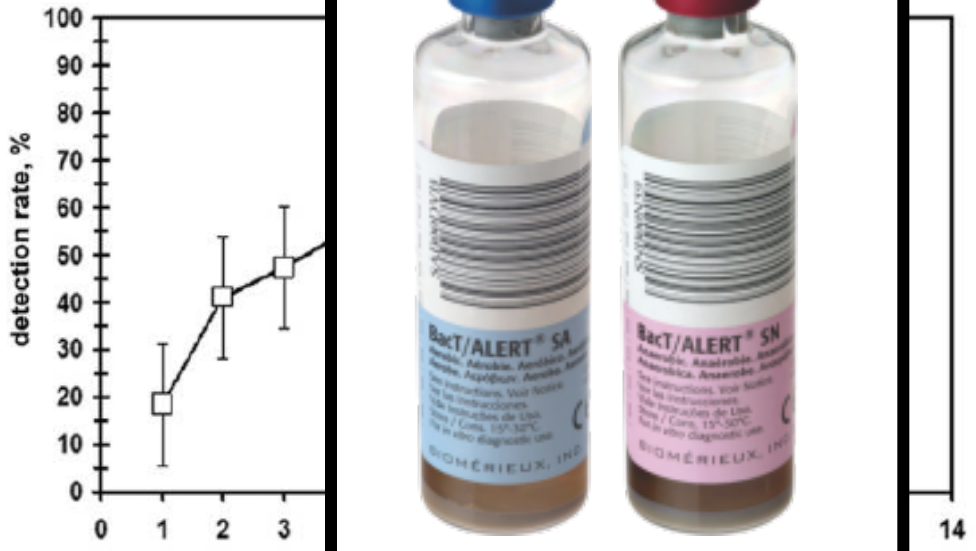



**Figure 1.** Time to dia
the 95% Hall-Wellner C
span




**Flacons hémocultures**

day of detection

**Poudrier stérile**

**PCR**

others (9)

# Données pré-op

**Non disponible (pas de liquide)**
ou
**Cytologie négative**
ou
**Bactériologie non contributive**

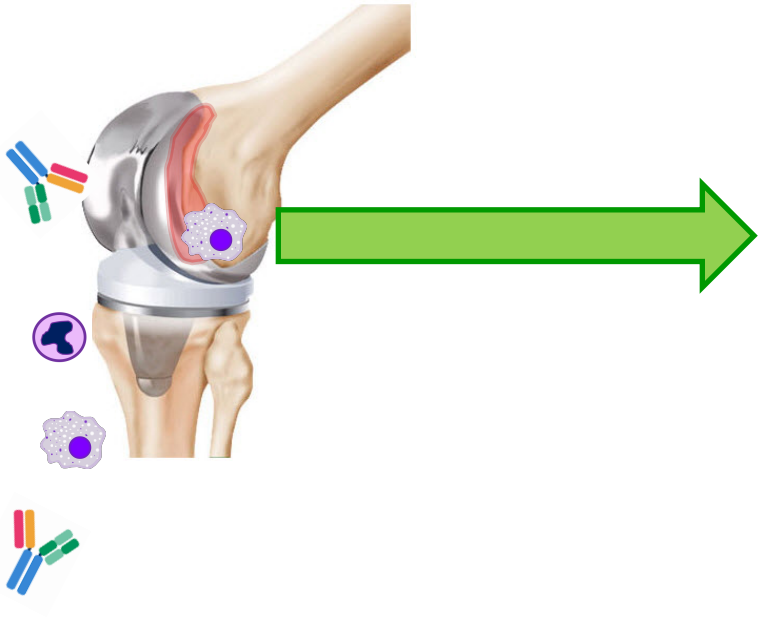
# Données pré-op

**Non disponible (pas de liquide)**
ou
**Cytologie négative**
ou
**Bactériologie non contributive**

**Données disponibles per-op**

**Diagnostic d'infection (ou non)**

# Données disponibles per-op



Cytologie

**Liquide articulaire**

Bactériologie

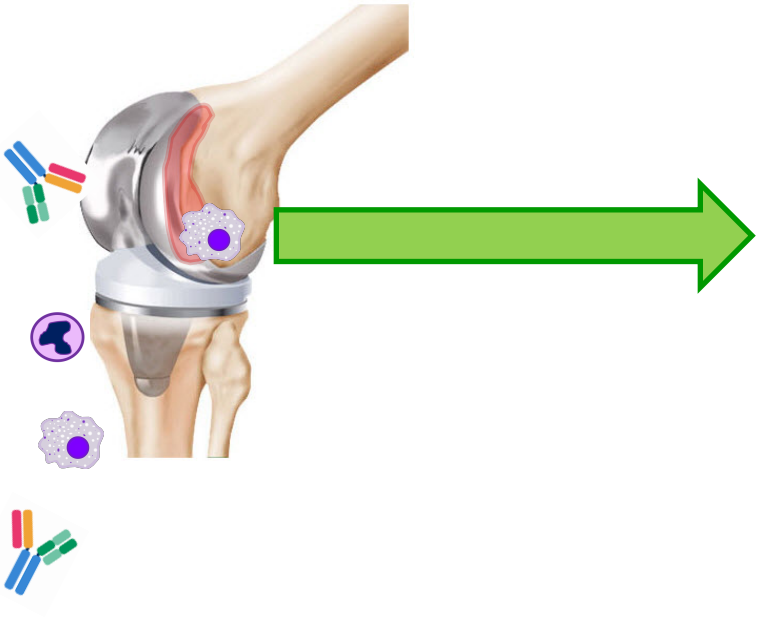
Polynucléaires neutrophiles

Monocytes / Macrophages

Plasmocytes

Anticorps

# Données disponibles per-op



Cytologie

Marqueur inflammatoire de substitution

**Liquide articulaire**

Bactériologie

Polynucléaires neutrophiles

Monocytes / Macrophages

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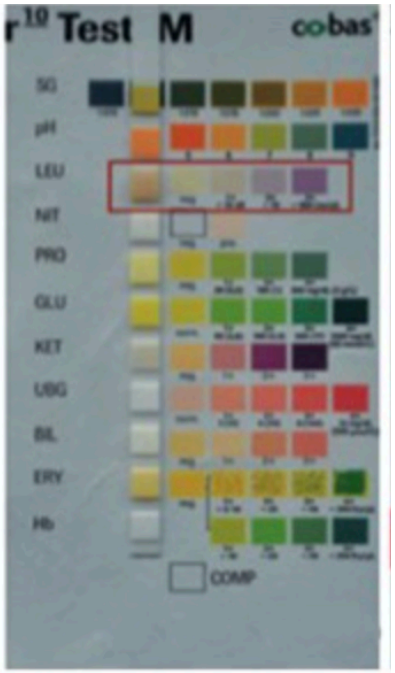
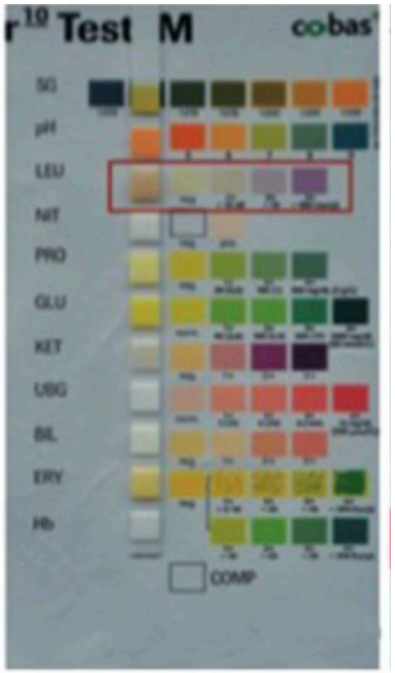
Anticorps

# Leucocyte estérase




PNN
Semi-quantitatif

# Leucocyte esterase

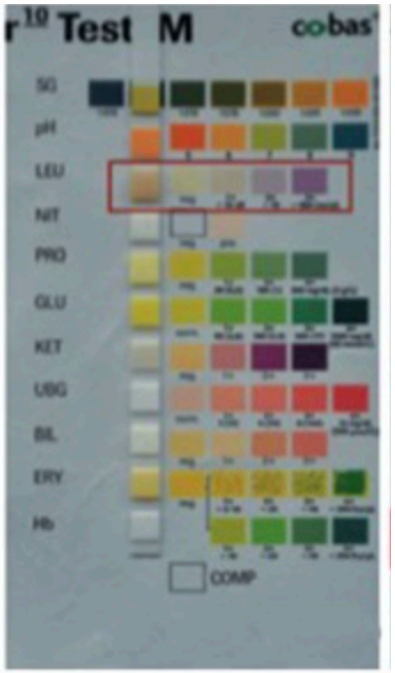



PNN
Semi-quantitatif

# Synovasure®


Alpha-défensine
Qualitatif

## Leucocyte esterase



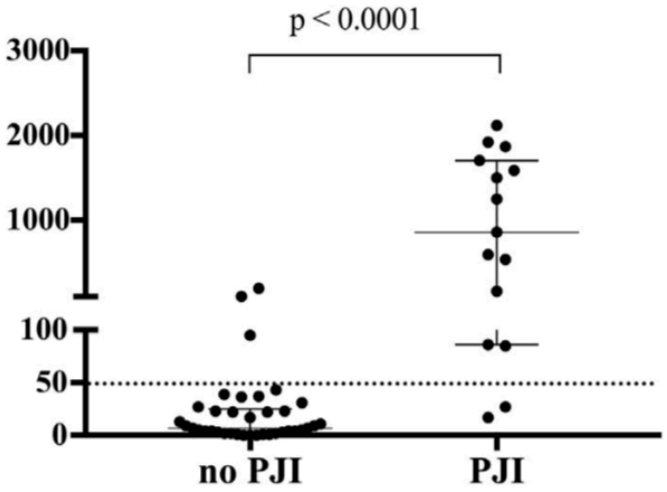

PNN
Semi-quantitatif

## Synovasure®


Alpha-défensine
Qualitatif


## Calprotectine

Wouthuyzen-Bakker
J Arthroplasty 2018




Alpha-défensine
Quantitatif

# Données pré-op

**Non disponible (pas de liquide)**
ou
**Cytologie négative**
ou
**Bactériologie non contributive**

**Données disponibles per-op**

**Diagnostic d'infection (ou non)**

# Données pré-op

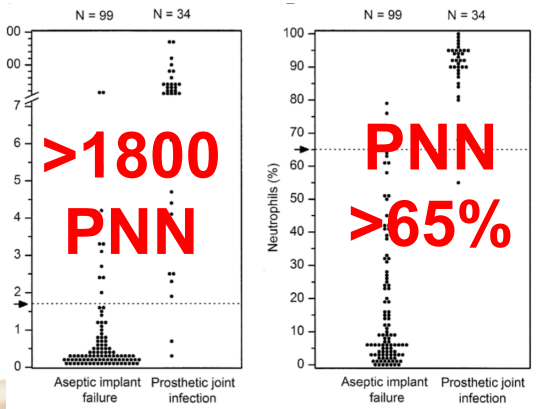
**Non disponible (pas de liquide)**
ou
**Cytologie négative**
ou
**Bactériologie non contributive**

**Données disponibles per-op**

**Données disponibles Post-op**

**Diagnostic d'infection (ou non)**

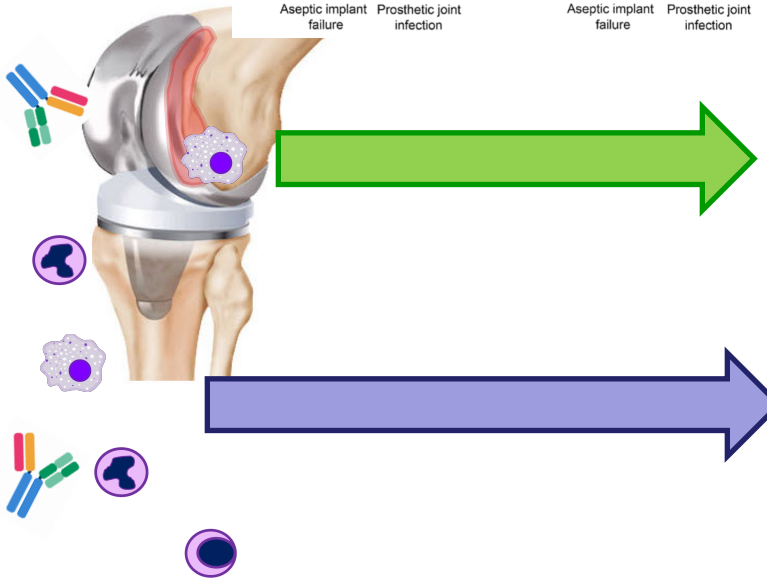
# Données disponibles post-op







Cytologie



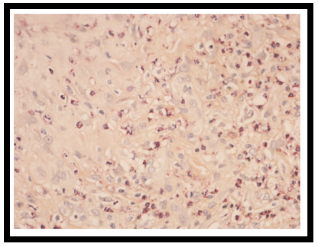
**Liquide articulaire**

Bactériologie

**Biopsies osseuses**

Anapath





Polynucléaires neutrophiles

Monocytes / Macrophages

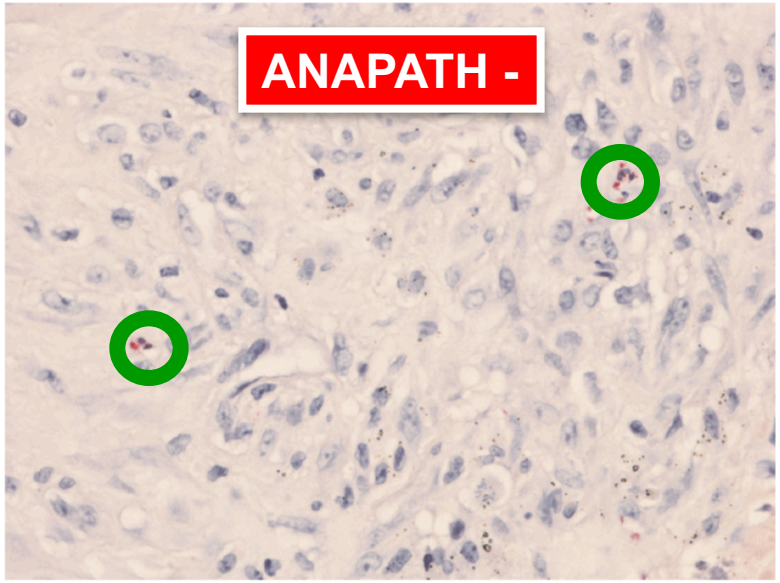
Plasmocytes

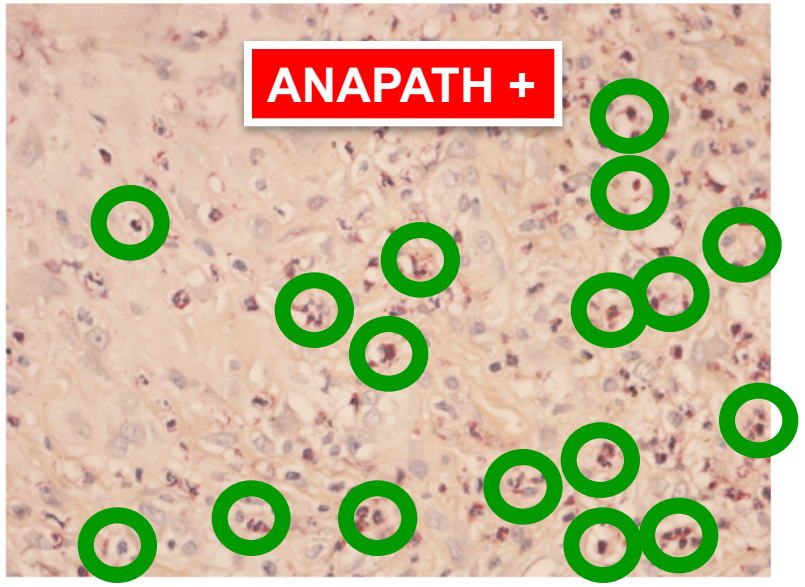
Anticorps

*Review Article*

# Histopathology in Periprosthetic Joint Infection: When Will the Morphomolecular Diagnosis Be a Reality?

G. Bori,[1] M. A. McNally,[2] and N. Athanasou[2]



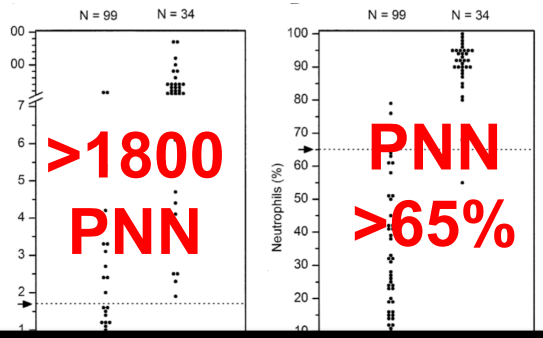

≥ 5 PNN sur ≥ 5 champs

≥ 10 PNN sur ≥ 5 champs

≥ 23 PNN sur ≥ 10 champs

**Bémer *JCM* 2018**

# Données disponibles post op







Cytologie

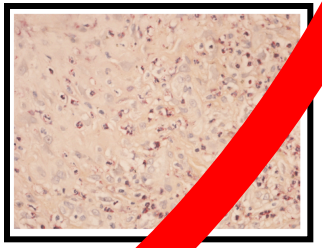


Bactériologie

## Délai de 2 semaines

## Antibiothérapie en attendant les résultats

Anapath



Polynucléaires neutrophiles

Monocytes / Macrophages

Plasmocytes

Anticorps

**International Consensus Meeting on Prosthetic Joint Infection**

Second INTERNATIONAL CONSENSUS MEETING (ICM) on MUSCULOSKELETAL INFECTION


# Proposed 2018 ICM criteria for PJI

| Major criteria (at least one of the following) | Decision |
|---|---|
| Two positive cultures of the same organism | Infected |
| Sinus tract with evidence of communication to the joint or visualization of the prosthesis | |

**Recommendation:**
**This is the proposed 2018 ICM criteria for PJI:**

| Minor Criteria | Threshold | Score | Decision |
|---|---|---|---|
| | **Chronic** | | Combined preoperative and postoperative score:<br>≥6 Infected<br>4-5 Inconclusive*<br>≤3 Not Infected |
| Serum CRP (mg/L)<br>*or*<br>D-Dimer (ug/L) | 10<br><br>860 | 2 | |
| Elevated Serum ESR (mm/hr) | 30 | 1 | |
| Elevated Synovial WBC (cells/µL)<br>*or*<br>Leukocyte Esterase<br>*or*<br>Positive Alpha-defensin (signal/cutoff) | 3,000<br>++<br>1.0 | 3 | |
| Elevated Synovial PMN (%) | 70 | 2 | |
| Single Positive Culture | | 2 | |
| Positive Histology | | 3 | |
| Positive Intraoperative Purulence[¥] | | 3 | |

Proceed with caution in: Adverse local tissue reaction, crystal deposition disease and slow growing organisms.

[*] Consider further molecular diagnostics such as next-generation sequencing.

[€] Further studies needed to validate a specific threshold.

[¥] Has no role in patients with suspected adverse local tissue reaction.

# Examens complémentaires biologiques lors d'une suspicion d'infection de PTG

- **Préop**
  - VS, CRP
  - Ponction avec cytologie du liquide et bactério
- **Perop**
  - Test de substitution (calprotectine ?)
- **Postop**
  - Cytologie du liquide et bactério (complète)
  - Anapath

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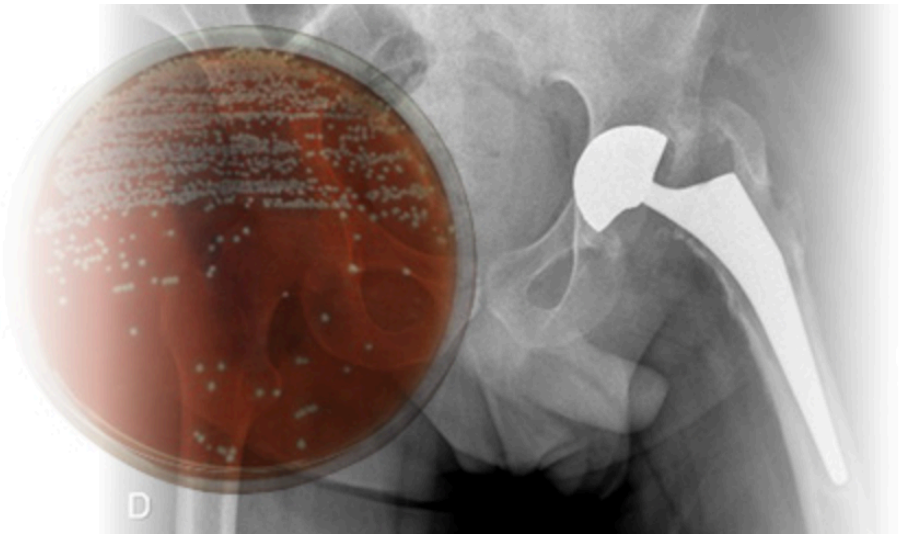
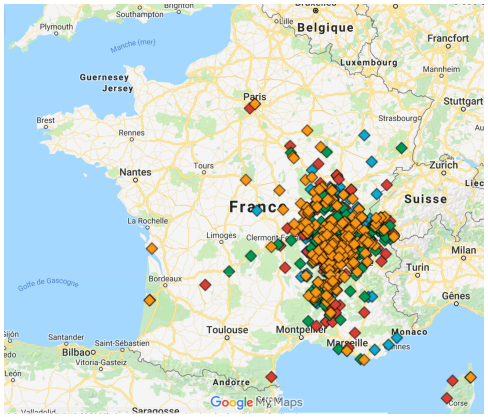
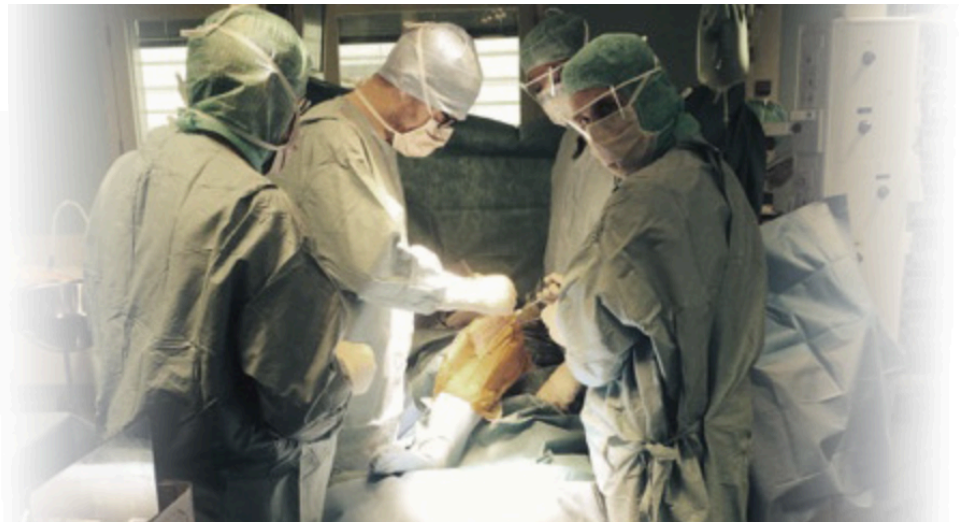
# http://www.crioac-lyon.fr



- Published cases
- Open acces studies in pdf
- All thesis in pdf
- **Newsletter**



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