

# BEST OF en INFECTIOLOGIE

## Lundi 23 mars 2026

# IOA

Johan Courjon  
CHU de Nice, Infectiologie



PJi



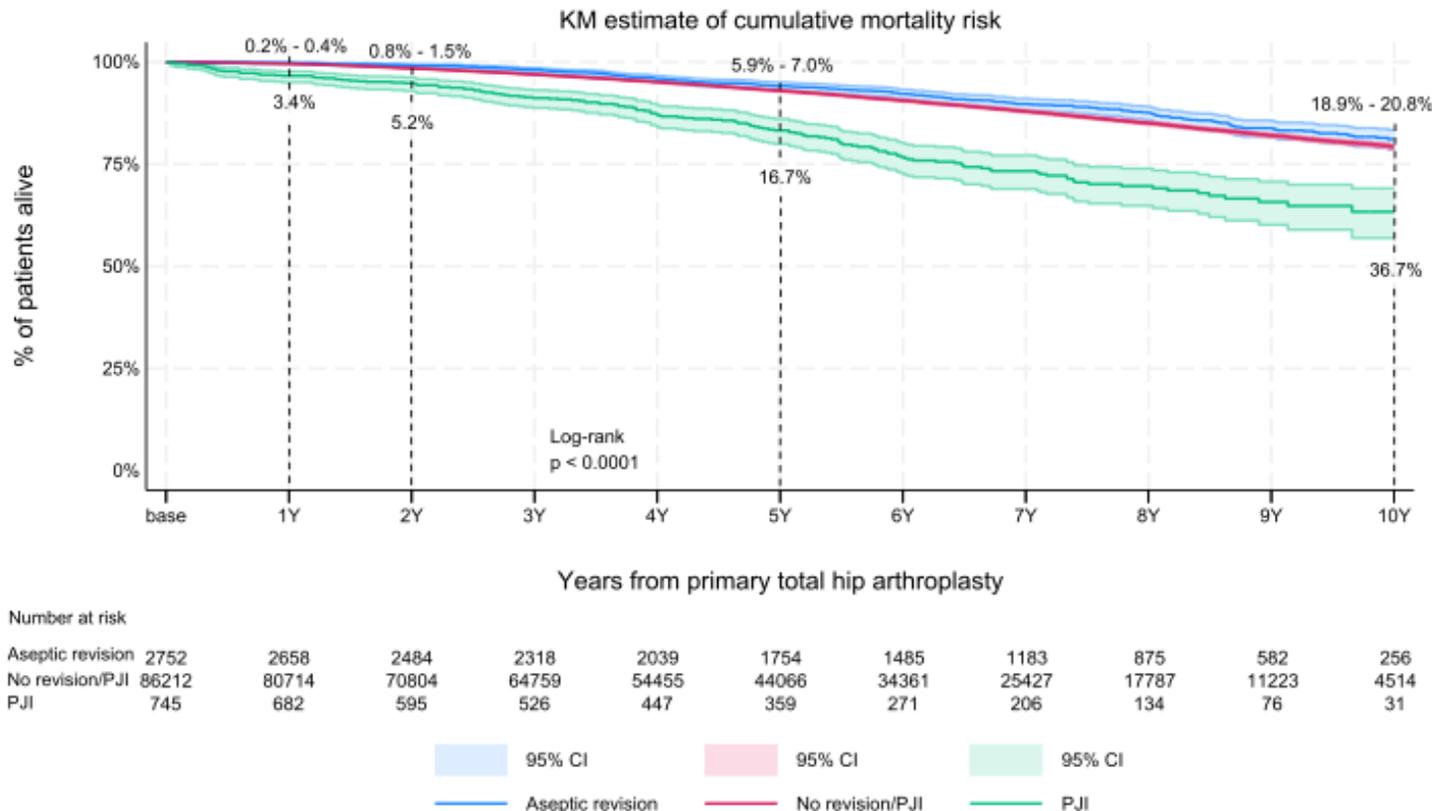
Epidémiologie

# Increased long-term mortality of patients with prosthetic joint infection after primary total hip arthroplasty – A large observational cohort study

2026



Andreas Widmer <sup>a,1</sup>, Nadine Imhasly <sup>b,1</sup>, Christian Brand <sup>c</sup>, Vilijam Zdravkovi <sup>d</sup>,  
 Adrian Spoerri <sup>c</sup>, Kurt Schmidlin <sup>c</sup>, Melanie Wicki <sup>e</sup>, Martin Beck <sup>f</sup>, Rami Sommerstein <sup>b,g,\*</sup>, for  
 SIRIS and SWISSNOSO



2012-2022

10 ans de suivi

90 000 patients

745 PJI

Gompertz regression, controlling for sex, age, BMI, and ASA.

PJI was associated with increased mortality (**aHR 2.15**; 95% CI, 1.79–2.57; p < 0.001) compared to no PJI/revision

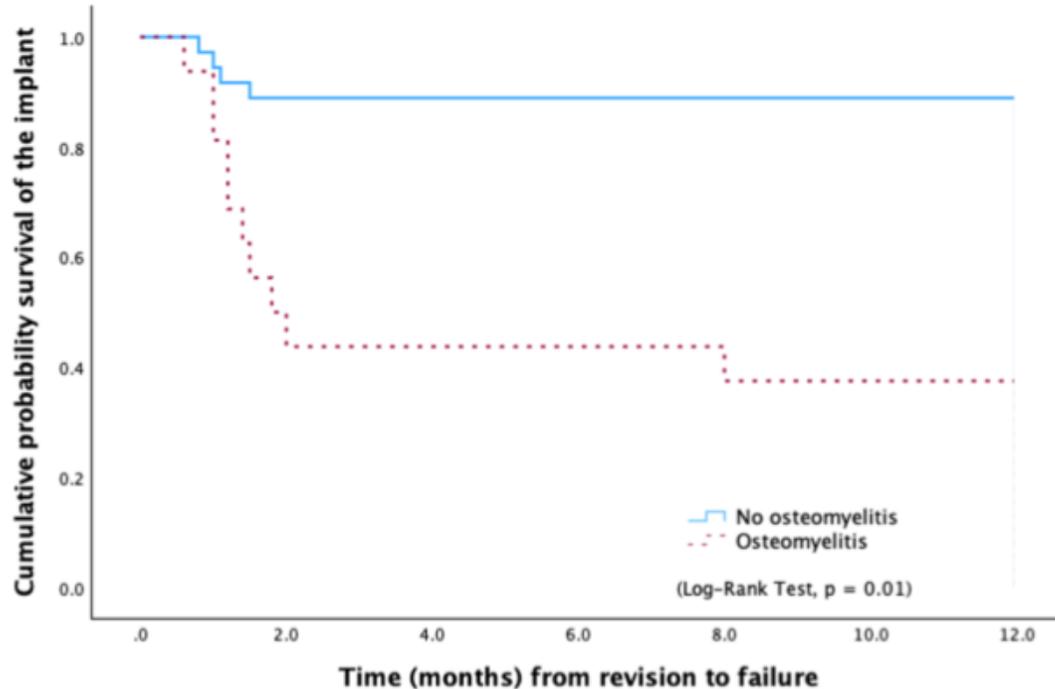
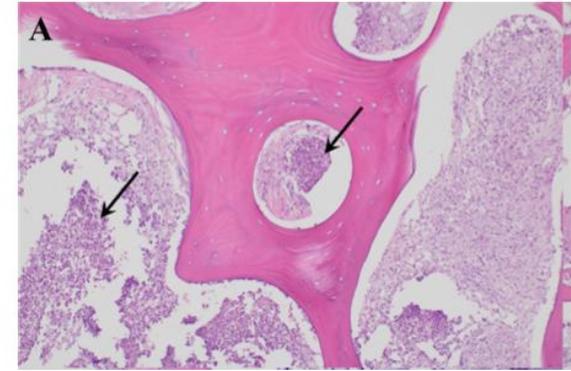
Highest aHR (3.17) for GNB

# Physiopathologie

# Osteomyelitis in peri-implant bone of hip prosthetic joint infection: prevalence and clinical impact

2026

Ernesto Muñoz-Mahamud<sup>1,2,5</sup>, Melissa Rivera<sup>2</sup>, Ana Belén Larque<sup>3</sup>, Laura Morata<sup>4,5</sup>,  
Andrés Combalia<sup>1,2,5</sup>, Alfonso Alías<sup>1</sup>, Jenaro Ángel Fernández-Valencia<sup>1,2</sup>, and Álex Soriano<sup>4,5</sup>



52 PJI Chroniques

Histological signs of osteomyelitis associated with:

- prior history of multiple surgeries
- unsuccessful antibiotic treatments
- the presence of a sinus tract
- the need for additional debridement with spacer exchange after the first stage of a two-stage revision

Diagnostic

# Techniques conventionnelles de culture bactérienne

- Prélèvements multiples + Différentes techniques de sensibilisation

Broyage



Dupieux Chabert C

Hémocultures



Sonication



Higgins E 2022

ORIGINAL ARTICLE

## Sonication of Removed Hip and Knee Prostheses for Diagnosis of Infection

NEJM 2007

Andrej Trampuz, M.D., Kerryl E. Piper, M.S., Melissa J. Jacobson, A.S.,  
Arlen D. Hanssen, M.D., Krishnan K. Unni, M.D., Douglas R. Osmon, M.D.,  
Jayawant N. Mandrekar, Ph.D., Franklin R. Cockerill, M.D.,  
James M. Steckelberg, M.D., James F. Greenleaf, Ph.D., and Robin Patel, M.D.

CID 2025

## Impact of Sonication Fluid Cultures on Prosthetic Joint Infection Diagnosis and Management: A Microbiology-Driven Evaluation Using Infectious Diseases Society of America and European Bone and Joint Infection Society Criteria

Anas Zouitni,<sup>1</sup> P. Koen Bos,<sup>1</sup> Marius Vogel,<sup>2</sup> Peter Croughs,<sup>2</sup> Lennert Slobbe,<sup>2</sup> Paul-Emile Claus,<sup>3</sup> Jakob van Oldenrijk,<sup>1</sup> Ewout S. Veltman,<sup>1</sup> and Erlangga Yusuf<sup>2,\*</sup>

<sup>1</sup>Department of Orthopedic Surgery and Sports Medicine, Erasmus Medical Center, Rotterdam, The Netherlands; <sup>2</sup>Department of Medical Microbiology and Infectious Diseases, Erasmus Medical Center, Rotterdam, The Netherlands; and <sup>3</sup>Department of Clinical Laboratory, Imelda Hospital, Bonheiden, Belgium

113 PJI avec infection confirmée selon EBJIS  
50/113 (44.2%) avec sonication positive ( $> 50$  CFU/ml)  
Changement potentiel de traitement antibiotique chez 10/113 (8.8%) patients

RESEARCH

Open Access

## Best microbiological practice recommendations for the diagnosis of peri-prosthetic joint infections: the CRIOGO bacteriology reference center network



Pascale Bémer<sup>1</sup>, Chloé Plouzeau-Jayle<sup>2</sup>, Carole Lemarié<sup>3</sup>, Didier Tande<sup>4</sup>, Anne Gougeon-Jolivet<sup>5</sup>, Rachel Chenouard<sup>3</sup>, Claudie Lamoureux<sup>4</sup>, Sophie Reissier<sup>5</sup>, Louise Ruffier d'Epenoux<sup>1</sup>, Laura Chaufour<sup>6</sup>, Marie-Frédérique Lartigue<sup>6,7</sup> and Stéphane Corvec<sup>1,8,9\*</sup> on behalf of on behalf the CRIOGO study group

Annals of Clinical Microbiology  
and Antimicrobials 2025

The interest of sonication was highlighted on prosthetic material. Nevertheless, this technique has never been compared to optimized culture with grinding and use of blood culture bottle.

Ultimately, sonication does not appear imperative if culture is well conducted and optimized.

Traitement médical

## Original Investigation

# Oral vs Intravenous Antibiotics for Fracture-Related Infections The POvIV Randomized Clinical Trial

Major Extremity Trauma Research Consortium (METRC)

[Article Information](#)

JAMA **Surgery**

2025

# Oral versus Intravenous Antibiotics for Bone and Joint Infection

The NEW ENGLAND  
JOURNAL of MEDICINE

2019

**Authors:** Ho-Kwong Li, M.R.C.P., Ines Rombach, D.Phil., Rhea Zambellas, M.Sc., A. Sarah Walker, Ph.D., Martin A. McNally, F.R.C.S.(Orth.), Bridget L. Atkins, F.R.C.P., Benjamin A. Lipsky, M.D., [+52](#), for the OVIVA Trial

Collaborators\* [Author Info & Affiliations](#)

Published January 30, 2019 | N Engl J Med 2019;380:425-436 | DOI: 10.1056/NEJMoa1710926 | [VOL. 380 NO. 5](#)

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- 2013-2018, Multicentrique : Trauma center USA
- Critère d'inclusion:
  - Deep surgical site infection (SSI)** was defined based on modified US Centers for Disease Control and Prevention criteria and involved only patients whose infections were treated operatively.
  - Patients with **osteomyelitis**, defined as radiographic evidence of bone erosion or sequestrum in the setting of a deep infection, **were excluded** from this study

- CJP: Number of study injury–related surgical interventions within 1 year after discharge from the initial infection hospitalization
- it was assumed that this outcome distribution would have a mean of 2.2
- Oral antibiotics were considered noninferior to IV if the mean difference was less than or equal to 0.67

<b>Assigned</b>	
<b>PO</b>	<b>IV</b>
<b>(n = 115)</b>	<b>(n = 118)</b>

<b>Mean [SD] Time from Fixation to Debridement, days</b>	431.2 (918.0)	377.1 (1185.4)
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<b>Assigned</b>	
<b>PO</b>	<b>IV</b>
<b>(n = 115)</b>	<b>(n = 118)</b>

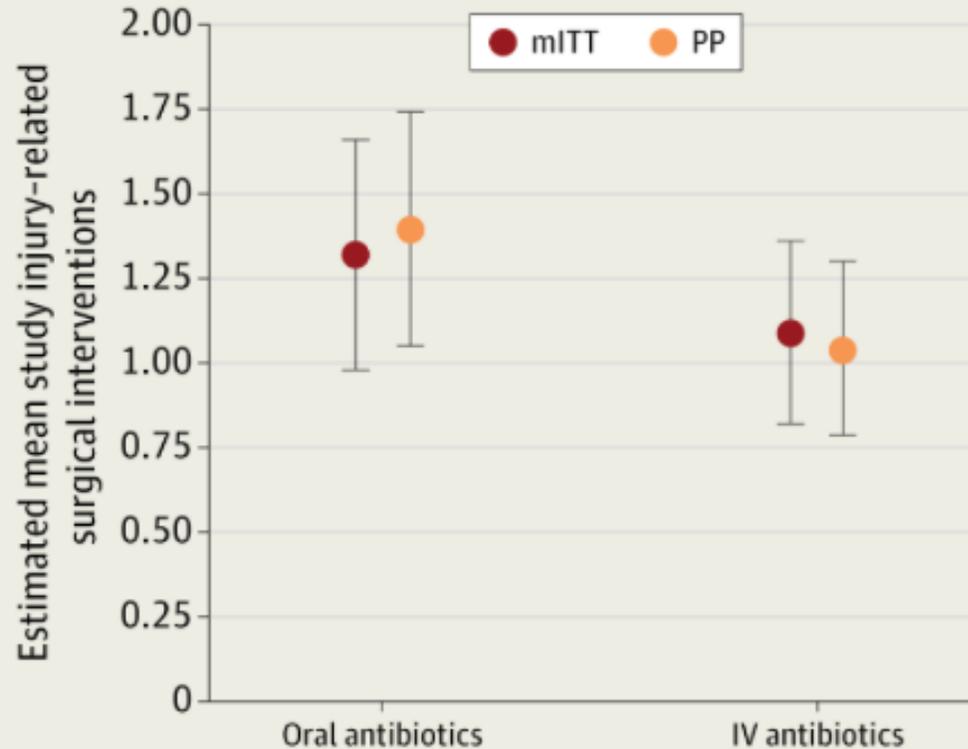
<b>Fixation Retained</b>	53 (46%)	56 (47%)
<b>Number of Debridements</b>		
1	77 (67%)	63 (53%)
2	23 (20%)	30 (25%)
3	15 (13%)	25 (21%)

In the group randomized to oral antibiotics, 41% received linezolid, and in the group randomized to IV, 29% received vancomycin

The mean (SD) number of days of baseline antibiotic coverage was 39.3 (11.0) in the oral group and 40.7 (18.4) in the IV group

## FINDINGS

Oral antibiotics were noninferior to IV antibiotics in number of surgical interventions in the unadjusted modified intent-to-treat (mITT) analysis but not in the adjusted per-protocol (PP) analysis



### Estimated difference in means

**Unadjusted mITT analysis:** 0.23 (95% CI upper bound, 0.59)

**Adjusted PP analysis:** 0.35 (95% CI upper bound, 0.71)

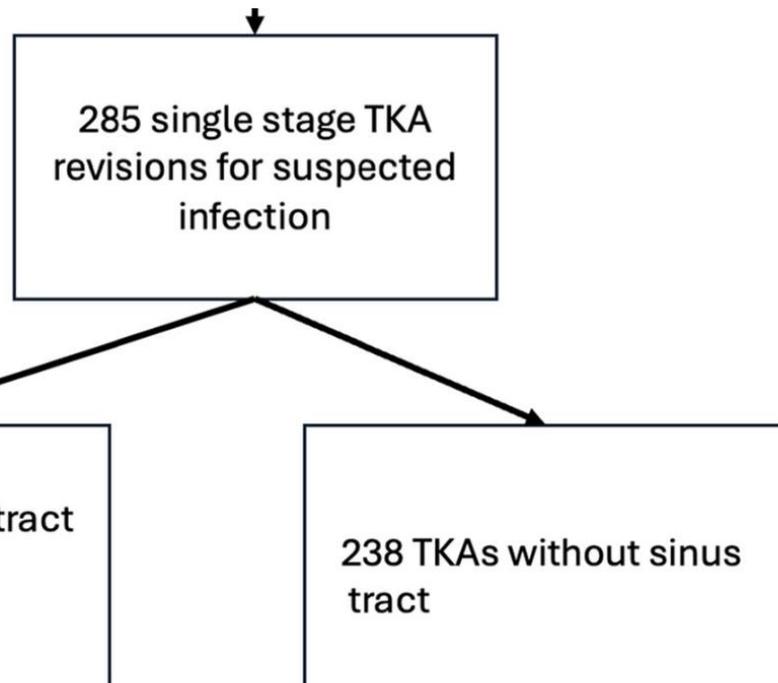
Calcul Nombre de sujet  
nécessaire avec 2.2 interventions  
en moyenne

Traitement chirurgical

# Single-stage revision for chronic fistulized infected total knee arthroplasty achieves infection-free survival comparable to non-fistulized cases

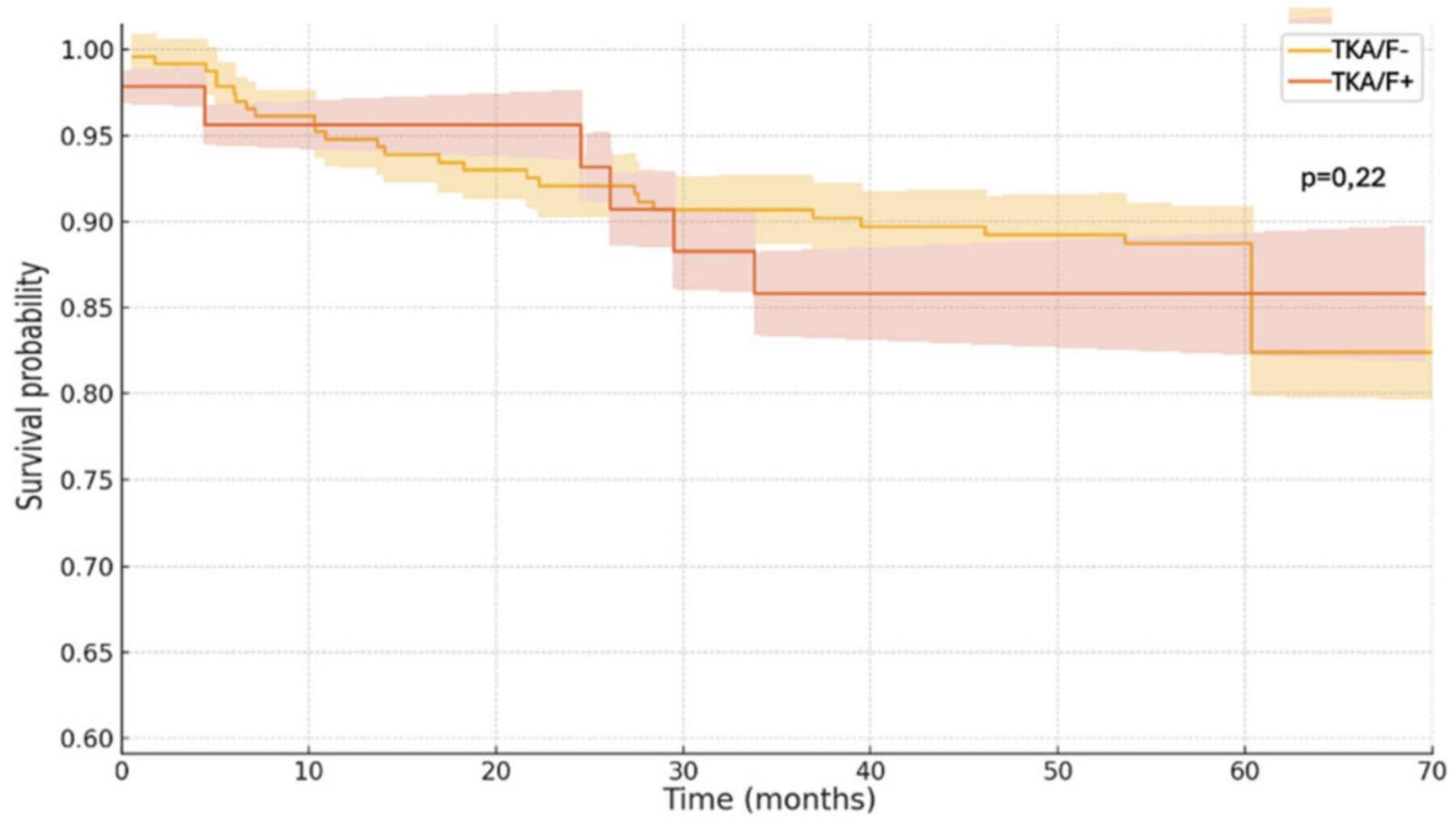
Arthur Barbaret<sup>1</sup>  | Joseph Jacquet<sup>1</sup> | Patrice Wong<sup>2</sup> | David Zhu<sup>2</sup> | Florian Collignon<sup>1</sup> | Thomas Oberle<sup>1</sup> | Louis Lajoinie<sup>1</sup> | Clement Ferri<sup>1</sup> | Kamel Rouizi<sup>1</sup> | Gregoire Vaz<sup>2</sup> | Andrea Fernandez<sup>1</sup> | Sibylle Bevilacqua<sup>3</sup> | Olivier Roche<sup>1</sup>

*Knee Surg Sports Traumatol Arthrosc.* 2026;1–9.



Surgical management included extensive debridement, systematic sampling, gentamicin-loaded cement and local flap coverage when needed

The TKA/F+ group had significantly older patients, higher BMI and ASA scores, and more comorbidities. Polymicrobial infections were more frequent in TKA/F+ (57% vs. 22%).



Prévention

# Pearls: How to Administer an Intraosseous Injection of Antibiotics Before Primary and Revision Knee Replacement

Mark J. Spangehl MD<sup>1</sup>  Clin Orthop Relat Res (2022)



**Fig. 1** Sawbones model of a left proximal tibia showing the landmark for intraosseous injection. The needle is inserted into the medial proximal tibial metaphysis at the level of the proximal aspect of the tibial tubercle.

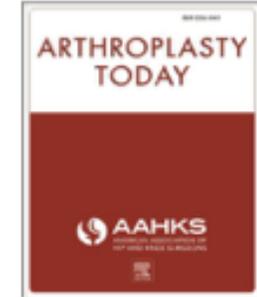


**Fig. 3** The intraosseous needle is inserted, and flexible tubing and syringe are attached. The syringe is drawn back, resulting in marrow blood in the hub of the tubing that confirms the intraosseous position of the needle.

Systematic Review

# Intraosseous Vancomycin in Total Knee Arthroplasty: A Systematic Review and Meta-Analysis

Troy B. Puga, DO<sup>a,\*</sup>, Vincent Dieu, MS<sup>b</sup>, Kyle P. O'Connor, MD<sup>a</sup>, Logan Tackett, BS<sup>c</sup>, McKenna W. Box, MD<sup>a</sup>, John T. Riehl, MD<sup>a</sup>



*Conclusions:* IOV is an effective adjunctive treatment for preventing infection in primary TKA, with this study showing a 69% decreased odds of infection when compared with controls of intravenous antibiotic and no regional IOV. IOV also appears to be a safe treatment, and with limited data there seems to not be an increase in AKI or creatinine concentration.

Level of evidence	Number of patients	Intervention	Control group (if applicable)
Level 3 Retrospective Cohort	129; 100 Primary 29 Revision	500 mg IOV	15 mg/kg IVV and no IOV
Level 1 Randomized Control Trial	22	500 mg IOV	15 mg/kg IVV and no IOV
Level 3 Retrospective Cohort	631	500 mg IOV	Preoperative IV cephalosporin and no IOV
Level 3 Retrospective Comparative	1906	500 mg IOV*	IV preoperative* antibiotics and no IOV
Level 3 Retrospective Cohort	1060	500 mg IOV*	15 mg/kg IVV* and no IOV
Level 1 Randomized Control Trial	24	500 mg IOV	15 mg/kg IV Vanco and no IOV
Level 1 Randomized Control Trial	10	500 mg IOV*	15 mg/kg IV Vanco* and no IOV
Level 1 Randomized Control Trial	30	Intervention group 1: 250 mg IOV Intervention group 2: 500 mg IOV	1 g IVV and no IOV

Caveat :

Les alternatives aux céphalosporines pour l'ABPx sont associées à une augmentation du risque d'ISO

Blumenthal et al. 2018 CID  
Ziu et al. 2023 Front Cell Infect Microbiol  
Largadière et al. 2025 JAMA Netw Open



## **Three-Month Wound Complication and Infection Rates After Vancomycin Powder and Dilute Povidone Iodine Lavage for Infection Prophylaxis in High-Risk Total Knee Arthroplasty: A Multicenter Randomized Control Trial**

USA, Raymond et al.

Patients à haut risque

1080 patients dans 4 groupes

+De 75 ans  
BMI sup à 35  
Fumeur actif  
ASA 2 ou plus  
Diabète  
Ou colonisation à *S. aureus*

Serum Phy  
Pi + Vanco  
Vanco  
Pi

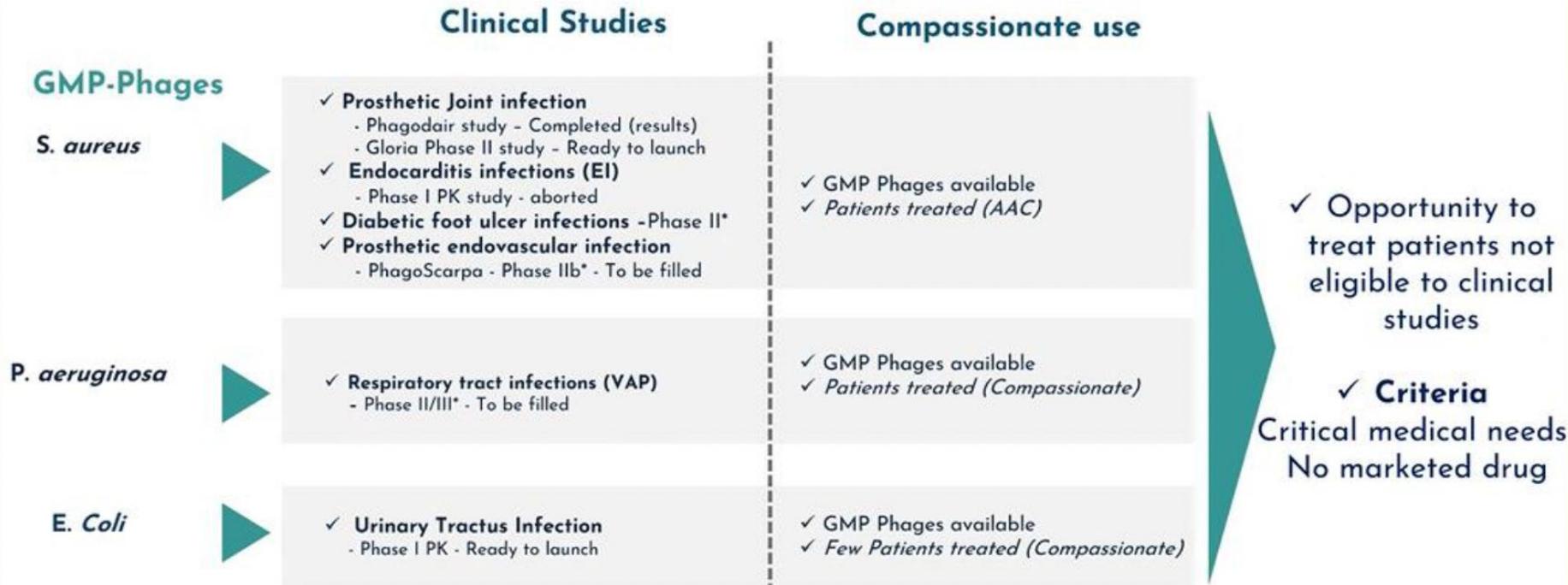
Pas de différence sur les ISO

Perspectives



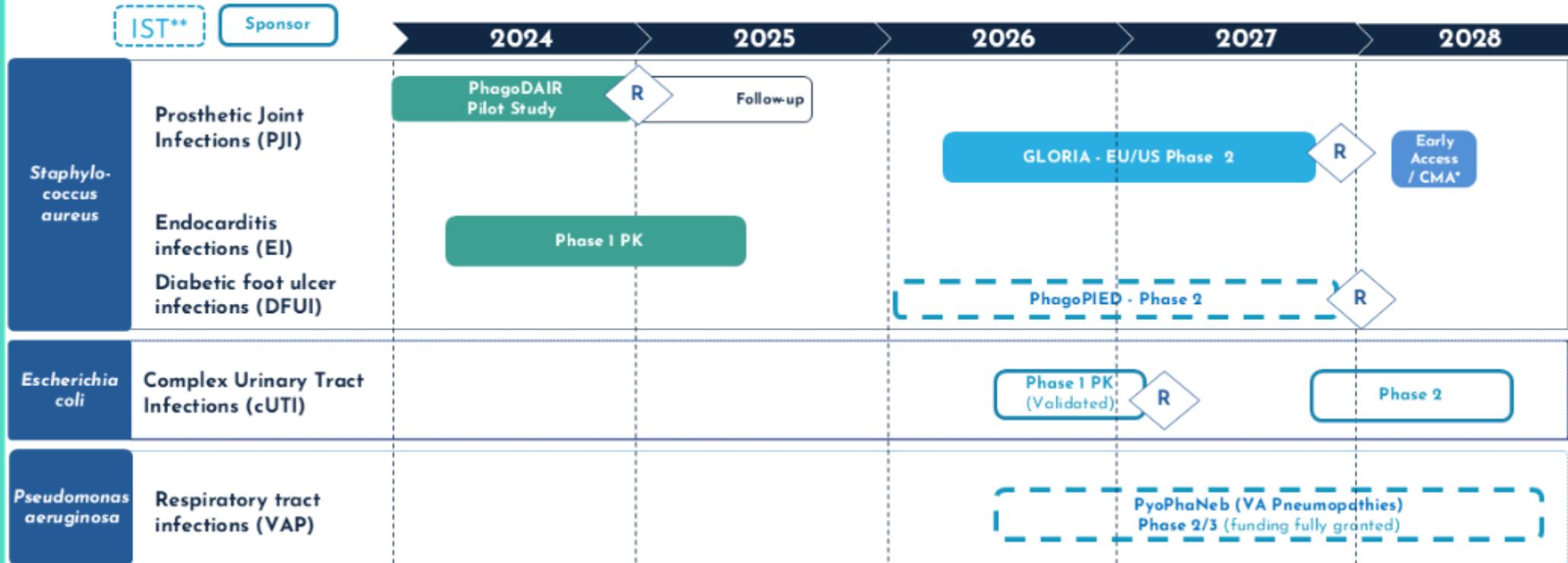
## GMP-phage Portfolio Ready For Treating Difficult-to-treat Infections

### Regulatory pathway to achieve Market authorization



# GLORIA, The Most Important Clinical Trial

PTMP



**GLORIA Enrolment Initiation Will Depend On Company's Future Non-dilutive Financial Resources, Currently Being Studied By The Company, And Will Be Scheduled Accordingly, Possibly Up To Q1 2026**



Joshua Davis

CHIEF INVESTIGATOR, AUSTRALIA



Laurens Manning

CHIEF INVESTIGATOR, AUSTRALIA

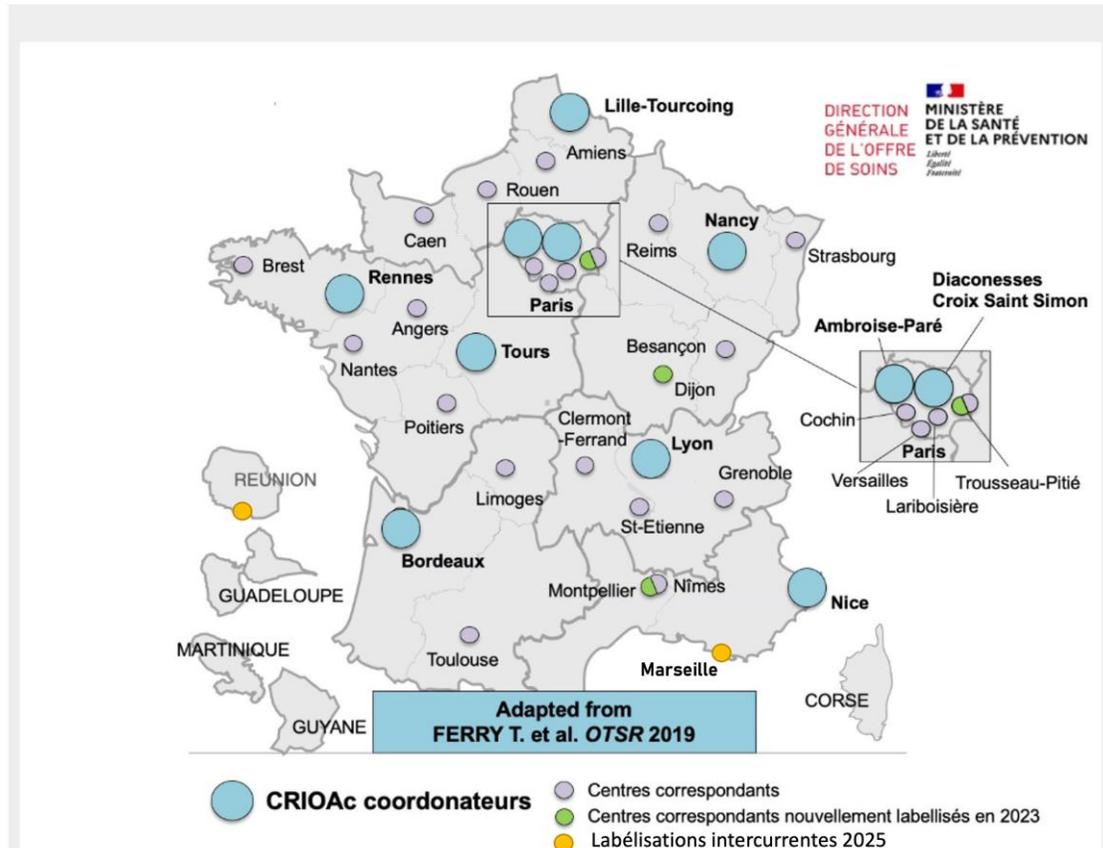
# Adaptative Platform Trial



RandOmised Arthroplasty infection worlDwide Multidomain Adaptive  
Platform trial – Synopsis



## Soutien du CS des CRIOAc: Plus de 20 centres intéressés



Financement: 550 000e



En Europe la France est le pays le plus avancé dans la participation à ROADMAP

**Merci**

supp

# Secular trends in periprosthetic joint infections following primary hip and knee arthroplasties: A 15-year cohort study from the VINCat Program (2008–2022)

> [Int Orthop](#). 2025 Mar;49(3):573–580. doi: 10.1007/s00264-025-06422-6. Epub 2025 Feb 14.

## Long-term implant survival after debridement, antibiotics and implant Retention (DAIR) for acute prosthetic joint infections: is it a viable option beyond four weeks after index arthroplasty?

Juan Carlos Perdomo-Lizarraga <sup>1</sup>, Andrés Combalia <sup>2 3 4</sup>, Jenaro Ángel Fernández-Valencia <sup>1 5</sup>, Juan Carlos Martínez-Pastor <sup>1 5</sup>, Laura Morata <sup>6 7</sup>, Alex Soriano <sup>6 7</sup>, Ernesto Muñoz-Mahamud <sup>8 9</sup>

Affiliations + expand

PMID: 39951052 PMCID: [PMC11889047](#) DOI: [10.1007/s00264-025-06422-6](#) 

> [J Arthroplasty](#). 2025 Sep;40(9):2226–2234. doi: 10.1016/j.arth.2025.02.045. Epub 2025 Feb 19.

## Revision Knee Arthroplasty in a Tertiary Center: Infection Remains the Leading Cause for Primary Revisions, While Aseptic Loosening Led Causes for Rerevisions

Lenka Stroobant <sup>1</sup>, Thomas Ackerman <sup>1</sup>, Hannes Vermue <sup>1</sup>, Oumeima Bouzezza <sup>1</sup>, Nele Arnout <sup>1</sup>, Stefaan Van Onsem <sup>2</sup>, Jan Victor <sup>1</sup>

Affiliations + expand

PMID: 39983932 DOI: [10.1016/j.arth.2025.02.045](#) 

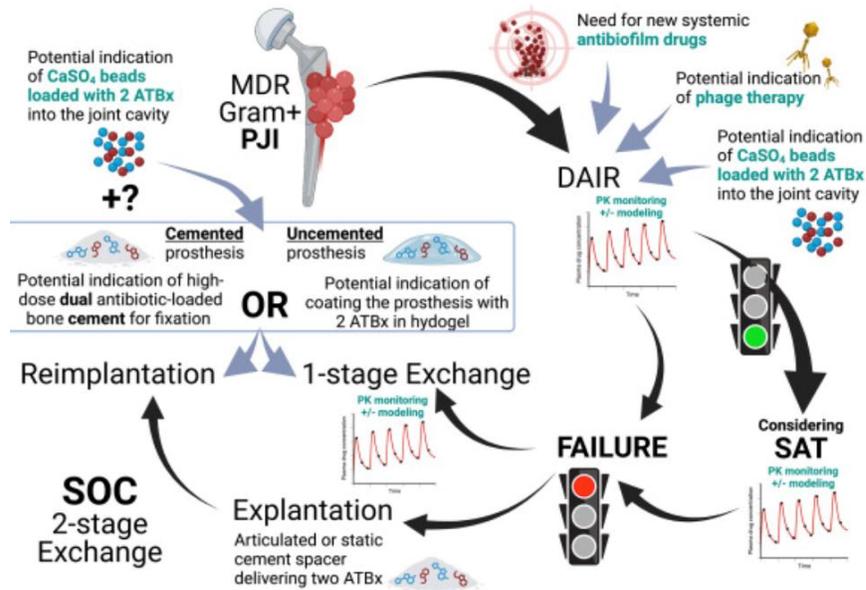
Epub 2025 Apr 26.

# Management of Gram-positive multiresistant bacteria prosthetic joint infection: a narrative review on current and innovative strategies

Florent Valour<sup>1</sup>, Olivier Miot<sup>2</sup>, Cécile Batailler<sup>3</sup>, Sylvain Goutelle<sup>4</sup>, Tristan Ferry<sup>5</sup>

Affiliations + expand

PMID: 40294870 DOI: [10.1016/j.cmi.2025.04.021](https://doi.org/10.1016/j.cmi.2025.04.021)



> J Shoulder Elbow Surg. 2025 Sep 18:S1058-2746(25)00656-1. doi: 10.1016/j.jse.2025.08.008.

Online ahead of print.

# The effect of pretreatment of the pilosebaceous unit on Cutibacterium acnes burden during shoulder arthroplasty: a randomized controlled trial

Ian D Hutchinson<sup>1</sup>, Andrew D Posner<sup>2</sup>, Joshua I Mathew<sup>3</sup>, George S Zanos<sup>2</sup>, Shankar Das<sup>2</sup>, David M Dines<sup>3</sup>, Joshua S Dines<sup>3</sup>, Michael C Fu<sup>3</sup>, Samuel A Taylor<sup>3</sup>, Joseph P Zimmerman<sup>2</sup>, Lawrence V Gulotta<sup>3</sup>

Affiliations + expand

PMID: 40975210 DOI: [10.1016/j.jse.2025.08.008](https://doi.org/10.1016/j.jse.2025.08.008)

# Beyond Gram-Negative and Gram-Positive Bacteria: Virulence as a Determinant of Clinical Outcome in Periprosthetic Joint Infections

Veronika Achatz, MD <sup>a, b</sup>, Sujeesh Sebastian, PhD <sup>a, c</sup>, Jennyfer A. Mitterer, MD <sup>a, d</sup>,  
Ezgi D. Tatar <sup>a</sup>, Ece Akcicek, MD <sup>a</sup>, Patrick Sadoghi, MD <sup>b</sup>,  
Jochen G. Hofstaetter, MD <sup>a, c, e, \*</sup>

> [Front Cell Infect Microbiol.](#) 2025 Nov 10:15:1663857. doi: 10.3389/fcimb.2025.1663857.  
eCollection 2025.

## Utilization of cell-free DNA metagenomic analysis for early detection and microbial identification in prosthetic joint infections: a prospective cohort study in Korea

Jung Ah Lee <sup># 1</sup>, Dongju Won <sup># 2</sup>, Eun Hwa Lee <sup># 3</sup>, Seung-Tae Lee <sup>2</sup>, Kwan Kyu Park <sup>4</sup>,  
Saeam Shin <sup># 2</sup>, Su Jin Jeong <sup># 1</sup>

Affiliations + expand

PMID: 41293056 PMCID: [PMC12640928](#) DOI: [10.3389/fcimb.2025.1663857](#)

Division of Infectious Diseases, Department of Internal Medicine, Gangnam Severance Hospital, Yonsei University College of Medicine, Seoul, Republic of Korea.

> [J Bone Jt Infect.](#) 2026 Jan 15;11(1):43-52. doi: 10.5194/jbji-11-43-2026. eCollection 2026.

## Osteomyelitis in peri-implant bone of hip prosthetic joint infection: prevalence and clinical impact

Ernesto Muñoz-Mahamud <sup>1 2 3</sup>, Melissa Rivera <sup>2</sup>, Ana Belén Larque <sup>4</sup>, Laura Morata <sup>5 3</sup>,  
Andrés Combalia <sup>1 2 3</sup>, Alfonso Alías <sup>1</sup>, Jenaro Ángel Fernández-Valencia <sup>1 2</sup>, Álex Soriano <sup>5 3</sup>

## Diagnostic accuracy of 16S rDNA PCR, multiplex PCR and metagenomic next-generation sequencing in periprosthetic joint infections: a systematic review and meta-analysis

Flaminia Olearo <sup>1</sup>, Said El Zein <sup>2</sup>, Maria Eugenia Portillo <sup>3</sup>, Antonia Zapf <sup>4</sup>, Holger Rohde <sup>1</sup>, Elie F Berbari <sup>2</sup>, Marjan Wouthuyzen-Bakker <sup>5</sup>;

ESCMID study group on implant-associated infections (ESGIAI) and the molecular working group for the unified PJI definition task force

Affiliations [+](#) expand