Despite its well-established limitations, bacterial culture is the primary means of microbial identification in patients with periprosthetic joint infections (PJI).

However, no benchmarks exist for the time to positivity (TTP) on culture for specific microorganisms.

Retrospective, multicenter study (2017–2021)

Overall results:
- Mean number of positive cultures per patient: 3.9 ± 2.6
- Median TTP for positive cultures: 3.3 days
- TTP for gram-negative organisms: 1.99 days
- TTP for gram-positive organisms: 3.33 days

Median TTP for specific microbial species:
- Methicillin-resistant Staphylococcus aureus: 1.42 days
- Methicillin-sensitive Staphylococcus aureus: 1.95 days
- Gram-negative rods: 1.92 days
- Streptococcus species: 2.92 days
- Staphylococcus epidermidis: 4.20 days
- Cutibacterium acnes: 6.97 days
- Methicillin-sensitive Staphylococcus aureus: 1.92 days
- Staphylococcus epidermidis: 2.92 days
- Cutibacterium acnes: 6.97 days
- Candida species: 5.30 days

Median TTP according to specimen type:
- Synovial fluid: 1.97 days
- Soft tissue: 3.17 days
- Bone: 4.16 days

Although the TTP of cultures varies by microbial species and specimen type, holding cultures for 14 days is sufficient to isolate most pathogens for PJI.