




Letter to the Editor

Letter to the Editor: New Definition for Periprosthetic Joint Infection: From the Workgroup of the Musculoskeletal Infection Society

Willem-Jan Metsemakers MD, PhD , Thomas Fintan Moriarty PhD, Mario Morgenstern MD, Richard Kuehl MD, Olivier Borens MD, PhD, Stephen Kates MD, Robert Geoff Richards PhD, Michael Verhofstad MD, PhD

To the Editor,

Since 2011, when Parvizi and colleagues advocated for [4], and ultimately delivered, a consensus definition of prosthetic joint infection (PJI) [5], we have seen the definition [2] receive widespread acceptance within the clinical community. Prior to the availability of this consensus definition, Parvizi and colleagues noted that discrepancies

among the numerous definitions of PJI available at that time complicated the interpretation of clinical research. After convening a panel of experts, they developed a consensus definition that has provided uniformity across studies, improving not only patient care but also the value of clinical research.

The issue we wish to address in this letter is that a large proportion of our infections occur in trauma patients with surgically fixed fractures. Infection after fracture fixation is one of the

most challenging musculoskeletal complications in trauma surgery today. However, accurately estimating the impact of this fracture-related complication has been hampered by the lack of a clear definition, mirroring the situation for PJI identified more than 5 years ago. In contrast to the situation for PJI, there currently is no consensus definition for infection after fracture fixation. Trauma surgeons understand that the definition for PJI is not translatable to infection after fracture fixation. We sometimes use the CDC guidelines for surgical site infection, which distinguishes between superficial, deep, and organ/space [3]. Unfortunately, neither the PJI nor the

(RE: Parvizi J, Zmistowski B, Berbari EF, Bauer TW, Springer BD, Della Valle CJ, Garvin KL, Mont MA, Wongworawat MD, Zalavras CG. New definition for periprosthetic joint infection: From the Workgroup of the Musculoskeletal Infection Society. *Clin Orthop Relat Res*. 2011;469:2992-2994.)

The authors certify that they, or any members of their immediate families, have no funding or commercial associations (eg, consultancies, stock ownership, equity interest, patent/licensing arrangements, etc) that might pose a conflict of interest in connection with the submitted article.

All ICMJE Conflict of Interest Forms for authors and *Clinical Orthopaedics and Related Research*® editors and board members are on file with the publication and can be viewed on request.

The opinions expressed are those of the writers, and do not reflect the opinion or policy of *CORR*® or The Association of Bone and Joint Surgeons®.

W.-J. Metsemakers MD, PhD (✉)
Department of Trauma Surgery,
University Hospitals Leuven, Herestraat
49, 3000 Leuven, Belgium
e-mail:
willem-jan.metsemakers@uzleuven.be

T. F. Moriarty PhD, R. G. Richards PhD
AO Research Institute Davos, Davos,
Switzerland

M. Morgenstern MD
Department of Orthopaedic and Trauma
Surgery, University Hospital of Basel,
Basel, Switzerland

R. Kuehl MD
Division of Infectious Diseases and
Hospital Epidemiology, University
Hospital of Basel, Basel, Switzerland

O. Borens MD, PhD
Orthopaedic Septic Surgical Unit,
Department of the Locomotor Apparatus
Lausanne University Hospital, Lausanne,
Switzerland

S. Kates MD
Department of Orthopaedic Surgery,
Virginia Commonwealth University,
Richmond, VA, USA

M. Verhofstad MD, PhD
Department of Trauma Surgery, Erasmus
University Medical Centre, Rotterdam,
The Netherlands

Letter to the Editor

CDC guidelines were specifically developed for patients with fractures. In fact, critical parameters, including presence of the fracture and soft-tissue damage, are not covered by these definitions. Our observation is that many papers about infections following fracture fixation do not even define what constitutes an infection. Interestingly, this issue already was mentioned by Arens and colleagues in 1996 [1], wherein the authors stated in a combined clinical and experimental study on infection after fracture fixation: “It is astonishing that in all papers in which infection is mentioned, the term ‘infection’ is not defined.”

And so, 5 years on from the publication of a consensus definition of PJI [5], we believe a better understanding and description of the definition of infection after fracture fixation is urgently required to aid in the routine

evaluation of clinical data, as well as aid in the scientific evaluation of medical literature reporting on its related issues. We propose a consensus meeting composed of a group of experts who will be asked their opinion on the topic. The outcome of such a meeting should finally lead to a consensus definition for infection after fracture fixation.

References

1. Arens S, Hansis M, Schlegel U, Eijer H, Printzen G, Ziegler WJ, Perren SM. Infection after open reduction and internal fixation with dynamic compression plates—clinical and experimental data. *Injury*. 1996;27:27–33.
2. Cats-Baril W, Gehrke T, Huff K, Kendoff D, Maltenfort M, Parvizi J. International consensus on periprosthetic joint infection: Description of the consensus process. *Clin Orthop Relat Res*. 2013;471:4065–4075.
3. Horan TC, Gaynes RP, Martone WJ, Jarvis WR, Emori TG. CDC definitions of nosocomial surgical site infections, 1992: A modification of CDC definitions of surgical wound infections. *Infect Control Hosp Epidemiol*. 1992;13:606–608.
4. Parvizi J, Jacovides C, Zmistowski B, Jung KA. Definition of periprosthetic joint infection: is there a consensus? *Clin Orthop Relat Res*. 2011;469:3022–3030.
5. Parvizi J, Zmistowski B, Berbari EF, Bauer TW, Springer BD, Della Valle CJ, Garvin KL, Mont MA, Wongworawat MD, Zalavras CG. New definition for periprosthetic joint infection: From the Workgroup of the Musculoskeletal Infection Society. *Clin Orthop Relat Res*. 2011;469:2992–2994.