Beyond sterility: A white paper puts implant surface cleanliness in focus

Dr Alina Ion

A sterile dental implant is not necessarily a clean one. This distinction is the central message of The Missing Variable in Peri-implantitis, a CleanImplant Foundation white paper examining the clinical, reputational and economic implications of implant surface contamination.

An overlooked factor in early healing

According to the white paper, the equilibrium between an implant surface and surrounding tissue is particularly vulnerable during early healing. Factors that disturb this balance at placement—before osseointegration has established sufficient stability—can initiate an inflammatory cascade with lasting consequences. The condition of the implant surface is presented as one potential contributing factor.

The paper does not frame surface cleanliness as the only consideration in peri-implant disease. It also identifies systemic health, medications, hygiene adherence, genetic inflammatory predisposition and long-term maintenance compliance as factors outside practitioners' direct control.

Implant selection, however, is a decision clinicians can influence. Procurement procedures, inventory controls, quality-assurance documentation, team education and patient communication are likewise presented as areas within a practice's control.



© Aleksandra Gigowska – stock.adobe.com

What does "clean" mean?

The white paper describes a measurable approach to assessing surface cleanliness rather than relying on sterility alone.

Under the cited CleanImplant guideline, a clinically acceptable implant surface should show:

- Fewer than ten particles, each no larger than 50 µm.
- Assessment within a 120-degree viewing angle, from shoulder to apex.
- Examination using scanning electron microscopy and energy-dispersive X-ray spectroscopy (SEM/EDS) under ISO Class 5 cleanroom conditions, in independent, officially accredited laboratories.

The document links these thresholds to a publication by Duddeck and colleagues in the *Journal of Clinical Medicine* in 2019. It also reports that a fully revised, peer-reviewed guideline was released in October 2025, incorporating updated evidence and refined criteria.

These are the assessment criteria described by the white paper; the supplied material does not establish that meeting them eliminates the risk of peri-implantitis.

Clinical complications have practice-wide consequences

The paper places its quality-assurance argument within the broader burden of peri-implant disease. It lists prolonged treatment cycles, repeated surgical and non-surgical interventions, compromised prosthetic outcomes and potential implant failure among the clinical consequences.

For practices and healthcare organisations, these complications can also mean increased chair time, greater treatment complexity, higher costs and

*The articles in this category are provided by the manufacturers or distributors and do not reflect the opinion of the editorial team.



© wedmoments.stock – stock.adobe.com

additional resource demands. Patient dissatisfaction, loss of patients and reputational exposure add further pressure.

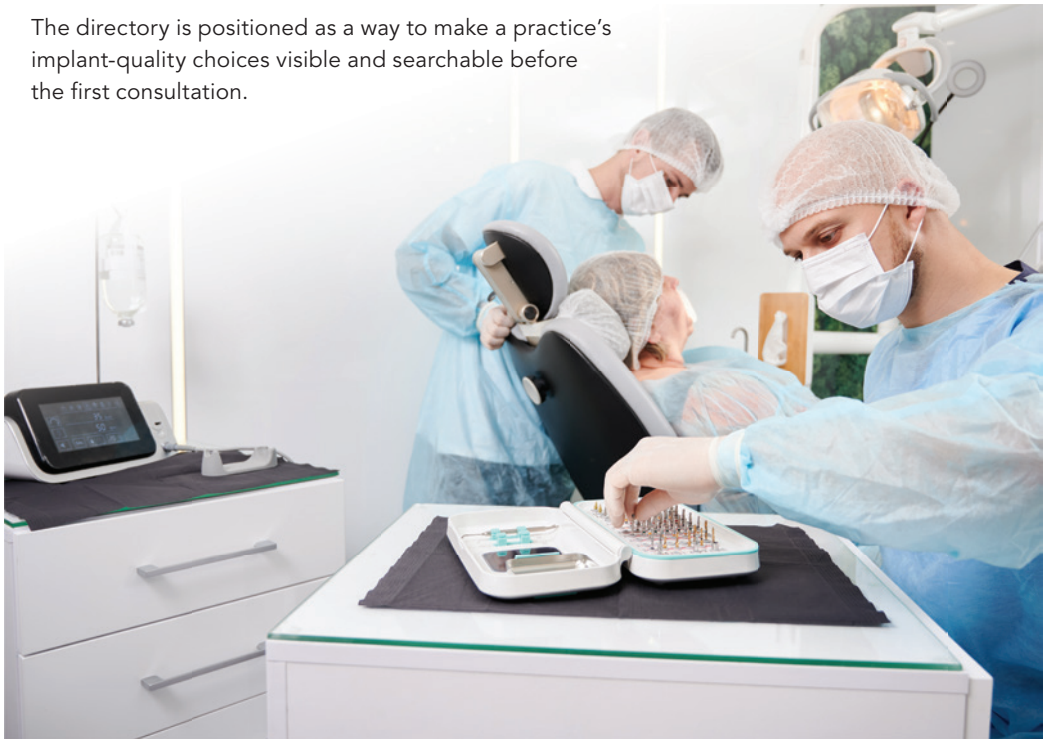
Against this background, the paper advocates implant selection based on independently verified cleanliness across batches and clinically documented survival rates, rather than sole reliance on marketing claims or price categories.

From verification to patient communication

The CleanImplant Foundation presents independent testing and certification as a structured pathway for quality assurance. The white paper also connects this approach with patient-facing communication through mycleandent.com, a directory linking patients with CleanImplant certified practices and clinics.

According to the document, every listed dentist or clinic uses an implant system carrying the Trusted Quality Seal, independently verified by the foundation as sterile and free of detectable surface contamination.

The directory is positioned as a way to make a practice's implant-quality choices visible and searchable before the first consultation.



© anatoliy_gleb – stock.adobe.com

A quality-assurance argument, not a clinical guarantee

The white paper's practical message is that surface cleanliness deserves explicit consideration in implant procurement and treatment protocols. Its distinction between sterility and detectable surface contamination encourages clinicians to ask what has been independently tested—and how.

The document also states its limits: it is educational and does not replace clinical judgement, manufacturer instructions or local regulatory requirements. For practitioners, its contribution is therefore a framework for scrutinising implant quality, not a guarantee against peri-implant disease.

Read the white paper

*The articles in this category are provided by the manufacturers or distributors and do not reflect the opinion of the editorial team.