A report on the EAO’s 4th Consensus Conference

The European Association for Osseointegration’s 4th Consensus Conference took place in Pfäffikon SZ, Switzerland, from 11–14 February. More than 60 leading researchers and clinicians met to discuss hot topics in the field of implant dentistry, and to formulate consensus reports on these. By the end of the meeting, each group had reviewed and refined the wording of a series of scientific papers describing the topics they had been asked to discuss. In addition, each group produced consensus reports featuring the following elements:

- a summary of their scientific papers
- the major conclusions they had reached
- a consensus statement
- a list of clinical recommendations
- a list of recommendations for future research

Four themes were identified by the Scientific Committee, and the three-day event was structured around these themes. Groups of participants were assigned to each theme, and the committee asked each group to prepare a series of papers on specific sub-themes which they then discussed in detail before drawing conclusions. Individual rapporteurs were tasked with researching and writing each of the papers, which were distributed to other group members before they arrived in Pfäffikon.

The conference featured an intense timetable with participants working from 8am until 11pm or beyond. The work was structured around sessions involving the individual groups, plus a daily plenary session that everyone participated in. During the plenary sessions, the chairperson of each group provided an update on emerging conclusions and current challenges for each of the themes their group was developing. This enabled other participants to ask questions or request that additional factors were taken into account. The groups used this feedback to develop more refined versions of their papers and to work towards a final set of conclusions and a consensus report on their topic.

A huge amount of work took place before the conference started to ensure that everyone had the information they needed when they arrived. Each of the rapporteurs prepared a detailed scientific paper in advance of the meeting, and these formed the basis of structured discussions with their colleagues. Preparing the papers included carrying out a systematic search to identify all relevant scientific literature. In many cases, a combination of keyword searches and hand searches led to over 1,000 potential source papers being identified. These then had to be carefully sifted using strict criteria to identify the core research that most precisely matched the topic under review. Depending on the subject matter, different rapporteurs either prepared a systematic review or narrative review of the available literature.

One of the distinguishing features of the EAO’s Consensus Conferences is that they are funded entirely by the EAO with no support from industry. This unique approach means there is no commercial influence – either overt or covert – on the findings. Participants also give their time voluntarily in order to attend the conference.

Group 1: The patient undergoing implant therapy

During Group 1’s first work session, rapporteur Bodil Lund presented her paper on ‘Perioperative antibiotics in conjunction with dental implant placement: a systematic review’. Dr Lund explained that she had identified 846 possible papers, of which nine primary studies and seven systematic reviews had been considered for review. By the time papers with a high risk of bias had been excluded, three primary studies and two systematic reviews remained. Analysis of these suggested that it would be necessary to prescribe antibiotics to 33 patients to prevent one implant failure.

This initial conclusion led to two interesting debates. The first was whether this ratio of 1:33 implied that there was a low benefit of prescribing antibiotics, or whether it would in fact encourage dentists to prescribe them. The prevailing view of the group was that there was little evidence for the efficacy of antibiotics in straightforward cases: one participant said there was a need to ‘Do away with the myth that antibiotics do anything in simple cases’. While some members of the group thought treating 33 patients to save one implant implied antibiotics were only of moderate benefit, another observed that a dentist placing 500 implants per year could expect to save around 15 costly implants, and could be motivated to prescribe them on this basis.

The debate continued with a discussion of what criteria were appropriate for including or excluding papers in the systematic review. One of the criteria selected was that implant follow-up occurred three or more months after treatment. Some members of the group felt it was unnecessary to limit follow-up to three months or more, particularly as the paper was concerned with the short-term effect of antibiotics. Further debate about the two systematic reviews which had been evaluated revealed that they were both from the same research centre. Additionally, many of the patients treated fell into traditional ‘higher risk’ groups for implant treatment: for example a higher proportion were smokers or had received immediate implants. By contrast, a third systematic review, which was considered to be well designed and well executed, had been excluded on the basis that follow-up had occurred two months after implant placement. The group agreed that this new paper should be included in
the current systematic review and a new statistical analysis carried out to evaluate the efficacy of antibiotics following implant placement.

A recurring theme throughout the conference (and within all four groups) was the importance of identifying evidence for a treatment protocol that is relevant to the question being asked. Often, the inclusion or exclusion of a paper, based on rational principles, can imply an interpretation that is not clinically sound as a result of factors such as poor study design, non-typical patient selection, or simply because of the initial questions it set out to answer (which may be only obliquely relevant to what the current study is trying to evaluate).

Having worked in their individual groups during the day, everyone came together in the evening for the first main plenary session. The chairs of the four groups presented a summary of the progress each group had made that day. Björn Klinge talked through the three papers being considered by Group 1. He described the paper on antibiotic prophylaxis as a ‘hot topic’ and talked about how the group had agreed to remove time-limited follow-up as a criteria for excluding articles. On this basis, Bodil Lund had incorporated a third paper which had previously been excluded and had carried out further statistical analysis. This had led to a change in the number of patients that needed to be treated with antibiotics to 50 in order to save one implant. Professor Klinge also talked about the criteria his group had used to assess the reviews they had incorporated into their draft papers. These had been evaluated using AMSTAR (A Measurement Tool to Assess Systematic Reviews) and GRADE (Grading of Recommendations Assessment, Development and Evaluation). Both grading systems are relatively new and are emerging as challenge to the Cochrane approach to preparing systematic reviews.

**Group 2: Computer supported diagnosis, fabrication and assessment processes**

The first paper that Group 2 discussed was prepared by rapporteur Marjolein Vercruyssen and was titled ‘How are computer-supported planning and execution integrated in implant therapy: examinations, planning, execution, indications: a narrative review’. This explored an area that is changing rapidly as new software and hardware solutions are developed and brought to market, typically with little or no associated evidence-base.

As was the case in all the other groups, the first round of discussions focused on clarifying the scope of the paper and determining whether the evidence considered was comprehensive enough to answer the questions it had set out to ask. Once all three of the group’s papers had undergone preliminary discussion, sub-groups worked on each of them to refine the wording and, if appropriate, incorporate additional research findings which would elucidate a particular aspect. Library assistants (postgraduate students from the University of Zurich) were on hand to obtain additional papers that the groups needed to refer to.

Dr Vercruyssen’s paper was a narrative review that took a clinical approach which included an overview of the workflow involved in computer-supported planning, along with other aspects such as possible errors and pitfalls that are associated with the use of this technology. It described different imaging and scanning protocols that are available to plan guided implant surgery, and included detail about the advantages and disadvantages of the different options.

One of the issues raised during the discussion of this paper by the group was the role that software played in processing scanned images. These images often have to be superimposed to provide an accurate picture of the relative position of a planned prosthesis and the patient’s anatomy. The ‘danger of automation’ was discussed, whereby processes that the software performs automatically are unlikely to flag up errors if they occur. As a result, if the dentist fails to identify a mistake (such as inaccurate superimposition) there could be serious consequences for the outcome of the final treatment. Automated processes also assume the patient meets average criteria, and in reality there is no such thing as an average patient.

Other factors to take into account included how the dentist would proceed with surgery if the guide broke during treatment, or if it flexed and the drill position changed as a result. The group stressed that clinicians should only use guided surgery if they could also treat the same case competently without using a guide. They also acknowledged that their final text would need to be written carefully to avoid giving the impression that inexperienced clinicians could use guided surgery to treat complex cases which they lacked the clinical ability to treat conventionally.

The discussion illustrated the great care that is required to formulate advice that is unambiguous, accurate, and which will avoid potentially dangerous misinterpretation.

**Generating final conclusions**

During the course of the conference, all four groups discussed the evidence they had gathered for each of their topics, refined their literature searches, then drew increasingly focused sets of conclusions. By the time everyone left on Saturday lunchtime, a broad consensus had been reached on each of the four topics and their corresponding sub-themes. In some cases, the conclusion was that ‘more research is required’ or ‘there is insufficient evidence to either recommend or suggest avoiding this treatment protocol’.

Following the meeting, the group chairs continued to work with their members to refine the written reports that they had started. Over the coming months these were reviewed, edited and checked by group-members until they reached a stage that they were ready for submission to Clinical Oral Implants Research. In tandem, the EAO’s Junior Committee worked with the groups to develop accessible, practical messages based on the conference conclusions that dentists can use in their daily practice. As a result, the findings of the Consensus Conference will reach both an academic audience (through COIR) and benefit the wider community through practical applications when treating real cases. The EAO believes this dual approach is further amplifying the value of the conclusions reached at these important, unsponsored events.