Dental rehabilitation using implants has seen significant advancements in the last decade. Trends for the future of the specialty will be discussed when the Convention Centre Dublin opens its doors this morning for the 22nd Annual Scientific Meeting of the European Association for Osseointegration (EAO).

According to predictions by the organiser, more than 2,000 dental professionals are expected for the three-day event, which is being held in the Irish capital for the second time. In addition to current issues in the field, like peri-implantitis and the challenges linked to the treatment of an increasing elderly population, the congress will reflect on new developments and methods in the field, such as computer-assisted implant rehabilitation and tissue regeneration.

Moreover, a number of sessions will focus on risk factors, treatment planning and the possibilities of virtual learning techniques. Up to 70 experts from Europe and around the globe will be speaking at the meeting. Furthermore, the latest research will be presented in the form of short oral sessions and poster presentations, which will take place between the scientific sessions.

New products for treatment outcomes that are more predictable and an improved workflow in dental practices and laboratories are going to be presented at the industry exhibition, which is being supported by 87 sponsors this year. Among others, MIS and Henry Schein have announced that they will be showcasing their latest tools for a complete digital workflow. Furthermore, Danish dental solutions provider 3Shape will have its recently launched TRIOS intra-oral scanning system on display. New and improved implant systems will be presented by Implant Direct and a number of other companies.

In 1995, the EAO held one of its earliest meetings in Dublin. Since then, the prestigious event has taken place at 17 locations in 15 countries throughout Europe. Last year’s anniversary meeting in Copenhagen saw more than 2,500 professionals participating, the number expected for the 2013 edition in Ireland.

In addition to the Royal College of Surgeons in Ireland and the Oral Surgery Society of Ireland, the meeting has received support from the Irish Society of Periodontology and the Prosthodontic Society of Ireland.

“In 1995, implant treatment was provided by a fairly small number of specialists and access for patients was limited,” commented Dr Brian O’Connell, congress chairman and Professor of Restorative Dentistry at Trinity College Dublin’s dental school and hospital. “Now implant treatment is available in every part of the country and is provided by a wide range of practitioners. As a result, awareness has really grown among the population.”

More information about the meeting, scientific sessions and industry exhibition is available on the EAO congress website. The association has also recently launched an application for mobile devices and tablet computers that is aimed at giving visitors quick access to congress-related information. Daily news updates, interviews and product reviews from the show floor are available on the Dental Tribune website at www.dental-tribune.com. The newsletter can also be accessed by scanning the QR code below.

Dublin conference discusses future concepts and trends in dental implant rehabilitation

Thousands expected this week for 22nd Annual Scientific Meeting of the European Association for Osseointegration
Implant dentistry is rapidly evolving
New technology and surgical techniques help avoid complex interventions

By Dr Amit Patel, UK

“Innovation” and “change” are words that are often used in dentistry. The issue is how to influence clinicians to implement innovations and make the changes to improve their practice. Implantology is like any other field of dentistry; every year there are new developments and changes in techniques to help us as clinicians give our patients predictable results. In light of the upcoming EAO congress in Dublin, I would like to share with you my thoughts on the changes in implant dentistry, the ever-expanding digital technology that is available to us and the new surgical techniques that help us avoid complex surgery for our patients.

For some time now, we as implantologists have had CBCT at our disposal. The 3D view of a treatment site provides greater accuracy of implant planning and therefore greater predictability and success (Fig. 1). The development of custom-made surgical stents was another evolution from CBCT scans, again allowing the clinician greater control to place implants in a far more restoratively driven way. Utilising a guided surgical protocol makes placing implants in very difficult and high risk sites easier and far more predictable.

Recently, there have been developments in the use of intra-oral scanners to make taking impressions of dental implants more accurate and therefore simpler to restore. There are many intra-oral scanners on the market, such as the 3Shape TRIOS and Invisalign/Intra scanners (Fig. 2). A very good friend of mine, Dr Nick Fahey, a specialist in prosthodontics, has been a proponent of the use of digital technology in implant dentistry and surgery in general. For several years, he has been pushing the boundaries to see how he can use the new technology to make the treatment process far more efficient for his patients.

Nick has trained his staff to use the intra-oral scanner to scan the teeth to plan the surgery from a virtual model. Then combining the CBCT scan and the virtual model allows him to plan a virtual surgical guide for the implant placement. He invested in a digital printer to produce the custom-made surgical guides. When all these processes have been completed, the patient is then brought in for a surgical appointment for the placement of an implant utilising guided surgery if the implant has good stability—this is assessed using an implant stability meter with a high ISQ value. The implant bed is assessed at the time of implant placement, and the data is transmitted and stored by the dental technician for construction of the implant crown.

Our patients want a replacement tooth at the end of the day. They usually want it in the fewest appointments possible and expect the results to be good. Nick has found that utilising a digital workflow and involving all his staff allow for fewer visits to the practice, which makes patients both happy and willing to spend more because they can see the benefits of the digital technology he is implementing, as well as the efficiency of the final result (Figs. 3a & b).

A new developing technology in implant dentistry is the availability of genetically engineered human-derived growth factor. For me, this is an amazing development. It allows us to avoid creating a second surgical site, from which to harvest bone from the ramus or the mental region to augment a future implant site, thereby reducing morbidity for our patients.

It is interesting to think to oneself how many patients that one performs a block graft would recommend to their friends that they undergo the same procedure? I would say none. The development of platelet-derived growth factor (PDGF) and bone morphogenetic proteins has changed the way I practise and my patients have been happy to use these new technologies that are available. While bone morphogenetic proteins are not available in the European Union, PDGF, which is used in a mix with either demineralised alloplastic bone or bovine bone, is. The PDGF initiates angiogenesis and is mitogenic for osteoblast cells, which means the bone graft is converted into vital bone very rapidly.

I recently saw a 72-year-old male patient who wanted implants to replace teeth 11 and 12. There was an unrestorable tooth 13, which would have had to have been surgically re moved were implants to be considered. No bone buccally or palatally for the placement of implants was available. A titanium mesh was fixed to the buccal aspect and rolled palatally. A bovine bone graft (Bio-Oss, Geistlich) mixed with PDGF was placed under the mesh and allowed to heal for a period of four months. (Figs. 4a & b) On re-entry, very little Bio-Oss was found, and the bone was vital when the implants were placed.

I think it is important that as a profession we should evolve with the new technologies available to us. This is the only way we can improve our skills and give our patients the best results. I always use this analogy when I speak to my patients on oral hygiene technique. When I ask if they use an electric toothbrush the answer is usually no but when I ask them if they own a smartphone the answer is usually yes. Then I ask why they do not have an electric toothbrush. It is important for our profession to accept innovations and to see how they can help improve and change our daily practice. I have now invested in a CBCT and an intra-oral scanner.

Dr Amit Patel is a specialist in periodontology and implant dentistry. He currently works as an associate specialist in periodontics at the University of Birmingham’s School of Dentistry in the UK.
Osseointegrated dental implants were first used in Ireland in 1983. This early adoption of the innovative clinical technique occurred when our own team, based at the Blackrock Clinic, was invited by Prof. P.-I. Brånemark to become one of a small number of pioneer teams worldwide to introduce his techniques into clinical practice. The Blackrock Clinic in Dublin, in association with Trinity College Dublin and Prof. Daniel van Steenberge at KU Leuven in Belgium, became a centre for the provision of advanced courses given by Prof. Brånemark, with colleagues from over 40 countries attending. This collaboration continued over the years in the areas of research, teaching and the treatment of patients with large maxillofacial defects and at the European Osseointegration Training Center based in Leuven.

Today, oral rehabilitation by means of osseointegrated implants is widely available in both private clinics and academic institutions in the Republic of Ireland. Specialists, prosthodontists, periodontists, oral surgeons and maxillofacial surgeons are extensively involved in the provision of basic and advanced treatments. A small number of general dental practitioners carry out implant surgery and a larger number choose to provide restorations on implants placed by specialists. In the vast majority of cases, a team approach is encouraged and favoured, with only a small number of practitioners carrying out both aspects in more straightforward cases.

In Ireland, implant dentistry is not recognised as a specialty in its own right, nor is there any proposal to do so at the moment. It is appreciated that in some European countries such a specialty exists and, occasionally, some of these dentists from the European Union set up practice in Ireland. The Dental Council of Ireland, who is the competent authority for registration in Ireland, does not permit the registration or the use of the term ‘implant specialist’. A view has been taken in Ireland that the range of competencies required to provide the full spectrum of treatment, both prosthodontic and surgical, from straightforward selected single-implant cases to full-mouth rehabilitation involving advanced surgical procedures, such as large autogenous bone grafts and zygomatic implants, is too wide to allow for this. The success of treatment is to a large extent dependent on comprehensive diagnostic procedures.

Osseointegrated implants provide an opportunity for a number of treatment options and procedures, most of which are unique to implant dentistry today. The wide range of indications for osseointegrated implants has resulted in a variety of treatments to be developed which differ from those used for conventional restorations. The most common indications include rehabilitation of edentulous patients by the use of implant-supported fixed and removable prostheses, as well as stabilization of overdentures. Other major indications include rehabilitation of patients with large maxillofacial defects and the management of tumors and trauma. In summary, the role of implants in oral rehabilitation is to improve the quality of life for the patient.
cessful treatment of some patients will require all the skills and training of collaborating specialists to provide optimum patient care.

Training programmes in implant procedures are available from various sources in Ireland. Implantology is, however, considered a postgraduate subject. Comprehensive training in implant procedures is an important component of the specialty training programs provided by universities.

Undergraduates have access to lectures and demonstrations. They are also assisted in the treatment of patients and may have a supervised opportunity to carry out a restoration on an implant. The focus is to provide undergraduates with a thorough understanding of the role of implants in dental practice and the range of skills that may be required for successful diagnosis, treatment and maintenance. This allows them to understand what will be involved in continuing their training after graduation. The emphasis is always on the value of a team approach in providing the best care for patients.

Basic training courses for general practitioners are available as well. They are often sponsored by different companies and are provided by specialists. These events include short courses on restoration and extended courses on surgery. Some practitioners choose to travel abroad for training, whereas others prefer to avail of local training with specialists who usually provide a mentoring service or membership of a study group to help with diagnosis and determining the suitability of cases for treatment. This latter approach is particularly helpful to the novice surgeon or prosthodontist, as it allows for a gradual, ongoing transfer of knowledge as experience builds up.

Continuing professional development in implantology is well catered for with the provision of excellent lecture programs at Trinity College Dublin, University College Cork and the Faculty of Dentistry at the Royal College of Surgeons in Ireland, often with the help of a prestigious international faculty. Additionally, implant dentistry features regularly in the scientific programs promoted by the Irish Dental Association and the various specialist societies. Many specialists have completed their training abroad in USA, the UK and other regions in Europe. This has greatly enriched the knowledge pool for teaching and practice. Irish dentists are also enthusiastic attendees and contributors at the larger overseas implant meetings in both the USA and Europe, especially the EAO.

Over the years, implant companies have always been encouraged to support the organisations listed above rather than providing direct training courses themselves and this has worked to the advantage of all concerned. From time to time, companies will have open meetings with overseas speakers to promote a new product or technique.

Patients and dentists in Ireland have benefited from the early involvement in this exciting treatment modality as well the generous and helpful collaboration with many of the implant pioneers over the years. Ireland was among the first countries to host an EAO meeting and the return of EAO to Dublin in 2013 is especially welcome. The training and regulatory structures outlined above have worked well for the small country. It has ensured a high standard of treatment and care for patients, as well as professional and excellent collaboration between the various dental professionals and laboratories involved.

Prof. David Harris is the Clinical Director at Blackrock Clinic Dental Specialties in Dublin. He also serves as Scientific Chairman of this year’s EAO Annual Scientific Congress.