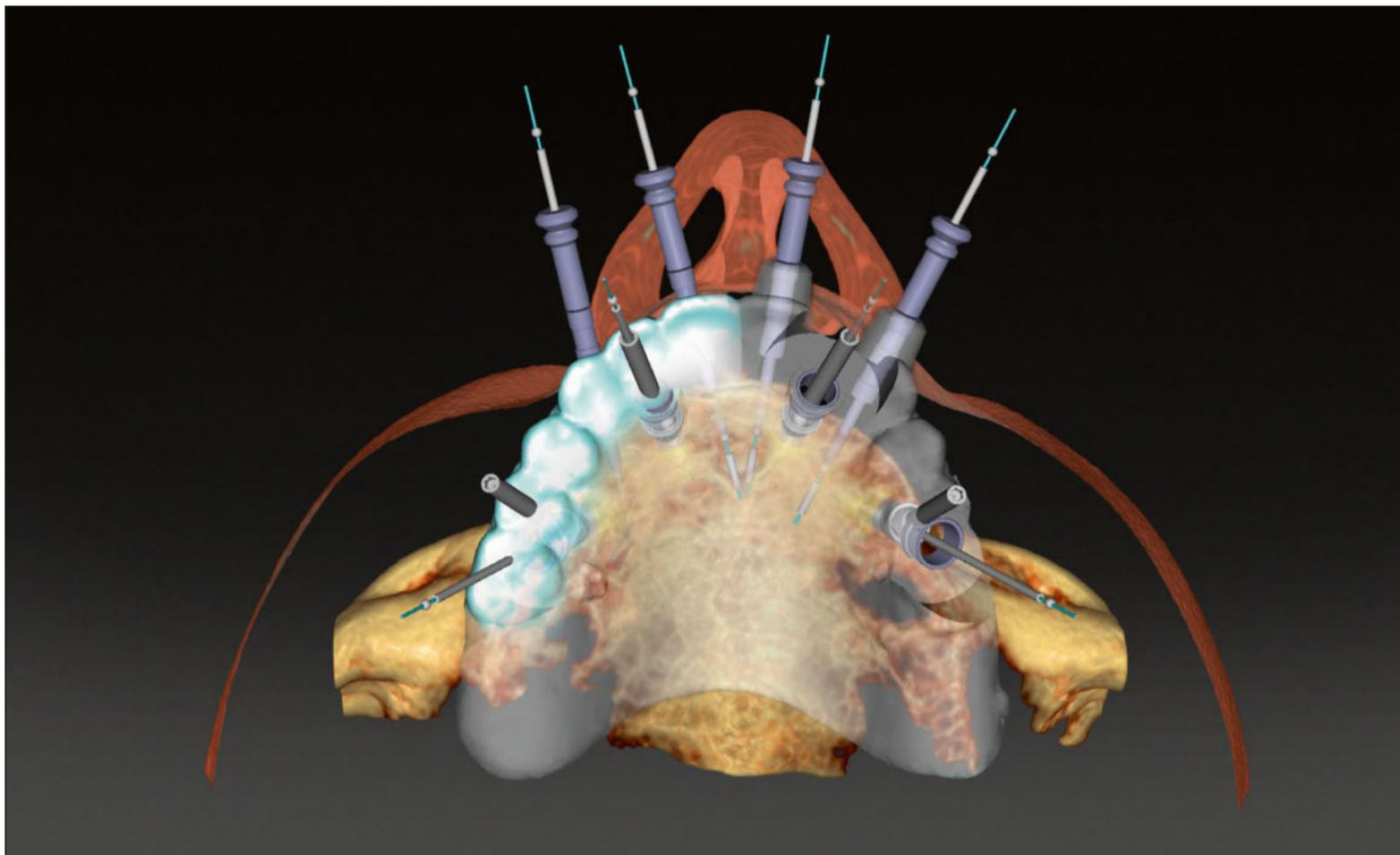


Nobel Biocare NEWS

Information for the Osseointegration Specialist

Issue 2/2015



Tried and True

Fifty years of experience makes for products and services you can trust — only from Nobel Biocare.

In everything Nobel Biocare does, from the design and manufacture of implants to the launch of new treatment concepts, nothing is left to chance.

By Frederic Love

The story is well-known by now, but no less inspiring for having been retold countless times. In 1965, Per-Ingvar Brånemark treated his first patient with titanium, bone-anchored implants. Then he spent 17 years conscientiously compiling and analyzing data on his first and following implant patients, before presenting the results to the world-at-large in an epoch-making dental conference in Toronto.

Brånemark System implants served as the foundation upon which the company that first commercialized his discoveries was built.

Nobel Biocare has honored the Brånemark heritage by subsequently introducing many more ingeniously designed, thoroughly tested and

well-documented products over the years since then. To put it simply, at Nobel Biocare, science comes first.

Over the years, the innovations have been many. CeraOne ceramic

uses current scientific evidence to guide decision-making in his or her practice, Nobel Biocare makes decisions about which products to bring to market only after careful analysis

“One needs to compile supporting evidence before making claims of efficacy or even progress.”

— Professor Per-Ingvar Brånemark

copings, the Procera bridge, the Zygoma implant, the TiUnite surface, Immediate Function, the introduction of overdenture bars, the launch of the All-on-4® treatment concept, 3D diagnostics, guided surgery, not to mention the advent of the Nobel-Active implant and NobelClinician Software (from which the screenshot above was taken): These are just some of the many Nobel Biocare solutions that have become standards in the dental industry.

What do all of these innovations have in common? Each and every one became available as the result of scientific research and development.

Why is this so important? In the same way the conscientious dentist

of relevant scientific data related to the innovation at hand.

In theory and in practice

Nobel Biocare supports a new paradigm for initial and continuing dental education, which is designed to incorporate current research—and the results of that research—into practice for the benefit of the dental patient.

For years—actually, for decades—Nobel Biocare has been providing tried and true products for innovative treatment modalities such as single-tooth solutions, multi-unit implant-based oral rehabilitation and the All-on-4® treatment concept.

The company’s approach represents the integration of the best research evidence with clinical expertise—not only for the benefit of the patient, but the clinician as well.

Nobel Biocare has built its business and its reputation on reliable innovation, and lasting service. Rest assured, whenever you need professional products, advice or support, Nobel Biocare will be there for you. <

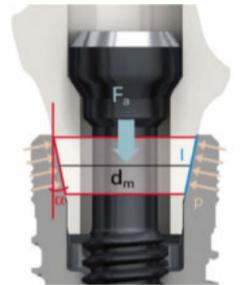
→ nobelbiocare.com



Science First: As one facet of the company’s commitment to the advancement of evidence-based treatment, Nobel Biocare regularly informs its customers of progress being made in the field through a variety of publications like this.

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From the President



Richard Laube, President

Over the past 10 years people have oversimplified the implant industry into two segments: premium and low-cost.

At Nobel Biocare we have a very different view. We believe our customers understand that they pay a premium price because they are more than compensated by the value they receive from a superior system delivering superior solutions for treating their patients.

There are many aspects to our superiority: High primary stability when needed, a breadth of implant selection matching patient needs and indications, superior treatment predictability, and extensive research, documentation and clinical studies. Most decisively, Nobel Biocare's implants perform at a superior level when used within an integrated system to treat patients.

Unfortunately, there is an alarming trend of mixing components for treatment. We know this because our post market surveillance is identifying an increase in issues related to "mismatching" components—implant fractures, poor seating, inadequate sealing, and the list goes on.

While there may be a modest short-term gain by mixing low-cost components, the long-term cost is exponentially higher when the total solution fails. Nobel Biocare is not simply a premium-priced company. It is the industry innovator delivering superior total solutions you and your patients can trust. <



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The Very Definition of Synergy

The whole is greater than the sum of its parts.

Nobel Biocare doesn't develop individual products. The company develops entire solutions that provide fully functional, natural-looking, long-lasting results. In order to secure long-term clinical performance, safety and cost-efficiency for everyone involved in the treatment process, each and every Nobel Biocare component has been designed to fit and function perfectly with related components. Together they produce a finely tuned system.

By Dr. Stefan Holst

When assessing any implant-supported restorative solution for a patient, one has to keep in mind that the entire system under consideration is only as strong as its weakest link.

The performance of each specific component depends not only on the quality and design of the component itself, but also on its interface with the rest of the restorative system.

Consequently, each component should not be evaluated on its own. Clinically relevant conclusions can only be reached when a component is tested within the system of which it is a part.

Nobel Biocare therefore conducts testing and research not only on individual components such as implants, abutments and screws—and how they work together—but also on the entire system, which they collectively define.

We at Nobel Biocare study systems from their initial design to long after delivery to the end-user, the patient. We develop and scrutinize engineering and manufacturing processes; and we carry out quality assurance, clinical research and post-market surveillance. Only with this approach can we be sure that the system will function safely and reliably for many years to come.

Parameters that influence long-term performance

Computerized simulation tools, such as finite element analysis (FEA), and biomechanical testing in the laboratory have served to identify parameters that can impact the performance of an implant system. These parameters include joint compression (the

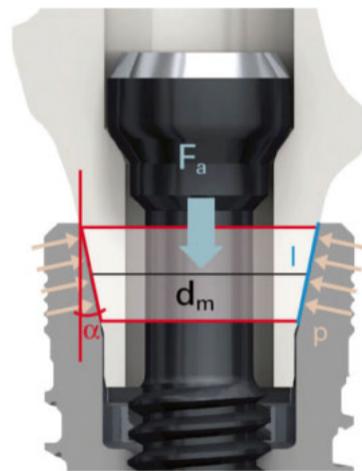
force that acts at the implant/abutment interface under loading conditions), preload (the tensile force keeping the components together) and the friction coefficient (which depends on the surface materials that are in contact with each other).

Other significant parameters include the force that the patient exerts on the system by chewing (masticatory force) as well as the length of the contact between the abutment and the implant and—when using a conical connection implant—the angle of the abutment. A small change in any of these parameters—even one not visible to the eye—can lead to extreme load and stress conditions that result in system failure.

Precise fit for joint stability

The interface between implant and abutment is critical for joint stability. Manual adjustment of a cast or the use of a substitute abutment can alter the contact angle and contact length. Such an undefined contact situation entails a degree of risk for the patient that is difficult to predict, much less manage.

Furthermore, in vitro force application to an implant-supported prosthesis may additionally exacerbate such misfit. Consequently, using an abutment designed and engineered by Nobel Biocare to match the implant is crucial for system performance. It not only af-



$$p = \frac{F_a * \cos(\rho) * \cos(\frac{\alpha}{2})}{d_m * \pi * l * \sin(\rho + \frac{\alpha}{2})}$$

Precise fit ensures long-term performance. For conical connection implants, joint compression (p) depends on a number of variables such as preload (tensile force F_a), friction angle (α) and contact length (l). Small changes in any of these parameters can lead to extreme load and stress conditions, which can cause implants to fracture.



Dr. Stefan Holst, Global Head Research, Science and Regulatory Affairs: "Clinically relevant conclusions can only be reached when a component is tested within the system of which it is a part."

fects the fit of the restoration on the implant itself, but may also have an impact on performance-relevant parameters.

Preload, the force that holds the components together

Preload is defined as the tensile force created in the clinical screw as the result of screw tightening. It is generated by the application of torque to the screw, although only a fraction of the torque force is stored as preload, while a much larger percentage is spent on overcoming friction.

To account for this major loss of torque, and to ensure that the system is sufficiently held together, the screw has to be inserted at the recommended torque. Fully manual screw insertion is likely to result in lower torque and, consequently, suboptimal preload.

Insufficient preload leads to increased relative motion between the system components, which can contribute to screw loosening and/or component failure. Conversely, preload values that are too high can result in component fracture.

Optimized to the last detail

Nobel Biocare abutments are delivered with a dedicated clinical screw that has been optimized for the implant-abutment system of which it is a part. Depending on the abutment, connection type and platform size, screws come with or without a surface coating.

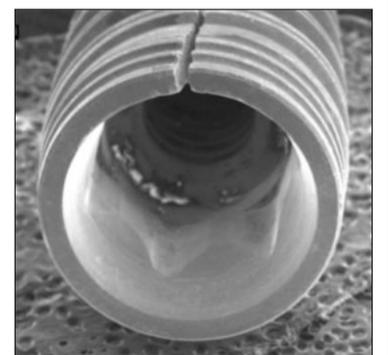
The absence or presence of the coating and the coating type all impact the preload. For example, diamond-like carbon (DLC), a coating for screws marketed under the TorqTite brand, shows higher pre-

load values compared with screws that have a standard titanium surface. Nobel Biocare provides an appropriate screw type for each and every implant-abutment connection, ensuring a tight and stable fit for long-term performance.

Avoid substitutes, minimize patient risk

When you use substitute components, the parameters governing system performance are no longer controlled. Take maximum joint compression—which defines the load that the implant collar can bear—as an example: A substitute may result in a force that is higher than the allowed maximum, causing the implant to fracture.

To prevent such catastrophic results, the peak forces have to be distributed in a controlled way. This can only be achieved by using high-quality, precision-manufactured components that have been designed and tested both individually and as part of the system for which they have been designed. <



Mismatching components can have severe consequences. Imprecise fit leads to uncontrolled peak forces, which may result in implant fracture.

Recent Findings

Improved patient comfort

Direct comparison of guided and freehand implant placement confirms that patients experience less post-operative discomfort after the guided procedure. (Pozzi et al., Eur J Oral Implantol. 2014 Autumn;7(3):229-42)

The study prospectively compared treatment planning and execution using the NobelClinician planning software and the NobelGuide guided surgery protocol (n=25 patients) with freehand surgery (n=26 patients) in rehabilitating partially and fully edentulous patients. Outcome measures assessed 1 year after loading included prosthesis and implant failures, complications, peri-implant bone level changes, variables associated with time and cost of treatment, post-surgical pain and swelling, consumption of pain killers, and patient satisfaction. Guided surgery resulted in significantly less post-operative pain ($P = 0.002$) and less swelling ($P = 0.024$). Although there were no other statistically significant differences between the two groups, the NobelClinician/NobelGuide group had no implant or prosthesis failures and showed a favorable peri-implant bone response; and all patients in the guided surgery group would agree to undergo the same treatment in the future.

→ ejoi.quintessenz.de/index.php?doc=abstract&abstractID=32787/

Good 5-year outcomes

5-year follow-up of patients who transitioned from hopeless dentition to implant-supported prostheses using the NobelGuide protocol reveals high implant survival and excellent soft tissue response. (Polizzi and Cantoni, Clin Implant Dent Relat Res. 2015 Apr;17(2):221-33)

This retrospective analysis evaluated 27 patients who received 160 maxillary implants in fresh extraction (n=68) and healed sites (n=92) in a transition from compromised dentition to immediate fixed restorations, without wearing a removable denture. All implants were placed in a flapless procedure using the NobelGuide protocol in combination with a specially designed radiographic stent. With the mean clinical follow-up of 46.5 months, the implant cumulative survival rate was 97.3%, and the bone loss from insertion to last radiological control (4–5 years) was 1.39 ± 1.88 mm (127 paired X-rays, with the baseline radiographs taken at surgery). There was no difference in outcomes between extraction and healed sites ($p > 0.05$). 90% of implants had healthy soft tissue, with no signs of inflammation or bleeding on probing. The authors also note that patient satisfaction was extremely high and, in particular, patients expressed satisfaction with avoiding the transition period requiring a removable denture before the surgery.

→ onlinelibrary.wiley.com/doi/10.1111/cid.12102/abstract

Better bone response

Nobel Biocare implant system compares well to Straumann after 1 year post-loading in a prospective randomized study. (Sanz Martin et al., Clin Oral Implants Res. 2015 [Epub])

This study evaluated soft tissue outcomes of 33 previously reported (Thoma et al. 2014) patients who received tissue-level Straumann implants or bone-level Nobel Biocare Brånemark System implants restored with single crowns (SCs) or fixed-partial prostheses (FDPs). Patients in the tissue-level implant group were restored with 11 SCs and 4 FDPs whereas those in the bone-level implant group were restored with 14 SCs and 4 FDPs. Tissue thickness, crown height, and facial tissue volume changed very little at the 1-year follow-up, and without significant differences between the two groups. The bone-level group had smaller changes in crown height (0.02 ± 0.32 mm vs. -0.17 ± 0.58 mm), but lost slightly more volume over time (-0.12 ± 0.27 mm vs. -0.03 ± 0.29 mm) and exhibited more pronounced changes in tissue thickness at the 1 mm level (-0.15 ± 0.20 mm vs. -0.03 ± 0.35 mm). Although a clinically small difference (-0.08 ± 0.20 mm vs. -0.35 ± 0.35 mm), patients restored with Brånemark System implants experienced significantly less bone loss ($p < 0.01$). As a prospective randomized study, the original report provides high-level evidence that early failure rates are low with both implants.

→ onlinelibrary.wiley.com/doi/10.1111/clr.12579/abstract

"I can really make use of the new knowledge!"

Of the eight symposia that Nobel Biocare has organized for 2015, only two remain for the fall. Colleagues who have attended the first ones say you have something to look forward to if you plan to attend either the Las Vegas or London event.

By Frederic Love

From Goa, India, to Sydney, Australia, the year's first six Nobel Biocare Symposia have come and gone in quick succession during the spring and summer.

Soon—this autumn—osseointegration experts and novices alike will be converging on cities in the US and the UK to share experiences and learn more about recent advances in the world of dentistry.

20 First
65 for
50 years

Nobel Biocare Symposia give participants an opportunity to learn more about a broad range of new products, and how they can best be put to use. Advanced posterior solutions, NobelClinician updates, and a variety of new components have been in focus at each of this year's symposia. The American and British meetings will build further upon this foundation.

The scientific programs at both events will offer lectures and other classes covering a wide variety of in-

Nobel Biocare Symposia 2015

April 17–19	Nobel Biocare Symposium India in Goa
April 23–24	Nobel Biocare Symposium Nordics in Stockholm
May 15–17	Nobel Biocare Symposium China in Macau
June 12–14	Nobel Biocare Symposium Canada in Muskoka
June 25–27	Nobel Biocare Symposium France in Monaco
July 23–25	Nobel Biocare Symposium Australia in Sydney
September 17–20	Nobel Biocare Symposium USA in Las Vegas
November 6–7	Nobel Biocare Symposium UK in London

terests for every member of the treatment team. Clinicians, dental technicians and other team members will be able to choose topics from a broad selection of challenging sessions.

Master classes and hands-on learning opportunities are sure to be highlights of these meetings for many participants and—if previous experience can be a guide—lectures on patient communication will also prove to be popular with the attendees.

During these presentations, experienced clinicians will share advice on how to make patients feel comfortable about the treatment plan in order to gain patient acceptance.

Praise from earlier attendees

Dr. Robert Schroering of Louisville, Kentucky, USA, travelled all the way to India for this year's first symposium and came away impressed.

"I truly believe in Nobel Biocare's implants and their commitment to innovation," he said at the end of the Goa Symposium. "That is why they are on top. My hat's off to the Nobel Biocare team for running such a wonderful conference. It was a joy for me to participate."

An Indian colleague, Dr. Sanjay Kalra of Chandigarh, fully agreed. "There was a lot to take home for everyone, especially the beginners. It gave me great satisfaction when I could do a bone augmentation case exactly [as it was] demonstrated on stage. Overall it was a great experience for all of us!"

A participant at the Nordic Symposium held recently in Stockholm, Dr. Mobin Fakhary, said that he especially enjoyed the interactivity of the meeting.

"I really enjoyed the hands-on sessions. But it was also great that I got the chance to ask the lecturers for clinical tips and tricks and how to deal with other challenges that I've experienced.

"I would definitely recommend these symposia to my colleagues. I've learned a lot and feel that I really can make use of the new knowledge in my own work with my patients. I'm now able to offer them more treatment options than I ever could before." <

→ [More to explore!
nobelbiocare.com/symposia2015](http://nobelbiocare.com/symposia2015)

Nobel Biocare Global Symposium

June 23–26, 2016

Where progress comes to life



<http://bit.ly/symposium16>



“It was an invitation to success!”

According to Dr. Giovanni Polizzi, NobelGuide® with SmartFusion™ makes for better collaboration, communication and results.

As NobelGuide reaches its 10-year anniversary, the editors of *Nobel Biocare News* posed a few questions to Dr. Giovanni Polizzi, an expert who has used this guided surgery concept from the start.

Both a physician and a dentist, Dr. Giovanni Polizzi is a graduate of Milan and Padua Universities in Italy. He received his first clinical implant training at two Swedish institutions, the Universities of Lund and Gothenburg. A popular lecturer and prolific writer, Dr. Polizzi is an expert in immediate insertion and loading. In private practice in Verona, he is dedicated to the advancement of oral and implant surgery.

How long have you been placing implants?

Dr. Giovanni Polizzi: I treated my first implant patients with the Brånemark System at the beginning of 1986—so that’s almost thirty years. I treated my first six patients with a Swedish team tutor, as one was expected to do at that time. Lars Erik Carlsson, a surgeon from Malmö, was my first mentor, and a very good friend.

In what percentage of cases do you use guided surgery?

Polizzi: Currently around 60 percent. I try to use it in almost all maxillary

cases (single, partial, total) and more and more often in partial and single cases in the mandible, since SmartFusion technology—that merges and aligns medical imaging from (CB)CT scans with tissue information received from the NobelProcera 2G Scanner—became available.

When NobelGuide launched in 2005, how significant of an innovation was the treatment concept for you—and the industry?

Polizzi: In 2004, some clinicians, including myself, were trained with a concept developed in Leuven, Belgium, called ARK. So we already understood the fundamental concept and had treated some patients before the NobelGuide launch.

When it was launched in 2005, NobelGuide was definitively more versatile, and represented a great breakthrough for the profession and for our patients. An optimally innovative product for the industry, it was an invitation to success, and really added value.

Looking back at your first cases, did you see an immediate impact with treatment success in both the short and long term?

Polizzi: Without doubt there was an immediate impact with great enthusiasm for the wonderful results.

The first cases were treated with the so-called teeth-in-an-hour concept.

The final result was astonishing for the patient.

Having a prosthesis ready and inserted into the patient’s mouth at the end of surgery was remarkable; as was the fact that you could achieve this result with a barely invasive (flapless) technique, and provide considerable post-operative comfort for the patient.

After a short time, the technique was improved to achieve better long-term results, more predictable osseointegration and optimal esthetics for the patient.

We chose to deliver a fixed temporary bridge at the end of the surgery and postpone finalization after six months to a year of healing was completed.

This choice allowed us to get very stable long-term results with a remarkable implant survival rate (97–

Q&A Questions and Answers

98%) even in the upper jaw. In our experience the bridge-survival rate after ten years is 100%, with only a few prosthetic complications.

Since then, NobelGuide has become much more capable, and now includes pilot drilling, for example. It has also become an important part of Nobel Biocare’s integrated treatment workflow—and yours?

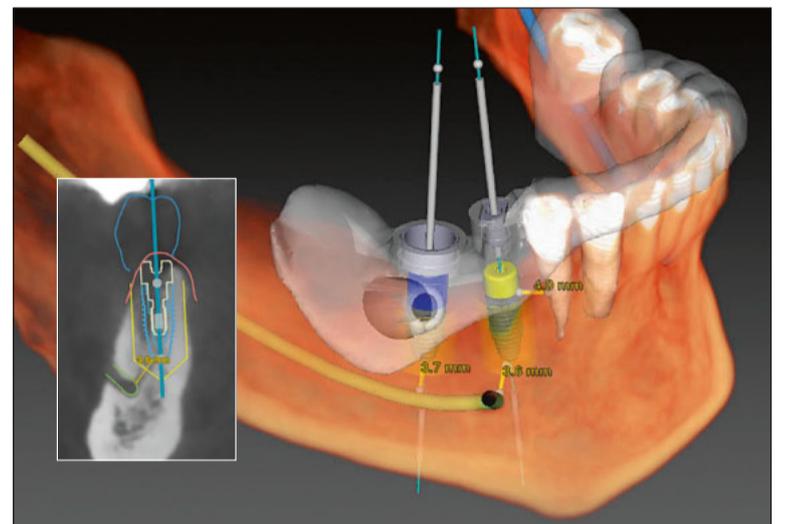
Polizzi: Yes, NobelGuide has improved a lot in recent years. The concept has been enriched by new options in the procedures, for example; it has introduced new kits for the guided insertion of NobelActive implants—ideal for soft bone areas and extraction sites.

Nowadays it is possible to guide almost all Nobel Biocare implants, even the most recently launched NobelParallel Conical Connection implants.

An interesting option now available, thanks to a specially designed, reassembled radiographic guide, is to plan implant placement in extraction sites even when residual dentition remains.

This method makes it possible for patients to evade the transition through a removable denture.

Without question, however, the most important improvement has been the recent advent of SmartFusion technology.



NobelClinician SmartFusion technology merges and aligns medical imaging from (CB)CT scans and tissue information received from the 2G Scanner to provide a better visual experience for improved results.

What advantages does the new SmartFusion technology give you as a surgeon?

Polizzi: Here’s an example: With SmartFusion and the ability to use a pilot drill in limited spaces, it is now possible to use the NobelActive 3.0 mm diameter implant to replace individual upper lateral incisors.

SmartFusion makes implant treatment much safer, as it allows for the optimal insertion of any implant with pilot drilling or full guide sleeves.

SmartFusion also makes it possible to carry out normal bone regeneration procedures and the correction of residual bone defects under direct view.

Do you think guided surgery makes it easier for a patient to accept implant treatment?

Polizzi: Definitely—patients are very interested in anything that will provide more precise and predictable treatment for them. They are more easily convinced when a clinician can explain, and virtually demonstrate, the proposed treatment on the screen of a computer or iPad® with NobelClinician Software.

Would you recommend the use of guided surgery to colleagues?

Polizzi: I would certainly recommend the use of guided surgery to colleagues, especially experienced clinicians. Guided surgery can only improve the treatment they provide.

Of course, they must respect every step of the surgical protocol in order to obtain a precise surgical guide, whether they take advantage of SmartFusion or a calibrated workflow using a double-scan technique of the radiographic guide.

Why do you think some clinicians hesitate?

Polizzi: In my opinion, at the beginning, some of them had the idea that guided surgery was a time-consuming procedure. There were too many competing systems on the market, many of which had poorly controlled protocols, and this created a lot of confusion.

A recent consensus conference dealt with a systematic review on guided surgery systems, and reported that there were some advantages to conventional treatment but also certain inaccuracy in many of the guided approaches. The poor results of this literature review left many clinicians distrusting and hesitant, especially if they wanted to choose flapless surgery.

What key benefits of the NobelGuide treatment concept might convince them, do you think?

Polizzi: In my opinion, the key benefits are optimized diagnostics and implant planning, which result in predictable, precise treatment, prosthetically oriented. NobelGuide also facilitates flapless or mini-flap surgery, meaning less invasiveness in most cases. It also provides the possibility of treating complex cases at sites with limited bone quantity.

NobelClinician Software is so advanced that it’s useful for diagnosis and planning in almost all cases, regardless of the type of treatment. I think this may lead even hesitant clinicians to choose guided surgery in the future. <

→ More to explore!

For further reading, please visit:
nobelbiocare.com/nobelguide

A short guided surgery timeline

1990s: Professor Daniel van Steenberghe et al. develop a program for dental treatment planning based on CT imaging and teams with Dr. Matts Andersson and others to develop NobelGuide

2002: Professor van Steenberghe et al. confirm a custom template and definitive prosthesis allows immediate implant loading in the maxilla (Int J Oral Maxillofac Implants)

2002: Drs. Peter Moy and Christopher Marchak conduct first treatment according to the NobelGuide concept

2003: Nobel Biocare World Conference in Las Vegas featured two live simultaneously filmed NobelGuide surgeries conducted by Dr. Peter Moy in California and Dr. Ingvar Ericsson in Sweden

2005: NobelGuide launched as the first comprehensive system for 3D treatment planning and guided surgery

2011: Launch of NobelClinician planning software, which is immediately integrated into NobelGuide

2013: Dr. Polizzi, et al. conduct 5-year retrospective NobelGuide study demonstrating good outcomes with implant survival, bone level and soft tissue

2014: NobelGuide introduces surgical templates for pilot drilling

2014: Dr. Christoph Vasak, et al. confirm NobelGuide is a viable concept demonstrating good clinical and radiographic outcomes (Clin Oral Implants Res)

2014: Drs. Armando Lopez, Paulo Malo, et al. release a prospective report on medium- and long-term outcomes of using NobelGuide with All-on-4® (Clin Implant Dent Relat Res) [Epub ahead of print]

Upcoming Events

Meet Nobel Biocare at events around the world. They provide a great opportunity for catching up with the latest innovations and scientific research.

2015

Nobel Biocare Symposium
July 23–25
Sydney, Australia

AAED Annual Meeting
August 4–7
Telluride, Colorado, USA

CDA
August 20–22
San Francisco, California, USA

ICP Biennial Meeting
September 17–20
Seoul, South Korea

Nobel Biocare Symposium
September 17–20
Las Vegas, Nevada, USA

Oral Design Symposium
September 16–19
Madrid, Spain

FDI Congress
September 22–25
Bangkok, Thailand

EAO Congress
September 24–26
Stockholm, Sweden

P-I Brånemark Memorial Symposium
September 27
Solna, Sweden

AAOMS Annual Meeting
September 28 – October 3
Washington, DC, USA

AAFP Annual Meeting
September 29 – October 3
Denver, CO, USA

FORum
October 16–17
Vienna, Austria

ICOMS Conference
October 27–30
Melbourne, Australia

IFED Congress
November 5–7
Cape Town, South Africa

Nobel Biocare Symposium
November 6–7
London, United Kingdom

Swedental Congress
November 12–14
Gothenburg, Sweden

AAP Annual Meeting
November 14–17
Orlando, Florida, USA

DGI Congress
November 26–28
Vienna, Austria

→ [More to explore!](#)

For the most recent updates, visit: nobelbiocare.com/events

Small Product but Big Impact: Nobel Biocare's Multi-unit Abutment

An original component, designed and engineered for perfect fit and function.

Fifteen years ago Nobel Biocare began producing its Multi-unit Abutment, a first for the industry at the time. Since then, this small product has had a big impact on patient treatment, starting a trend for restoring multiple teeth using tilted implant placement that is now backed by a wealth of clinical evidence.

By Michael Stuart

A decade and a half since the launch of Nobel Biocare's original Multi-unit Abutment, the concept is still as effective and even more widely accepted by the implant industry as a whole.

Back when the first of the products were sold, the original Nobel Biocare pioneers could only have hoped that their small piece of technology would have such a profound effect on patient care.

To this day, it is still the only one of its kind with a patented handle for a supreme handling experience. It is also specifically designed for the implants that have regulatory clearance for immediate loading and can be used in the treatment of both edentulous and partially edentulous patients alike.

Small but perfectly formed

Since 2008 alone, Nobel Biocare has delivered 1.2 million Multi-unit Abutments. In that time—partly because of their availability—the clinically and scientifically proven All-



Angled for posterior placement as pictured above on a NobelActive implant, the Multi-unit Abutment also comes in a straight model for anterior placement as depicted in the illustration below.

on-4° treatment concept has allowed tens of thousands of edentulous and soon-to-be edentulous patients to benefit from a minimally invasive treatment process.

This remarkable treatment concept makes it possible to restore a full arch with a fixed restoration using just four implants, even when the bone is reduced.

The angulated Multi-unit Abutments allow for the tilting of the two posterior implants, meaning longer implants can be positioned in the anterior bone, rather than in the posterior where the bone is often resorbed. This increases bone-to-implant contact and reduces the need for vertical bone augmentation.

Anchoring the implants in better quality anterior bone this way also



The Multi-unit Abutment is a key enabler for the clinically proven All-on-4° treatment concept. Tilting the posterior implants increases bone-to-implant contact and reduces the need for vertical bone augmentation. The angled Multi-unit Abutment then helps simplify the placement of a fixed prosthesis.

reduces cantilevers, improving support for the prostheses. Furthermore, tilting the implants helps avoid critical (anatomical) structures such as nerves or the maxillary sinus. All this makes it a less invasive, lower risk, and more cost efficient procedure for the patient, while increasing efficiency for the clinician.

An immediate solution for edentulism

Nobel Biocare implants are optimized for primary stability at a level that makes it possible for the restoration to be placed immediately.

The TiUnite surface and patented grooves then help maintain this stability during osseointegration.

In combination with Nobel Biocare's Multi-unit Abutments and the All-on-4° treatment concept, this allows edentulous and soon-to-be edentulous patients to leave the dental surgery with a full set of teeth and renewed self-confidence.

Nobel Biocare's philosophy is that patients should live every day to the fullest, and that the months of waiting for teeth in delayed loading protocols should be avoided whenever the indication so allows.

Nobel Biocare's Multi-unit Abutments are also available for some third-party implant systems, although it is important to note that not all third-party implant systems are optimized for immediate loading.

Getting a handle on treatment success

Nobel Biocare's Multi-unit Abutment comes with a unique handle, which makes the clinician's life easier in a number of ways.

A patented solution in its own right, available exclusively for Multi-unit Abutments from Nobel Biocare, the handle replaces the tweezers recommended by other implant suppliers for their angulated abutments. It makes holding, placing, and adjusting the abutment much simpler than without one, contributing to safe and predictable treatment.

Once the abutment is placed, the handle serves as a guide for checking that the angulation is exactly as required. It also supports clinicians using the NobelGuide protocol for prosthetic-driven treatment planning and guided implant surgery. Here, the handle becomes part of the jig in the repositioning of the Multi-unit Abutment from the model into the patient's mouth.



A unique handle that makes placing the abutment simple and safe comes with every Multi-unit Abutment. It also serves as a visual guide for ensuring the correct abutment angulation.

A framework for optimized esthetics

Nobel Biocare's Multi-unit Abutments open the door to a complete, individualized restorative portfolio through NobelProcera.

A wide range of precision-milled and esthetically excellent restorative frameworks in both titanium and zirconia are available. It is estimated that over 90,000 Nobel Biocare CAD/CAM frameworks have been produced for Nobel Biocare Multi-unit Abutments since 2008, each individualized to give a patient the new smile they deserve.

Though only a small component of Nobel Biocare's All-on-4° treatment concept, the Multi-unit Abutment plays a very big role. Without it, this innovative and effective solution for edentulous and soon-to-be edentulous patients would not be possible.

When used in combination with the All-on-4° treatment concept, the product's incredible impact on treatment is evidenced by a multitude of studies (see below), which confirm the safety, performance, and longevity of the product with this protocol.

Nobel Biocare's Multi-unit Abutment is the supporting act that allows the All-on-4° treatment concept to play a starring role, both for patients and clinicians. <

→ [More to explore](#)

Find out more about the Nobel Biocare Multi-unit Abutment and the All-on-4° treatment concept at:

nobelbiocare.com/all-on-4

Full references for this article are available online at:

nobelbiocare.com/mua

Efficient and Reliable – The One and Only

Don't be fooled: Only Nobel Biocare provides the right combination for success.

There is only one proven All-on-4® treatment concept that provides edentulous and soon-to-be edentulous patients with an efficient and effective restoration using four implants to support an immediately delivered full-arch prosthesis.

By Jim Mack

After the first dental implant patient was treated in 1965, a discussion began around the optimal number of implants needed to anchor a fixed dental prosthesis in edentulous patients. Some clinicians tended to install as many implants as possible, often one per tooth. Others argued that biomechanically, only four or even three were needed. Only long-term clinical data could provide answers.

At the forefront

The records of the early patients of P-I Brånemark allowed for an early retrospective study.¹ After a 10-year observation period, the survival rates were demonstrated to be the same for restorations with four and six implants. The challenge of advanced resorption remained, however. Because it is not possible in many cases to insert distal implants without grafting and/or nerve lateralization, the concept of tilting the two distal implants was introduced.

Immediate results

In 2003, Drs. Paulo Malo and Bo Rangert introduced the concept of immediate loading of four implants in edentulous lower—and soon after also upper—jaws with two tilted distal implants. This one-stage procedure substantially reduced the costly and time-consuming bone grafting procedures, number of surgeries and healing time.

The success continues

In his first study Malo reported a cumulative survival rate of 96.7% for implants and 100% for prostheses at up to 3-year follow up.² Since then, he and others have repeatedly reproduced high survival rates for both upper and lower jaws—*results that come only when Nobel Biocare products are combined.*

Today, the All-on-4® treatment concept is used around the world with similar high survival rates and patient satisfaction that is enhanced by limited costs.³ <

Best in class

The All-on-4® treatment concept is the best in its class of solutions. But only when Nobel Biocare products are combined. Many have tried to mirror this groundbreaking concept, but only we have the documented long-term success to back it up. Nobel Biocare and All-on-4® – the proven formula for success.

1

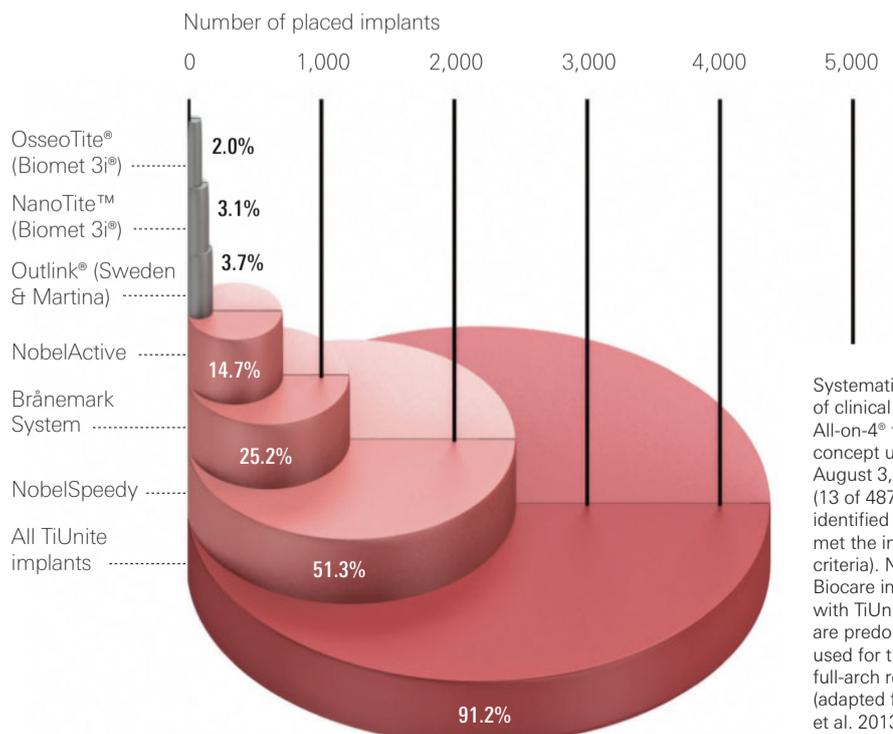
IMMEDIATE PATIENT SATISFACTION WITH IMMEDIATE FUNCTION

Thanks to their design and dedicated drilling protocols, Nobel Biocare implants are optimized to achieve high stability at insertion, which the TiUnite surface and patented grooves then help to maintain during osseointegration.^{4,5} Our implants can therefore be loaded with a provisional restoration on the day of surgery, provided that the required installation torque can be achieved.

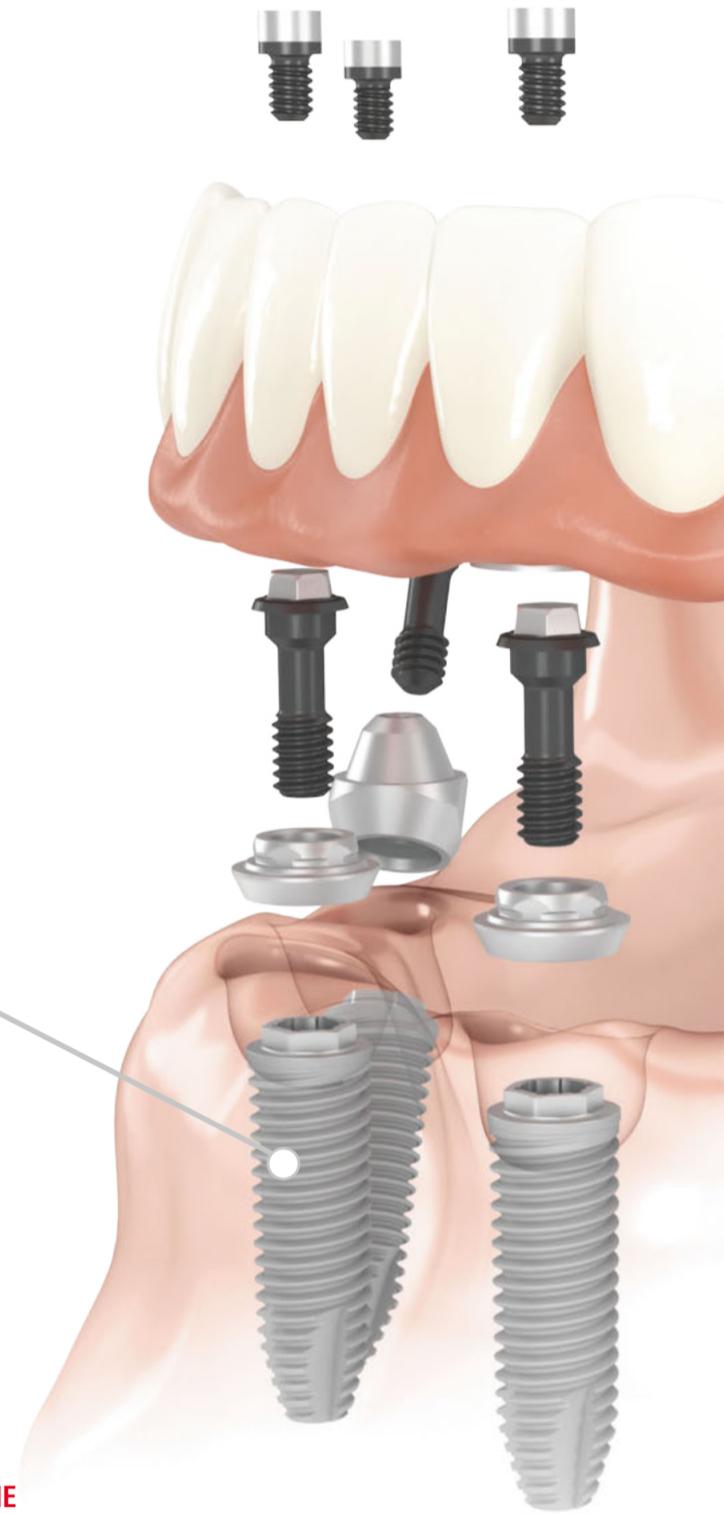
Why choose the All-on-4® treatment concept?

- Offers your patients immediate improvement in function, phonetics and esthetics.⁶
- Shorter treatment time and reduced costs compared with conventional implant treatment modalities.⁷
- Favorable bone levels for tilted and axial implants.⁸
- High survival rates with up to 10 years follow-up in the mandible and 5 years in the maxilla.^{9,10}
- Maximizes anterior-posterior (AP) spread, while avoiding important anatomical structures.
- Helps avoid complex and unpredictable grafting procedures, increasing the likelihood of patient acceptance.
- High stability with just four implants.¹¹
- Your satisfied patients help grow your practice by word of mouth.

TIUNITE IMPLANTS ARE THE IMPLANTS OF CHOICE FOR THE ALL-ON-4® TREATMENT CONCEPT.



Systematic review of clinical studies on All-on-4® treatment concept until August 3, 2012 (13 of 487 initially identified papers met the inclusion criteria). Nobel Biocare implants with TiUnite surface are predominantly used for this type of full-arch restoration (adapted from Patzelt et al. 2013).¹²

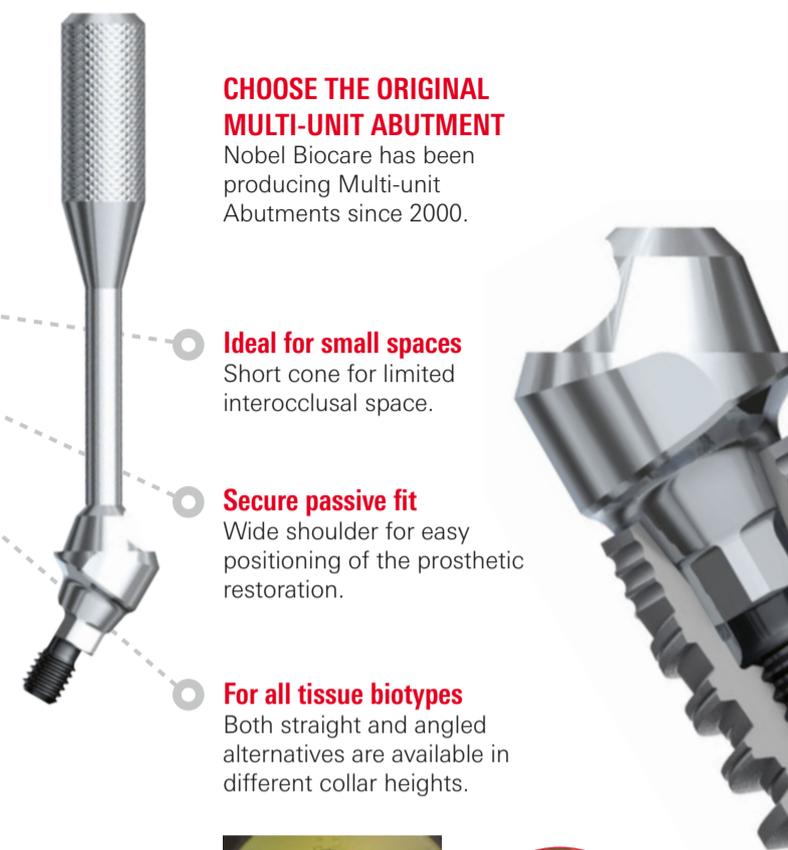


Only All-on-4®

2

GET A HANDLE ON PERFECT POSITIONING

The Multi-unit Abutment is delivered with a patented, pre-mounted holder for superior handling. This doubles as a guide for checking abutment angulation.



CHOOSE THE ORIGINAL MULTI-UNIT ABUTMENT

Nobel Biocare has been producing Multi-unit Abutments since 2000.

Ideal for small spaces

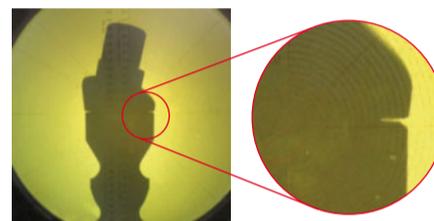
Short cone for limited interocclusal space.

Secure passive fit

Wide shoulder for easy positioning of the prosthetic restoration.

For all tissue biotypes

Both straight and angled alternatives are available in different collar heights.



Avoid unnecessary risks

Dangerous misfits can occur when components that were not designed for each other are combined. Above: Optical comparison shows a 50 micron gap between Multi-unit Abutment (top) and "compatible" third-party impression coping (bottom).

3

PROVIDE OPTIMIZED ESTHETICS

Enjoy easy handling and predictability with the precision fit of a NobelProcera CAD/CAM restoration. Unrivaled product quality allows the All-on-4® treatment concept to deliver patient satisfaction.

FIND OUT MORE

Take the next step in patient treatment satisfaction. Learn more about the All-on-4® treatment concept today. bit.ly/real-allon4



REFERENCES

- ¹ Brånemark et al. Clin Oral Implants Res. 1995;
- ² Malo et al. Clin Implant Dent Relat Res 2003;
- ³ Malo et al. J Am Dent Assoc 2011;
- ⁴ Glauser et al. Appl Osseointegration Res 2001;
- ⁵ Hall et al. Clin Implant Dent Relat Res 2005;
- ⁶ Weinstein et al. Clin Implant Dent Relat Res 2012;
- ⁷ Babbush et al. Implant Dent 2014;
- ⁸ Francetti et al. Clin Implant Dent Relat Res 2012;
- ⁹ Malo et al. J Am Dent Assoc 2011;
- ¹⁰ Malo et al. Clin Implant Dent Relat Res 2012;
- ¹¹ van Steenberghe et al. Eur J Oral Implantol 2014 [Supplement];
- ¹² Patzelt et al. Clin Implant Dent Relat Res 2013 [epub ahead of print].



NobelProcera Implant Bridge Titanium



NobelProcera Implant Bridge Zirconia



NobelProcera Hybrid Bar



NobelProcera Implant Bar Overdenture

Just Four Implants, but Countless Benefits

All-on-4® treatment concept – The scientifically proven solution for edentulous and soon-to-be-edentulous patients

To put it simply, the All-on-4® treatment concept is the best in its class of solutions.

By Michael Stuart

Professor Per-Ingvar Brånemark put it this way: “No one should die with their teeth sitting in a glass of water.” This simple statement by the pioneer of osseointegration serves as the inspiration for Nobel Biocare’s mission, “Designing for Life.”

Unfortunately however, edentulism remains a very real problem for millions of people around the world. The World Health Organization (WHO) even goes so far as to classify it as a physical impairment; and it is on the increase.

Although WHO reports have identified an overall improvement in oral health globally, as more people live to reach old-age, the number of people suffering from edentulism continues to rise.

This represents an incredible chance for dental professionals to make a constructive contribution.

Per-Ingvar Brånemark started a revolution by treating edentulous patients first, and it is still in edentulous cases where clinicians can have the biggest impact on patient quality of life today. This is why Nobel Biocare is so eager to help dental professionals treat more patients better with the scientifically proven All-on-4® treatment concept.

Fewer implants, better results

The All-on-4® treatment concept was developed to provide edentulous and soon-to-be-edentulous patients with an efficient and effective restoration that uses only four implants to support immediately loaded, fixed full-arch prostheses. By tilting the two

posterior implants, longer implants can be used in reduced bone volume, increasing bone-to-implant contact and reducing the need for vertical bone augmentation. As tilted posterior implants can be anchored in better quality anterior bone, cantilevers are reduced, improving support for the prostheses. Tilting also reduces the need for bone augmentation.

It’s an approach that is less invasive and cost-intensive for the patient than conventional implant restoration (based on more implants), more efficient for the clinician and, most importantly, is clinically validated to work.

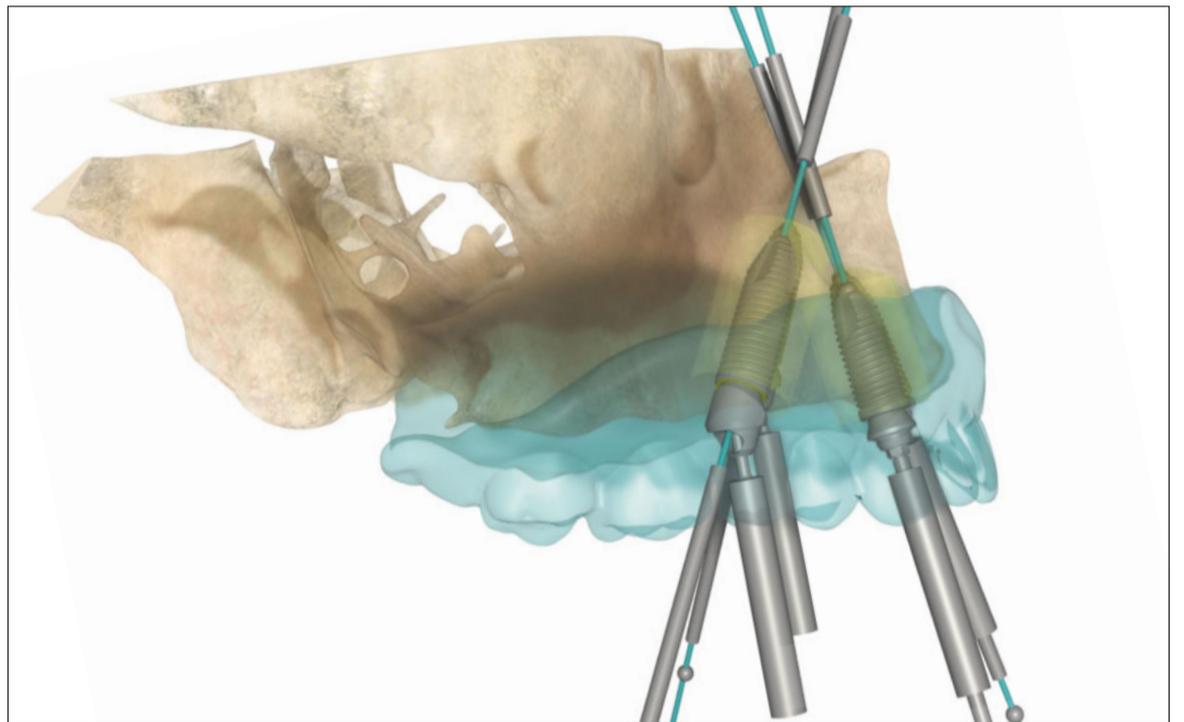
Supported by almost 15 years of clinical success, the All-on-4® treatment concept offers a reliable solution for patients looking to escape the discomfort that so often comes from wearing a removable denture.

As Dr. Paulo Malo (see timeline below) points out, “Dozens of clinical studies have uncontestedly documented the safety and efficacy—and remarkably high success rates—of the All-on-4® treatment concept.”

Suitable for many different patient groups

Every patient is different, but thanks to Nobel Biocare’s extensive range of products and solutions, the All-on-4® treatment concept is suitable for use in a wide range of cases.

The Multi-unit Abutments required are available for all Nobel Biocare implant systems. (See the article on page 5.) Thanks to the high primary stability that can be obtained by implant innovations such as NobelSpeedy and NobelActive, Immediate Function can be achieved even in patients exhibiting severe bone resorption. In cases with severely atrophic maxillae, the concept usually can be adapted to incorporate zygomatic implants. This revolutionary treatment con-



Working with just four abutments to restore a full jaw, accurate implant placement is essential. NobelClinician and NobelGuide provide predictably precise digital planning and guided surgery templates.

cept also offers flexibility when it comes to prosthetics. Given that they leave the surgery with fixed provisional prostheses, patients taking advantage of the All-on-4® treatment concept benefit from the renewed confidence offered by an implant-supported restoration straight away.

When using a conscientious system approach (see the article on page 2), options for the final restorative solution include fixed prostheses, such as the conventionally veneered NobelProcera Implant Bridge Zirconia or Titanium with acrylic, composite or ceramic veneering, as well as individual NobelProcera Crowns cemented to the NobelProcera Implant Bridge framework. Our implant bar solutions also offer a wide range of options from fixed implant bars, such as the hybrid bar, to fixed removable solutions.

Predictable placement with NobelGuide

When restoring a full arch using just four implants, accurate placement is essential. Guided surgery using NobelGuide is therefore optimized for All-on-4® treatment concept cases.

Diagnostics and treatment planning are supported by the NobelClinician Software. Using (CB)CT diagnostic imaging of the patient and a radiographic guide, NobelClinician facilitates safe, accurate implant placement.

By using the radiological data set with 3D models of bone and the radiographic guide in combination, the clinician can assess the quantity and

quality of the bone available. Vital anatomical structures such as the alveolar nerve and the maxillary sinus can also be marked so that prosthetic-driven planning can be conducted with no unknown limitations.

The split-screen view in the software allows the user to control and customize the angulation of the dental reslice planes—ensuring that the tilted posterior implants, which are fundamental to the All-on-4® treatment concept, are optimally positioned. After completing precise planning in NobelClinician, ordering a ready-to-use surgical template and all the components required for the surgery is just a few clicks away.

The NobelGuide surgical template enables guided implant site preparation, as well as accurate implant insertion, minimizing pain and swelling for the patient.

The surgical template can also be used to begin developing fixed temporary prostheses prior to surgery. It enables the creation of a stone model with implant replicas in advance.

This means the dental technician can also produce the abutment placement jig and the fixed provisional prostheses ahead of time. All that remains is for the clinician to mount the final prosthesis and do adaptations, if applicable.

The patient leaves the practice with a brand new set of teeth, and many other benefits besides.

Restoring more than a smile

The All-on-4® treatment concept is becoming a popular choice for pa-

tients and it’s easy to see why. Reduced cost and less trauma compared to bone augmentation, Immediate Function and excellent esthetic results are all clear benefits, as is the prospect of a solution that feels like natural teeth. Restored chewing ability, clear speech, and high esthetics and comfort—the list of attributes that can help drive patient acceptance goes on and on.

Above all, the combination of these benefits leads to a life-improving result: the return of a patient’s self confidence.

Dramatic demographic shift

In 2012, those aged 60 years or older accounted for eleven percent of the world’s population—approximately 810 million people. During the next four decades, this older population is projected to increase very quickly. By 2050, its size will reach over two billion.

While these demographics represent a formidable challenge for dental professionals, thanks to the All-on-4® treatment concept, they also provide an incredible opportunity for the well-prepared. <

→ More to explore!

Contact your local Nobel Biocare representative to find out how you and your patients can be part of the All-on-4® treatment concept success story. More information can be found at: nobelbiocare.com/all-on-4. Full references for this article are available online at: nobelbiocare.com/news.

20-year All-on-4® treatment concept timeline

1995: Brånemark retrospective study shows that after 10 years, survival rates were the same with 4 and 6 implants (Brånemark et al. Clin Oral Implants Res.)

1998: Dr. Paulo Malo treats first patient using the All-on-4® treatment concept

2000: Release of the original Multi-unit Abutment, a vital All-on-4® component

2004: Launch of All-on-4® treatment concept for efficient and reliable full-arch restorations

2011: Malo publishes 10-year data on mandible (Malo et al. J Am Dent Assoc)

2012: Malo publishes 5-year data on maxilla (Malo et al. Clin Implant Dent Relat Res.)

2014: Mainz Consensus confirms the safety and predictability of restorations on four implants (Eur J Oral Implantol [Supplement])

Teamwork – For Predictable Outcomes

“Working as a team allows us to make the most of our individual strengths and knowledge.”

Two doctors in the United States—one a general dentist, the other an oral surgeon—advocate a team approach to implant dentistry that creates a virtual clinic, consisting of a surgical specialist, an anesthesiologist, a restorative dentist and a dental technician or lab.

The editors of *Nobel Biocare News* recently asked Drs. Tarun Agarwal and Uday Reebye for some insights about teamwork in general and the All-on-4® treatment concept in particular. Here are their answers:

How did you begin working together?

Dr. Tarun Agarwal: I first met Uday while he was a medical student at the University of North Carolina. Later, after he completed his oral surgery residency and opened his practice here in North Carolina, I began sending him the surgical cases that I wasn't comfortable tackling. Our professional relationship flourished when Uday encouraged me to participate and collaborate on our surgical cases. He was very open to sharing tips and tricks and even allowing me to participate in the surgery.

Dr. Uday Reebye: At the same time, Tarun taught me about prosthetic and implant advancements that had a great impact on my work.

Agarwal: It became pretty clear that the cases we did together were the cases that turned out best and went the smoothest. I think it was the strategic collaboration and taking the 'holistic' (surgical and restor-

ative) approach to the case that made the difference.

For you, your dental practices and the patient: What are the main benefits of the team approach?

Reebye: Implant dentistry is rapidly evolving and its complexities require solid prosthetic and surgical knowledge. Working as a team allows us to make the most of our individual strengths and expertise.

Sharing knowledge is essential for making advances in our field. Many times the biggest changes I make on my surgeries are due to what Tarun has taught me on the restorative side; and conversely, Tarun has changed his treatment planning and prosthetic planning since he began getting involved in surgeries.

Agarwal: What's more, I now have the confidence to tackle complex cases that I would never have even started in the past.

The patient is the real winner in our teamwork approach. They are provided with a seamless treatment experience. Each member of the team is focused on his or her core competency, which leads to better results.

I should also mention that practice productivity has steadily increased. As our mutual caseload has grown, so have referrals and our reputation within the community. It's like a snowball gaining size and momentum going downhill.

Would you say that you each bring different qualities to the partnership?

Agarwal: Without question. Dr. Reebye is a dual degree (MD and DMD) board certified Oral Maxillofacial Surgeon. His expertise and knowledge of surgery is light years ahead of

mine. I am an esthetically-focused general dentist that has tremendous experience with digital dentistry.

By each having an open mind we are able to blend the digital technologies of restorative dentistry into the surgical world of complex implant dentistry. Over time, we have learned a great deal from each other, and now have a greater appreciation for the complexities and issues that each other deal with in the treatment process.

Do you ever have a difference of opinion when it comes to planning the treatment?

Agarwal: Of course we do! Sometimes we have to bend on the surgical side and sometimes we have to bend on the restorative side ...

Reebye: ... and it usually works out that whoever wins the argument has thought through the issue at hand a little longer and harder.

Q&A Questions and Answers

Agarwal: I can give you an example. Uday was hesitant to begin using computer guided implant surgery. Initially, it was slower than the traditional technique he was used to, but for me, it made the restorative component absolutely more predictable and quicker. After our first case, he became aware that the extra 20–30 minutes of his time saved the patient multiple visits on the restorative side.

Reebye: It was an easy trade-off to make. At the end of the day, we resolve any differences of opinion guided by a single principle—to do what's in the best interest of the patient.

Is the All-on-4® treatment concept especially appropriate for your team approach?

Reebye: Yes, in my eyes, the All-on-4® treatment concept can only be successful as a team effort. It is a beautiful treatment concept that marries surgical and prosthetic philosophies.

I have to tell you that teamwork brings a great deal of enjoyment to the clinic. If you are happy when working, patients are happier, assistants are happier, and somehow that brew results in great outcomes.

Agarwal: It really does! In our team approach, the restorative dentist creates the case blueprint, the surgical specialist serves as an engineer—by verifying the blueprint is surgically



Dr. Uday Reebye (left): “As similar as we are, I think we have a completely different approach to problems. The dichotomy in the way we think, I believe, is what provides strength and success. Many times, at the end of arguing about the correct treatment plan, we end up with a beautiful ‘hybrid’ that otherwise would never have been realized.”

feasible—and the anesthesiologist is totally focused on patient comfort.

Starting with the endpoint in mind and collaborating to make it possible has routinely led to great outcomes.

What do you see as the main benefits of the All-on-4® treatment concept, both for clinicians and patients?

Reebye: We see so many edentulous or about-to-be edentulous patients who need new teeth. Previous treatment modalities were so expensive and difficult that these patients left our clinics depressed, with no hope in sight. The All-on-4® treatment concept allows us as clinicians to give hope to many patients who once had few or no encouraging options. Now we can dramatically change the lives of these patients for the better.

Agarwal: And because this treatment concept is more affordable for patients, a greater number of patients become implant candidates. For us, the All-on-4® treatment concept has virtually created a new market.

What would you say to clinicians thinking about starting with the All-on-4® treatment concept?

Agarwal: Go learn about it with an open mind! There are literally millions of patients who can benefit from this treatment. Nobel Biocare has a predictable workflow with a tremendous support system to make you successful.

Reebye: Before I took my first All-on-4® class, all I heard from many clinicians (none of which had taken a class or done All-on-4® surgery), that the concept was flawed and a recipe for disaster. Seven years later, all I can say is that I am so happy we did not

listen to them. My advice? “Keep an open mind, take a course, and see for yourselves what a great service you can provide for your patients!”

For any clinicians out there looking to adopt a team approach like yours, is there a secret to successful partnership?

Agarwal: You've got to let go of your ego. We are all equals to the patient, after all, each bringing a different area of expertise to the team ...

Reebye: ... and let me add this: Listen to your patients. Be willing to talk to other clinicians to share ideas, and never be afraid to reach out when you need help. Most of us love to share what we know with each other—to be of help and to learn more at the same time.

And finally—enjoy! It's a wonderful journey. <

→ More to explore!
nobelbiocare.com/all-on-4



Dr. Tarun Agarwal (left): “Over time we have pushed each other to take a closer look at each other's perspective. ”



Drs. Uday Reebye and Tarun Agarwal agree that well-organized teamwork is beneficial for the patient and clinician alike.

Bringing Evidence-based Implant Knowledge to Life

FOR enters the field of digital publishing with a multimedia eBook.



FOR's first digital textbook, entitled *Single Implants and Their Restoration*, provides "anywhere-anytime" access to best practices in single implant restoration and oral hygiene.

By Carolyn Moncel

With the release of FOR's new digital textbook, entitled *Single Implants and Their Restoration*, co-editors Drs. Charles J. Goodacre and Dr. Pat Naylor are giving clinicians even more reasons to smile.

Complete with over 900 images, 40+ videos and more than a thousand scientific and literature references, *Single Implants and Their Restoration* is an evidence-based and comprehensive primer that provides clinicians and dental students with well-researched information on a broad range of topics, including the benefits of single implants and oral hygiene maintenance.

The digital textbook can be viewed on the FOR.org website or downloaded to either an iOS or Android device, thereby providing "anytime-anywhere" access to both textual and richly-displayed visual content with a simple click of a link.

Compiled with the help of 27 expert contributors, the digital textbook covers all aspects of single implant placement and restoration—from initial consultation, diagnosis and treatment planning to bone augmentation, surgical placement, restoration and aftercare.

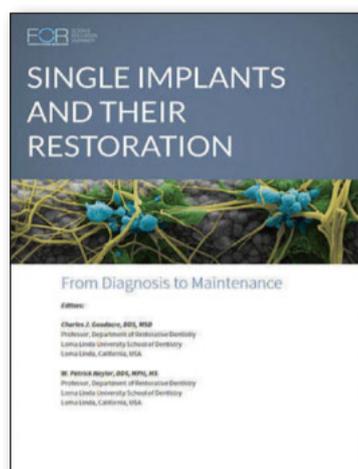
The digital textbook includes videos and even opportunities for self-assessment via quizzes at the end of each chapter to further promote knowledge retention and validate learning.

Complimentary voucher for the readers of Nobel Biocare News

Register today at www.FOR.org and receive 12 months of free access to FOR's entire content library.

Voucher Code: FORyou

"Educational resources need to provide a synthesis of available knowledge and clinical procedures," says FOR Global Education Chair and Board of Trustees member Dr. Goodacre—who worked on the project for more than a year. "Richly illustrated



and scientifically up-to-date, this book contains videos, when appropriate, and permits readers to self-assess their knowledge acquisition."

Always up-to-date

Initially designed primarily for university-level graduate and post graduate students, the *Single Implants and Their Restoration* digital textbook aspires to become an invaluable resource for anyone interested in implant dentistry—from clinicians to dental faculty and study clubs.

"This digital textbook is the perfect lecture companion in the classroom and is ideal for inciting debate and discussion during study group exercises," said Brian Volken, who served as FOR Center's senior project manager on the eBook.

"Because the textbook is fully-digital and updated regularly, clinicians wishing to expand their knowledge can always expect to access the latest scientific information."

Access to the digital textbook is free to dental students and FOR Associate Fellows who are premium subscribers. Non-fellows can download a sample chapter.

New opportunities abound

"My greatest personal rewards as an educator have occurred when I see the 'light bulb' of enthusiasm turned on in a student's mind," says Dr. Goodacre. "To see them pursue knowledge and expand their inquisitiveness are cherished moments, and I believe this resource can help to ignite exciting opportunities for those who choose to use it." <

→ More to explore!

A second digital textbook, devoted to the study of the Temporomandibular Joint (TMJ), has just been released. Discover both eBooks at: for.org/en/digital-textbooks.

In Brief

Dr. Parel wins Brånemark Osseointegration Award

At this year's Academy of Osseointegration meeting, Dr. Stephen Parel was honored as the 8th Nobel Biocare Brånemark Osseointegration Award winner.

This award is given annually to honor an individual whose impact on implant dentistry is exemplary in research and education.

"Given the recent passing of Professor Brånemark, this year's award carries even greater significance, and I am truly humbled by this great honor," said Dr. Parel when accepting the award.



→ To read the citation: www.osseo.org/pressRelease-022715.html

Dental surgery in virtual reality

In what looks to be the first use of virtual reality in implant dentistry, Nobel Biocare let customers see their new cement-free posterior solution in action through the eyes of a surgeon at this year's International Dental Show (IDS) in Cologne, Germany.

A hit when first tried at the American CDS and AO dental meetings, the technology was also a success at the big IDS event in Cologne. At most of the company's symposia this year, as well as at other major dental events such as Europerio and EAO, Nobel Biocare is making it possible for attendees to virtually explore product functionality and step into the shoes of a surgeon. The show experience is viewed through an Oculus Rift DK2 with attached Leap Motion gesture controller to navigate the user interface through hand tracking. Nobel Biocare plans to explore other opportunities with this technology considering its potential as a powerful training and education tool. Let us know what you think!



→ For more information: nobelbiocare.com/bringinginnovationback/

Nobel Biocare News Wins Health Angel Award

Nobel Biocare News, was named "Best Dental News International Concept" at the Health Media Awards ceremony hosted in Bonn, Germany, on Friday, June 12.

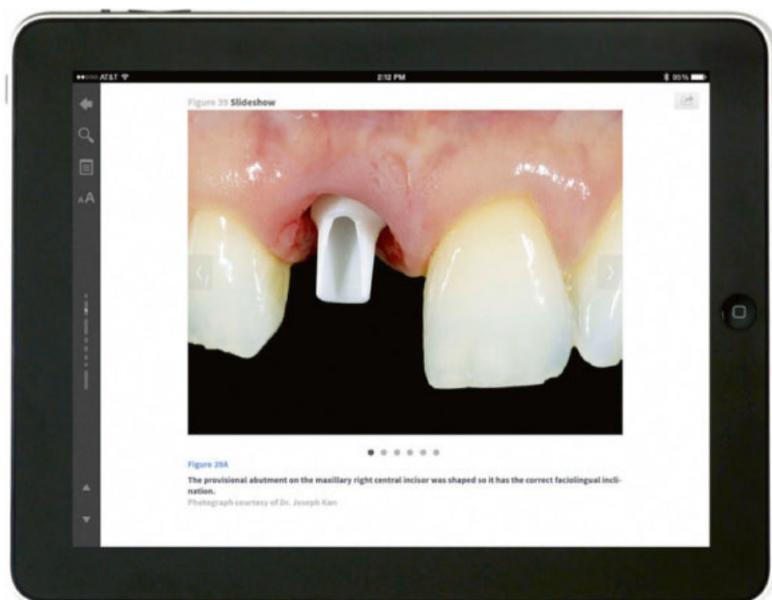


Published three times a year and distributed to around 60,000 dental professionals, *Nobel Biocare News* features product news, research, case reports and patient stories from the world of implant-based dentistry. The publication was also recently shortlisted in Ragan's 2014 Content Marketing Awards for "Best Print Production."

Known as "the Oscars for outstanding healthcare communications," Health Angel

Awards are allocated by an independent jury comprised of experts from the fields of healthcare and communications. The award was presented at a ceremony in the music chamber at Beethoven House. As well as being distributed as a print edition, articles from *Nobel Biocare News* are published online and on the company's Facebook, LinkedIn and Twitter feeds.

→ Visit us online at: nobelbiocare.com/news



Single Implants and Their Restoration: A sample page from FOR's new digital textbook as viewed on an iPad®.

Solve a Mystery and Preserve a Smile: Expect the Extraordinary from Nobel Biocare.

Great detective work and a special service unique to Nobel Biocare made all the difference in the world.

For Belgian Sales Manager, Philippe Thomas, "Partnering for Life" with his customers is not something he takes lightly. While a typical day for him may involve any number of customer interactions, he was recently asked to help solve an intriguing mystery.

By Philippe Thomas

Not long ago, a dentist called to ask if I could help him with a mysterious case in need of some sleuthing. It involved an elderly patient he was treating. She was nearly 90 years old and had a fixed bridge that was screw retained. So far, so good! Then came the conundrum. Apparently, the implants that had been used were called "Biotes."

In my over 25 years of experience at Nobel Biocare, I had never heard of Biotes. I politely told him it didn't sound like a product from Nobel Biocare and I suggested it might be a French company.

Short-lived brand

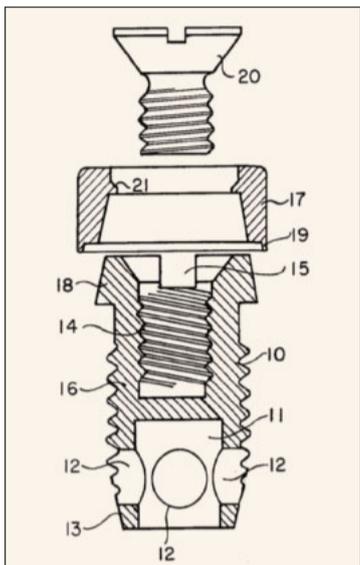
He was skeptical and explained that the patient has some old, faded documentation which looked like the first page of a leaflet for Biotes with the Nobelpharma logo on it. [Editor's note: Nobelpharma became Nobel Biocare in 1996.]

The material provided another helpful clue: The name "Professor Chantal Malevez" was handwritten on the page. Professor Malevez, a renowned clinician and researcher, has been a Nobel Biocare customer since 1987. That was exactly the break I needed!

I went to the dentist's office immediately to see the case journal and review the evidence. Everything was exactly as he had explained it: five fixtures with what looked like standard abutments in the lower jaw and a fixed screw-retained bridge in gold and acrylic material on top.

As I examined the Biotes document, I was still puzzled. The patient remembered that she received the document from Professor Malevez, who placed the implants in 1988 or 1989, according to her recollection.

That was the exact time period I began my career with Nobelpharma. How could I not remember this product? I called up our Gothenburg office in Sweden for answers.



Cross-section drawing from one of the first patent applications by Per-Ingvar Brånemark for products that were to revolutionize dentistry.

After a quick conversation to explain the case, I received a return call from an engineer who confirmed that Biotes was indeed ours. The Biotes brand was the commercial precursor to the first Brånemark System implants I was told. Professor

"For me, it is essential to work with a company that can continue to provide components for implants that have been in place for decades."

— Professor Chantal Malevez

Malevez was among the very first to use them. Compared to our Brånemark System MKII implants, Biotes had a higher hexagonal connection on top (1 mm instead of the usual 0.7 mm). The bottom line: Because we keep all our production files, new components could be made!

Proud to serve

Our Special Request Service was able to produce the devices needed: a new abutment and abutment screw to replace the originals, which were damaged. Four weeks later the patient's bridge was repaired without any problem. I was very proud, and here's the reason why:

After more than a quarter of a century, Nobel Biocare found—in only a few hours—what the customer and the patient needed. I think that we are the only company in our field with a Special Request Service that can reproduce products from the very early days of osseointegration. It's all part of our commitment to the well-being of your patients.

Mystery solved and the patient happy, I got in touch with Professor Malevez to share the good news. She was pleased, but hardly seemed surprised. From the very beginning of her career, she explained, she has always treated her patients with special confidence in our products.

"For me, it is essential to work with a company that can continue to provide components for implants that have been in place for decades," Professor Malevez said.

Thinking ahead

I'm especially thankful that she provided her patients with the kind of background documentation that made it possible for us to track down the original product in this case.

The professor made it clear to me that when a clinician chooses an implant product, he or she is also choosing the company that stands behind it. It is the clinician's responsibility to choose wisely:

"Patients are not always aware of the science behind implants," she said. In fact, "many of them do not



Professor Chantal Malevez is a specialist in maxillofacial surgery and known internationally for her groundbreaking work with edentulous patients and implant technologies.

by a bad adjustment, and once the surface is destroyed, you can't just change the integrated implant."

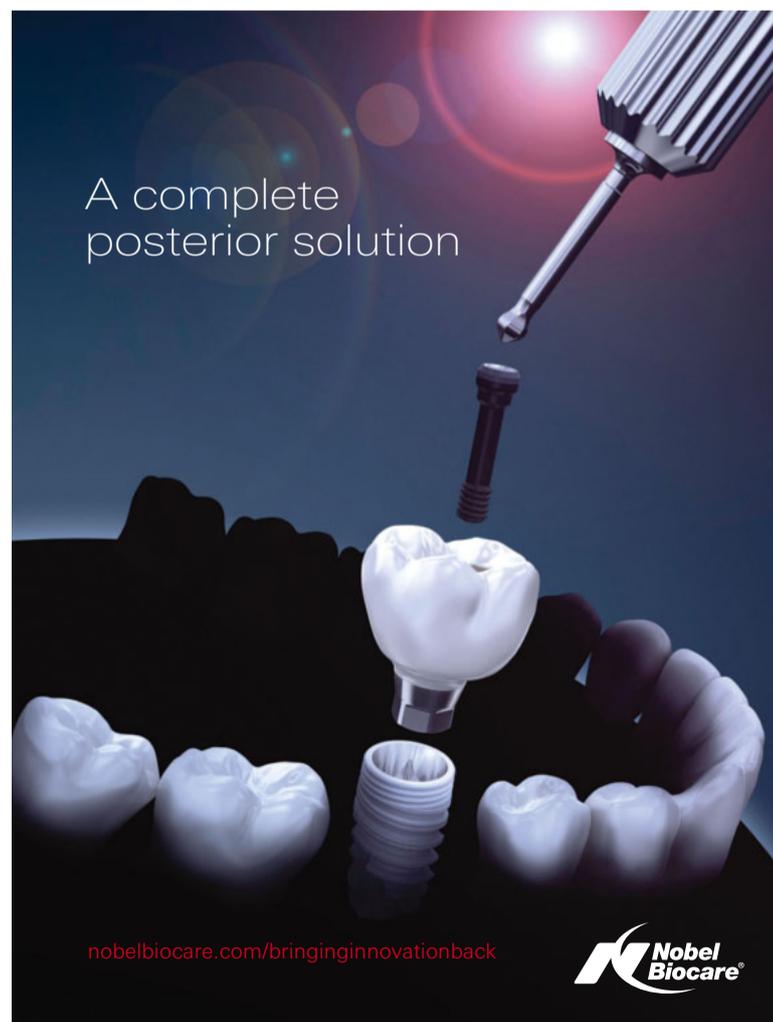
Now when a customer asks about mixing and matching products or does not want to offer patients material to be able to trace product history, I tell this story. Our products and solutions are designed for life and I

am proud to be able to serve my clinicians throughout the lifetime of their patients. <

→ More to explore!

If you need help with customized or out-of-production components, please visit:

nobelbiocare.com/special.



nobelbiocare.com/bringinginnovationback

Nobel Biocare

Opening Doors with All-on-4®

How one lecture on the All-on-4® treatment concept changed the course of a young clinician's career.

A presentation on the benefits of the All-on-4® treatment concept started Dr. Po-Chih Hsu on a journey that, with support from Nobel Biocare, would see the talented Taiwanese clinician become recognized as an expert in edentulous restorations, as he explains below.

By Dr. Po-Chih Hsu

I am working in a hospital where many patients suffering from edentulism are business travelers or cancer patients and simply do not have time to wait for bone grafting procedures to be completed. Attending a lecture by Dr. Paulo Malo in Taipei in 2012 was a seminal moment in my career as a clinician.

As Dr. Malo explained the principals of the All-on-4® treatment concept, I realized what an incredible opportunity it presented. For me, this graftless technique was revolutionary. I saw immediately that it offered me a way to restore quality of life for my edentulous patients.

Development and support

Of course, before I could start treating patients I first needed to develop the skills required to implement the concept safely and effectively. As the lecture had been organized by Nobel

Biocare, I turned to them for advice. And I couldn't have been happier with the response.

Nobel Biocare opened doors for me and my prosthodontist, so we could train at the Malo Clinic. This gave me a fantastic grounding in the concept and teamwork, but the sup-

T&E

Training and Education

port from Nobel Biocare didn't end there. We stayed in close contact, and they helped secure mentors that I could turn to as I conducted my All-on-4® treatment concept cases.

From T&E to TV

Our partnership continued, and last year we worked together on a public outreach campaign for the hospital where I work. In collaboration we developed marketing materials and visual aids to support the program.

There was a big PR push as well, and as a result I appeared on national television to provide expert insight on how the All-on-4® treatment concept benefits the patient, particularly when it comes to cost, time and the lower number of surgeries required since grafting is not an issue.

Featured alongside me were former denture wearers whose lives have been transformed by the con-



Dr. Po-Chih Hsu: "Nobel Biocare opened doors for me and my prosthodontist, so we could train at the Malo Clinic. This gave me a fantastic grounding in the concept and teamwork, but the support from Nobel Biocare didn't end there. They helped secure mentors that I could turn to as I conducted my All-on-4® treatment concept cases."

cept. As they described the improvements they have experienced, not just in esthetics, but in being able to eat more nourishing food, it was another important moment for me. It highlighted again the revolutionary nature of All-on-4®.

Since introducing the All-on-4® treatment concept I've also seen an increase in patient flow, which of course is a boost for business. I've

now treated over one hundred patients with the concept, and the demand has been so great that I've had to start a waiting list for new cases.

Start your journey

I understand that some clinicians might be wary of taking time out to train in a new treatment concept. All I can say is that for me it has been a fantastic success, and it was made

possible by a great partnership with Nobel Biocare. If you're considering it, I'd really recommend giving your local Nobel Biocare team a call. Why not see where your All-on-4® journey could take you? <

→ More to explore!

To view Dr. Hsu on Taiwanese TV (with English subtitles), please visit: <http://bit.ly/drhsu>



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