BUSINESS of Dentistry

Key takeaways...

- Final implant restoration dictates platform design and the required position.
- Access the Cochrane Systemic Review Library free on ADA.ebd.org.
- CE tracking forms for dentists and hygienists posted on WDA.org.

What implant system should be used?

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The root-form dental implant first described in 1969 by Dr. Per-Ingvar Branemark, a Swedish orthopedic surgeon and research professor, was and continues to be successful for completely edentulous applications.

However, it wasn't until around 1989 that data by Dr. Torsten Jemt and other scholars was able to confirm that this type of implant was effective for partially edentulous situations. Once this was clear, implant placement became routine in clinical practice.

In the 1990s, complications such as loosening screws and early loss of osseointegration were common. These issues have been addressed by redesigning implants to meet the specific challenges of partially-edentulous situations.

Figure #1- Roughened surfaces are credited with improving success rates, even in smokers.

Selecting an implant

The modern dental implant incorporates three major improvements. While other aspects continue to be investigated, including thread design, no other features are as established clinically.

The implant body should be a roughened surface (approximately 25-50 micrometers). Numerous proprietary surfaces exist, but few direct clinical comparisons are published.

All show an increase in bone apposition, compared to polished or fine surfaces (Figure #1).

For nearly all partially edentulous applications, an internal connection is preferred. The resulting reduction in screw loosening and increase in usability has contributed to making implants universally accepted.

Platform designs now address specific treatment challenges. Esthetic and long-lasting implants require attention to the bone, tissue and microgap.

All of these, to a certain extent, can be influenced by a platform design. Multiple designs exist, each with particular advantages in certain situations (Figure #2).

Posterior selection is primarily based on strength. Thicker and wider platforms perform well and, if placed correctly, are less complicated to restore.

Anterior selection is generally based on soft tissue management.

Conical internal connection designs with a bevel perform well and tend to be more forgiving esthetically. This is due in part to deeper positioning requirements.

In short, the final restoration will dictate the preferred platform design. This, in turn, dictates the required implant position.

When chosen carefully, implant designs will complement skilled technique to make the end result more predictable.

Figure #2 - Note how the abutment shape of these two distinct designs is similar while the interface location differs.

Alternative manufacturers

When viewing manufacturer catalogs, it is clear to see that product lines are becoming more alike.

At least three companies now market similar conical internal connections. As patents expire and loopholes are found, the more popular ideas will continue to be reproduced by competitors (Figure #3).

This trend is being driven by alternative manufacturers who are providing a comparable product at a much lower price. No longer new to the market, use of these brands will continue to increase as their effectiveness is proven over time and patients seek lower-cost options.

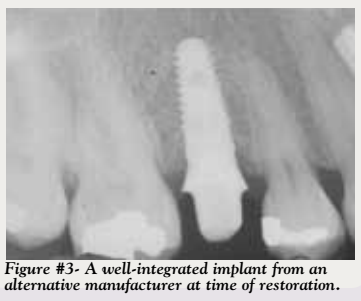

Figure #3- A well-integrated implant from an alternative manufacturer at time of restoration.

Comparative research lacking

In a rare, large-scale study that compared different designs and brands of implants, alternative brands were used because mainstream manufacturers declined to participate under a strict, non-biased protocol (Morris HF. Annals of Periodontology, 2000).

Due to the lack of direct comparison between competing brands, it cannot be said that one implant is better than another.

Until this information is published, clinicians should be reminded proper treatment planning and technique are far more influential on the outcome than the implant brand used.

Editor's note: This article is the third article in a series by ***Dr. Michael Waliszewski*** *(Brookfield) regarding current issues in dental implantology.*

Tools to track your CE

The Wisconsin Dental Association offers a continuing education tracking form for your mandatory credits.

Note the WDA did not mail the CE record-keeping folder for Oct. 1, 2011 - Sept. 30, 2013 licensure period.

On Aug. 1, 2012 the Wisconsin Dentistry Examining Board finalized its review of CE regulations and those updates are posted under the CE section (member log-in required) on WDA.org.

There is a CE tracking form for dentists and a separate tracking form for dental hygienists. Both were created by the WDA staff to help members keep a record of completed courses.

CE frequently asked questions also are posted online.

Looking at evidence-based dentistry

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The dental profession is moving toward evidenced-based practice decision making.

However, most dentists who have been practicing for several years have not been trained to practice evidence-based dentistry.

EBD means choosing the best diagnostic methodologies, clinical treatment options and dental materials based on the latest and highest level of scientific evidence.

It does not mean a practitioner relies on manufacturers' or salespersons' recommendations or tradition.

EBD is influenced by three separate focus areas. The latest relevant evidence is combined with the patient's needs and preferences along with the dentist's clinical experience and expertise.

The American Dental Association provides EBD training which includes, an introduction to research quality assessment, search strategies, PICO (population, intervention, comparator and outcome) question development and research appraisal.

The gold standard for high quality research is the systematic review, because this evidence has the least amount of bias. It answers a specific clinical question, considers multiple studies and the quality of each study is objectively assessed and compared.

Random controlled trials, cohort studies, case studies and benchtop research are all lower quality evidence that must be considered in the absence of systematic reviews.

Evidence summaries are a short synopsis of a systematic review. They provide a means of rapidly learning the principal findings of a systematic review.

They also should include an evaluation of the strength of the review methods, and discussion and critique of the review's interpretation of the evidence as well as implications for clinicians.

Clinical guidelines and recommendations for patient treatment are made by expert panels based on findings.

How does EBD work?

- Step one: Define a clinical relevant, focused question.
- Step two: Systematically search for evidence to answer the question.
- Step three: Appraise the validity and reliability of the evidence.
- Step four: Use the evidence in treatment planning.

There is an overwhelming amount of new information published every year. One of the biggest challenges for practitioners is finding the time to make sense of the abundance of information being generated every day.

If you have limited time, consider secondary sources of evidence.

ADA.ebd.org is a great place to start. On the site, you will find a direct link to access the Cochrane Systematic Review Library.

This free site has many critical summaries that address frequently asked questions.

It often takes 10 to 20 years to incorporate new scientific information into practice.

If the dental profession embraces EBD, we can shorten that timetable and enhance the care we provide as well as the oral health of our patients.