The Vitality Issue

This month’s issue will feature vitality as its theme, with four articles focusing on current trends in implant dentistry, nutrition, healthcare policy, and business that share a common thread — proactive measures to stay healthy in an otherwise unhealthy climate.

Dental Implants for the Geriatric Patient

By Arun Garg, DMD

Certainly it is no surprise that the population is aging, and aging considerably well, in light of the fact that life expectancy has increased significantly over the last 40 years. With improved functionality seen in the widening population of octogenarians, nonagenarians, and even centenarians, all aspects of achieving and maintaining quality of life are emphasized, including healthy oral function, which actually becomes even more important as individuals live longer. As preventive oral-health measures have improved over the years, older patients are presenting with more teeth and fewer prostheses. In a New Yorker article entitled “The Way We Age Now” by Atul Gawande, the author points out that aging, as a process and by its very nature, makes maintaining health more challenging and all the more relevant. He writes “Scrupulous dental care can help avert tooth loss, but growing old gets in the way. Arthritis, tremors, and small strokes, for example, make it difficult to brush and floss, and, because nerves become less sensitive with age, people may not realize that they have a cavity and gum problems until it’s too late. In the course of a normal lifetime, the muscles of the jaw lose about 40% of their mass and the bones of the mandible lose about 20%, becoming porous and weak. The ability to chew declines and people shift to softer foods, which are generally higher in fermentable carbohydrates and more likely to cause cavities. By the age of 60, Americans have lost, on average, a third of their teeth. After 85, almost 40% have no teeth at all.”

Prosthodontic needs of elderly patients are broad and all encompassing, for a variety of reasons.
While the use of removable dentures is a safe, cost-effective alternative to dental implants, it certainly does not allow for adequate oral function. For this reason, and for improvement in overall wellbeing (psychological, nutritional, physical), firmly retained, functional prostheses should be used in this group of patients. Numerous studies have shown that dental-implant placement in geriatric individuals is safe and effective, with success rates similar to those in younger patients. 2-3 That said, there are some special considerations when placing implants in this unique population demographic. Specifically, practitioners should be familiar with the systemic influences that affect alveolar bone. Practitioners need to understand bone physiology and metabolism and the fact that no single type of implant is appropriate for all geriatric patients; because the size, shape, quality, and quantity of bone differs in each patient, even more so in the geriatric population than in younger patients, a targeted approach to manage these variations in alveolar bone is necessary. The maintenance of vital osseous peri-implant margins, preserving subperiosteal osteogenic capacity and stabilizing the implant carefully, will all be affected by the character of the bone and surrounding structures. 4

Specific endocrine and metabolic changes are associated with aging. Severe resorption of the alveolar process usually occurs following tooth loss in the posterior maxilla, which, in turn, leaves less remaining bone to anchor implant placement. Decreased bone density, seen in conditions known as osteopenia and osteoporosis, are both associated with aging and also cause bone loss. Vitamin D deficiency, thought to be exceedingly common in the elderly, can also affect bone remodeling. A single one of these processes will limit the implant practitioner to some extent, but the reality is that these three conditions co-occur in the geriatric patient. Additionally, any exposure to irradiation can cause poor wound healing. Diabetes has also been implicated in poor wound healing (due in part to local microvascular changes), and type 2 diabetes is commonly seen in an elderly population. Vitamin deficiencies (specifically A, B, and C), due to changed dietary patterns, can change the integrity of the epithelial layer of the gastrointestinal track (including the mouth) and affect wound healing. Xerostomia contributes to plaque formation and, therefore, an increased risk of caries. Decreased protein and zinc intake can delay renewal of papillae on the tongue, decreasing taste sensation, while age-related nerve changes can decrease sensitivity of olfactory receptors on the roof of the nasal cavity. Some patients attribute the decreased sense of taste and smell with oral procedures; rather, because attention is drawn to the mouth, individuals are simply more aware. As part of a thorough preoperative history, the provider must obtain a thorough dietary history to be sure patients are getting enough protein, vitamins, and minerals. This also offers the opportunity to educate patients on postoperative dietary recommendations.

Elderly populations are also more affected by systemic disease like atherosclerotic heart disease, cardiac rhythm disorders, peripheral vascular disease, and kidney disease. In studies investigating the effect of multiple medical comorbidities on dental-implant procedure risks found no increased incidence of complications or failure in this group of patients. 5 Other studies have looked at the incidence of cardiac arrhythmia in patients undergoing oral surgery and did not find that incidence of rhythm disturbance was different in patients with known cardiovascular disease than those without cardiovascular disease. The ultimate conclusion from that article was that in-office oral procedures are considered safe, even in patients who might be at risk in more complex surgical procedures. Still, another study looking at electrocardiographic (ECG) changes under license. All rights reserved. Reproduction, distribution, or translation of this newsletter in any form or incorporation into any information retrieval system is strictly prohibited without express written permission. For reprint permission, please contact AHC Media Address: P.O. Box 105109, Atlanta, GA 30348. Telephone: (800) 688-2421. Executive Editor: Shelley Morrow Mark, (352) 351-2587, (shelly.mark@ahcmedia.com). Managing Editor: Leslie Hamlin, (404) 262-5416, (leslie.hamlin@ahcmedia.com).
during endosseous implant placement performed with local anesthetic found that dental-implant surgery was associated with specific ECG changes, including sinus tachycardia and extrasystole; most frequently these arrhythmias were seen during anesthesia, incision, and bone-drilling stages. Though the sample size was small in this particular study (18 patients and 20 implants), it is important to mention that transient ECG changes do not necessarily imply increased risk to patients with underlying structural heart disease.

Another cardiac process seen in older populations is known as atrial fibrillation, an arrhythmia of the atria of the heart wherein rather than beat in unison, these chambers “fibrillate,” or quiver irregularly. The condition causes blood to pool in the atria and, therefore, predisposes individuals with this heart rhythm to stroke. Most patients with atrial fibrillation will be anticoagulated, in some capacity, to reduce the risk of stroke. While studies have indicated that there is not a greater risk of postoperative bleeding in patients who take chronic medications for anticoagulation, such as warfarin, some practitioners stop these medications in advance of in-office oral procedures hoping for better hemostatic control. Unfortunately, this does put the patient at greater risk for thrombotic events.

Good oral hygiene and adequate oral function in elderly patients is essential for optimal outcomes of implant placement. If the geriatric patient in question has poorly fitting restorations, there may be increased plaque and gingival inflammation, even a loss of periodontal attachment in natural teeth at the site. Successful implantology will depend on a cooperative patient who can comply with careful attention to post-procedure care. These patients should not smoke and should be aware of the limitations and even esthetic compromises that may be necessary.

Some practitioners have suggested immediate loading of implants in the geriatric population. This obviates the need for a second surgical procedure to uncover the implants and decreases postoperative treatment time, cost, and discomfort. Immediate extraction and implant placement reduces healing time and, therefore, may be useful in patients with a compromised medical status. While there are advantages to this approach, the disadvantage is the need for enhanced soft-tissue techniques to achieve an esthetically pleasing result. Premature implant exposure, due to problems with flap design, misplacement of the implants too far apically, and damage to alveolar bone due to extraction complications, can occur. One technique recommended to mitigate these issues is the submergence of the implant slightly below the osseous crest, as well as using horizontal mattress sutures.

Implant failure occurs most commonly in the posterior maxilla, and patients with inadequate bone quantity for implant placement will require bone grafting of the floor of the maxillary sinus prior to implant placement. The height of the alveolar ridge is the limiting factor in the placement of implants in the posterior maxilla. Cone-beam CT scans to determine bone width and angulation is especially important in the geriatric patient for this reason. In the posterior maxilla, a decrease in the density of alveolar bone may be caused by mechanical and inflammatory factors, osteoporosis, type of prosthetic treatment used, and chronic edentulousness; however, these factors do not have a direct influence on bone volume and ridge configuration.

Implant failures in the geriatric patient, as in any patient, should prompt investigation of the quality and quantity of recipient bone and adequacy of surgical technique. An assessment of the patient’s ability to heal properly should also be made. A 2011 systematic review of bone-mineral density and primary implant stability suggested that there is a positive association between implant stability and bone-mineral density at the receptor. Methodological quality of the studies and bias make the results difficult to broadly apply, and more evidence is needed before any management changes will be made as a result of the data. This result does highlight the need for proper treatment planning and modification in elderly patients with osteoporosis.

In summary, the elderly, as a population, have a subset of illnesses that may predispose to higher implant failure rates. Still, evidence, to date, shows that success rates in this population are as good as those in a younger cohort. This may imply that proper patient selection is at work and that practitioners are rightly proceeding with care and awareness of systemic conditions that elderly patients may be managing. The placement of implants in elderly patient is of special importance, given the need for continued good nutrition, psychological wellbeing, and functional status as the population is aging into their late 70s, 80s, 90s, and beyond.

References

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**Food Pyramid Replaced By Plate**

**By Arun Garg, DMD, and Ghislaine Guez, MD, MBA**

The USDA’s food pyramid, updated and revised numerous times in its 20-year lifespan, has been eliminated. In its place, the U.S. Department of Agriculture has offered a place-setting inspired, plate-shaped design with four simple words: fruits, vegetables, grains, and protein. A “glass” of dairy is off to the right of the plate. The image designates half the plate to fruits and vegetables and the remainder to grains and protein, each relatively evenly divided (see Figure 1). The plate replaces a model of the food pyramid, updated in 2005, which incorporated the figure of a runner on its side to represent exercise as a vital component of making healthy living choices (see Figure 2). The new image is much simpler, and the U.S. Department of Agriculture and nutrition experts hope it will be less confusing to the American public. The shift in imagery has, as its goal, the selection of healthy dietary alternatives in an effort to decrease obesity rates, a challenge championed by First Lady Michelle Obama, who has made it her mission to change U.S. eating habits while her husband is in office. The plate-shaped nutritional guide is accompanied by the 2010 Dietary Guidelines for Americans, released in January of this year. These guidelines are the U.S. government’s official nutrition and dietary guide put forth to tackle the growing obesity crisis. The recommendations offered therein are evidence-based, with new messages designed to slim the country’s collective waistline. The 112-page publication outlines 23 key recommendations for the general public and six additional recommendations for specific population groups (pregnant and breastfeeding women, preschoolers, kids, individuals seeking weight loss); the overall goal of the new set of dietary guidelines is improved public health in a country where obesity rates are reaching unprecedented highs. According to the USDA’s press release announcing the guidelines, one-third of U.S. children and more than two-thirds of U.S. adults are overweight or obese.

Since the government first offered dietary recommendations, in the early 20th century, some messages have changed (specifically which foods should be avoided), while the basic focus (selecting the right kinds of food to eat) has remained the same. The earliest government-issued food messages were first released in 1902, according to one resource, and these emphasized variety, proportionality, and moderation. In 1916, the first official USDA food guide was published, with five broad categories, in a *Farmer’s Bulletin*. In the 1940s, the National Academy of Sciences prompted the USDA to include nutrients in...
their recommendations — the result of which was a wheel with seven groups (one of the groups was butter). In the 1950s, the seven groups were cut down to four in an effort to better educate children — these groups included milk, meat, vegetables and fruits, and cereals and breads. The emphasis was on eating enough of each, not on cutting back as a result of eating too much. By the late 1970s, experts were beginning to caution on the dangers of eating too many sweets and fats, and by 1992, the food pyramid had placed these items at the very top level in a “use sparingly” category. During the 1990s, an effort was made to distinguish “good fats” from “bad fats,” and bread products encompassed a whopping 6-11 servings per day (compared to 2-4 fruit servings and 3-8 vegetable servings), with no differentiation between whole grains and processed white flour-based products. The government’s 2005 MyPyramid was a made-over pyramid with little new information imparted to consumers; in fact, it was widely disregarded by experts for its lack of utility. Rather than simply outlining healthy choices, the 2010 Dietary Guidelines for Americans and the new food plate offer very precise and specific suggestions — low fat and nonfat milk products, whole grains rather than processed and refined grain products, and the avoidance of high-fat, high-sugar, high-sodium foods. Specifically, the publications recommends avoidance of cakes, cookies, ice cream, candies, sweetened drinks, pizza, ribs, sausages, bacon, and hot dogs. Water is advised over soda, energy drinks, and sports drinks. Smaller portions are encouraged. And, finally, calorie counting is strongly suggested. The evolution of the USDA’s food recommendations, epitomized by the simplicity of the food plate, have, in mind, the hope that the next generation of eaters will tip the scales back to those of a bygone era. But will this happen? Dental Implantology Update has published several articles on managing medical comorbidities in dental-implant patients, including obesity and diabetes. In deed, wound healing times, anesthetic agents, even analgesic potency can be affected by body habits and associated metabolic changes. If the saying “you are what you eat” holds true, the general population of the United States is in trouble, and the politicians behind these new food guides know it.

References
Antimicrobial Stewardship

By Arun Garg, DMD, and Ghislaine Guez, MD, MBA

As a part of the “vitality” issue, and as a follow-up to a recent article about the interdisciplinary debate over lifetime antibiotic prophylaxis in individuals with prosthetic joints, the concept of antibiotic stewardship is introduced. Antibiotic stewardship refers to programs in place that delineate responsible and appropriate antimicrobial use in a health care institution. The goal of antibiotic stewardship programs is to reduce antimicrobial resistance in the general population, as well as preserving current antibiotic agents and future ones as well. Patient safety, improved outcomes, and cost reductions are also noteworthy goals in most antimicrobial stewardship programs. While these programs are most often undertaken in larger health care settings, such as hospitals, the reality is that application of certain principles at the micro level will enhance antibiotic effectiveness in the general population, provided all practitioners generally use antimicrobial agents in a similar fashion.

Antimicrobial stewardship programs have infectious disease experts, clinical pharmacists, microbiology laboratories, and hospital administration staff working together to achieve the aforementioned goals. Prescription approval is sought through infectious disease personnel for nonformulary alternatives, and hospital staff may be educated on appropriate antimicrobial selection at that time. Computer-based decision support may recommend changes based on patient-specific factors (such as medical comorbidities that may need consideration with certain drugs). Especially useful are computer programs that alert to overlapping antimicrobial coverage when not indicated, as well as those that cue drug-to-drug interactions that could cause harm to the patient. Antibiotics are cycled in and out of rotation to reduce resistance to the drugs, especially in high-risk patients.

The relevance of antimicrobial stewardship at the hospital level trickles down to the individual provider in the dental-implant practice. Every antibiotic prescribed conveys a risk of allergic reaction, drug-to-drug interaction, antibiotic-associated diarrheal illness, decreased population effectiveness, and increased cost to the health care system. Nonetheless, when indicated, a single dose of preoperative antibiotics, or a course administered for a wound infection, is absolutely essential. Limiting antibiotic use to those supported by evidence-based practice (and espoused by consensus statements from multiple organizations) will help reduce the amount of antibiotic resistance that is being encountered in antimicrobial stewardship programs across the country. And while a single dose of amoxicillin or cephalexin seems relatively harmless, it is important to remember that up to 15% of the U.S. population may be at risk for anaphylaxis, with a rate somewhere between 1%-10% to penicillins.

One study on the topic noted that antibiotics were responsible for roughly 142,000 emergency visits annually, with penicillins and cephalosporins jointly responsible for half of those visits.

The moral of the story is to cut back on superfluous antibiotic use whenever possible. Regularly reviewing institutional guidelines put forth by the American Dental Association, the American Heart Association, and the Infectious Diseases Society of America can help a clinician support his or her clinical judgment with up-to-date evidence. This is especially true when these institutions have consensus statements that take a big-picture approach to the problem of global antimicrobial resistance, superbugs, and rising health care costs.

References

The Downside: Weathering a Difficult Economy

By Arun Garg, DMD

While some businesses with a cosmetic focus have reported a significant downturn since the economic climate shifted in 2008, others are reporting that business has never been better. It’s a mixed bag for those in the implant profession. Certainly, demand for dental implants has continued to rise. General dentistry in a downtrending economy is often put off until absolutely necessary, and, as such, many practices have seen a steep incline in emergency visits as opposed to routine care visits. Regardless of if business is solid or in a slump, revamping the business behind the practice with a few game-changing strategies will make good use of the time and reward the practice down the road.

Tip # 1. Use This Time to Brand Your Practice

Branding your practice can be all encompassing or it can be focused at a specific level, such as a website. If this is your first foray into marketing, start simple. Investigate do-it-yourself marketing materials in local bookstores and consider talking...
to marketing firms that specialize in marketing and public relations for health care providers. Successful marketers create their ideal practice, offer new technologies to their current patients first, budget marketing expenditures that fit into what their practice can afford, and go for something out of the box. In Implant Excellence,
I take a step-by-step approach to teaching dental practitioners how to grow their implant practices with simple, practical strategies designed with the implant business in mind.

Tip #2. Expand Your Skill Set
If patient visits have waned, catching up on a skills curriculum or seminar would be a useful investment and a judicious use of time, especially if that particular training is in a niche that your practice doesn’t currently offer existing and potential patients. Filling the gaps in a practice limits referrals out to other providers and strengthens the brand (see Tip #1). Remember that newer technologies will, otherwise, be offered elsewhere, and savvy patients know about procedures and technologies and are not afraid to ask how much you know. Confidence in one’s treatment plan is also exceptionally important, and, if further training offers an avenue to strong patient interactions, that will add to your practice in the long run.

Tip #3. Work on Communication
One of the first interactions a patient will have with your office is when he or she calls and talks to someone in the reception area. For many patients, the first impression is everything, and if this part of the business is not working, now is the time to find out. Listen in on how the phones are answered, how office staff talk to patients. This is also very much a part of branding and should be emphasized to all members of the team. In an up economy when things are busy and bustling, there just might not be the time to focus on the details that may make-or-break it for a potential patient. Now is the time to work on it.

Tip #4. Plan For Future Investment
Financial planning for future projects, courses, seminars, recertification, hiring, purchasing, branding, marketing, advertising, and the like can, and should, be considered very carefully in the space of managing a practice. While some practitioners are cutting back during the downturn, others are investing in technology and advertising when they are able, revamping office spaces, and implementing new computer systems and software that all serve to enhance the patient’s experience. Whether the actual investment is done now or in the future is not the point, what matters is planning and forecasting for that investment and looking at what those changes could mean in terms of future revenues and realistic expenditures. This should fit in with branding a practice. In fact, as you build the practice that you most want to be able to provide to your patients, you should target and focus on those changes that will most streamline your practice strategy and strengthen your brand. Investment decisions should be carefully thought out and should be part of a bigger plan to create your ideal practice.

Tip #5. Be Honest
If things are lagging, office staff will know about it. Being honest about efforts to recruit business, changing performance goals, and downsizing on staffing is exceptionally important. Efficiency and cost-effectiveness in an office is necessary to keep the everyday business going, but letting staff members in on what is happening behind the scenes will keep morale higher and boost productivity. Good management of a dental office happens in those moments when the office manager or private practice dentist sits down with his or her staff and tells them what is going on at the level of the business and what that means for their jobs, their pay checks, and, ultimately, their lives outside of work. And while these conversations are difficult, they are valued.