

**Delta Dental of Virginia Clinical Policy #400**
**Subject**

Bone Grafts

**Originating Department**

Clinical Professional Services

**Signature Authority**

Dental Director

**Type:**       New                       Replacement                       Revision                       Clarification

**Date:**              11/09/2009                      **Revision Date:**              11/15/2011

**Preamble:**

The Clinical Policy Bulletin is an expression of Delta Dental of Virginia's (DDVA) determination regarding whether certain services or supplies are medically or dentally necessary. DDVA bases its conclusions on a review of currently available clinical literature. This includes, but is not limited to, clinical outcome studies published in the peer-reviewed medical and dental literature, regulatory status of the technology, evidence-based guidelines of public health and health research agencies, evidence-based guidelines and positions of leading national health professional organizations, views of physicians and dentists practicing in relevant clinical areas, and other relevant factors. DDVA reserves the right to revise these policies as new clinical information is available and we welcome submission of further relevant information.

A group may define covered dental services under their dental plan, as well as those services that may be subject to dollar caps or other limits. The plan documents outline covered benefits, exclusions and limitations. DDVA advises dentists and enrollees to consult the plan documents to determine if there are exclusions or other benefit limitations applicable to the service request. The conclusion that a particular service is medically or dentally necessary does not constitute an indication or warranty that the service requested is a covered benefit payable by DDVA. Some plans exclude coverage for services that DDVA considers either medically or dentally necessary. When there is a discrepancy between DDVA's clinical policy and the group's plan documents, DDVA is to defer to the group's plan documents as to whether the dental service is a covered benefit. In addition, if state or federal regulations mandate coverage then DDVA will adhere to the applicable regulatory requirement.

**History:**

Bone grafts may be necessary for a variety of reasons that include, but are not limited to, pathologic tooth related bone loss and loss of the alveolar (tooth bearing) ridges.

When addressing deficiencies of bone related to teeth, a bone replacement graft is utilized as an attempt to replace or stimulate the re-growth of alveolar bone (supporting bone around the teeth) that is lost due to a pathologic disease process resulting in a periodontal (gum) defect. Grafts may be osseous (bone) autografts, osseous allografts, osseous xenografts, or alloplasts(1). Autografts use the patient's own bone, as opposed to allografts which are derived from a same-species host. Xenografts are osseous materials processed from a different species, the most common being bovine-derived (cow) particulates. Alloplasts are synthetically prepared graft materials and historically represent the first preparations used in an attempt to restore lost alveolar bone. The earliest attempts using alloplastic grafts were reported well over 100 years ago(2). Calcium phosphate, calcium sulfate, and hydroxyapatite to name a few, have been investigated for use as bone grafts(1,3).

The biological rationale for the use of bone grafts is that the various graft materials contain either bone forming cells or bone-inducing substances, or serve as a scaffolding structure for new bone formation(1). Consequently, the desired property of a graft

	<p>material is either an osteogenic (producing bone), osseoinductive (inducing new bone formation), or osseoconductive (creates environment conducive to new bone formation) potential.</p> <p>Bone replacement grafts have been shown to increase bone levels, reduce crestal bone loss, increase clinical attachment levels and reduce periodontal pocket probing depths(3). Some Class II molar tooth furcation defects respond to bone grafting, as well(3). Studies show the repair process to be one of either formation of a new attachment apparatus or a long junctional epithelial attachment(4,5), although healing with alloplastic grafts almost universally shows periodontal repair rather than regeneration of a new connective (soft) tissue attachment.</p> <p>Research literature clearly indicates bone replacement grafts result in relatively improved clinical parameters when compared to unenhanced surgical flap procedures(1,3,4,5,6,7,8).</p> <p>There are several additional bone grafting procedures available for other uses.</p> <p>Bone grafts may also be utilized for ridge augmentation or reconstruction procedures that increase height, width and/or volume of a residual alveolar ridge. This procedure includes obtaining an autograft and/or allograft material that is the same as is performed for defects of the teeth. Repair of this type addresses a reconstructive effort of the edentulous (toothless) maxilla or mandible when preparing the ridge for prosthetic purposes.</p> <p>Augmentation of the sinus cavity may also be necessary to increase alveolar height either for the reconstruction (rebuilding) of edentulous (toothless) portions of the maxilla or to close an oro-antral opening (sinus opening into the oral cavity).</p> <p>An osseous autograft, allograft or non-osseous graft can also be placed into an extraction site at the time of an extraction. It is placed to preserve the ridge integrity. This type of bone graft is usually clinically indicated when preparing an area for implant reconstruction or where the alveolar contour may be critical to a planned prosthetic reconstruction.</p> <p>Reconstruction of surgical, traumatic or congenital defects of the facial bones, including the mandible (lower jaw), may use an autograft, allograft or alloplastic material in conjunction with soft tissue procedures to repair, replace and restore the facial bones to form and function. Refer to DDVA's Clinical Policy on Soft Tissue Grafts for information related to soft tissue grafting. These procedures additionally may require multiple surgical approaches.</p>
<p><b>Policy:</b></p>	<p>DDVA Guidelines:</p> <ol style="list-style-type: none"> <li>1. A patient's medical history and current physical and dental status should be reviewed. Patients with medical complications, poor oral hygiene, or habits that compromise the healing process, such as smoking, are not candidates for bone graft procedures.</li> <li>2. Bone graft replacement should generally be confined to vertical, multi-walled or narrow defects, as areas of horizontal bone loss, class III furcation involvements and broad interproximal defects do not respond well to bone graft procedures.</li> <li>3. Bone graft procedures are limited to treatment of periodontal disease defects around natural teeth only and will not be considered for endodontics, periradicular surgery, implants, ridge augmentation, placement in extraction sites, etc.</li> </ol>

	<ol style="list-style-type: none"> <li>4. Periodontal pocket depth measurements must be equal to or greater than 5mm.</li> <li>5. Documentation for the necessity of bone grafting must include appropriate X-rays and a current periodontal charting. The periodontal charting must indicate minimal pocket depths of 5mm.</li> <li>6. Bone grafts will not be considered in conjunction with soft tissue grafting procedures.</li> <li>7. The use of biologic materials for soft or osseous tissue regeneration will not be considered in conjunction with bone grafts.</li> <li>8. Bone graft procedures include all postoperative care and evaluations for three months and any surgical re-entry procedures for three years.</li> </ol>
<b>Codes(9):</b>	<p>D4263 – Bone replacement graft - first site in quadrant  D4264 – Bone replacement graft - each additional site in quadrant  D7950 – Osseous, osteoperiosteal, or cartilage graft of the mandible or maxilla – autogenous or non-autogenous, by report  D7951 – Sinus augmentation with bone or bone substitutes  D7953 – Bone replacement graft for ridge preservation – per site  D7955 – Repair of maxillofacial soft and/or hard tissue defect</p>
<b>References:</b>	<ol style="list-style-type: none"> <li>1. McAllister BS and Haghghat K. Bone augmentation techniques. AAP-commissioned review. J Perio 2007;78:377-396.</li> <li>2. Hamilton D. On sponge grafting. Journal of Anatomical Physiology 1881;27:385-414.</li> <li>3. Reynolds MA, Aichelman-Reidy ME, et al. The efficiency of bone replacement grafts in the treatment of periodontal osseous defects. A systematic review. Annals Perio 2003; 8:227-265.</li> <li>4. Bowers GM, Chadroff B, et al. Histologic evaluation of new attachment apparatus formation in humans. Part I. J Perio 1989;60:664-674.</li> <li>5. Bowers GM, Chadroff B, et al. Histologic evaluation of new attachment apparatus formation in humans. Part III. J Perio 1989;60:683-693.</li> <li>6. Garrett S. Periodontal regeneration around natural teeth. Annals Perio 1996;1:621-666.</li> <li>7. Brunsvold MA and Mellonig JT. Bone grafts and periodontal regeneration. Periodontol 2000;1:80-91.</li> <li>8. Laurell L, Gottlow J, et al. Treatment of intrabony defects by different surgical procedures. A literature review. J Perio 1998;69:303-313.</li> <li>9. American Dental Association. <i>Current Dental Terminology</i>. CDT 2011-2012;27. (©ADA 2010).</li> </ol>