



American National Standard/  
American Dental Association  
**Standard No. 54**

# Double-Pointed, Parenteral, Single Use Needles for Dentistry

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**ADA** American  
Dental  
Association®  
Council on  
Scientific Affairs

**AMERICAN NATIONAL STANDARD/AMERICAN DENTAL ASSOCIATION  
SPECIFICATION NO. 54 FOR DOUBLE-POINTED, PARENTERAL, SINGLE  
USE NEEDLES FOR DENTISTRY**

The Council on Scientific Affairs of the American Dental Association has reaffirmed American National Standard/American Dental Association Specification No. 54 for double-pointed, parenteral, single use needles for dentistry. This and other specifications for dental materials, instruments, and equipment are being formulated by working groups of the ADA Standards Committee on Dental Products (formerly Accredited Standards Committee MD156 for Dental Materials, Instruments, and Equipment). The committee has representation from all interests in the United States in the standardization of, materials, instruments, and equipment in dentistry. The Council adopted the specifications, showing professional recognition of the needles' usefulness in dentistry, and has forwarded the specification to the American National Standards Institute with a recommendation that the specification be approved as an American National Standard. Approval of ADA specification no. 54 as an American National Standard was granted by the American National Standards Institute on June 27, 1986 and subsequently reaffirmed on January 13, 2009.

The council thanks the working group members and the organizations with which they were affiliated at the time the specification was developed: Gerald Charbeneau (chairman), University of Michigan, Ann Arbor, MI; Atul Suchak (secretary), American Dental Association, Chicago; Gerald Allen, University of California, Los Angeles; Leander Gallegos, Georgetown University, Washington, DC; James F. Prince, MPL, Inc., Chicago; W. David Jackson, Monoject, division of Serwood Medical, Deland, FL; Jess Hayden, Jr., Denver; Stephen Warren, Georgetown University, Washington, DC; Oscar Malmin, Akron, OH; Emanuel Margulis, Graham Chemical/Minimax Corp, Jamaica, NY; and Joseph Oakley, Astra Pharmaceutical Products, Westborough, MA.

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Rationale

(This rationale does not form a part of ANSI/ADA Specification No. 54 for Double-Pointed, Parenteral, Single Use Needles for Dentistry).

This standard covers sterile, single use, individually packaged, double-pointed needles with a means of secure attachment to cartridge-type syringes used for dental, regional, anesthetic injections.

Local anesthetic preparations are routinely administered to minimize patient discomfort during various kinds of dental treatment procedures. To assure the safest and most effective dental injections, a dental needle must be extremely sharp-pointed to painlessly enter the oral tissues, strong enough to reasonably prevent breakage, rigid enough to avoid deflection away from the desired site of deposition of the local anesthetic preparation, sterile to avoid cross-contamination and infection of the needle tract through the tissues and with an internal diameter (lumen or bore) of sufficient diameter to permit clinically effective aspiration to prevent adverse inadvertent intravascular injections.

A local anesthetic cartridge is inserted in the barrel of the syringe. The double-pointed parenteral dental needle attaches to the barrel of a dental aspirating syringe. The diaphragm closure of the cartridge is engaged by the piston-rod of the syringe. The injection point of the needle penetrates the tissues to the desired site of deposition of the local anesthetic preparation. Negative pressure is created to result in aspiration either by retraction of the plunger or by the self-aspirating design of the syringe. Depressing the plunger causes ejection of the local anesthetic preparation at the desired site. Thus, the double-pointed dental needle serves as a conduit for both aspiration and injection.

Clinical selection of the proper gauge (outside diameter; inside diameter) and length of needle to be used is determined by the depth of penetration into tissues required to reach the desired site of deposition of the local anesthetic preparation. Deep penetration (regional block injections) require large 23 or 25 gauge, long or extra long needles for greatest safety and effectiveness. Shallower supraperiosteal (infiltration) injections can be safely and effectively administered with 23, 25 and 27 gauge, short length dental needles. The fine 30 gauge, extra short needle is most safely and effectively employed for intraligamentary, intraosseous and palatal injections.

This proposed standard meets the requirements in gauge (outside diameter), four variations in internal diameter (lumen or bore) and four variations in clinically usable injection lengths, thereby meeting the clinical requirements for the greatest safety and effectiveness.

The present availability of individually packaged, sterile, double-pointed sharp, single use parenteral

dental needles has virtually eliminated the previous incidence of cross-contamination and needle tract infections, assured needles of consistent sharpness and strength, minimize the trauma of injection pain for patients and proved efficient and convenient for use by the dentist. Although this proposed standard will presently serve as an established benchmark for quality, safety and effectiveness of dental needles, it will be subject to revision and dictated by newer scientific knowledge and technological advancements. A reference appendix, which contains the background data upon which each provision of this proposed standard is based, is provided to aid in any further revision.

**Addendum to the Foreword for this Reaffirmation:**

In 2012, the ADA Standards Committee on Dental Products approved a change in the terminology used for standards. ADA standards will no longer utilize the term Specification; standards will now be named as ADA Standards.

With this notice, this ADA Specification is now termed an ADA Standard. Where the term "specification" is used, it should be considered as "standard." It will be re-named as an ADA Standard in its next revision.