WandDental Inc.

Computer-Controlled Local Anesthesia

the Wand®
STA Single Tooth Anesthesia®
SYSTEM

Performs all injection types in a more effective and comfortable way for both the patient and the provider.

WandDental Inc.

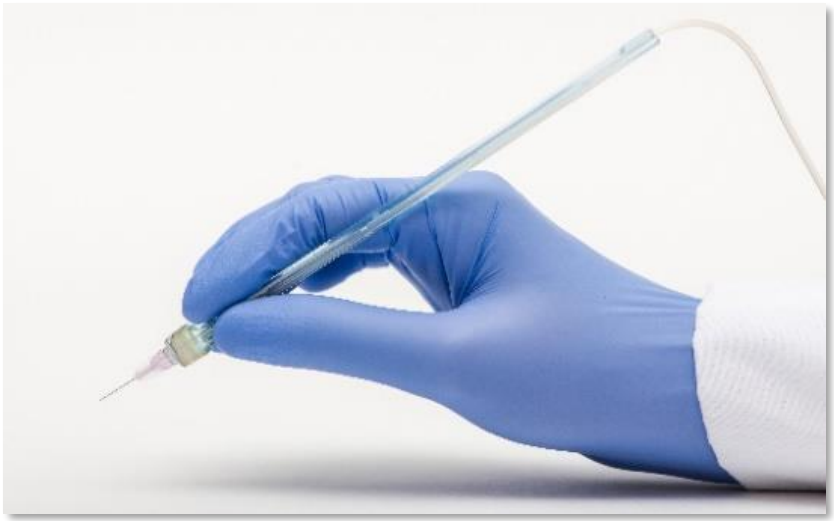
THE COMPANY

Headquartered in the USA in Livingston, New Jersey, Wand Dental is actively engaged in pioneering proprietary, highly innovative computer-controlled drug delivery systems for subcutaneous injections with commercial applications in a broad spectrum of medical and dental disciplines. We currently sell our award-winning products through a global distribution network serving North America, Asia, Africa and Europe.

We are also intent on expanding the use and application of our intellectual property to achieve greater operational efficiencies, improved patient safety and therapeutic adherence, and enhanced quality of care. To that end, Wand Dental welcomes opportunities to team with other leading healthcare technology, biotech and pharmaceutical companies.

Through these strategic collaborations, we hope to fully leverage our robust patent portfolio to bring to bear a powerful complement of advanced drug delivery injection systems that effectively address a multitude of prevailing healthcare challenges.

Inovation after 150 years

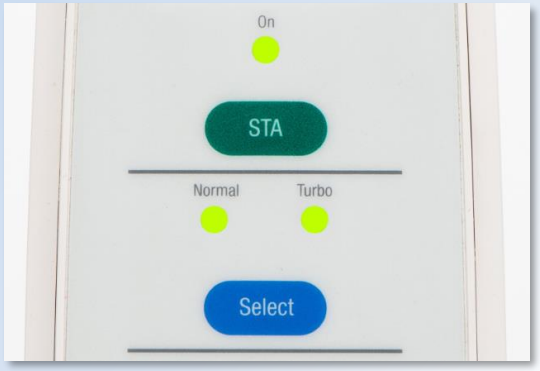


THE WAND® OVERVIEW

- CORE TECHNOLOGIES OVERVIEW

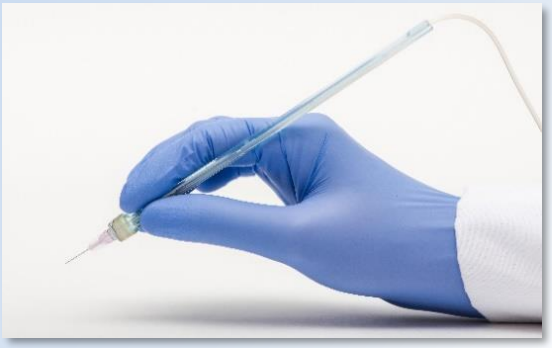
THE WAND® CORE TECHNOLOGIES

COMPUTER CONTROLLED FLOW RATES®

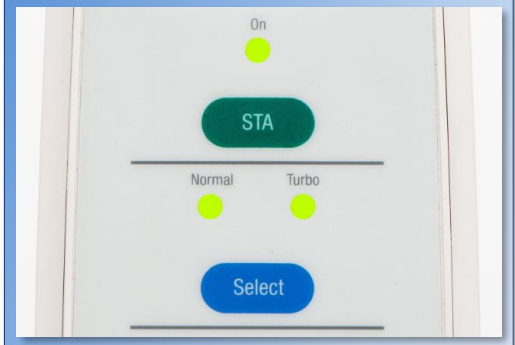


DYNAMIC PRESSURE SENSING (DPS®)

HANDPIECE



CORE TECHNOLOGIES: COMPUTER-CONTROLLED FLOW RATES



COMPUTER CONTROLLED FLOW RATES

1. Automatically **controls and regulates** flow rate and pressure during the injection
   - Delivers **anesthetic** solution at a precise and consistent rate below patient's pain threshold
   - Consistent slow paced flow maximize absortion

2. **3 speeds** - tailored flow rate for each injection technique
   - **ControlFlo**: 1 drop every 2 seconds (virtually painless)
   - **RapidFlo**: regular injection flow (ca. 1 min for a full cartridge)
   - **TurboFlo**: fast injection flow (ca. 30 sec for a full cartridge)

3. **Patented** technology

CORE TECHNOLOGIES: DYNAMIC PRESSURE SENSING (DPS®)

DYNAMIC PRESSURE SENSING (DPS®)

1. Enables successful and highly predictable , virtually painless **single tooth anesthesia (**intraligamentary **injection)** with no collateral numbness
2. DPS® **continuously** monitors **the exit pressure** of the anesthetic to ensure optimal needle position during all phases of administration
3. Real time visual & audible **feedbacks** guide doctor in accurate **identification** of the correct location for intraligamentary injection
   - allows to know, by **ascending tones and lights**, that needle has entered the correct site (Periodontal Ligament space)
   - Informs if the needle is no longer in the correct site or becomes blocked for any reason.
   - informs if too much pressure is being used and **stops** the injection before the cartridge cracks and leaks
4. **Patented** technology

CORE TECHNOLOGIES: THE WAND® HANDPIECE

THE WAND® HANDPIECE

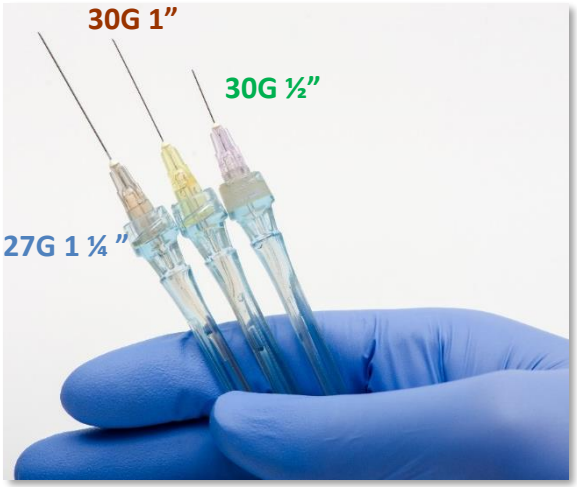
1. Unparalleled **tactile control** and increase **comfort**
   - Unique pen-like grasp
   - **Feather-like weight**
2. Increases **precision** and **visibility** for the provider
3. Reduces **anxiety** in patients
4. Enables **bi-rotational** insertion technique, eliminating needle **deflection during the mandibular block injection.**
5. Can be modified to further improve **access & control**
   - Can be shortened in 3 different spots
   - Bendable needle up to 30°
6. **Patented** technology and design

THE HANDPIECES

HANDPIECE

3 HANDPIECE SIZES

1. **Blue** : 27G 1 ¼ ” (318 mm) – block
2. **Brown**: 30G 1” (254 mm) - infiltrations
3. **Green**: 30G ½ ” (127 mm) – PDL, Palatals, Crestal, Infiltrations



NB: Also available an unbonded handpiece without needle – purple box

Doctor has to buy his own needle to be added to the unbonded handpiece

THE WAND® SYSTEM

THE WAND® SYSTEM COMPONENTS

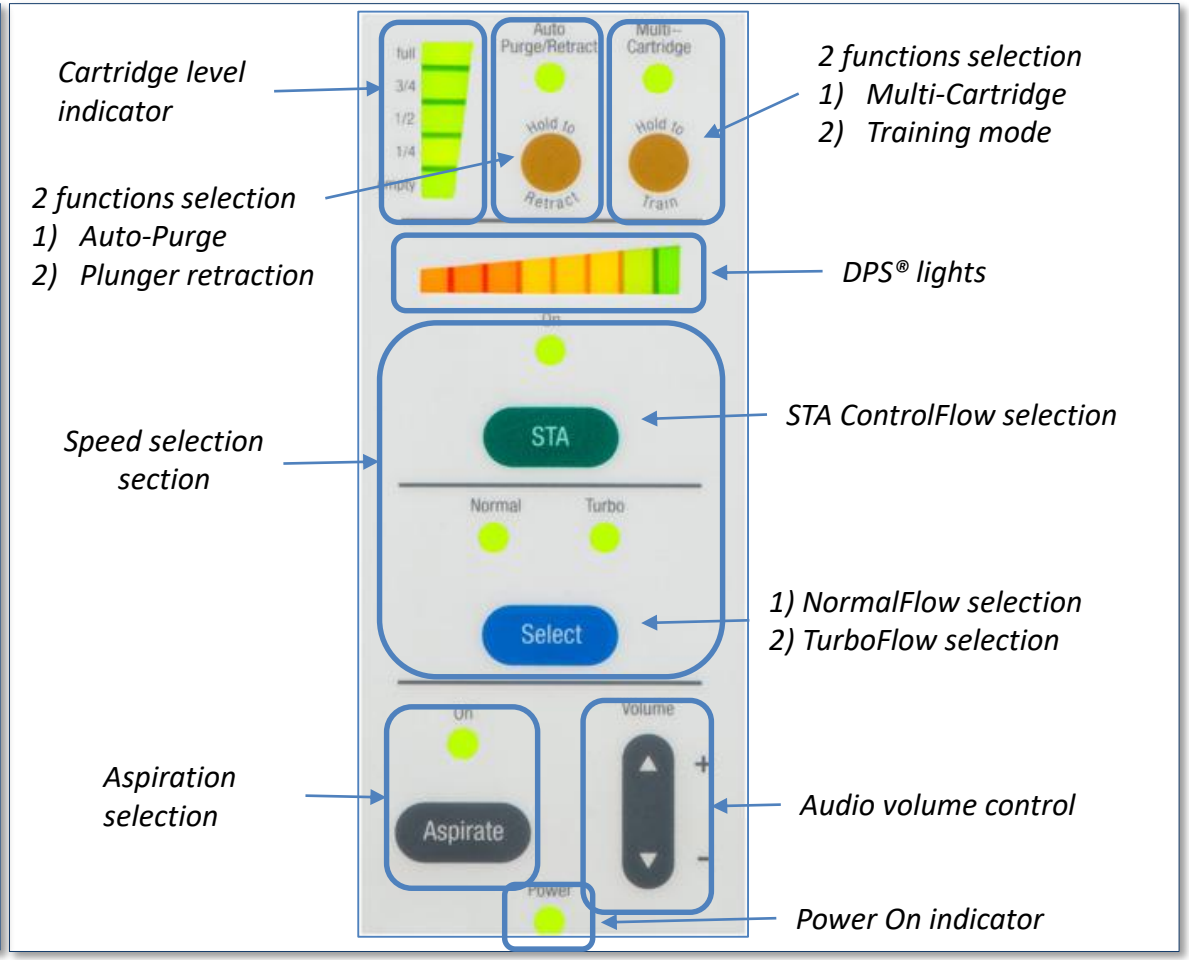
CENTRAL UNIT

HANDPIECE

FOOT-CONTROL PEDAL

FRONT PANEL COMMANDS AND INDICATORS

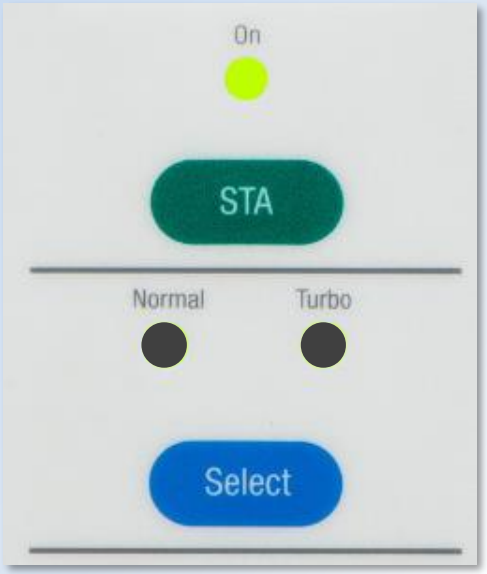
CENTRAL UNIT



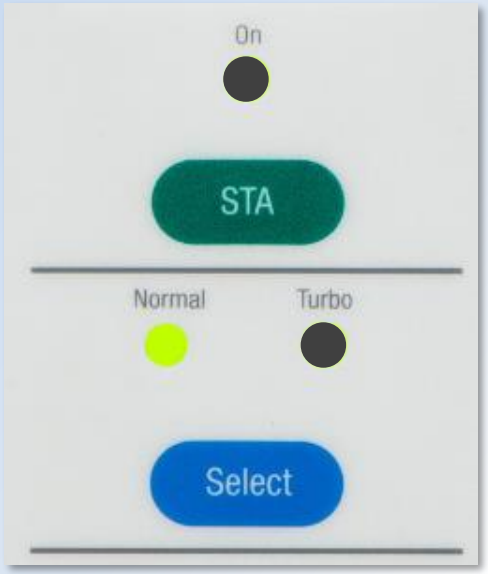
INJECTION MODES OVERVIEW

THREE INJECTION MODES

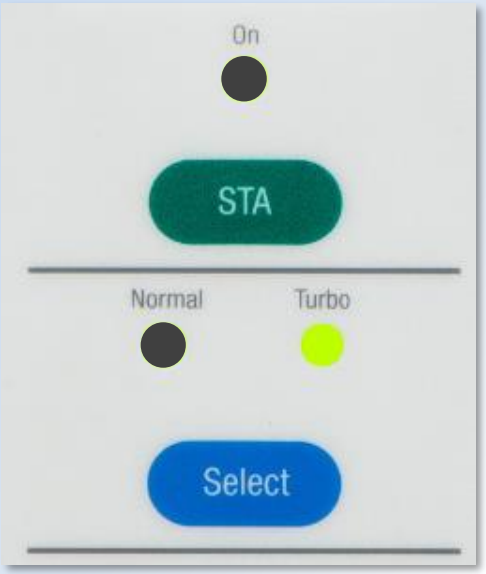
STA Mode



Normal Mode



Turbo Mode



ANESTHESIA VARIABLES/FACTORS

SUCCESSFUL ANESTHESIA

ANESTHETIC

DELIVERY SYSTEM

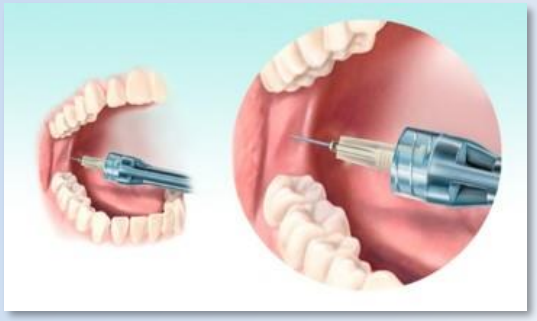
INJECTION TECHNIQUE

ANESTHETIC SUMMARY TABLE

	Drug	Concentration	Vasoconstrictor	Duration (minutes)	Onset (minutes)	Notes
1	***Lidocaine***	2%	Plain	5-10	2-3	• First amid anesthetic synthesized • "Gold standard" used for anesthetic comparison • Max dosage: 4,4 mg/kg
			1:100.000	ca. 60		
			1:80.000			
			1:50.000			
2	***Mepivacaine***	3%	Plain	20-40	1,5-2	• Less vasodilatation than Lidocaine • Max dosage: 4,4 mg/kg
		2%	1:100.000	ca. 60		
		2%	1:80.000	ca. 60		
3	***Articaine***	4%	1:400.000	ca. 45	1-3	• Plasmatic (blood) metabolism • Less systemic and local toxicity than Lidocaine • Max dosage: 5 mg/kg
			1:200.000	ca. 45		
			1:100.000	ca. 75		
4	***Prilocaine***	4%	Plain	5-10	3-4	• Max dosage: 6 mg/kg
			1:200.000	60-90		
5	***Bupivacaine***	0,5%	1:200.000	90-180	6-10	• Max dosage: 1,3 mg/kg

INJECTION TECHNIQUES

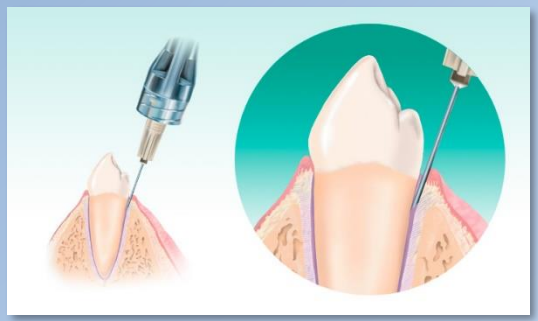
TRADITIONAL



Block

Infiltration

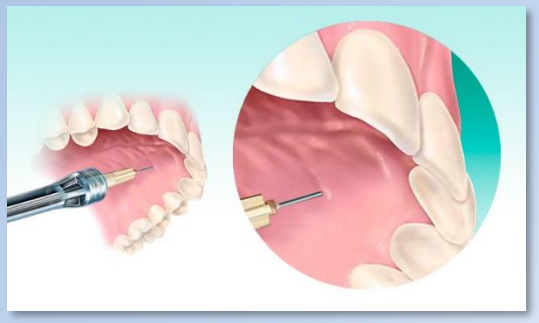
INNOVATIVE TECHNIQUES



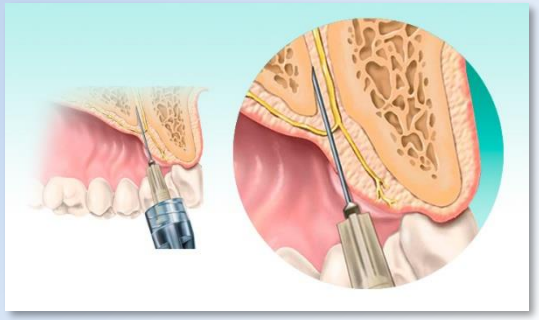
Intraligamentary
(STA – Single Tooth Anesthesia)

Crestal anesthesia

PALATAL INJECTIONS

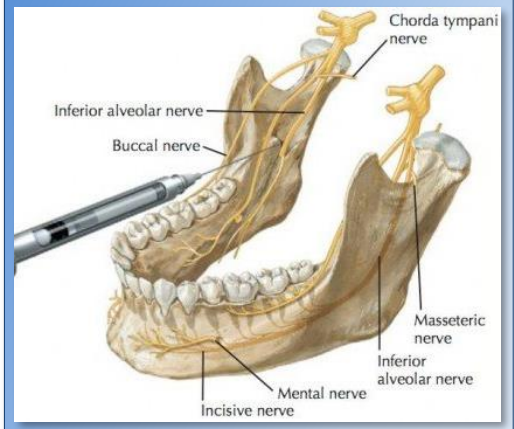


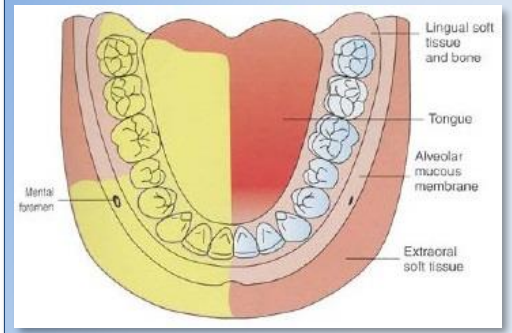
AMSA



P-ASA

INFERIOR AVEOLAR NERVE BLOCK (BLOCK)

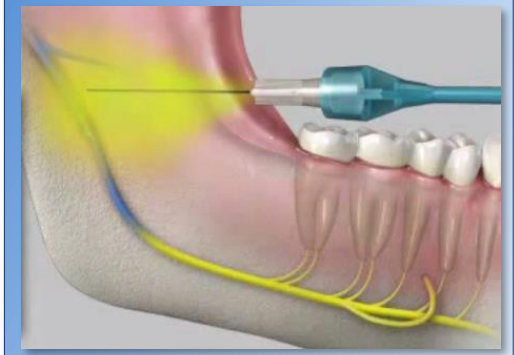




TECHNIQUE	Anesthetization of the mandibular nerve trunk/root at the base of the skull beside the mandibular articulation
INDICATION	Mainly used for lower arch anesthesia • Mandibular teeth to the midline • The anterior two thirds of the tongue • The floor of the oral cavity
SPECIFICS	• ONSET: 5 to 15 minutes • DURATION: 90 minutes
MAIN ISSUES	• High failure rate: ca. 20% • Collateral numbness to other soft tissues • Post-op discomfort and complications (Trismus, Paresthesia, Tachycardia) • Bilateral injections not **desired or reccommended**

WAND ADVANTAGES FOR BLOCK TECHNIQUE

Block anesthetized areas



Block with the Wand

1. **Higher success rate** and fewer missed blocks
   - Bi-rotation technique eliminates needle deflection
   - Target site found more easily
   - **Less double injections** due to unsuccessful anesthesia
2. Automatic **aspiration**
3. **Faster onset** due to increased injection precision
4. Ability to perform **multi-cartridge** anesthesia with a single puncture
5. **More comfortable** injection for the patient with anesthetic pathway technique
6. **Fewer blocks** performed replaced by newer techniques (STA)

SUPRAPERIOSTEAL INFILTRATION

TECHNIQUE	Injection of anesthetic underneath the oral mucosa , close to the tooth on which to work
INDICATION	Used for both upper and lower arch • Maxillary teeth (porous bone enables anesthesia) • Pulpal and buccal/labial anesthesia • No lingual or palatal anesthesia
SPECIFICS	• ONSET: 5/10 minutes • DURATION: 60 to 90 minutes
MAIN ISSUES	• Injection pain (often used topical anesthetic) • Collateral numbness to other soft tissues • Post-op discomfort and complications

WAND ADVANTAGES FOR SUPRAPERIOSTEAL INFILTRATIONS

Infiltration sites and anesthetized areas

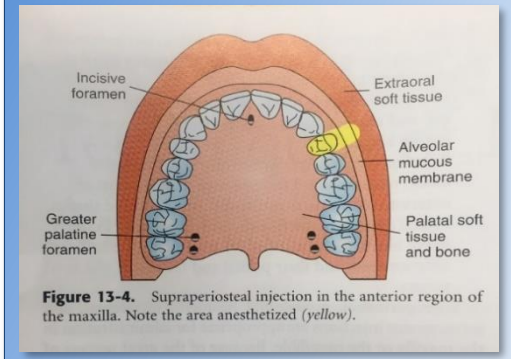


Figure 13-4. Supraperiosteal injection in the anterior region of the maxilla. Note the area anesthetized *(yellow)*.

Infiltration with the Wand

1. Increased precision
   - Superior access and visual
   - Better handless of the needle

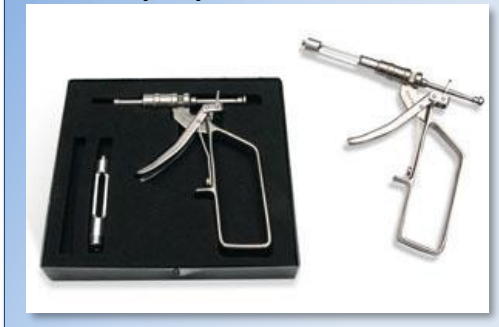
2. **Better experience** for patients and **improved compliance**
   - Smaller needle used
   - Controlled low pressure injection
   - Can be used in combination with Crestal or PDL to further improve patient comfort

3. Eliminates anesthesia **'burst effect'** entering the tissues too quickly
   - Anesthetic pathway in front of the needle

4. Fewer infiltrations performed, often replaced by more efficient palatals (AMSA and P-ASA)

INTRALIGAMENTARY PDL ANESTHESIA

Dental peripress



TECHNIQUE	• Injection of anesthetic directly within the periodontal ligament (PDL) accessing through the gingival sulcus • Usually performed with a high pressure syringe (Ligmaject, Citoject or Peripress)
INDICATION	• Single tooth anesthesia for both lower and upper arch
SPECIFICS	• ONSET: immediate • DURATION: **about 45 minutes, depending on the anesthesia used**
MAIN RELATED ISSUES	• Intense pain when performed with high pressure delivery system • Low predictability due to difficult PDL identification • Post-op pain • Ligamentum damages/necrosis

WAND ADVANTAGES FOR INTRALIGAMENTARY STA

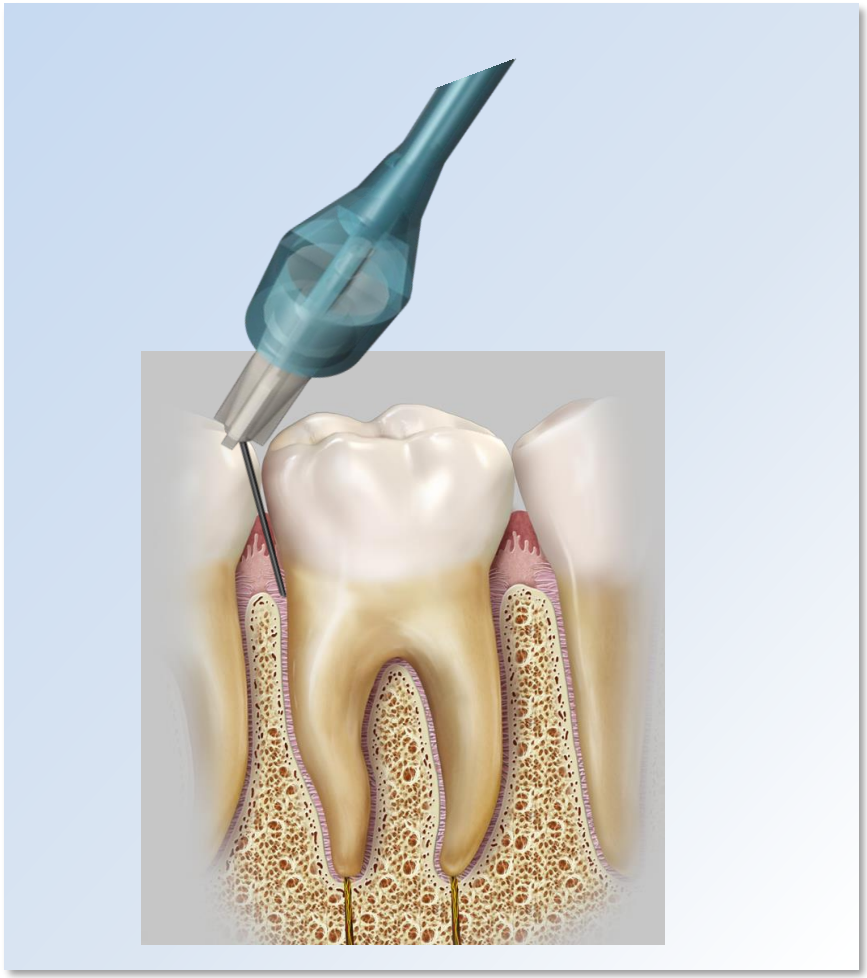
STA injection

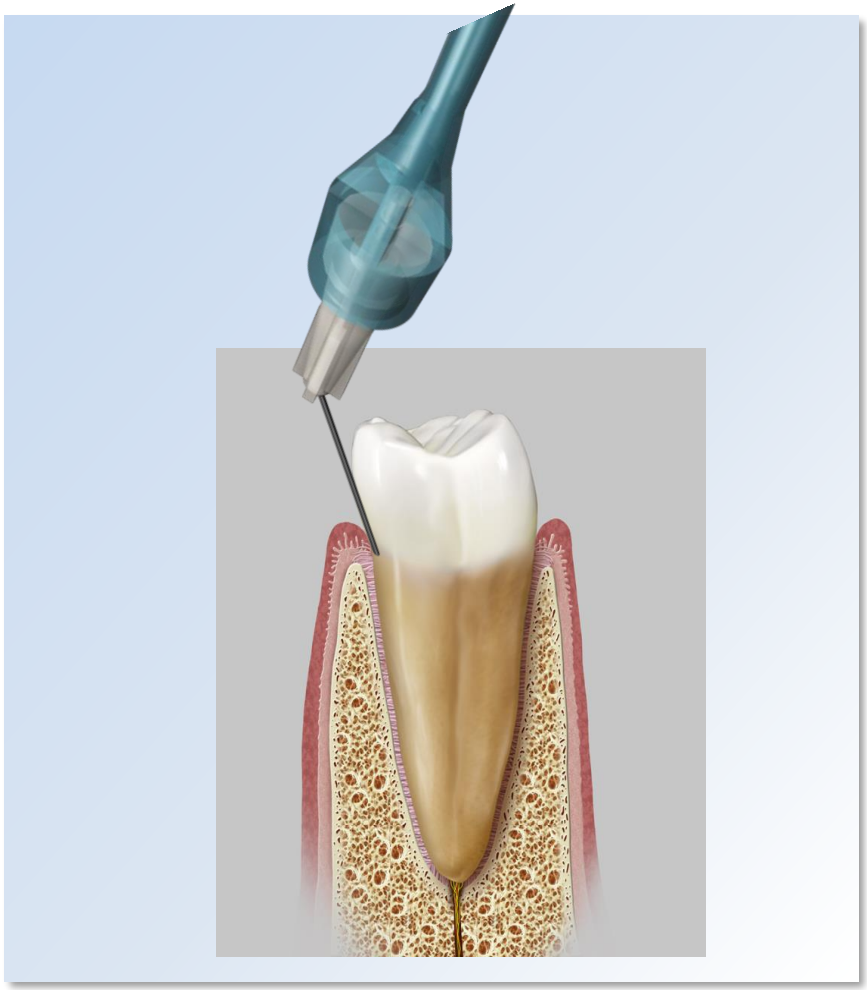
1. **Virtually painless** anesthesia and improved **patient comfort** and **compliance**
2. Increased **predictability** and success with *DPS* technology
3. Fully anesthetize **single tooth** with **no collateral** anesthesia of cheek, lip and tongue
4. Greater volume of anesthetic under less pressure than a traditional PDL injection into the surrounding bone.
5. Enables **bi-lateral mandibular** dentistry in the same visit
6. **Immediate** onset
7. Can **replace block** in most cases
8. Reduction of risk of **complications**
   - No risk of **intravascular** or trismus
   - No risk of **tachycardia**

INTRALIGAMENTARY COMPARISON: TRADITIONAL PDL VS. STA

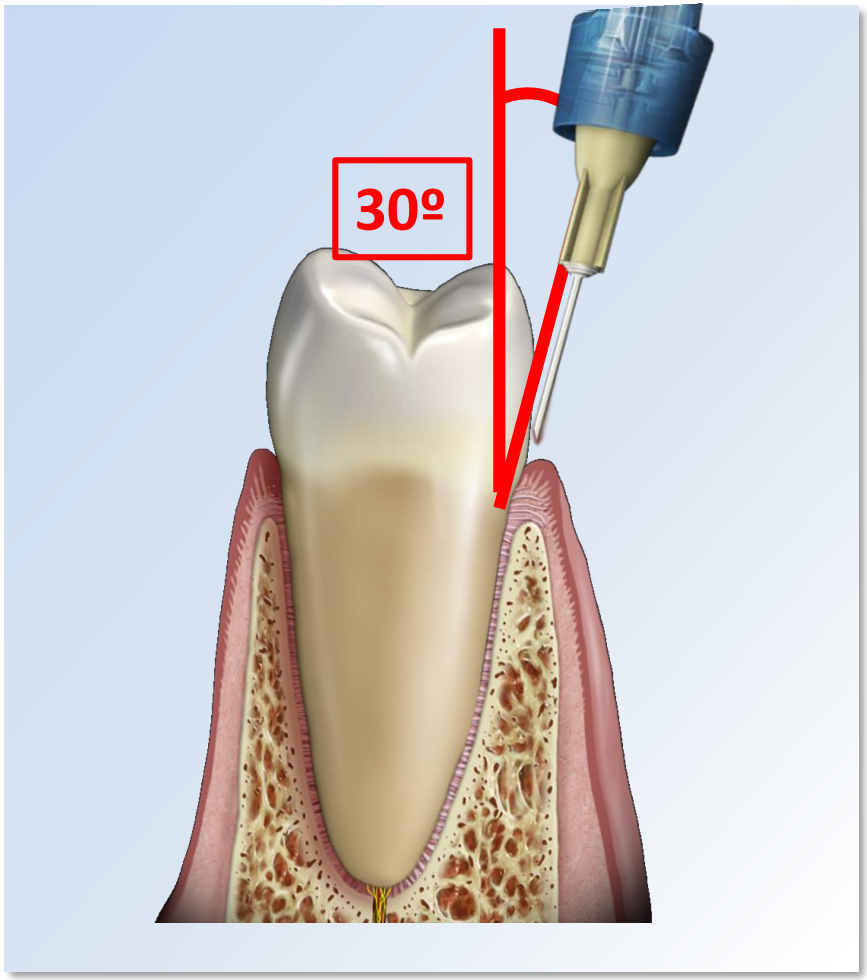
	TRADITIONAL PDL	STA
PRIORITY	"Last resort" after IA Block fails	Primary injection alternative to IA Block
DELIVERY SYSTEM	Syringe, Ligmaject, or Peri-press	Wand STA™ System
INJECTION EASE	**Difficult** and stressful for dentist	**Easy** and reduces stress on dentist
ANESTHETIC VOLUME	**Small** (approximately 0,2 – 0,4 ml)	**Large** (0,45 – 1,4 ml depending on drug used)
DELIVERY PRESSURE	**High** pressure	**Low** pressure
FLOW RATE	**Inconsistent**: depends on manual pressure often above pain threshold	**Computer-controlled**, **consistent**, and below the patient's pain threshold
TISSUE DAMAGE & BONE RESORPTION	**Often**	**Zero**
INJECTION SITE LOCATION	Operator **uncertain** of location of correct injection site	**Visual & audible feedback** to locate & maintain correct injection site
DELIVERY TIME	Few seconds	**2 – 3** minutes
ONSET	Immediate	**Immediate**
DURATION	**Short** duration (20-30 minutes)	**Long** duration (40-60 minutes)
POST-OPERATIVE DISCOMFORT	**Often**	**Much less or zero**

INTRALIGAMENTARY STA INJECTIONS EXAMPLE

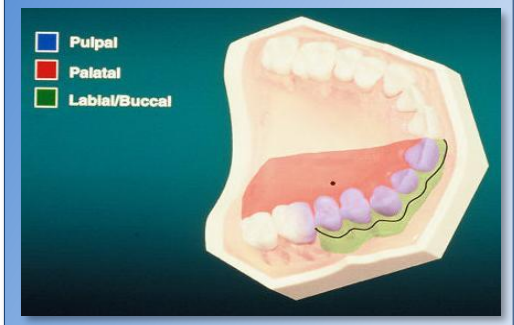




INTRALIGAMENTARY SITES AND ANGLE OF INJECTION

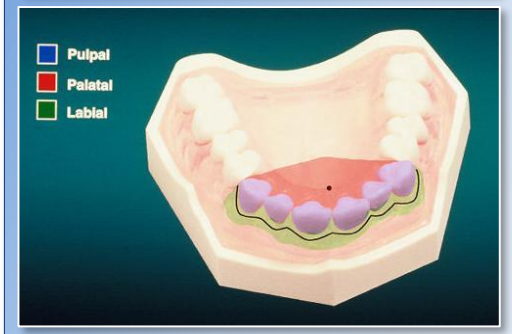


ANTERIOR MIDDLE SUPERIOR ALVEOLAR (AMSA) ANESTHESIA



TECHNIQUE	Injection of anesthetic close to palatal anterior middle superior alveolar nerve
INDICATION	• From central incisor to mesial buccal root of the 1st molar (ASA and MSA nerves) • The associate hard/soft palatal tissues of the palate
SPECIFICS	• ONSET: 2/5 minutes • DURATION: 60 to 90 minutes
MAIN RELATED ISSUES	• Intense injection pain (need to be used topical anesthetic) **WITH THE SYRINGE** • Difficult access

PALATAL ANTERIOR SUPERIOR ALVEOLAR (P-ASA) ANESTHESIA



TECHNIQUE	Injection of anesthetic into the nasal-palatine canal, next to the incisive papilla NB: first described by Drs. Friedman and Hochman
INDICATION	Profound anesthesia to • Multiple teeth (up to 6 anteriors canine/canine) • The associate hard/soft palatal tissues of the palate Can be used for scaling and root planning, placing a rubber dam clamp, placing retraction cord for impressions, and placing buccal gingival restorations
SPECIFICS	• ONSET: 2/5 minutes • DURATION: 60 to 90 minutes
MAIN ISSUES	• Intense injection pain (need to be used topical anesthetic) • Difficult access

WAND ADVANTAGES FOR P-ASA TECNIQUE

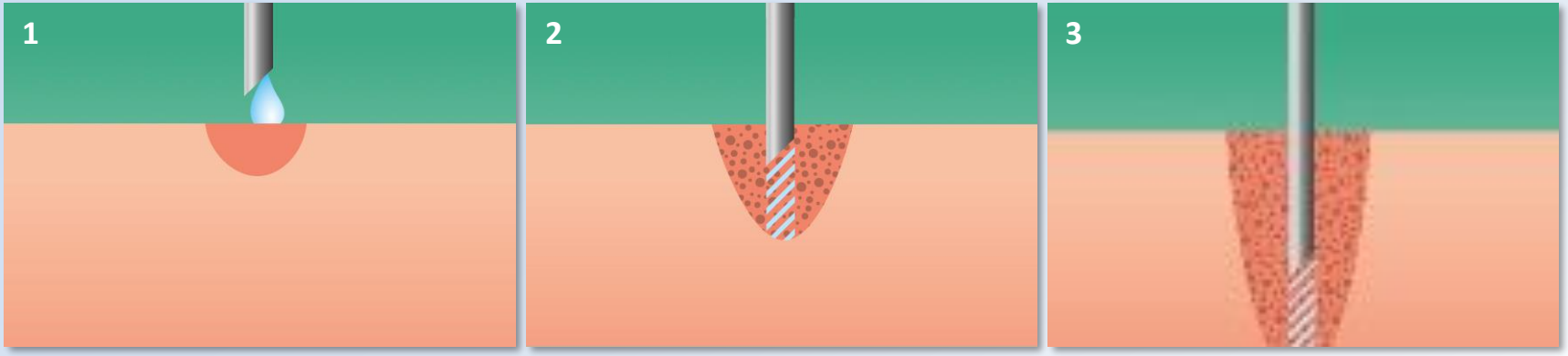
P-ASA injection site and anesthetized areas

P-ASA injection with the Wand

1. Virtually painless injection
   - **Pre-puncture technique** allows comfortable anesthesia
   - **Controlled flow rate** under patient pain threshold
2. **No collateral** anesthesia to face and lip
3. Immediate **smile-line assessment** for aesthetic treatments
4. **Single site injection** for multiple maxillary teeth instead of several infiltrations
   - All maxillary incisors and canine teeth
   - Improved clinical efficiency
   - Reduced dosage of anesthetic
5. Profound pulpal and palatal anesthesia sufficient to perform most procedures
6. No risk of **intravascular injection**

APPENDIX - ANESTHETIC PATHWAY SIMULATION

1. Anesthetic starts numbing tissues before needle insertion
2. When needle starts penetrating, tissues already anesthetized
3. Needle follows an anesthetic pathway resulting in a much more comfortable injection



WAND® BENEFITS OVERVIEW

BENEFIT FOR THE PATIENT

Why patients love The Wand?

1. Virtually painless and more comfort
2. No collateral numbness
3. Less stress and anxiety
4. Safer
5. More efficient use of time
6. Higher confidence in the dentist

BENEFIT FOR THE DENTIST/PRACTICE

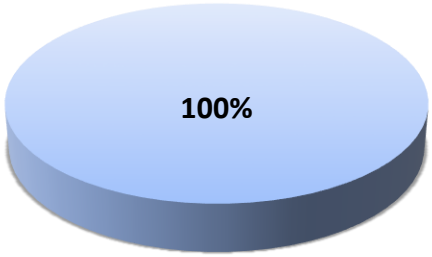
Why dentists like to use the Wand?

1. Improved patients' compliance
2. Great for children and anxious patients
3. Increased precision
4. More anesthesia options
5. Reduced risk of complications
6. Strong marketing tool
7. More visits and patients
8. Increasing revenues

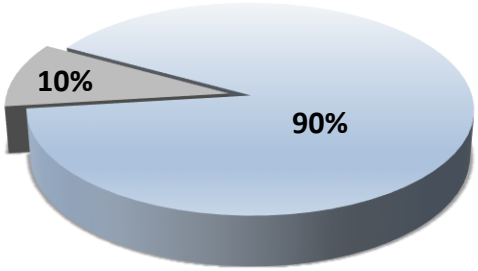
Study on Patient Satisfaction with The Wand

Dr. Cynthia Brattesani
San Francisco, CA
29 Patients Surveyed

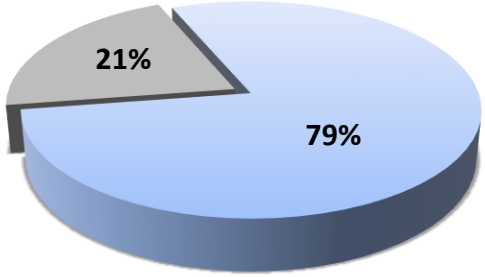
Prefer the Wand over traditional syringe



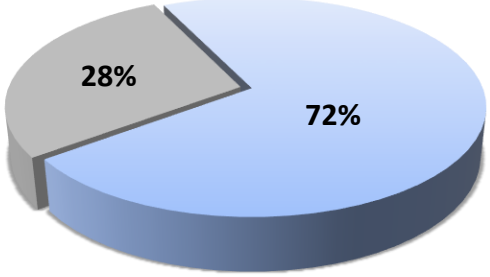
Increased Satisfaction



Referral willingness



Pay willingness



- KEY POINTS FOR THE WAND® SINTETIC INTRODUCTION

WHAT IS THE WAND®?

- Digital platform for all dental anesthesia
- Deliver computer controlled local anesthesia
- Consist of:
  1. Drive Unit (basically a computer and a software)
  2. The Wand handpiece
  3. The foot controller

WHAT DOES THE WAND® DO?

- Controls flow rate and pressure of delivered anesthesia
- Delivers anesthesia under the patient's pain threshold
- Performs all traditional and new injection techniques
- Enables techniques which eliminates collateral anesthesia
- Guides the dentist providing real-time audible and visual feedback to the operators

WHICH ARE THE WAND® BENEFITS?

PATIENTS

- More comfort and less anxiety
- No collateral numbness
- More efficient use of time

DENTIST

- More efficient anesthesia
- More flexibility
- Improved patient compliance

PRACTICE

- More patients
- Marketing tool
- Increasing revenues