2011 Dental Materials Clinical Dentistry Survey

Nov 2011

Dental Evaluation and Consultation Service (DECS)
Because of advances in technology, dental materials and clinical practices used are constantly changing. To date, very little information is available on clinical practices and dental materials use in US Air Force dental facilities. To better understand the current state of dental material usage and clinical practices being used in US Air Force Dental Facilities, DECS conducted this survey. The survey was mailed to US Air Force Dental Service facilities in April of 2011. The response rate was 100%. This is the first survey conducted by DECS on dental materials use and clinical practices in US Air Force Dental facilities with plans to conduct the survey on a recurring basis.
Results

• For questions where multiple responses are possible, the percentages are based on the number of bases reporting they used a dental material or clinical practice out of a total of 77 bases. In these instances the percent for an individual response will have a range of 0-100 percent but the total for each question may exceed 100%. In most cases, calculations are included that depict what % of bases do not use a specific type of dental material. This may provide as much information as the materials that are being used.

• For questions where only one response is possible, the percentages reported are based on the number of responses rather than the total number of surveys and may not add up to 100% due to rounding.

• Complete survey results are available upon request.
Isolite Use

- Soft, flexible, non-impinging Isolite mouthpiece: isolates maxillary and mandibular quadrants simultaneously
- Retracts and protects tongue and cheek
- Delivers bright, shadowless illumination throughout the oral cavity
- Continuously aspirates fluids and oral debris
- Obturates the throat to prevent inadvertent aspiration of material
- Disposable
Dentists use a number of solutions to irrigate 3rd molar extraction sites. These same dentists also use a variety of medicaments in extraction sites following 3rd molar extractions. The question was asked, “What if anything, do you rinse the socket with, or place in the socket prior to closing in your 3rd molar extraction sites?”
3rd Molar Ext Sites
Irrigant/Medicament

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A variety of different methods have been used over the years to provide adequate resistance/retention for complex amalgam restorations. Use of threaded pins and prepared tooth structure (amalgapins, slots, shelves) have been used less and less in lieu of new adhesive systems that have improved over the years.

Dentists were surveyed and asked to list all types of resistance/retention methods they currently use.
Complex Amalgam Retention

- Amalgambond: 100%
- Other Adhesive: 8%
- TMS/Pin System: 69%
- Tooth Structure: 90%
Respondents were asked if they used a dental dam for a supragingival resin restoration (Class IV/V) on maxillary anterior teeth (#5-12).
Dental Dam Use
Anterior Resin Restoration

Maxillary Anterior Teeth #5-12

- Yes: 77%
- No: 6%
- Sometimes: 17%

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Material Choice
Restoration on Maxillary Premolar

• Today, resin restorations are becoming increasingly popular while amalgam restorations continue to be met with much speculation. The long term survival of amalgam as a dental direct restorative material does not look promising. Resin restorative materials have improved to the point where many dental practices only use composite resin for their direct restorations.

• Respondents were asked to list their material of choice for restoring a conservative class 1-2 cavity preparation in a maxillary premolar.
Material Choice
Restoration on Maxillary Premolar

- Amalgam: 19%
- Composite: 26%
- Either: 55%
With the increased use of composite resin as a restorative material in preparations historically restored with amalgam, more and more patients are requesting resin restorations over the traditional amalgam restorations.

The question was asked, in the clinical situation just discussed (conservative class 1-2 cavity prep), do you consult and take the patients input into consideration when deciding what restorative material to use.
Methods to Reduce Effects of Polymerization Shrinkage

• One of the biggest problems with composite resins in the residual stress created from polymerization shrinkage inherent in the curing process. Several methods have been used to try to reduce the effects of this shrinkage.

• Respondents were asked to list all the methods they use for managing/reducing the effects of polymerization shrinkage of posterior composite resin restorations.
Methods to Reduce Effects of Polymerization Shrinkage

Incremental Cure: 97%
Flowable/Hybrid: 30%
RMGI/Hybrid: 58%
Ramped/Stepped Cure: 14%
Directed Shrinkage: 12%
Cure from Gingival: 14%
Low Pol Shrink Mat’s: 29%
Dental Lasers

- Dental lasers for dental applications is starting to increase in popularity.
- Respondents were asked if they used a dental laser in their clinic. A follow up question asked of those that did use a dental laser what applications it was used for (hard tissue, soft tissue, both)?
Dental Laser Applications

- Soft Tissue: 100%
- Hard Tissue: 18%

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Matrix System
Class 2 Composite Resins

• Respondents were asked what type of matrix system they used for posterior composite resin restorations? A separate question asked specifically which type of “segmental matrix” system a facility was using.
Matrix System
Class 2 Composite Resins

- Tofflemire/Metal: 58%
- Tofflemire/Mylar: 21%
- Sectional Matrix: 84%
- Other: 6%

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Sectional Matrix Systems

- Composi Tight: 58%
- Palodent V Ring: 34%
- Triodent: 26%
- Contact Matrix: 3%
- Sect Matrix Ret: 3%
- Others: 4%
- None: 13%

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Plasma Type Energy Cure Use

• High intensity plasma arc curing or PAC, lights have been introduced with manufacturer’s claims that they decrease curing times significantly without any effect on the materials mechanical properties. Typically these lights generate high intensity energy output well in excess of 1000mW/cm². Rapid cure processes such as this do have some potential drawbacks to include heat generation potentially affecting the pulp and likely increased residual stresses within the restoration from the rapid polymerization shrinkage.

• Respondents were asked if they used plasma arc type energy cure in their clinics?
Plasma Type Energy Cure Use

- Yes: 1%
- No: 99%

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Core Build Up Materials

• What material do you use for the majority of core build ups in your clinic (all non post core build ups, molar direct post core build ups)?

• In a situation where you are placing a direct post (metal/non-metallic) in an incisor/cuspid/bicuspid, what would you use for your core build up material?
Material Choice
Anterior Build Up with Direct Post

- Amalgam: 64%
- Composite: 80%
- RMGI: 3%
- Luxacore: 3%
- multicore Flow: 1%
- Fluoro-Core: 4%
- Comp Core: 1%
- No Response: 4%
How often do you visit the DECS Web site for dental materials related information?

- Weekly: 6%
- Monthly: 43%
- Quarterly: 36%
- 1-2 Times/Yr: 12%
- Never: 3%

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What other dental publications or web sites do you visit for dental materials related information?

- Reality: 23%
- Clinician's Report: 19%
- Dental Advisor: 34%
- Dent Products Rep: 40%
- ADA Prof Prod Rev: 86%
The following slides focus on a series of different types of dental materials. Respondents were asked to identify which materials were being used in their clinic.
Which dental amalgams do you use in your clinic?

- Dispersalloy: 78%
- Megalloy: 8%
- Original D: 3%
- Tytin: 73%
- Valiant: 39%
- Valiant Ph.D.: 83%
- Others: 5%

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Which bite-registration materials do you use in your clinic?

- Blue Mousse: 36%
- Jet Blue Bite: 8%
- Regisil/R Rigid: 1%
- Take 1 Bite Reg: 4%
- Blu-Bite: 1%
- Genie Bite: 1%
- Examix/Exabite II: 3%

74%
Which home bleaching agents do you use in your clinic?

- Nupro White Gold: 5%
- Opalescence: 70%
- Natural Elegance: 1%
- PolaNight: 1%
- None: 25%
Which In-Office bleaching agents do you use in your clinic?

- None: 36%
- Zoom: 32%
- Opaques' Endo: 19%
- Opaques' Quick: 8%
- Hi-Lite: 4%
- Na Perborate: 4%
- Superoxol: 3%
- Niveious: 3%
- Other: 3%
Which self-etch dentin bonding agents do you use in your clinic?

- All Bond SE: 5%
- Clearfil Protect: 1%
- Clearfil SE: 1%
- G Bond: 31%
- Optibond All-in-1: 21%
- Transbond Plus: 14%
- Prompt L Pop: 1%
- Scotchbond SE: 1%
- None: 43%
Which total-etch dentin bonding agents do you use in your clinic?
Which caries detection dyes or devices do you use in your clinic?

- Caries Detector: 22%
- Diagnodent: 13%
- Seek/Sable: 43%
- Snoop: 21%
- Caries Finder: 1%
- Caries Dye: 1%
- Vista RED: 1%
- None: 16%

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Which permanent dental cements do you use in your clinic?

- Fuji II LC: 52%
- Fuji Plus: 16%
- Fuji Cem: 19%
- Ketac Cem: 92%
- Panavia 21: 48%
- Panavia 2.0: 22%
- Rely X Unicem: 36%
- Rely X Luting: 14%
- Variolink II: 26%
- Zinc Phos: 21%
Which permanent dental cements do you use in your clinic?
Which temporary (resin-based) dental cements do you use in your clinic?

- Temp Bond Clear: 40%
- None: 60%
Which temporary (zinc-oxide based) dental cements do you use in your clinic?

- Durelon: 10%
- Integ Temp Grip: 13%
- Rely X Temp/NE: 1%
- Temp Bond/NE: 6%
- Ultra Temp: 86%
- Zone: 3%
- Fynal: 1%
- Temp Advantage: 3%
- Enbonte: 1%
- None: 6%
Which flowable composite resins do you use in your clinic?

- EsthetX Flow: 23%
- Fil Sup Pl Flow: 34%
- Permaflow: 16%
- Premise Flow: 5%
- Tetric Flow: 9%
- Venus: 3%
- Revolution: 27%
- Natural Eleg: 6%
- Flow-it: 5%
- Star Flow: 4%
- Other: 17%
Which hybrid composite resins do you use in your clinic?
Which hybrid composite resins do you use in your clinic?

- Herculite Ultra: 5%
- Kalore: 3%
- Terric EvoCeram: 4%
- Vitessence: 5%
- Filtek Sup Plus: 3%
- Z100: 1%
- Others: 8%
Which microfill composite resins do you use in your clinic?

- Durafill: 1%
- Heliomolar: 8%
- Renamel MF: 8%
- None: 83%
Which dentin desensitizers do you use in your clinic?
Which metallic direct post systems do you use in your clinic?

- ParaPost XH, XT, etc: 95%
- Henry Schein: 1%
- None: 5%
Which non-metallic direct post systems do you use in your clinic?

- DT LightPost: 12%
- FiberKor: 4%
- PP Taper Lux/Fiber: 4%
- Rely X Fiber Post: 44%
- Unicore Post: 12%
- SybronEndo Ppost: 3%
- Snow Post: 1%
- None: 34%
Which alginate substitute impression materials do you use in your clinic?

- AlgiNot/FS: 5%
- Position Penta Qk: 1%
- Jeltrate: 3%
- Alpha Dent: 1%
- None: 90%
Which polyether impression materials do you use in your clinic?

- None: 95%
- Impregum: 5%
Which polyvinyl siloxane impression materials do you use in your clinic?
Which liners/bases/temporary restorative materials do you use in your clinic?
Which material do you use for fabricating temporary crowns in your clinic?

- Integrity: 87%
- Jet Acrylic: 32%
- Luxatemp/Fluos: 18%
- Protemp Plus: 8%
- Snap: 7%
- Alike: 3%
- Coldpack: 1%
- None: 1%
Summary and Conclusions

The area of dental materials and clinical practices is constantly changing, and it is important that all US Air Force Dental facilities have the most up-to-date information to aid in future purchases and delivery of dental care. The findings of this survey shed some light on clinical practices Air Force-wide and identify the popular dental materials currently in use in US Air Force Dental facilities. It is important to note that DECS staff members feel that regardless of the material or technique being used, strict attention to proper use of the dental material according to the manufacturer’s instructions is more critical to success than the actual material being used.