

# Peterson Area Dental Laboratory Information Letter

10th Dental Squadron/USAFA, Colorado

November 2002



## Peterson Area Dental Laboratory Workshop Set for 10-12 February 2003 in Keystone, CO

The Peterson Area Dental Laboratory (ADL) Workshop is scheduled for 10-12 February 2003 at the Keystone Resort in the beautiful Rocky Mountains of Keystone, Colorado! This is sure to be one of the best ADL meetings ever! With over 25 guest lecturers scheduled, the workshop will offer a wide variety of presentations, table clinics, and hands-on demonstrations showcasing the newest clinical procedures and dental laboratory techniques. Over 40 dental manufacturing and



*Keystone, Colorado  
Conference Center*

supply companies are scheduled to participate and display their state-of-the-art products. You won't want to miss this year's outstanding conference!

Highlighting this year's distinguished group of speakers will be Dr. E. Steven Duke, DDS, MSD from the University of Indiana; Dr. Michael Gaglio, DDS from Ivoclar Vivadent, Inc.; Dr. James C. Kessler, DDS, from the Medical University of South Carolina; Dr. Mark Latta, DDS, MS from Creighton University; Dr. Ken Malament, DDS, MSc from Boston, MA civilian practice; Dr. William O'Brien, MS, PhD from the University of Michigan; Dr. Larry J. Oesterle, DDS, MS

### *In This Issue*

Peterson Area Dental Laboratory Workshop Set for 10-12 February 2003 in Keystone, CO	1
Effective Use of the Diagnostic Wax-Up for Clinical and Laboratory Communication	2
Chief's Sight Picture	3
Operations Element	4
Comparative Quality Control Data FY 01 to FY 02	4
ADL Alloy Update	5
Support Element	5
Training Element	5
Higher Risk of Bleeding With Subgingival Crown Margins	5
Quality Control	6
Fixed Department	6
Removable Department	7
What to Consider When Writing a Dental Laboratory Prescription (DD Form 2322)	8
The OSHA Top 3 Dental Laboratory Violations	8
@ the Bench. A word from the ADL Flight Commander	10
From the Peterson ADL Training Element	10
Laboratory Notice for Change in Metal Ceramic Alloy	11
Shipping and Receiving	11
Would You Like to Decrease Case Fabrication Times? Change to FedEx!!	11
Logistics	11
Outstanding ADL Personnel	12
ADL Farewells	12
ADL Hails	12
ADL Web Page	13
ADL Key Personnel	13

from the University of Colorado; Dr. Braden Stauts, DDS from Boise, Idaho civilian practice; and Dr. Keith Thornton, DDS from Airway Management, Inc. We appreciate these fine speakers, as well as our military presenters, for making an outstanding effort to provide us with first-class dental continuing education!



**Lodging Facilities at Keystone, Colorado**

The Air Force, through Rocky Mountain Blue, has entered into a strategic alliance with Keystone Resort, to help the military community reduce the high cost of conferencing. All room fees are at per diem rates.

Tri-fold program flyers have recently been sent worldwide to clinics and laboratories with more details. In the meantime, room reservations at Keystone can be made by calling 1-800-258-0437. Be sure to give them conference code **CG9CADL** for the per diem room rate.

For further information on the 2003 ADL Workshop, please visit our Peterson ADL web page at <http://www.peterson.af.mil/adl>; the Keystone Resort web page at <http://www.keystonerestort.com>; or call us at DSN 834-1600. We look forward to seeing all of you at the 2003 Peterson ADL Workshop!

### ***Effective Use of the Diagnostic Wax-Up for Clinical and Laboratory Communication***

What can you do to facilitate the successful fabrication of a complex or esthetically challenging case sent to the Peterson ADL? Besides providing an accurate impression and master die, you should consider sending a diagnostic wax-up as well. A diagnostic wax-up can be extremely useful in providing a variety of information regarding oral structures that may require restoration. For planned prosthetics in the esthetic zone, the diagnostic wax-up can convey to the laboratory technician morphologic details such as restoration length, width, thickness, contours, emergence profile, embrasure shape, proximal contacts, vertical midline, occlusal scheme, surface texture and incisal edge placement. The diagnostic wax-up enables the clinician to define and deliver an esthetically pleasing outcome. Restoration of the posterior dentition is also facilitated

by use of the diagnostic wax-up. However, the emphasis is shifted from esthetics to function, specifically in areas of occlusion, pontic design, contact areas, and gingival embrasure spaces. Additionally, a diagnostic wax-up can provide important information regarding implant fixture placement and site development using hard or soft tissue augmentation. Not only can the diagnostic wax-up be used to demonstrate the anticipated esthetic restorative result, but the diagnostic wax-up can also function as a patient communication tool. From there, the mounted and waxed casts can be used as a guide during the actual preparation process. The diagnostic wax-up also facilitates fabrication of the provisional and definitive restorations and is a visual guide for the laboratory technician.

### ***Treatment Planning***

In complex restorative and implant therapy, particularly in situations involving the esthetic zone, use of a diagnostic wax-up should be routine, as it constitutes the ultimate outcome predictor of the restorative treatment and provides clinically relevant information. This information can be applied throughout the various therapeutic phases to ensure compliance with the anticipated final result. This is particularly important in situations that require multidisciplinary intervention by several clinicians. Strict adherence to the desired restorative outcome defined in the diagnostic wax-up will ensure predictable success. An outcome-based approach that is achieved in part through the use of a diagnostic wax-up will provide a therapeutic blueprint and three-dimensional plan of the proposed treatment (Fig.1).



*Fig. 1. Pre-operative view; diagnostic cast with proposed gingivectomy; diagnostic cast; provisional restorations made according to diagnostic wax-up.*

The benefits of testing or pre-establishing accurate esthetic treatment objectives through a diagnostic wax-up are evident. It establishes the endpoint of clinical treatment for the clinician and demonstrates the final result to the patient. From an execution standpoint, clinical guidelines are provided so the technical requirements of the definitive restoration can be achieved. For example, once the desired contours of the

final restorations are established, the amount of tooth reduction needed for sufficient restorative material space can be determined. The diagnostic wax-up subsequently functions as a guide during framework fabrication so that porcelain can then be applied in adequate thickness, thereby optimizing the esthetic potential of the ceramic material. Operating without treatment guidelines may result in esthetic compromise. An example is the opaque porcelain “headlight” that may exist following insufficient tooth reduction. In this situation, modification to the tooth preparation and a new impression must be made to allow for adequate dimension of alloy and ceramic. Conversely, if there is ample room to accommodate the restorative materials, the technician may use the wax-up information to provide sufficient framework support and to avoid potential porcelain fractures.

### ***Occlusion***

While the occlusal morphologic characteristics of a relatively simple restoration (quadrant or segmental restorative dentistry) may not require the use of a diagnostic wax-up, no one will fault the use of a diagnostic wax-up in the fabrication of any multi-unit posterior prosthesis. The use of a diagnostic wax-up will likely increase the precision and predictability of the final restorations by providing information regarding tooth preparation, framework design, and occlusal surface anatomy.

Treatment of compromised occlusion at a comprehensive level in situations involving more extensive or complex restorations, however, will definitely require the use of a diagnostic wax-up developed on precisely mounted casts. The casts must be properly articulated with accurate occlusal records that include a facebow transfer on an appropriately suited articulator. The treatment of posterior bite collapse with significant loss of occlusal vertical dimension exacerbated by occlusal plane deformities such as an exaggerated Curve of Spee and/or a reverse or dual plane of occlusion, represents a situation that requires extensive treatment and should include a diagnostic wax-up as a guide.

### ***Provisional Restorations as Diagnostic Tools***

Precise communication between the clinician and technician is achieved through the accurate transfer of various pieces of information. In most instances, a copy of the directly fabricated provisional restoration is a useful and accurate communication tool for the laboratory. This is assuming the provisional restoration has been optimized intra-orally to achieve all the esthetic and functional objectives desired in the definitive restoration. In situations where the esthetic anterior region is involved, the provisional restorations provide a reliable method of evaluating the patient’s acceptance of the restorative outcome. An impression or cast of the provisional restoration will provide the laboratory

technician fabrication guidelines regarding morphologic and anatomic features. Additional communication tools include accurate digital photographs and color mapping diagrams. Patients that present with additional esthetic demands, however, will benefit from the use of a three-dimensional diagnostic wax-up.



CHIEF's  
Sight Picture

First, let me say just how glad I am to be here. I am honored to step into this position. I am coming from what I thought was the best job in the Air Force. Now I’m saying that THIS is it the best assignment. I just can’t imagine a better place to be and work. This ADL has so many exciting things going on and is the core of our career field.

Real or perceived? The reason I wanted to write about real or perceived is I too had perceptions about the ADL, some of them may have even been warranted. However, that was then and this is now. We are not the same ADL we were a year ago. In fact, we have made significant progress in the last 6 months. If you were like me and refrained from using the ADL for whatever reason, it is time to reevaluate and give us a try. I know resources are very limited at the local levels and many MTFs have to make difficult decisions. I would offer that we are a viable option for any of your excess workload. Allow me to address two issues: Quality and Timeliness.

Quality: we have had some excellent technicians PCS in this summer coupled with continued emphasis on training. I have personally looked at some of the work and have seen nothing but high-quality prostheses. Let me just add that if you have an issue with ANY case, please put that info on the Quality Control Form. We cannot improve our processes without your timely feedback. Currently, of all the forms we have returned to us, we have a 97% insertion rate and 96% satisfaction rate. If these numbers sound high compared to your experience, I need to hear from you. This data is an all-time high for the ADL, and once again, reason to give us a try.

Timeliness: Yes, we have had some cases in the ADL for too many days. However, through processes we implemented 6 months ago have had a huge impact on turnaround time. We are currently at a reasonable timeframe (15 days). A month ago was the first time we had no cases over 30 days. In fact, cases arriving now are being waxed the same day or the next day. This is a great time to give us a try.

Our return rate on Quality Control (QC) Forms is about 30-40%. Our intuition says that 90% of those dissatisfied don’t voice their concern and each one of

those tells 8-10 people. If you aren't sending back your QC cards, I'd like to hear from you. I would also ask that you send the cards back shortly after insertion, don't stockpile and send all at one time. Sending shortly after insertion is the best way for us to identify any adverse trends that may be occurring. I am also exploring other means to capture this valuable info from the bases.

We are in the process of revamping our ADL Webpage. I'd like to solicit what you'd like to see on our homepage or be able to access. Please email me or [Hilda Guardado](#) with your input. The only reason our website exists is for YOUR use. If we aren't giving you what you want, I need to know. As you can tell, this will be a common theme of mine. You are our customer and I want customer service to be our competitive differential advantage. In our changing healthcare environment, I realize there are options healthcare providers have. I want our ADL to be your choice of labs for your excess workload.

As you may have noticed, there are nine 5-level (SrA & SSgt) vacancies at the ADL. If you have any interest at all, please call me to discuss. I believe this is a great assignment and an opportunity to be part of something exciting, all in one of the most scenic places in the United States (of course I'm still partial to Montana). Check our website for details at <http://www.peterson.af.mil/adl/>.

In summary, we are here only to support your needs. Please let me know if we are not meeting your needs. We have GREAT people here and we are excited to move forward and provide you with the service and quality you expect. I just don't know what that is. Please help us help you. I am committed to this operation and thrive on the challenge of providing you quality service in a timely manner. We have the staff to do great things. I look forward to this great opportunity of serving you in years to come. See you at the workshop.

[Chief Dan Elfring](#) 😊

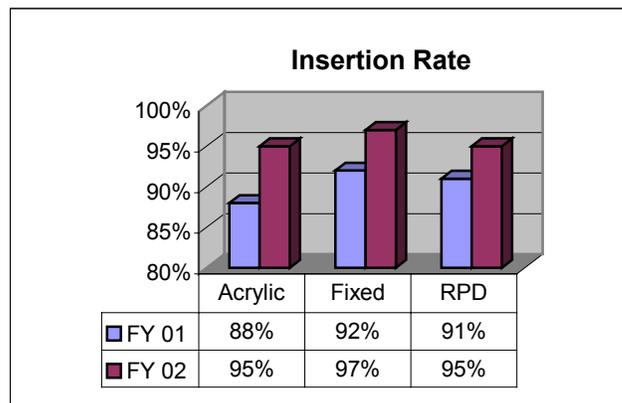
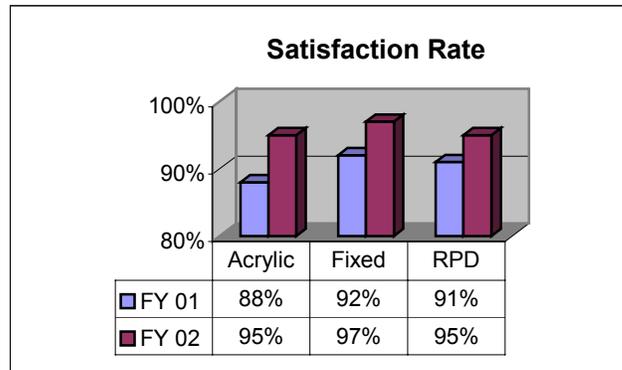
### ***Operations Element***

The mission and purpose of the Area Dental Laboratory (ADL) Operational Element is to produce dental prostheses that meet provider's expectations for both quality and timeliness. To this end, the Operations Element is composed of three departments—Quality Control, Fixed and Removable—which are led and managed by three enthusiastic and talented Senior Noncommissioned Officers (SNCOs). The SNCO leaders of each department are MSgt Nancy Kujak, MSgt Judy Bailly and MSgt Anthony Kazlouski respectively. They are the ADL's primary points of contact for specific product questions or concerns. Each has dedicated their skills, knowledge and abilities to improving the quality of the ADL product line ... and it shows in the product quality indicator.

Two quality indicators are used; provider satisfaction and insertion rate. These are shown in the

data summary report, comparing FY 01 data to FY 02. Percentage rates are an aggregate of *all returned* Quality Control Cards for the year shown.

### ***Comparative Quality Control Data FY 01 to FY 02***



	<b><i>Satisfaction Rate</i></b>	<b><i>FY 01</i></b>	<b><i>FY 02</i></b>
Acrylic		88%	95%
Fixed		92%	97%
RPD		91%	95%

	<b><i>Insertion Rate</i></b>	<b><i>FY 01</i></b>	<b><i>FY 02</i></b>
Acrylic		94%	97%
Fixed		94%	98%
RPD		95%	98%

The product quality improvements, noted above, are the result of a myriad of activities implemented by our Production Management Team. These actions have also been applied to the product turnaround time of 30 calendar days established, by the ADL Executive Staff.

Since January 2002 the entire operational element has committed its resources to completing and returning *all* products to the provider within 30 calendar days. In the past quarter, Jul-Sep 02, the fixed and removable departments have made notable strides to achieving this goal. In Jul 02, 49 percent of all fixed cases were completed and shipped by the 30<sup>th</sup> day, by the end of Sep 02, 96 percent were shipped within this window. During this same time Removable Partial Denture framework

fabrication rates were near 100 percent and Acrylic based prosthesis production rates maintained a phenomenal 100 percent--a noteworthy accomplishment. However, continuing these achievements will require a cooperative effort between the ADL and the end-user. This cooperation begins by submitting casework that meets all submission standards outlined in the Peterson ADL Submission Standards, February 2002—available online at <https://www.peterson.af.mil/adl>. The importance of this responsibility cannot be overstated. Incoming casework, which does not meet submission criteria, will result in fabrication delays, rework, and possible return. All of which extends the fabrication process and degrades the Dental Service mission. Specific observations and improvement areas, from each of the department leaders, are listed below, please note them in the spirit intended. If you have any further questions, regarding the Operations Element, please contact [SMSgt Leo Chaney](#) at DSN 834-1621.

## ***ADL Alloy Update***

### ***Maryland Bridge Alloy***

Two months ago we replaced Rexillium® V with Master-Tec, a white ceramic alloy manufactured by Ivoclar Vivadent, Inc., for all Maryland Bridges. Master-Tec™ does not contain beryllium. The cost of Rexillium® V is \$60 for a 5oz bag and Master-Tec™ is \$83.63 for a 5oz bag. The health and safety of our personnel outweighs the



cost difference of \$23.63. This alloy is invested with a high heat phosphate bonded investment of your choice. We invest our Maryland Bridges with Microstar High Speed Investment. We cast our Maryland's with the Mod 4 induction casting machine from Ticonium. If you would like more detailed information, please call MSgt Mark Schelling at DSN 834-1608 or e-mail him at <mailto:mark.schelling@peterson.af.mil>.

### ***Portadur P2 Type III Alloy***

Due to the cost of Type III alloy for the Depot, we have changed our Type III alloy from Firmilay II to Portadur P 2. We purchase Portadur P 2, Part number 012013, from Weiland Dental Systems for \$291.84 an ounce. The price for Firmilay II from the Depot is \$372.10 an ounce. Last FY we used 138.4 ounces of Type III alloy. By purchasing this alloy from the alternate source we saved the Air Force \$11,107.98.

Weiland Dental has a Blanket Purchase Agreement with the Air Force. This will enable you to purchase over \$2,500 from them on one purchase. Their phone

number is 1-866-876-0885. Their web site is [www.weiland-dental.com](http://www.weiland-dental.com)

### ***V-Delta SF Alloy***

We also changed our source for our metal-ceramic alloy from the Depot to Metalor® Technologies USA. The alloy we use is V-Delta® SF, part number PTDE02631, and the price is \$328.80 an ounce. The price for this type of alloy from the Depot is \$475 an ounce, a difference of \$146.20 an ounce. Last FY we saved the Air Force \$34,971.04 by purchasing this alloy from Metalor® Technologies USA. They also have a Blanket Purchase Agreement with the Air Force. Their phone number is 1-800-554-5504. Their web site is [www.metalor.ch](http://www.metalor.ch)

## ***Support Element***

As some of you may know, Air Force Military Personnel Center (AFPC) recently filled some of our vacant positions with oversea returnees. This became necessary because for the past 3-4 years we have been down 13-plus personnel at anytime. Finally, AFPC is making everything possible to bring our manning to current Air Force averages. Unfortunately, this meant that some of the overseas returnees did not necessarily want to be assigned to the Peterson ADL. All those affected have already come in and to the best of my knowledge; they are enjoying themselves in colorful Colorado Springs.

We are always looking for good technicians who are looking for a great assignment. Let me tell you the Peterson Area Dental Laboratory is a great place to work and probably the best place for anyone seeking to become a well-rounded dental laboratory technician. If you are interested in an assignment to the Peterson ADL, contact us at DSN 834-1600 or email [SMSgt F.J. Garcia-Bautista](mailto:SMSgt F.J. Garcia-Bautista). I will provide you with the current requirements for assignment to the Air Force Academy and the Peterson Area Dental Laboratory. You can also contact CMSgt Elfring or MSgt Kujak at the above-mentioned number.

## ***Training Element***

Document updates are available at [www.e-publishing.af.mil](http://www.e-publishing.af.mil). For the Career Field Education and Training Plan (CFETP) go to Electronic Publications and at the "Short Title Search" type, CFETP. Once there, scroll down and go to page 12. You will find CFETP4Y0X2, Dental Laboratory Specialty dated November 1999 and CFETP4Y0X2C1, Dental Laboratory Specialty (Change 1) dated November 2001. Each can be printed from this site. Change 1 is needed to update the CFETP.

Qualification Training Packages (QTP) are also available at the same web-site. Go to Electronic

Publications, United States Air Force and at “Special Series”, click Air Force Qualification Training Packages, scroll down and you will find each of the four QTPs, dated September 2001.

If you have any questions as to the navigation to these sites, please call [Mr. Donald Meaney](#) at DSN: 834-1607 and I’ll be happy to assist you.

### ***Higher Risk of Bleeding With Subgingival Crown Margins***



A recent study by Reitemeier et al identified several factors that can affect gingival health following placement of posterior metal ceramic crowns. The study reviewed 240 patients with 480 metal ceramic crowns that were placed on

premolar and molar teeth in accordance with a standardized tooth preparation and laboratory technique. The patients’ oral hygiene index score was recorded before treatment, and location of crown margins was recorded at baseline. One year after crown placement plaque index and bleeding index scores were recorded for restored and control teeth. The study found that oral hygiene before treatment, plaque formation, and margin placement all affected the gingival health around the crowns. The probability of bleeding was approximately twice as high for subgingival crown margins as for supragingival margins. High gold, low gold, and palladium alloys were randomly used for fabricating the crowns, and the laboratory was required to completely veneer the crowns with ceramic, but leave a 1 mm wide cervical metal collar on the lingual surface. While the probability of plaque accumulation was higher on the lingual surface compared with other surfaces, the alloy used did not influence plaque or bleeding scores.

Source: The Journal of Prosthetic Dentistry, 2002;87:167-72

### ***Quality Control***

Cooperative efforts to improve cast work especially indexing procedures will improve the outcome of all submitted casework. Items of particular concern are a good working model with proper use and placement of both long and short pins. The junction between the cast and die base must be clear of any foreign material (i.e. stone dust, stone fragments and glue). Working dies should be properly trimmed with the margins marked and sealed. The solid model, if sent, must be usable and composed of the same die stone as the working model.

Survey crown requests must have an accompanying RPD design cast with tripod marks and the fixed cast must also be tripoded.

Implant case requests must indicate abutment type/design (one-piece {screw-retained} or two-piece {screw-retained custom abutment with cementable crown fabricated over existing structure}). Additionally, indicate if multiple unit implants are designed to be independent or connected.

Die spacer/lube compatibility has been a recent fabrication issue. Some die spacers have dissolved or become “goeey” when coated with the ADL die lube product. Consequently, we request that submitting laboratories do not paint dies with die spacer prior to submitting to the ADL unless they utilize Belle de St. Claire, Cement Spacer Blue. There are three products that are used to die space: die spacer, die hardener, and die setting retardant. All three of these products are available from Kerr Lab, 1717 West Collins Avenue, Orange CA 92867 phone # 1-800-322-6666. The product information, purpose and ordering information for these items are listed below:

1. Cement Spacer Blue (Classic Die Spacer): keep die spacer at least 1mm from margins when applying  
Catalog # 013-304  
Size: 4 fluid ounces (120 ml)  
Price: \$23.11
2. Die hardener: ADL usually paints around margin area  
Catalog # 013-309  
Size: 4 fluid ounces (120 ml)  
Price: \$23.11
3. Die Prep Setting Retardant: use to thin out die spacer and hardener, use only a few drops at a time. Over dilution may alter the die spacer composition causing the spacer to soften when die lube is applied. Directions for thinning are included with the product container.  
Catalog # 013-303  
Size: 2 fluid ounces (60 ml)  
Price: \$7.42

Other die spacers have been melting or breaking down after the die lube is applied and a wax coping is made. The cause is either the die spacer was thinned out too much with a setting retardant, which changed the composition, or the die spacer is not compatible with the two die lubes we use. Each time this occurs, the original die spacer must be removed, the die must be cleaned up, and a new spacer must be applied. This process is taking up valuable time, discolors or may negatively affect the die, and utilizes more materials. Thus, to save time, money and resources we would appreciate your help and support. You may have already seen comments on some of the returned Quality Control cards or may have already been contacted by **MSgt Kujak** about this issue. If you have any further questions, please contact **MSgt Nancy Kujak** at DSN 834-1608 or Comm (719) 556-1608; e-mail [nancy.kujak@peterson.af.mil](mailto:nancy.kujak@peterson.af.mil).

### ***Fixed Department***

First, all providers and technicians should reference and use the February 2002 ADL submission standards

before submitting any casework. Sending casework that complies with these expectations will improve the ADL's ability to meet quality and timeliness standards. Second, trim the master die and mark the margin. If either is not complete it will delay/add 3-10 days to the fabrication timeline. Third, confirm all abutments and adjacent teeth can be removed individually, this step saves the technician time and reduces the likelihood a die will be damaged or chipped--ensure dies are removable from the cast before shipping. Fourth, provide detailed information on the DD Form 2322 to include: base name, location, laboratory and provider phone number(s) and e-mail address. Providers must indicate design choice, specific fabrication preferences (i.e. apply/do not apply die spacer) and shade on the prescription. All of the concerns listed above will enhance the capabilities and training of all personnel assigned to the fixed prosthesis department, both skilled and semi-skilled, in meeting provider expectations.

Conducting upgrade training that meets the prosthesis fabrication mission and supports our training obligation requires a unique balancing act for our team leaders. Invariably these demands can and do extend the fabrication timeline. Additional variables, which influence our team's ability to produce, are the number of personnel in upgrade training. Currently the fixed department has 8 apprentice level (semi-skilled) technicians who are learning the fine art of waxing, metal finishing, and stacking porcelain. Approximately every 3 months a group of semi-skilled technicians (three-to-four) are rotated to a new team—where they fabricate, with guidance from their trainer, all segments of that group's production responsibilities. During this 12-15 month training rotation, the apprentice technician is exposed to every aspect of basic fixed prosthodontic production procedures. Our team leaders take this heavy training responsibility seriously and with pride. That is why it is so important that we establish a clear communication channel with you, our customer and we start every case off with quality cast-work and clear instructions. Most of our technicians do not have the years and years of experience to just "know" what to do in every case. The ADL has also established a training agreement with the local base dental laboratory where the new technician is sent to the local lab for a 30-day training session where they learn the importance and application of basic cast-work skills. Finally, the semi-skilled tech has a 2-week training session within the ADL Acrylic section—rounding out the required 5-skill-level up grade training requirements. If you have any further questions, please contact [MSgt Judy Bailly](#) at DSN 834-1609.

## ***Removable Department***

The most pressing concern to date involves the use and fabrication of Reinforced Acrylic Pontics (RAPs).

Consequently, the RPD department requests all casework submissions requiring RAPS be identified and prepared as follows:



*Fig. 2. RPD master cast with stone matrix positioning acrylic resin denture tooth.*

First, RAPs should only be used to replace anterior teeth that have a residual ridge that shows only slight to moderate resorption. Additionally, the resorption area should be stable and firm. Second, RAP teeth and adjacent natural teeth must not be excessively rotated, tipped or overlapped. Conversely, the use of RAP teeth should be avoided when:

1. The residual ridge is greatly resorbed, is not firm, or indicates that it will continue to resorb significantly. (Open retention or mesh is better utilized here because it can be relived.)
2. A large number (4 or more) of contiguous teeth must be replaced.
3. Periodontal involvement has resulted in excessively "long" teeth.
4. The teeth are moderately to excessively malpositioned.

We recommend the provider and supporting laboratory complete the following tasks, if the use of a RAP is desired. Begin by grinding the acrylic tooth to fit the edentulous ridge on the master cast and align as per doctor's instructions. Second, cut only the apical surface of the tooth where it contacts the ridge, and adapt the tooth as closely as possible to the ridge. Third, position the RAP tooth on cast using sticky wax in areas other than incisal or facial. Apply a thin coat of Die-Lube (not Die-Sep) to incisal and facial surface of RAP tooth and first natural tooth on each side of the RAP tooth. Fourth, mix a small amount of stone and adapt it to form a RAP matrix. Allow the stone to set completely and then separate it from the cast and RAP tooth and trim the RAP matrix to the following dimensions:

1. Approximately 2mm thick over the incisors of RAP and adjacent teeth. (Stone should include the lingual-incisal line angles of all teeth, but should not extend onto the lingual surfaces of any tooth) (Fig. 2).
2. Extend 2/3 of the way down the facial surfaces of the teeth toward the gingival margin.

3. Horizontally cover the RAP tooth and not less than 3/4 of the width of the facial surface of the first natural tooth on each side of the RAP tooth.

4. The RAP is now ready for shipment to the ADL where personnel in the RPD department will create a box-preparation in the lingual surface of the pontic to accept actual strut that supports the RAP. If you have any further questions, please contact [MSgt Anthony Kazlouski](#) at DSN 834-1614.

### ***What to Consider When Writing a Dental Laboratory Prescription (DD Form 2322)***

1. Make sure you complete blocks #'s 1, 4, 5, 6, 7, 8, 9, 10, 12, 13, 26, 27, and 28. (Block # 2 must also be filled in and the entire 2322 typed for sending to the ADL.) This information must be complete. The lab has instructions to return the case to you if at least these blocks are not properly completed. Residents should have the lab officer or prosthodontist review before sending.
2. Let the lab know if you want them to apply die hardener and/or die spacer to your master die. If you want the lab to mount the case, do not apply die spacer, as this will interfere with obtaining an accurate mounting.
3. By default, the pindexed die is the master die, unless you designate another pour as the master die. If you think that the margins are better on another pour or impression, label the *pindex die* as the working die, and label the *single die* as the master die. Write on the 2322 that you have done this.
4. State on the 2322 if you want the lab officer to see the wax-up. It is not automatic that the lab officer will evaluate every wax-up, and it may delay completion of your case typically 1 to 2 days, depending on how many cases need to be reviewed. Best method is to include a **“Go-By Cast”** which is a duplicate cast of a diagnostic wax-up or pre-op cast to guide the technician.
5. For porcelain-fused-to-metal crowns use the cutback design form in the submission standards, or;
  - a) Indicate those **occlusal** contacts to be in metal and those to be in porcelain.
  - b) Indicate those **proximal** contacts to be in metal and those to be in porcelain.
  - c) Indicate what shade of porcelain (should already be in block 13).
  - d) Indicate margin design by either: “all metal margin” or “porcelain labial margin”
6. For fixed partial dentures;
  - a) Indicate pontic design (also on the cutback design form in the submission standards): (e.g. “bullet, modified ridge lap, ovate, Parel/sanitary [man only].”)
  - b) For each FPD retainer, indicate the items in #5.

- c) Indicate connector design (e.g. “make as tall as possible” or “make room for proxy brush”)
7. For surveyed crowns:
  - a) Must have tripod marks on cast prior to submitting case to lab.
  - b) Include an RPD design cast to design the following: Refer to it on 2322.
    - i. Indicate where rests are to be, and type.
    - ii. Indicate where guide planes are to be and how tall (usually only 1-1.5 mm).
    - iii. Indicate where undercuts will be (e.g. MF, DF, etc.)
8. For removable partial dentures:
  - a) Color in teeth to be replaced, “X” out teeth not to be replaced.
  - b) Enter the **Bioblend shade and mold** for denture teeth. Don’t use the Vita Shade guide.
  - c) For **Transitional RPD**: draw design, place tripod marks and survey cast; include wire size for clasps and labial bows.
9. Lastly, ensure that your casts:
  - a) Have either orientation marks or an interocclusal record for articulation.
    - i. Trim record correctly and check for accuracy for accuracy before submitting.
  - b) Have all nodules (bubbles) interfering with occlusion removed.
  - c) Ensure the heels of the casts do not touch (interfere with articulation).

### ***The OSHA Top 3 Dental Laboratory Violations***



As a dental laboratory manager, you’re legally bound by standards issued by the Occupational Safety and Health Administration (OSHA) to provide a safe working environment for you and your staff. Therefore, it’s your responsibility to familiarize yourself with all applicable standards set forth by OSHA. Given the scope of the regulations, covering everything from electrical wiring and housekeeping to training employees and preventing contact with infectious materials, this can be a somewhat daunting task. In addition to staying abreast of OSHA regulations, dental laboratory managers who want to ensure they’re in compliance should designate a safety monitor to oversee the safety program and ensure their monitor is properly credentialed through courses and training.

But even those laboratory managers totally committed to health and safety efforts can receive a visit from OSHA. And, because of the number of regulations and the sometimes difficult task of interpreting them, it’s likely that an inspection will turn up at least a few violations. So which regulations trip us up most often?

Listed below are the 3 standards that were cited by Federal OSHA regulations during the period October 2001 through September 2002. The following list includes highlights of the standards only. For full text, visit [www.osha.gov/cgi-bin/std/stdser1?esize=0&state=FEFederal&sic=8072](http://www.osha.gov/cgi-bin/std/stdser1?esize=0&state=FEFederal&sic=8072)

**1. Bloodborn Pathogens:** The largest number of OSHA violations, across almost every industry, fall into this category. Intended to reduce the incidence of chemically related occupational illnesses and injuries, this standard is also referred to as the “worker right-to-know” standard.



Following are some of its key elements:

**a. Hazard Communication Plan.** This plan states in writing your methods of complying with the Hazard Communication Standard including your systems for container labeling, maintaining Material Safety Data Sheets (MSDS), conducting staff training, etc.

**b. Maintain a File of MSDSs.** OSHA requires that you have copies of the MSDS for each hazardous material in your laboratory and that they are accessible to employees at all times. Federal law requires manufacturers and distributors of products containing hazardous substances to furnish customers with MSDSs.

**c. Keep an Updated Hazardous Substance Inventory.** You must maintain a master inventory list of hazardous materials in the laboratory, including items such as etching acids, disinfectants pickling agents and flux. You can check the MSDS to see whether a chemical is hazardous or not. The name used on the inventory list must match the name used on the MSDS.

**d. Labeling Protocol.** All containers must be labeled with their contents and any hazard warnings. The name and address of the manufacturer must also be listed. In most cases, the manufacturer, supplier or distributor will already have labeled the container satisfactorily, but it's your responsibility to check for accuracy and completeness and re-label it if necessary.

**e. Employing Training Program.** The standard The standard requires employee training, including;

- (1) The Hazard Communication standard,
- (2) The components of your written program and where it's located,
- (3) Your lab's labeling system,
- (4) Procedures in hazardous work areas Where exposure to chemicals may occur,
- (5) Emergency procedures,
- (6) The location and meaning of MSDSs.

The training must be provided to all new hires, to employees using a new product that contains hazardous chemicals, and to attendees of an annual refresher course.

**2. Hazard Communication:** The objective of this standard is to limit occupational exposure to potentially infectious materials that could result in the transmission of disease such as hepatitis B or HIV. In the dental laboratory, it applies to saliva or blood on incoming impressions, models or appliances sent in for repair. Following are some key elements of the standard:

**a. Exposure Control Plan.** Requires a written plan that identifies tasks, procedures and job positions where exposure to bodily fluids occurs. You must classify staff according to their level of exposure: Category 1 employees have a direct exposure to blood and body fluids and Category 2 employees don't have exposure. The plan must also include standard operating procedures for risk areas, including disinfection procedures for incoming cases. It must be accessible to employees and should be reviewed at least annually, when new procedures are implemented, or when staff positions are revised.

**b. Universal Precautions Mandate.** You and your staff must practice universal precautions, meaning that you should treat every case that comes through the door as though it is carrying an infectious disease. Although OSHA doesn't set specific disinfection methods for dental laboratories, it does require that you control staff exposure to bloodborne pathogens.

**c. Work Practices.** Your lab must have hand-washing facilities including single use towels; eyewash stations connected to cold-water only faucets; and personal protective equipment such as gowns and gloves. The standard also prohibits eating, drinking, smoking and applying cosmetics in work areas. As the manager, you're expected to enforce all aspects of the standard. The standard also requires a written schedule and protocol for waste disposal, laundering lab smocks and cleaning of the laboratory, including cleaning contaminated surfaces and equipment. A common violation for dental laboratories is the failure to disinfect plaster traps, pumice, and equipment used for denture repairs.

**d. Hepatitis B Vaccination.** Because staff exposed to bloodborne pathogens can be at risk of contracting hepatitis B from an infected case, OSHA requires Category 1 staff be provided with vaccinations within 10 days of being hired.

**e. Information and Training.** Like the Hazard Communication standard, this standard also requires employee training that covers;

- (1) An explanation of the Bloodborne Pathogens standard,

- (2) Bloodborne diseases and their transmission,
- (3) Steps that the laboratory is taking to minimize risk,
- (4) Personal protective equipment,
- (5) Hepatitis B vaccine,
- (6) How to handle emergencies involving blood,
- (7) What to do in case of exposure.

The training must be conducted for all new staff and least annually for all employees.

**3. Hand protection:** It is your responsibility to recognize hazards in the laboratory and provide personal protective equipment such as gloves, gowns and masks. A common mistake that many laboratories make is not enforcing the use of it. The following standards were cited relating to hand protection.

**a. OSHA Standard 1910.138(a)** General requirements. Employers shall select and require employees to use appropriate hand protection when employees' hands are exposed to hazards such as those from skin absorption of harmful substances; severe cuts or lacerations; severe abrasions; punctures; chemical burns; thermal burns; and harmful temperature extremes.

**b. OSHA Standard 1910.138(b)** Selection. Employers shall base the selection of the appropriate hand protection on an evaluation of the performance characteristics of the hand protection relative to the task(s) to be performed, conditions present, duration of use, and the hazards and potential hazards identified.

### ***@ the Bench.***

#### ***A word from the ADL Flight Commander***

Fellow colleagues, thank you for sending us work and for all of the positive comments since my arrival here last year. We've made a lot of changes over the past few months, internally, to try and get a high quality product back out to you in a reasonable amount of time. Our mantra has been for "All hands to be pulling on the same rope in the same direction," to quote General Gardner.

We have reviewed all the manufacturing techniques used in the lab, and have standardized a lot of things to reduce inventory (we don't need five different types of die lube). We have implemented a cutback design and pontic design request sheet in April 2001 (designed by Mr. Donald Meaney), which is included in the new, freshly rewritten ADL Submission Standards. There is a printable version located at our website, <http://www.peterson.af.mil/adl/>. This is intended to save you (and us) time and communicate more exactly your desires, when creating a porcelain-fused-to-metal restoration. It would help us tremendously if you would use this form with any PFM restoration case.

We have reorganized the lab along the guidelines of the OMG, and have created three elements: a Support

Element, headed by SMSgt Garcia-Bautista, a Training Element headed by Mr. Meaney, and a Operations element headed by SMSgt Chaney. SMSgt Garcia-Bautista takes care of the personnel paperwork and oversees the Shipping and Receiving Section. Mr. Meaney keeps all of our training records up to date, and together with MSgt Fisher has developed an outstanding 15-month 5-Level upgrade training program. SMSgt Chaney has all of the production lines under his control: RPD Section, Acrylic Section and the Fixed Section, which includes the areas of wax-up, metal-finishing, metal-ceramic, all-ceramic, and Maryland Bridge.

Most of my day is consumed in correcting problem submissions. I have to tell you, that I feel my role here is to try and correct as many problems as possible so that we can complete the case, and I don't mind doing what I can. I try and call as much as I can, but many times I can't get through for various reasons. If you would write / type in your e-mail address above block 27 or 28 (signature blocks), it would really help me communicate in a more timely fashion. In fact, we are currently revising the 2322 to include a block for your e-mail address.

When there is a problem submission, it typically delays the case five to fourteen days. The problems are usually with the cast work, where dies won't seat, dies aren't cut out or trimmed, and / or porous pours of stone that leave voids in critical places. Line of draw and undercuts are another source to delay your case. Inaccurate impressions where margins, whole teeth, and residual stone nodules on the occlusion create distortions that most of the time cannot be fixed outside of remaking an impression that is accurate. Evaluating and correcting problems, occasionally refusing a submission, and clarifying vague instructions take a lot of time. We try very hard to complete the case you submit within thirty calendar days, and you can help us out by reviewing your case before you send it to us. Please read the new Submission Standards, and correct the deficiencies before sending, and we'll do our best to get it back to you on time. Thank you.

Lt Col Allan D. Linehan, DMD, MS

### ***From the Peterson ADL Training Element***

Did you know that the AFSC 4Y0X2 has had a change to the Career Field Education Training Plan (CFETP)? Effective 1 Nov 2001, Change 1 was published and it identifies numerous amendments. Of note is that it deletes the 7-skill level, Craftsman Course and identifies three new Qualification Training Packages (QTPs) necessary for upgrade to 7-skill level. The Change 1 document can be accessed at: <http://afpubs.hq.af.mil>. Go to the search engine at Forms and Publications and type, "CFETP", then follow the prompts.

The revised QTPs, dated September 2001, can also be accessed at: <http://afpubs.hq.af.mil/pubs/specalist.asp?puborg=AF&series=qtp>. The new training modules are in Volume 4 of the QTPs.

Finally, many individuals ask the question of why all the fuss with the CFETP and the Specialty Training Standard (STS) starting at page 29 of the CFETP. Put simply, the CFETP outlines the path of career development, while the STS defines the many tasks 4Y0X2s are expected to perform and to what level of performance. If you'll observe on page 29, Column 3, Training Proficiency Codes, levels of performance are defined for task performance, task knowledge and subject knowledge by using an alpha-numeric code. Those codes are further clarified on page 28 of the CFETP, and provide a clear definition of the knowledge and performance that you, as the trainer or certifier can communicate to the trainee.

What trainee would object to knowing the specific expectations they are to satisfy? And optimistically, what trainee wouldn't exceed those expectations in pursuit of, "Excellence in all we do."

### ***Laboratory Notice for Change in Metal Ceramic Alloy***

For cost considerations, Peterson ADL is changing the metal-ceramic alloy we use to fabricate PFM restorations. We are changing from Jelenko Olympia to Metalor V-Delta SF. Please check the QC card to see which alloy was used. Although the alloy is very similar, there is enough difference that Olympia solder is not compatible with the V-Delta SF alloy. If you have to cut and solder a PFM FPD, you must use Metalor's VACU PF solder with V-flux to do the post solder. The source and part numbers are listed below. If you are unable to purchase these items, or they have not arrived yet, you may make a solder index and return the FPD to us to post solder for you. Should you return the FPD for post solder, please include a detailed description explaining exactly what you would have us do. Thank you!

**Metalor Dental USA Corp. (800) 554-5504 and [www.metalor.com](http://www.metalor.com)**

Item	Item Name	Part No.	Unit	Price
Post Solder	VACU PF	FIRO 9 441	5.0g	\$85.68
Flux	V-Flux	DCV 11 901	20ml	\$12.32

### ***Shipping and Receiving***

We strive to deliver high-quality restorations in a timely manner. You can help us achieve this goal by adhering to our submission standards. If you don't already have a copy, let us know and we'll mail you one.

You can also download the submission standards from our website, visit us at <http://www.peterson.af.mil/adl/>

We cannot overemphasize the importance of a properly filled out DD Form 2322, Dental Laboratory Work Authorization. If at all possible, type the form for us. If not, please print legibly. It is very important that you fill in the name of your facility at the top. To conform to proper infection control standards, all items you send us must be properly disinfected and wrapped in a plastic bag.

#### ***DOs:***

- Always include a copy of DD Form 2322 in each shipping box.
- Ensure DD Form 2322 is filled out completely. Include your facility's name, mailing address, DSN and commercial phone number. If your facility is located overseas, please include a physical address so we can promptly return your case. FedEx requires physical addresses to make deliveries overseas, they will not deliver to Aerial Post Office or Post Office Boxes.

#### ***DON'Ts***

- Please do not apply packing tape directly onto the shipping boxes; doing this shortens the box's life span.

To check on the status of your laboratory case at the Peterson ADL, log on to <https://www.peterson.af.mil/adl> or contact the ADL's Shipping and Receiving section at DSN 834-1698 or commercial (719) 556-1698

### ***Would You Like to Decrease Case Fabrication Times? Change to FedEx!!***

We have noticed that most cases sent to us are via UPS or the U.S. Postal Service. Shipping cases in this manner takes anywhere from 5 to 20 days. This delays patient treatment and increases fabrication times. Each dental laboratory can do their part to ensure patients receive the best and fastest service by checking with their local transportation office to setup a FedEx contract. You will find that your local transportation office may already have a contract with FedEx, and they simply may be able to add the dental laboratory to it. Since the ADL switched to FedEx, we have found it is less expensive, gives us a tracking tool, and are usually guaranteed next day delivery.

### ***Logistics***

#### ***Metal Case Pans***

Metal case pans can be purchased from: W. E. Com, Inc., 20 Warrick Avenue, Glassboro, New Jersey 08028 1-800-628-4115; Fax:856-863-8408

[Email: wecom@wecom.com](mailto:wecom@wecom.com)

Part Number 6520-00-514-2394  
 Case Pan, Dental  
 Here are some estimated prices:  
 10 Case Pans - \$44 each  
 50 Case Pans - \$35 each

### ***Shipping Boxes and Inserts***

The ADL purchases both the box and the insert from Tharco. If you still purchase the small two-slot box you probably purchase them from the Blind Industries and Services of Maryland and you then purchase the inserts for these boxes from Tharco. I contacted Tharco over a year ago, and they can manufacture both the box and the insert. This makes ordering both items much easier. We found that one case does not fit in one small box, so we researched making a four-slot box.



These are the only boxes we purchase and here is the most current information on them:

Tharco  
 13400 East 39<sup>th</sup> Avenue  
 P. O. Box 39103  
 Denver, Co 80239-0103  
 E-Mail: [SALES-DEN@THARCO.COM](mailto:SALES-DEN@THARCO.COM)  
 Tel: (800-) 525-1831  
 For the four-slot box with insert you need to give them this information:  
 8 x 6 x 3-7/8  
 275# B Brown  
 Roll End Tuck Mailer

We had the company give us prices on different quantities. You save more when you buy in bulk. You might want to just make a once a year purchase and replace all your boxes each year. Here is the price breakdown:

<b>Quantity</b>	<b>Price/Each</b>
10	\$30.82
20	\$16.51
25	\$14.01
30	\$11.79
40	\$9.53
50	\$8.07
75	\$6.13
100	\$6.13
200	\$3.70
250	\$3.40
300	\$3.22
500	\$2.75
750	\$2.27
1000	\$2.10

If you only need inserts, you can order the four-slot insert and separate them for use in the two-slot box. They are connected by thread. The information you need to give the company is:

1 EACH – 8 x 6 x 2-11/16  
 1.05# 34IFD White Ether  
 This is the slotted portion  
 Foam Die Cut Pad

2 EACH – 8 x 6 x 3/4  
 1.05# 34 OFD White Ether  
 This is the top and bottom pad  
 Foam Die Cut Pad

### ***Outstanding ADL Personnel***

- Peterson ADL Airman of the Year (2001), *A1C Joshua Miller*
- United States Air Force Dental Airman of the Year (2001) *A1C Joshua Miller*
- Air Force Association Airman of the Year (2001) *A1C Joshua Miller*
- Peterson ADL NCO of the Year (2001), *SSgt Steve Albers*
- Peterson ADL and USAFA Dental SNCO of the Year (2001), *MSgt Nancy Kujak*
- Peterson ADL Civilian of the Year (2001), *Ms. Patricia Murphy*
- 10 MDG and USAFA SNCO of the Quarter Oct-Dec 01, *MSgt Judy Bailly*
- 10 MDG and USAFA Civilian of the Quarter Apr-Jun 02, *Mr. James Davis*
- 10 MDG Civilian of the Quarter Jul-Sep 02, *Ms. Patricia Murphy*

### ***ADL Farewells***

- ❖ *CMSgt Michael Bonner* retired June 2002
- ❖ *TSgt Richard Ortiz* retired May 2002
- ❖ *TSgt Ann McKinley* retired August 2002
- ❖ *TSgt Conrad McCloskey* PCS'd to Elmendorf AFB, Alaska
- ❖ *SSgt Jody Hildebrandt* PCS'd to Spangdahlem, England
- ❖ *SSgt Zsanine Martin* PCS'd to Kadena, Japan
- ❖ *SSgt Simon Sharpe* PCS'd to Elmendorf AFB, Alaska
- ❖ *Mr. Richard Rivera* PCS'd to Sembach AB, Germany

### ***ADL Hails***

- MSgt Wesley Schlauch Arrived from Nellis AFB, Nevada
- MSgt Robert Czupryna arrived from Hickam AFB, Hawaii

- TSgt Mark Hancock arrived from Kadena AB, Japan
- TSgt Andrew Zimmer arrived from Lakenheath, England
- TSgt Daniel Sierra arrived from Lajes Field, Azores
- SSgt James Swihart arrived from Spangdahlem, Germany
- SSgt Dianna Padilla arrived from Andersen AFB, Guam
- Mr James Coleman arrived from Sembach, Germany

### ***ADL Web Page***

We are currently posting submission standards, product lines, turnaround times and case status reports. Twice a week, we update our web page report detailing when we received your cases, what stage of fabrication they are in (wax-up, casting, finishing, etc.) and when they were shipped. The intent is to keep you informed on the progress of your cases and aid in the scheduling of your patients in anticipation of the prosthesis arrival. You can also find copies of the ADL Newsletter and information about the upcoming workshop at <https://www.peterson.af.mil/adl>.

#### ***Other ADL Web Page Sites:***

Ft. Gordon (US Army), GA, ADL:  
<http://www.dencom.army.mil/adl/index1.html>

Kadena AB, Okinawa, Japan ADL:  
<https://www.kadena.af.mil/kadena/18wg/18mg/adl/adlhomepage.html>

San Diego (US Navy), CA, ADL:  
<http://ndcsd.med.navy.mil/adl01.htm>

Sembach AB, Germany ADL:  
<https://wwwmil.usafe.af.mil/bases/Ramstein/86ds/adl/>

### ***ADL Key Personnel***

[Col Douglas B. Evans](#)  
Area Dental Laboratory Director  
DSN 834-1603  
[Lt Col Allan D. Linehan](#)  
Area Dental Laboratory Flight Commander  
DSN 834-1602  
[CMSgt Dan Elfring](#)  
Area Dental Laboratory Manager  
DSN 834-1601  
[SMSgt Francisco Garcia-Bautista](#)  
Area Dental Laboratory Superintendent

DSN834-1604  
[SMSgt Leo Chaney](#)  
Operations Element Chief  
DSN 834-1621  
[MSgt Nancy Kujak](#)  
Support Element Chief  
DSN 834-1606  
  
[Donald T. Meaney](#)  
Training Element Chief  
DSN 834-1607  
[MSgt Judy Bailly](#)  
NCOIC, Fixed Department  
DSN 834-1609  
[MSgt Anthony Kazlouski](#)  
NCOIC, Removable Department  
DSN 834-1614  
[MSgt Peter Santaularia](#)  
All-Ceramic Section Team Leader  
DSN 834-1613  
[MSgt Richard Torres](#)  
Acrylic Section Team Leader  
DSN 834-1617  
[TSgt Daniel Sierra](#)  
NCOIC, Shipping and Receiving  
DSN 834-1625  
[Patricia Murphy](#)  
Logistics Manager  
DSN 834-1619  
[Hilda Guardado](#)  
Secretary  
DSN 834-1600



***Happy Holidays from the Peterson ADL!***

*Signed//*

DOUGLAS B. EVANS, Col, USAF, DC  
Area Dental Laboratory Director