

VOL. II, NUMBER 5

The Practice Building BULLETIN

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Could you successfully design this appliance?
See the Appliance Design Worksheet inside.

PRACTICE POTENTIAL

In the past, "appliance therapy" only referred to the use of simple orthodontic appliances like a space maintainer or a Hawley retainer. Today, this term encompassed a wide variety of appliances which are used through every phase of a patient's treatment. Whether you are placing implants, performing periodontal surgery, or simply doing interceptive orthodontics, you will need to use appliances to help control and direct your patient's treatment.

The Principles of Appliance Therapy for Adults and Children textbook was introduced to help you integrate the use of appliances into your practice. Although there are over 200 appliances illustrated, it is rare to find an appliance that is exactly what you need for a patient. In fact, the book's main purpose is just to give you ideas. It is up to you to design a specific appliance to fit your patient's needs.

There is nothing worse than receiving an appliance back from the lab only to find out that it just won't do what you intended it to do. Unfortunately, this problem usually occurs because of a breakdown in communication between the laboratory and the doctor. Here are three typical prescriptions which led to failure. Do any of them look familiar?

"Please make an upper Hawley retainer"

A simple Hawley retainer (Appliance #1161) was fabricated with full acrylic palatal coverage, Adams clasps on the first molars, and a standard labial bow running from the distal of both cuspids. Unfortunately, the patient would not wear the appliance because her lower teeth kept making contact with the Adams clasps during function. To avoid this type of problem, the doctor should have checked the patient's occlusion, sent an opposing cast, and requested a design with no occlusal interferences (Appliance #1165).

"Design and fabricate an upper bruxism splint"

Although over 80% of the splints made today are maxillary splints, this is not enough information to properly fabricate one that will



The Appliance Therapy Worksheet

A Design for Success

work. It is essential to always send thorough instructions describing the splint's occlusal scheme. For example, a proper prescription may say the following: "An upper horseshoe splint (Appliance #6193) with point contact on all posterior teeth, slight cuspid rise and brush contact in the anteriors during protrusive".

"I would like to correct the crowding in the upper anterior region. Please design an expansion appliance to make room for the blocked-out cuspids."

The term "expansion appliance" usually refers to a group of appliances that are used for arch development. Depending on the type of appliance, you can develop an arch in an anterior/posterior direction, a lateral direction, or limit its lateral development to the anterior or posterior region. As you can see, it is essential to diagnose the cause of the crowding before selecting an appliance to treat it. Then, and only then, will you be able to give the lab the specific instruction it needs to make you an appliance that will work.

TREATMENT

Simply put, if you don't fill out your prescriptions carefully, you will get what you ask for but not what you really need. To solve this problem, I have developed the Appliance Design Worksheet (see sample attached) to help you better integrate appliance therapy into your practice.

Following these simple steps will help insure your success with appliance therapy:

- 1) Read the textbook, *The Principles of Appliance Therapy for Adults and Children*. Doing so will give you an excellent overview of the hundreds of appliance designs that are available to treat your patients.
- 2) Read carefully the section called the "Anatomy of an Appliance." Every component that goes into designing an appliance is described in this chapter. This information will allow you to modify any appliance in this book to meet your needs.
- 3) Turn to the section in the book which best describes the problem you are trying to solve. The quick reference format makes this an easy task. Select an appliance by number but then be sure to modify this design to meet your specific needs.

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- 4) Fill out the design worksheet completely. DO NOT skip any section. Although certain parts of the Worksheet may not seem applicable, reading each part will ensure nothing is left out of your design. This slip is meant to be a teaching tool as well as a design sheet. Every time you fill it out completely, you will become more proficient in the art of appliance design.
- 5) There is no such thing as giving the lab too much information. We have left plenty of room on the work sheet for you to write a narrative. Do not hesitate to use it.

DESCRIPTION

On this page is a completed example of our new Appliance Design Worksheet. We are confident that if you take the time to complete every step you will not only learn how to design appliances, but you will also receive an appliance that will do what you want it to do.

STEP I. Doctor's Information

This first section contains the basic information we need to properly process your lab work. Although as an active account, this information is already in our computer. However entering it here will allow the lab managers to contact you quickly if we have any questions. Please do not forget to give us your patient's name and age.

STEP II. Special Services

Duplicate and return models- We do return working models. However some doctors like to have their appliance sent back with their original cast untouched. If this is a service you prefer, please check off the box in this section.

Fabricate Study Models - Today's standard of care requires you to keep excellent records. When doing appliance therapy, keeping study models of your treatment is recommended.

Emergency Service - There are times when you need to have an appliance made and returned to you faster than can be accomplished by regular mail service. When this is the case, you can request special handling. A list of these options can be found in the section of the book called "Guide to Services".

Complete Consultation Service - If you need help completing your records, or

address 9129 LURLINE AVE. ity CHATSWORTH State CA Zip 91311 Office Phone Number: (818) 998-7460 atient: FRANK LAGERS MI. Account Number: OOI2345 Please refer to the SML "The Principles of A iagnostic Information tient age: 31 Birthdate 6-10-72 entail Classification: I	□ Duplicate & Return Models □ Fabricate Consultation Study Models* □ Fabricate Board Quality Study Models* □ Emergency Services - Same Day Processing (extra charge)* * For information see guide to services or call client services Appliance Therapy" when completing this Form
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atient age: 31 Birthdate 6-10-72	
	I. Bite Planes: (construction bite essential at desired vertical and AP relationship)
	☐ Lingual anterior bite plane ☐ Complete coverage ☐ Complete coverage
keletal Classification: 🛛 Class II 🔲 Class III	Type of finish:
reatment objective: Please write narrative on back side.	Ď Flat ☐ Intercuspated ☐ Point contact ☐ Cuspid rise
ppliance Design - Please use separate sheet for each appliance	☐ Anterior incline ☐ Anterior brush ☐ Contact in protrusive ☐ Special design (see special instructions)
. Treatment Type: (please check type)	see page 1.20 for selection
☐ Space maintenance ☐ Finishing/Maintaining ☐ Mouthguard	J. Habit Control Devices: - opposing model essential
Regain lost space Splint	□ Loops □ Fence □ Rake □ Spinner □ Lip Shield
☐ Close space ☐ Restorative enhancement	☐ Check Shield ☐ Anterior ☐ Lateral ☐ Posterior Note: Indicate position and height on model: see pgs. 3.1-3.5
☑ Individual tooth movement ☐ Interim partial/bridge	K. Rest Seats:
☑ Crossbite correction ☐ Implant	Indicate tooth # and position
☐ Arch development ☐ Peridontal ☐ Obstructive sleep apnea	L. Bands:
Orthodontics	Teeth to be banded
Appliance Type: ☐ Fixed or ☑ Removable & ☑ Upper or ☐ Lower	☐ Preformed band provided by doctor.
Number from textbook if applicable 1084	☐ Provide custom band. see pg 1.21 for information on band selection.
*Caution-if modifications are not listed the appliance will be	M. Lingual Archwires:
fabricated exactly as described in the textbook. Expansion Screws:	☐ Ideal ☐ Contoured
☐ Midpalatal screw for lateral development	☐ Removable - ☐ Vertical ☐ Horizontal
Swing lock for anterior/posterior lateral development	Stops – location
☐ Sagittal screw for AP development	see pgs 1.23-1.25 N. Teeth
☐ Unilateral (☐ right ☐ left)	Tarth Chada
☐ Bilateral ☐ Three-way ☐ RPE (Haas) ☐ RPE (Hyrax) ☐ Micro screw ☐ Mini screw Tooth # 3	Tooth/Teeth to be replaced
See pgs 1.14-1.17 for expansion screw selection and section 8	Tooth Placement:
Springs: (list tooth # next to spring type)	☐ Socketed Adjust model in labmm
Recurved #10 Lap Direct Pressure ("T")	☐ Flange/saddle ☐ Butted
Mesial kick spring (labial or lingual)	☐ Please see written special instruction.
Distal kick spring (labial or lingual) See pgs 1.11-1.13 for best spring selection	O. Positioners: request Positioner Design Form.
Bonded Buttons or Hooks:	V. Construction Bite ☐ Maximum intercuspation bite.
Indicate tooth #/position/direction	Repositioned (with precise vertical and AP)
Labial Archwires:	☐ Checked on models for accuracy.
☑ Standard Hawley ☐ Quad Loop ☐ Apron	Carefully and separately wrapped for shipping.
□ Wrap-Around □ Flat □ Sliding □ Contoured	VI. Models
Placement (see Textbook pg 1.5-1.8)	☑ Models checked for accuracy (bubble free, no distortion)
. Clasps: (list tooth # next to clasp type) Adams <u>#14</u> Ball#4,5 #12,13"C" Finger #2	and individually wrapped.
CrozatDeltaSage	 Opposing model enclosed Models trimmed to avoid extra shipping charges.
band and barhalf claspTruax claspless	☐ Teeth to be extracted are checked on cast.
See pgs. 1.1-1.4 for best clasp selection and contraindications	VII.THIS LAB SLIP HAS BEEN-COMPLETED AND APPROVED BY DOCTOR
. Acrylic:	/ / /
☑ Full Palate ☐ Horseshoe ☐ Open Palate ☐ Color ☐ Strengthening wire ☐ Kevlar ☐ Special design	Doctor's Signature Add By.
Specific finish line (ie. anterior relief)	License Number 033271 ☐ See back for diagram and written instructions

you simply want another diagnostic opinion, our consultation service may be for you. For a complete description of this service, just give us a call.

STEP III. Diagnostic Information

This step is essential if you want to be successful. Filling in this information reminds you to take the time to do a complete diagnosis. It also gives our technicians the information they need to understand your treatment objectives and properly fabricate your appliance. Only so much can be ascertained from a set of study models alone. There is plenty of room on the back side of the work sheet for you to write a narrative. Please don't hesitate to use it.

STEP IV. Appliance Design

A. Type of Treatment - After you have completed your diagnosis, the next step is to select the section in the *Principles of Appliance Therapy* that contains the type of treatment that you want. Mark this section on the worksheet.

B. Appliance type - Make sure to indicate whether you are designing an appliance for the UPPER or LOWER arch. REMEMBER TO ALWAYS USE A SEPARATE WORK SHEET FOR EACH APPLIANCE.

Think about whether you want to use a REMOVABLE or a FIXED appliance.



Some of the factors which will help you make a decision are found in the section of the book called "The Anatomy of an Appliance." Once you have made a deci-

sion, indicate your choice on the sheet.

- Note If you only give us a specific appliance number or name, the lab will make the appliance exactly as it is described in the book unless you take the time to modify the design by completing this Worksheet.
- **C.** Expansion Screws One of the active components of an appliance, these screws come in many sizes and designs. Please review pages 1.14-1.18 and Section 8 in your book to help you select the proper screw and placement. When using micro and mini screws, don't forget to indicate the tooth number and position.
- **D.** Springs There are many types of springs which can be utilized to move your patients' teeth. Please review pages 1.11-1.13 in your textbook. There you will find help in making the proper selection. Then, list the tooth number you are trying to move next to the spring you have chosen. For mesial and distal kickers springs, make sure to indicate whether you want them coming from the labial bow or from the lingual aspect of the appliance.
- **E.** Bonded Buttons or Hooks When using a bonded button or hook to move a tooth, it is essential to tell the lab the tooth number, the intended position of the bonded component, and the direction you want to move the tooth. Fixed/Removable appliances must be carefully designed so that the bonded components do not interfere with the seating of the removable appliance.
- **F.** Labial Arch Wires An arch wire can be used for appliance retention, to passively retain teeth, or to actively move teeth. Both design selection and placement affect its usage. Please review pages 1.5-1.8 in the book to help you select a design to meet your needs.
- **G.** Clasps Being the main method of retention, the correct selection and proper placement of clasps is essential for the appliance to be successful. Please look on page 1.1-1.4 in the textbook to help you with clasp selection. Remember, it is important to place some form of retention as close as possible to the active part

- of your appliance. To fill out the design sheet, simply list the tooth number next to the clasp type.
- **H.** Acrylic Stability, strength, comfort, and the possible affect on speech are just a few of the factors that can affect the acrylic component of an appliance. Today, we even have the ability to have colors and designs added for better patient motivation. Page 1.9-1.10 in your textbook will help you further modify your design. Please make sure to indicate on the model where you want the acrylic finish line.
- **I.** Bite Planes Jumping anterior and posterior crossbites, increasing appliance retention, and repositioning the mandible are just a few of the reasons to use a bite plane. Whatever the use, it is essential to always provide the lab with an accurate construction bite.
- J. Habit Control Devices Thumb sucking, tongue thrusting, cheek biting, and bruxism often occur in both adults and children. To select the best device to control these habits, please review chapter 3 in the textbook. Regardless of the design, it is always essential to indicate the exact position and height of the habit device on the model. Please don't forget to include an opposing model.
- **K.** Rest Seats When you need a rest added to an appliance, you must indicate the tooth number and the position (i.e. mesial fossa, lingual groove) where you want the rest to be placed. Always take an opposing cast so you and the lab can make sure that there is enough clearance to place the rest.
- L. Bands Make sure to indicate which teeth are to be banded by entering the tooth number. When using your own bands, don't forget to indicate which band is for which tooth. PLEASE DO NOT POUR UP YOUR MODEL WITH THE BANDS IN PLACE just tape your bands to the lab slip.
- M. Lingual Arch Wires These wires, which are usually used to maintain space, can also have a number of active components attached to them. When this is the case, you will need to be able to remove the arch wire to make adjustments. When designing this wire please review pages 1.11 and 1.12.

- N. Teeth Are you designing an active tooth movement partial? Maybe you need a partial to handle an immediate extraction case. Because every type of partial has specific demands for tooth placement, it is up to you to tell us how you want us to place the teeth. DON'T MAKE THE LAB GUESS. Use this Worksheet to indicate shade, mold, tissue contouring, placement, and any other pertinent information.
- **O.** Positioners Designing a positioner for orthodontic finishing can be quite complex. To accommodate everyone's individual needs, Space Maintainers has a separate lab slip for designing a positioner. Just give us a call and we will be happy to supply you with them.

STEP V. Construction Bite

Be sure to supply the laboratory with a construction bite that gives us the desired vertical and anterior/posterior relationship.

Excellent stone casts are essential to making a proper diagnosis and to properly construct an appliance. If your casts are distorted in any way, you can be assured that your appliance will not fit. Please take the time to closely inspect your casts before you send them to the lab. Taking this small step will save you time and money. There is nothing more frustrating than having to re-appoint a patient to take new impressions. If your staff is having problems with their impression technique, you may find it useful to have them review the Practice Building Bulletin

STEP VII. Doctor Approval

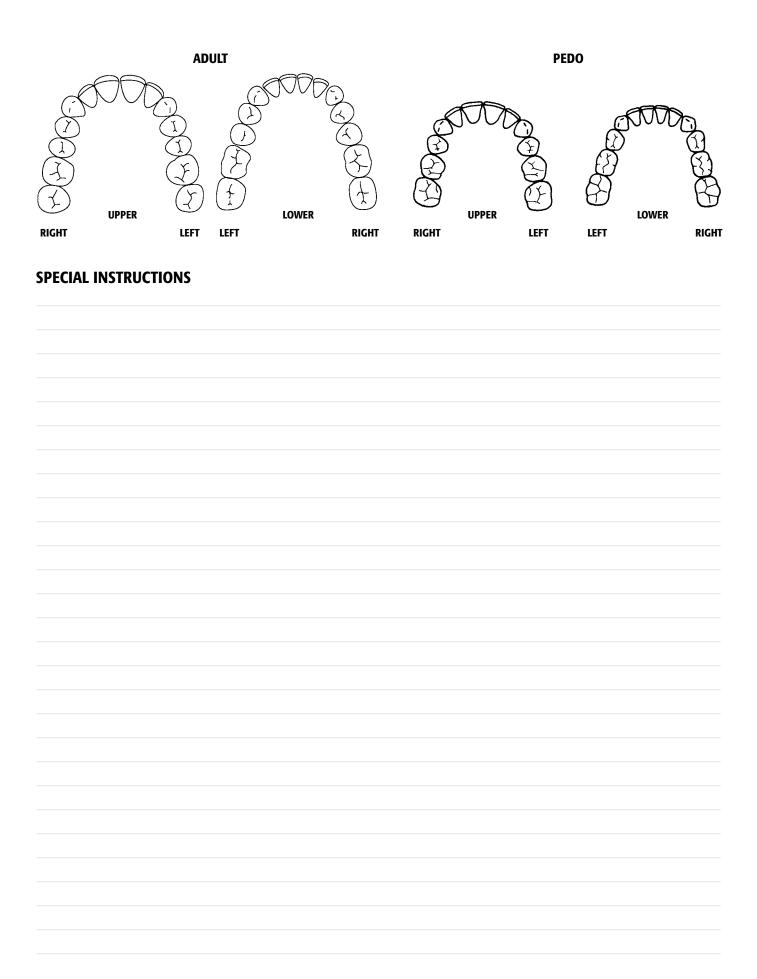
on alginate impressions.

As a practicing dentist, I know how busy you can get during a typical day. However, delegating the responsibility of filling out this Worksheet to your assistant or depending on the lab to design your appliance by writing PLEASE CALL is a mistake. In most states, you are responsible for any prescription that you send to a lab. Although Space Maintainers' staff are experts in appliance design and will assist you in any way they can, ultimately, correct appliance design is your responsibility.

APPLIANCE THERAPY DESIGN WORKSHEET - The 7 Steps To Success

. Dr's Name	II. Special Services:
Address	
City Sta	
Office Phone Number: ()	J .
Patient:	
SML Account Number:	0 , , , , ,
	The Principles of Appliance Therapy" when completing this Form
III.Diagnostic Information	I. Bite Planes: (construction bite essential at desired vertical and AP relationship)
Patient age: Birthdate	☐ Lingual anterior bite plane
Dental Classification:	Posterior coverage
Skeletal Classification:	I Class II
IV. Appliance Design - Please use separate	Autorior in dina Autorior hands D. Contact in protective
A. Treatment Type: (please check type)	■ Special design (see special instructions)
☐ Space maintenance ☐ Fin	see page 1.20 for selection selection L. Habit Control Devises, connecting model assential
☐ Space maintenance ☐ Fin ☐ Habits ☐ M ☐ Regain lost space ☐ Re ☐ Close space ☐ Re	uthguard J. Habit Control Devices: - opposing model essential Loops Fence Rake Spinner Lip Shield
Regain lost space	int
☐ Individual tooth movement ☐ In	erim partial/bridge
☐ Crossbite correction ☐ Im	plant Indicate tooth # and pocition
	Idontal T. D. T.
☐ Functional orthopedics ☐ O ☐ Orthodontics	structive sleep apnea L. Bands: Teeth to be banded
B. Appliance Type: ☐ Fixed or ☐ Removab	Preformed band provided by doctor.
Number from textbook if applicab *Caution-if modifications are not listed	e B U Opper or U Lower Provide custom band. see pg 1.21 for information on band selection.
*Caution-if modifications are not listed fabricated exactly as described in the te	thook M. Lingual Archwires:
C. Expansion Screws:	□ Ideal □ Contoured
☐ Midpalatal screw for lateral dev	lopment
☐ Swing lock for anterior/posterion	lateral development Stops – location
☐ Sagittal screw for AP developme	nt N. Teeth
☐ Unilateral (☐ right ☐ left) ☐ Bilateral ☐ Three-way ☐ RP	Tooth Shade Biotone Other
☐ Micro screw ☐ Mini screw	Tooth #
See pgs 1.14-1.17 for expansion screw s	lection and section 8 Iooth Placement:
D. Springs: (list tooth # next to spring typ	D. D. 44- J
RecurvedLapDire Mesial kick spring (labial or lingual	Diago con unitton enocial instruction
Distal kick spring (labial or lingual)	O. Positioners: request Positioner Design Form.
See pgs 1.11-1.13 for best spring selecti	V. Construction Bite
E. Bonded Buttons or Hooks: Indicate tooth #/position/direction	☐ Maximum intercuspation bite.
F. Labial Archwires:	Repositioned (with precise vertical and AP) ☐ Checked on models for accuracy.
☐ Standard Hawley ☐ Quad	
☐ Wrap-Around ☐ Flat ☐ :	
Placement (see Textbook pg 1.5-1.8)	☐ Models checked for accuracy (bubble free, no distortion)
G. Clasps: (list tooth # next to clasp type) Adams Ball	and individually wrapped. "C" Finger Opposing model englosed
Adams Ball Delta	Sage
band and bar half clasp	Iruax claspless
See pgs. 1.1-1.4 for best clasp selection of H. Acrylic:	vii. This lab slip has been completed and approved by doctor
☐ Full Palate ☐ Horseshoe ☐ Ope	
☐ Strengthening wire ☐ Kevla	Special design
Specific finish line (ie. anterior reli	License Number
see page 1.9-1.10	☐ See back for diagram and written instructions











CONTRA-INDICATIONS AND CONCERNS - COMMON PROBLEMS

- 1) Prior to beginning any appliance therapy, always collect excellent records. These should include a complete medical and dental history, periodontal screening, complete dental charting, all necessary x-rays (FMX, Panorex, Lateral Ceph, Tomograms), photographs, study models, and working casts.
- 2) Diagnose and treatment plan the case— Take the time to closely evaluate your records. Next, sequence out your treatment step by step.
- 3) Evaluate your ability to treat (Case selection)— It is essential to understand your own limitations. Not everyone feels comfortable performing endodontic therapy on second molars. The same can be said about appliance therapy. If you are uncomfortable treating a problem don't hesitate to refer it to a specialist.
- 4) Every appliance in the textbook has been given an appliance number. It will always be tempting to simply write this number down and leave the rest of the work sheet blank. DO NOT DO THIS. It is very rare to be able to select an appliance out of the book without having to do some small modification in its design. At bare minimum, you will need to indicate which teeth need to be clasped or banded. Therefore PLEASE FILL OUT THE WORK-SHEET COMPLETELY.
- 5) Check your models very carefully for accuracy and completeness. Large air holes and stone bubbles are not acceptable. The models should articulate properly and not rock due to stone bubbles on the occlusal surfaces of the posterior teeth.

- 6) When sending a construction bite, check to see that the models fit into the bite completely and accurately prior to shipping. Do not ship the models in occlusion or with the construction bite between the teeth.
- 7) Often, when in maximum intercuspation, the lower incisors are too tightly coupled with the lingual of the upper incisors to allow needed tooth movement. Check to see that adequate overbite and overjet are present prior to designing an appliance to align lower anteriors.
- 8) Carefully consider the age and responsibility level of your younger patients. Are they responsible enough to properly care for a removable appliance?...or will they be losing it constantly? Consider a fixed approach in these situations.
- 9) Always design active components first and retention second. This will help ensure retention is adequate and in the proper location. Note...the design sheet has been organized so the active components will be designed first.
- 10) It is best to always try to design an appliance with no occlusal interference. Sometimes the patient's free-way space will be enough to allow for comfortable appliance wear. However, occlusal interference from clasping may not always be avoidable. When clasp interference is a problem, a thin, balanced, occlusal bite plane may be required.
- 11) Proper treatment sequencing usually entails: 1st - correct any crowding (lateral and anterior/ posterior). 2nd - correct the jaw relationship (anterior/posterior and vertical). 3rd - align the

- teeth. A common problem is trying to accomplish too much with one appliance. More than one appliance is often needed to complete treatment.
- 12) Be sure that a tooth to be clasped or banded is erupted sufficiently for proper retention. If a tooth is not fully erupted you may consider creating retention by placing a buccal undercut with a composite ledge. A "C" Clasp can then be used to engage the undercut.

INCOME POTENTIAL

Common sense tells you that the key to being successful is doing things right the first time. This is especially true when doing appliance therapy. Conservatively speaking, adding appliance therapy to your practice can allow you to increase your gross production \$50,000 a year. However, this figure can be markedly reduced if you don't take the time to properly design your appliances.

Have you ever sat down and figured out what your time is worth? If it costs you \$300 an hour to run your office, what does it cost you every time you have to repeat a procedure unnecessarily?

Take the time to properly design an appliance by completely filling out this work sheet. It will save you time, money, and a lot of unnecessary grief.

By Rob Veis D.D.S. Director of Practice Development

www.smldent.com