Organization of the J. K. Economides Orthodontic Collection
Instruction Manual

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# Table of Contents

List of Figures ................................................................................................................................. 1

I. Getting Set Up to Work on the Orthodontic Project ............................................................ 1
II. Labeling of Physical Records .............................................................................................. 5
III. Labeling and Deidentifying Dental Casts ............................................................................ 7
IV. Logging onto VPN Client ..................................................................................................... 9
V. Scanning Images .................................................................................................................... 11
VI. Photo and X-Ray Editing .................................................................................................. 19
VII. Editing Electronically Received Photos ............................................................................. 25
VIII. Batch Image Processing for Image Conversion to JPEG ................................................... 47
IX. General Notes on Data Entry ............................................................................................. 53
X. Data Entry Instructions ....................................................................................................... 54
XI. Removal of Confidential Information ................................................................................... 70
XII. Five Percent Check ............................................................................................................ 83
Appendix A: Directory ................................................................................................................. 85
Appendix B: Image Naming Convention ..................................................................................... 87
Appendix C: Tooth Naming Convention ...................................................................................... 89
Appendix D: Cephalometrics ........................................................................................................ 91
Glossary ....................................................................................................................................... 105
List of Figures

Figure 1.1: HSC ID Request Form ............................................................................................. 3
Figure 2.1: Sample X-Ray with Cephalometric Transparency Trace ....................................... 6
Figure 5.1: Sample Inter-Oral Photos with View Codes .......................................................... 14
Figure 5.2: Screen Shot for Scanning Photos ........................................................................... 15
Figure 5.3: Sample X-Rays with View Codes .......................................................................... 16
Figure 5.4: Screen Shots for Scanning X-Rays ........................................................................ 17
Figure 5.5: Sample X-Ray Scanning Orientation ..................................................................... 18
Figure 6.1: Adobe Photoshop CS3 Tools ................................................................................. 21
Figure 6.2: Sample Images with final orientation ..................................................................... 22
Figure 7.1: Browsing Images .................................................................................................... 31
Figure 7.2: Preparing to Batch Rename .................................................................................... 32
Figure 7.3: ‘Batch Rename’ Window – Stage 2 ........................................................................ 33
Figure 7.4: ‘N:\ Images\..\to crop’ – Unsorted ........................................................................ 34
Figure 7.5: ‘N:\ Images\..\to crop’ – Sorted ............................................................................... 35
Figure 7.6: Bulk Rename Utility ............................................................................................... 36
Figure 7.7: Examples of Bulk Renaming .................................................................................. 37
Figure 7.8: Sorting “.i1” Images ............................................................................................... 38
Figure 7.9: ‘Batch Rename’ Window – Stage 5: i1 .................................................................. 39
Figure 7.10: ‘Batch Rename’ Window – Stage 5: i3 ................................................................. 40
Figure 7.11: ‘Batch Rename’ Window – Stage 5: i9 ................................................................ 41
Figure 7.12: ‘Orthodontic Actions’ for Photo Editing .............................................................. 42
Figure 7.13: Batch Photo Editing ............................................................................................. 44
Figure 7.14: Examples of cropped images requiring name changes ......................................... 45
Figure 8.1: Actions Window ..................................................................................................... 49
Figure 8.2: Screen Shots for Creating/ Recording an Action ................................................... 50
Figure 8.3: Batch Photo Editing ............................................................................................... 52
Figure 10.1: Blank Data Entry Screen ....................................................................................... 61
Figure 10.2: Sample Case Analysis and Treatment Plan .......................................................... 62
Figure 10.3: Sample Medicaid Utilization Review Forms ....................................................... 63
Figure 10.4: Sample Orthodontic Insurance Form ................................................................... 64
I. Getting Set Up to Work on the Orthodontic Project
   A. On-line training
      1. To login to Learning Central
         a. Go to:  https://learningcentral.health.unm.edu/plateau/user/login.jsp
         b. Use your UNM Net ID and Password
      2. Training required
         a. HIPPAA training for the current year (needs to be repeated yearly)
   
   B. HSC ID username and badge
      1. HSC username and password
         a. All employees on this project need a HSC username and password
         b. Form to fill out online
            i.  https://hcsssl.unm.edu/HEAT/accountRequest/index.cfm
            ii. Click: “I agree” on the first screen
            iii. Select: “Faculty/Staff Account” as type of account requesting
            iv. See Figure 1.1: HSC ID Request Form
            v. Fields to fill in:
               - UNM ID (SS#): either your UNM ID or your SS#
                 - This is required to verify your identity
               - Your first, middle and last names
               - Osteology Lab phone number as the Office Phone number
               - Leave the section beginning with Job Title blank
               - Contact Information: Enter Dr. Heather Edgar as the contact
               - Comments: “Student employee with the Maxwell Museum Orthodontic project. Access is needed to the orthodontics database. Please see Gayle for additional information.”
            vi. Click: “Submit Form”
      2. HSC ID badge
         a. If you will be helping to scan images, you will also need a HSC ID badge
         b. HSC contact: Analyst Radiology Information Specialist
            i.  See Appendix A: Directory for contact information
            ii. Daniel will provide you with the necessary forms to get approved for a HSC ID badge.
            iii. Get badge from Hospital Security
                - Photo ID required
         c. Replacement HSC ID badge
            i.  Got to hospital security and request a new badge
            ii. Replacement form needs to be filled out
            iii. Pay $15 fee
            iv. Option: Retake photo, or they can use the photo on file
   
   C. Logging onto the computers in the Osteology Lab
      1. User name and password
         a. Username and Password will be provided
      2. This allows you to log onto any of the computers in the lab
      3. To access to the N:\ drive
a. You will need to also log onto VPN client
b. See Section IV: Logging onto VPN Client

D. Orthodontic database reporter
   1. Every research assistant who will be entering data will need to have their name added to the Orthodontic Database as a reporter for ancestry estimation
   2. See Section IV-B: At the Osteology Lab for direction on computer log on
   3. To add a new reporter
      a. Open the database
         i. Location:  N:\Database
         ii. File:    “Orthodontics.mdb”
         iii. File type:  Microsoft Access
      b. Click “Open” if you get a “Open File – Security Warning” window
      c. If you get a “Securing Warning” bar across the top of the screen
         i. Click: “Options…”
         ii. Window pops up “Microsoft Office Security Options”
         iii. Select: “Enable this content”
         iv. Click: “OK”
      d. From “Form View”
         i. Click “Reporters” button within Ancestry Estimates window
         ii. Window pops up “Reporters”
         iii. Add a new record
         iv. Enter your name (first and last)
         v. Report your self-identified race
         vi. Exit out of the window
Screen view of requesting an HSC User ID. See Section IB1: HSC Username and Password for specifics on how to fill out this form.
II. Labeling of Physical Records

A. Order of records for labeling
   Note: The transfer patients were the first patients to be accessioned. After the transfer patients, the new patients who joined Dr. Economides’ practice in 1999 were accessioned. These new patients were accessioned in reverse order, such that the higher patient number assigned by Dr. Economides correlates to a lower accession number. Patient’s who joined Dr. Economides’ practice in December of 1998 were accessioned after the patients who joined in January. After all 1998 patients were accessioned, then the 1997 patients were accessioned, etc.

B. Accession number (unique identifier)
   1. Example: “2005.19.70”
   3. Object number: last number of the unique identifier
      a. Every Patient must have their own, unique object number.
      b. In one or two cases, multiple patients were in one folder.
         i. In these cases, “A” and “B” were added to the object number.

C. Label the patient folder with the patient’s accession number
   1. Label with “Sharpie® Permanent Marker Ultra Fine Point”
   2. Label in the upper right hand corner, under then patient number

D. EVERY paper, photo, and x-ray needs to be labeled with the patient’s accession number
   1. Papers:
      a. Label with “Sharpie® Permanent Marker Ultra Fine Point”
      b. Label upper, right hand corner
      c. Not too close to the top of the page – number gets cut off when photocopying
   2. Photos:
      a. Label with “Sharpie® Permanent Marker Ultra Fine Point”
      b. Label on the backside of the photo, not on the image
   3. X-Rays:
      a. Label with “Z↑G® Photo Signature, black, 5 point”
      b. Label in one of the lower corners, near the patient’s name if possible
   4. Transparency:
      a. Transparencies are traces of lateral x-rays which were used to take cephalometric measurements.
      b. See Figure 2.1: Sample X-Ray with Cephalometric Transparency Trace
      c. Remove tape from transparency and x-ray
      d. Label transparency with “Sharpie® Permanent Marker Ultra Fine Point”
      e. Place both transparency and x-ray in “Perma Dur Envelope”
      f. Label envelope with “Sharpie® Permanent Marker Ultra Fine Point”
Figure 2.1: Sample X-Ray with Cephalometric Transparency Trace
III. **Labeling and Deidentifying Dental Casts**

A. Match patient’s number
   1. On patient’s *cast* to the patient’s folder
   2. Have the box of patient folders with you for easier matching

B. Label the box holding the casts with the corresponding accession number
   1. Use a “Sharpie® Permanent Marker Ultra Fine Point” to label the box
      a. Label at the bottom of the box, below the drawer pull
   2. Remove any *patient identifier* from Dr. Economides or other dentist
      a. Specifically remove the paper in the front of the box

C. Label the cast
   1. Use a “Sharpie® Industrial Super Permanent Ink Fine Point” to label the cast
      a. Write the label on the bottom of the cast at the widest point
   2. Remove any Patient Identifiers, such as
      a. Name
      b. Patient number
         i. Remove from cast
         ii. And from the box if present
      c. Date of birth
   3. Do NOT remove
      a. Date cast was taken
      b. Age of the individual when the cast was taken

D. Notes for successfully removing patient identifiers
   1. Some labels are easy to remove
   2. Labels with dates can be carefully cut to remove patient identifiers while leaving dates
   3. Erasers can sometimes remove patient identifiers written in pencil without having to use an “X-ACTO®”
   4. A “Sharpie® Industrial Super Permanent Ink Fine Point” can be used to color over patient identifiers
   5. Use an “X-ACTO®” knife to scratch the surface of the cast if needed to remove patient identifiers
      a. Uses of an “X-ACTO®” knife to scratch the surface of the cast should be a last attempt
      b. This does damage the cast and should be avoided as much as possible.

E. NOTE: If cast is present but do not have the corresponding patient folder
   1. Make a note of this patient
   2. Do NOT de-identify these casts
   3. These casts will be dealt with at a later time
IV. **Logging onto VPN Client**

A. **Purpose:** This will allow you to access the database and all images pertaining to the Orthodontic Project, as well as other relevant files.

B. **At the Osteology Lab:**
   1. See **Section I-C: Logging onto the computers in the Osteology Lab**
   2. To log onto VPN Client in the Osteology Lab:
      a. Go to: Start \ All Programs \ Cisco Systems VPN Client \ VPN Client
      b. Select: “HSC-Network_VPN”
      c. Click: “Connect” (upper left corner)
      d. Enter: Your HSC username and password
      e. Press: “Enter”
   3. To access the (N:) Drive
      a. If you can see the (N:) Drive
         i. From “My Computer”
         ii. Click on: “Orthodontic Imaging on ‘hsc-truchas\departments’ (N:)”
         iii. Enter: Your HSC username and password
      b. If you cannot see the (N:) Drive
         i. From “My Computer”
         ii. Tools → “Map Network Drive…”
            - Drive: “N: \hsc-truchas\departments”
            - Folder: “\hsc-truchas\departments\Orthodontic Imaging”
         iii. Click: “Finish”

C. **At the hospital:**
   1. Hospital login passwords are required to be changed every 180 days
   2. If computer says “saving settings,” turn it off, and then back on
   3. To login:
      a. Novell Client Login
         i. Enter: Your HSC username and password
      b. Windows Workstation Login
         i. Enter: **PACS username and password**
            - Username and password will be provided
         ii. This is NOT the same as your HSC username and password
         iii. The PACS password will be shared with you when you join the Orthodontic Project. Everyone uses the same PACS username and password to log onto the computers in the **Radiology Department**.

D. **DO NOT FORGET TO LOG OUT WHEN YOU ARE DONE!**
   This is important in order to protect patient privacy.
V. Scanning Images

A. General notes:
1. There are two sources of images for patients. The physical photos and x-rays located within the patient’s folder, and electronic photos received from Dr. Economides.
   a. Physical photos and x-rays addressed in Section V. Scanning Images and Section VI. Photo and X-Ray Editing
   b. Electronic photos are addressed in Section VII. Editing Electronically Received Photos
2. Scan photos and x-rays at the hospital
3. Scanned images are to be saved to patient specific e-folders
4. For each patient, create an e-folder for the images
   a. Location: “N:\Images\Orthodontics\Need to be Deidentified and edited”
   b. Every patient needs to have its own e-folder within the above e-folder
      i. Name the e-folder according to the patient’s accession number
      ii. Example: “2005_19_xxxx”
5. Once images have been scanned, they will be edited to remove confidential information
   a. See Section VI. Photo and X-Ray Editing

B. Scanning photos
1. Notes:
   a. Only the inter-oral photos get scanned.
   b. None of the full face photos get scanned.
   c. For examples of inter-oral photos, see Figure 5.1 Sample Inter-Oral Photos
2. Open Photoshop
   a. Icon on desktop
   b. Or from “Start Menu”
3. File → Import → “Epson twain Pro”
4. Click: “Preview”
5. Select: Area of preview to scan
6. Click: “Scan”
7. Close window: “Close”
8. See Figure 5.2 Screen Shot for Scanning Photos
9. Save image
   a. Location: “N:\Images\Orthodontics\Need to be Deidentified and edited”
   b. Every patient needs to have its own e-folder within the above e-folder
   c. For image naming, see Appendix B: Image Naming Convention
      i. For more efficient scanning
         - Save all images of a single treatment date as one file
         - Use “ALL” for the ViewCode
      ii. During photo editing this single e-file will get saved into numerous e-files, one for each image
   d. Click: “Save”
10. When done for the day, do a “preview” scan of a blank screen. Otherwise the computer will retain the previously scanned inter-oral photos.
C. Scanning x-rays

1. Notes:
   a. All x-rays, except for bite-wings, need to be scanned.
   b. X-Ray scanning is done at the hospital on the Vidar Twain Scanner there.
   c. Most commonly encountered:
      i. Lateral x-rays
      ii. Panaview x-rays
   d. Less common views occasionally encountered:
      i. Anterior-posterior x-rays
      ii. Hand x-rays
      iii. TMJ centered lateral x-rays
      iv. Waters View x-rays
   e. Additional x-rays may be included in the patient’s folder and do require scanning.
   f. For examples of x-rays, see Figure 5.3: Sample X-Rays.

2. Open Photoshop
   a. Icon on desktop
   b. Or from “Start Menu.”

3. File → Import → “Vidar Twain 32 Version 5.2.1.”
   a. See Figure 5.4A: Window for Scanning using the Vidar Twain.

4. Settings for scanning:
   a. Image Properties:
      i. Resolution: 300
      ii. Depth: 12
      iii. Num. Films: 1 (or number of films being scanned)
   b. Scan Size: “Auto Size”
   c. Select: “Multi-Film Mode”

5. Click: “Scan”
   a. See Figure 5.4B: Window for naming the scanned file.

6. Click: “Browse”
   a. See Figure 5.4C: Window for selecting the file’s location.

7. Select the location of the file export:
   a. Every patient needs to have its own e-folder within the above e-folder.
   b. Select or create a folder for the patient. But do not enter file name here.
   c. Location: “N:\Images\Orthodontics\Need to be Deidentified and edited”
      i. Choose specific e-folder with the patient’s accession number

8. Click: “Save”
   a. This will return you to the window in Figure 5.4B.

9. Enter file name in “Save Images as:”
   a. See Appendix B: Image Naming Convention.

10. Load x-ray into the scanner
    a. Orientation of images
       i. See Figure 5.5: Sample X-Ray Scanning Orientation
       ii. Notes:
          - Description of x-ray orientation is based on your view, not what is facing the machine.
- Orientation differs depending on how the image is saved (TIF or Bitmap).
- Must be scanned at a depth of “12,” which requires file type TIF.

iii. Panaview x-rays:
- Superior side is on the left
- “R” on the image needs to be superior

iv. Lateral x-rays
- Anterior portion of the skull is on the left
- Inferior portion of skull faces superior

11. Click: “OK” – machine will feed the film though
12. After scan is complete, open the image to verify that it scanned correctly
13. If unable to scan x-ray using the Vidar, scan using the Epsion scanner
   a. Quality will not be as good, but is better to have poorer quality than to lack
      the image for the database.

D. After scanning delete these files:
   1. i9999.dat (or may be named “i9999”)
   2. imgs.lst
   3. These files are not important, and they take up room on the server.
Figure 5.1: Sample Inter-Oral Photos with View Codes

Right Lateral Bite View Code: “rlb”
Anterior Bite View Code: “antb”
Left Lateral Bite View Code: “llb”
Maxillary Occlusal View Code: “mxx”
Mandibular Occlusal View Code: “mdo”

All five inter-oral photos as scanned View Code: “ALL”
(Will get edited into five separate images during photo editing)
Figure 5.2: Screen Shot for Scanning Photos

- Use this window to select desired images to be scanned.
- Note: At the end of the day, do a “Preview” scan without photos. Otherwise anyone trying to scan photos will be able to see the patient’s photos.
Figure 5.3: Sample X-Rays with View Codes

Lateral x-ray
View Code: “lat”

Hand x-ray
View Code: “hd”

Waters View x-ray
View Code: “waters”

Anterior-Posterior x-ray
View Code: “AP”

Panaview X-Ray
View Code: “pan”

Left TMJ x-ray
View Code: “LTMJ”

Right TMJ x-ray
View Code: “RTMJ”
Figure 5.4: Screen Shots for Scanning X-Rays

Figure 5.4A: Window for scanning using the Vidar Twain

Check these before scanning.

Step 5

Figure 5.4B: Window for naming the scanned file

Step 6

Step 11

Step 9

Figure 5.4C: Window for selecting the file’s location

Step 7

-17-
Figure 5.5: Sample X-Ray Scanning Orientation

Panaview x-rays:
- Superior side is on the left
- “R” on the image needs to be superior

These images are how you should see the x-ray as you are looking at it sitting in the x-ray scanner. This side faces out from the machine.

These are correct when image is saved as a TIF file. Check type of file before correcting orientation.

Other x-ray images are not as common. Therefore, they are not the focus of orientation descriptions.

Lateral x-ray
- Anterior portion of the skull is on the right
- Inferior portion of skull faces superior
VI. **Photo and X-Ray Editing**

A. See Section V: Scanning Images

1. Images scanned
2. Saved in e-folder “Need to be Deidentified and edited”
   a. Location: “N:\Images\Orthodontics\Need to be Deidentified and edited”
   b. All images for one patient are in one e-folder

B. For editing of photos and x-rays

1. For images of tools, see Figure 6.1: Adobe Photoshop CS3 Tools
2. Check EVERY image: photos and X-Rays
3. Check that these files have been deleted
   a. i9999.dat (or may be named “i9999”)
   b. imgs.lst
4. For photo e-files containing multiple images (ViewCode: ALL)
   a. Need to be saved as individual e-files (save as)
   b. See Appendix B: Image Naming Convention
5. Use “Eyedropper Tool (I)” to match color near patient identifier
   a. Any area on image that includes: (includes, but not limited to)
      i. Patient name
      ii. Patient age
      iii. Patient number
      iv. Data image taken
      v. Orthodontist
6. Select area to fill in
   a. For photos, use “Quick Selection Tool (W)” for best results
   b. For x-rays, use “Rectangular Marquee Tool (M)” for neat square
7. Fill in area selected
8. Crop, flip, and rotate image as required
   a. See Figure 6.2: Sample Images with final orientation
   b. Crop to include only the image desired
      i. Crop x-rays and photos if there is excess area included in the image
      ii. Crop photos when there is a duplicate image so that only one image remains
      iii. Use the “Crop Tool (C)” for easy cropping
   c. Flip (mirror image) if x-ray is not oriented correctly
      i. Lateral x-rays – facing to the right of the screen
      ii. Panaview x-rays – patient’s left on the right side of the screen
      iii. AP x-rays – patient’s left on the right of the screen
      iv. Water’s x-rays – patient’s left on the right of the screen, chin pointing up
   d. Rotate images as needed
      i. Photos: should be oriented as if looking at the person
      ii. X-Rays: panaview x-rays should be oriented horizontally
9. Addition of x-ray rulers
   a. Template rulers need to be added
      i. Varies by image view
      ii. In e-folder “N:\Images\Orthodontics\Need to be Deidentified and edited”
b. To add template ruler to x-ray:
   i. Open template
   ii. Select entire image using “Rectangular Marquee Tool (M)”
   iii. Copy
   iv. Open x-ray that requires template ruler
   v. Paste ruler on x-ray (will paste on a new layer)
   vi. Use “Move Tool (V)” to position ruler template into the correct position

10. Once all images in e-folder have been edited
   a. CUT and paste e-folder with edited images to appropriate location
      i. Location: “N:\Images\Orthodontics\Scanned photos”
   b. Images organized by accession number
      → N:\Images\Orthodontics
      → E-Folder with groups of 500 Patients
         Example: “2005_19_1-2005_19_500”
      → E-Folder with groups of 50 Patients
         Example: “2005_19_51-2005_19_100”
      → E-Folder for each Patient
         Example: “2005_19_70”

C. Final image modification
   1. See Section VIII: Batch Image Processing for Image Conversion to JPEG
   2. After batching,
      a. Sort images into folders
         b. Location: “N:\Images\Orthodontics\all images-ready for web”
   3. These folders will also contain images received electronically
      a. See Section VII: Editing Electronically Received Photos
      b. When multiple copies of same image on the same date exist, change the last number “Ordinal.”
         i. See Appendix B: Image Naming Convention
Figure 6.1: Adobe Photoshop CS3 Tools

- Move Tool (V)
- Rectangular Marquee Tool (M)
- Quick Selection Tool (W)
- Crop Tool (C)
- Eyedropper Tool (I)
Figure 6.2: Sample Images with final orientation

Right Lateral Bite
View Code: “rlb”

Anterior Bite
View Code: “antb”

Left Lateral Bite
View Code: “llb”

Maxillary Occlusal
View Code: “mxo”

Mandibular Occlusal
View Code: “rlb”

Lateral x-ray
View Code: “lat”

Panaview x-ray
View Code: “pan”
Figure 6.2: continued

Anterior-Posterior x-ray
View Code: “AP”

Right TMJ x-ray
View Code: “RTMJ”

Left TMJ x-ray
View Code: “LTMJ”

Waters View x-ray
View Code: “waters”

Hand x-ray
View Code: “hd”
VII. Editing Electronically Received Photos

A. General notes:
   1. These photos were retrieved from Dr. Economides’ computer.
   2. Some are duplicates of those photos in the patient’s folder. However, these photos include images taken during treatment that are not included in the folder.
   3. All inter-oral photos (and x-rays when present) will be included. Full face photos, random photos, and “.cmt” files will not be included in the final results.
   4. Location: “N:\Images\Economides\Image”
      a. Are organized by the year the patient joined.
      b. Year joined indicated by the patient number
   5. Editing process is comprised of 8 stages of steps

B. Example used to describe stages
   1. As this is a complex series of steps, a fictitious patient has been created to use as an example.
   2. Patient 2005.19.00 is not a valid accession number. None of the images used in this section as an example are associated with their real accession number.

C. Stage 1: Change folder name from patient number to accession number
   1. Location: “N:\Images\Economides\Image”
   2. Patients are organized by the year (first few numbers of the patient number)
   3. Check the face photos in the folder to the face photos in the e-folder
      a. Occasionally multiple patients have been found in one e-folder
   4. Change the e-folder name from the patient number to the accession number
      a. Format e-folder name with “_” instead of “.”

D. Stage 2: Adding accession number to file name
   1. Open Photoshop
   2. File → Browse
      a. See Figure 7.1: Browsing Images
   3. In browse window, locate the first e-folder to begin editing
      a. Example: 2005_19_00
      b. Select all images and right click over the images
      c. Click on “Batch Rename…”
      d. See Figure 7.2: Preparing to Batch Rename
   4. See Figure 7.3: ‘Batch Rename’ Window – Stage 2
      a. “Destination Folder” – by selecting “Copy to other folder,” the e-files selected will be copied, the e-file names will be changed, and pasted into the selected e-folder.
         a. “Browse…” – select e-folder “N:\Images\Economides\to edit\to crop”
      b. “New Filenames” – as it is set up in Figure 7.3 the patient’s accession number will be correctly added to the e-file name
         i. To change, select from the pull down menus (menu to the left affects options in menus to the right)
         ii. Add or delete lines of options by the “-“ or “+” buttons
c. “Preview” – shows an example of how the new e-file names will appear
d. Click “Rename”
5. Repeat Steps 4 and 5 for the next patient, continuing for as many patients as will be renamed at the time.

E. Stage 3: Sort files
1. All e-files renamed in Stage 2 will be copied to “N:\Images\Economides\to edit\to crop”
   a. See Figure 7.4: ‘N:\Image\...\to crop’ – Unsorted
   b. Figure 7.4 includes examples of the types of e-files
2. Move all “CMT Files” into e-folder “N:\Images\Economides\ext cmt”
3. Move image files from “N:\...\to crop” into subfolders:
   1. E-folder: “N:\...\to copy\face” – any image that contains only the face of the patient without including inter-oral images. Also include random photos of any non-tooth focused image.
      i. After verifying that no images of teeth were accidentally moved here, delete all images.
   2. E-folder: “N:\...\to copy\i1” – any image that contains only one inter-oral view
   3. E-folder: “N:\...\to copy\i3” – any image that contains three inter-oral images. These usually are “antb,” “llb,” and “rlb” but may include “mdo,” “mzo” or any other image.
   4. E-folder: “N:\...\to copy\i9” – any image that has 8 or 9 images organized in a 3x3 grid. The top row usually includes three face photos, with the remaining 5 or 6 images being inter-oral photos. The middle square of the grid may either be an inter-oral image or else black. Inter-oral images include “antb,” “llb,” “mdo,” “mzo,” “rlb,” and may include another, non standard, image.
   5. E-folder: “N:\...\to copy\other” – other images such as x-rays or other images of teeth that do not fit into one of the previous three folders.
6. See Figure 7.5: ‘N:\Image\...\to crop’ - Sorted

F. Stage 4: Change date format in file name
1. E-file names include the date they were taken. The received format is “MMDYY,” but as discussed in Appendix B: Image Naming Convention, dates need to be in the format “YYYYMMDD.”
2. Open “Bulk Rename Utility”
   a. See Figure 7.6: Bulk Rename Utility
   b. Notes:
      i. This program works by identifying text within e-file names and modifying the text as instructed.
      ii. The three renaming options indicated (letters C, D, and E) are the options most likely to be used.
3. Select sub e-folder of images to rename
4. See Figure 7.7: Examples of Bulk Renaming
5. Additional text to remove:
   a. All “.i#” suffixes
      i. “.i1”
ii. “.i3”
iii. “.i9”
b. Any stage of treatment information
   i. “-pret”
   ii. “-postt”
   iii. “-pres”

6. Do not remove “a” suffixes at this point. This will be deal with later in **Stage 7**.
   a. Example: “103096.i3a” or “19961030a”

**G. Stage 5: Add view code and ordinal number to file name**

1. Notes:
   a. Uses the same program described in **Stage 2**
   b. For each of the three types of files (i1, i3, and i9) similar, but different steps are required.

2. For “i1” Images
   a. Location: “N:\Images\Economides\to edit\to crop\i1”
   b. Sort single images into subfolders according to view of teeth
   c. See **Figure 7.8: Sorting “.i1” Images**
   d. Open Photoshop’s Browsing window
      i. Refer to **Figure 7.1** and **Figure 7.2**
   e. In browse window, locate the “i1” e-folder
   f. Select all images and right click
   g. Click on “Batch Rename…”
   h. See **Figure 7.9: ‘Batch Renaming’ Window – Stage 5: i1**
      i. “Destination Folder” – by selecting “Rename in same folder,” the e-file names will be changed, without a copy of the e-file being made.
      ii. “New Filenames” – as it is set up in **Figure 7.9** will add the view code and ordinal number to the end of the e-file name. Enter the appropriate view code based on the images selected.
      iii. “Preview” – shows an example of how the new e-file names will appear
   i. Repeat for all sub e-folders
   j. All images should have view code and ordinal number added. No copies of images are necessary.

3. For “i3” Images
   a. Location: “N:\Images\Economides\to edit\to crop\i3”
   b. Open Photoshop’s Browsing window
      i. Refer to **Figure 7.1** and **Figure 7.2**
   c. In browse window, locate the “i3” e-folder
   d. Select all images and right click
   e. Click on “Batch Rename…”
   f. Repeat batch rename for all three view codes
      i. View codes: “antb,” “llb,” and “rlb”
      ii. These will be edited in **Stage 6**
   g. See **Figure 7.10: ‘Batch Renaming’ Window – Stage 5: i3**

-27-
i. “Destination Folder” – by selecting “Copy to other folder,” the e-file selected will be copied; the e-file names will be changed, and pasted into the selected e-folder.
   - Location: “N:\Images\Economides\to edit\to crop\i3”
   
   e-folder destination add view code
   N:\..\i3\0-antb-crop antb
   N:\..\i3\0-llb-crop llb
   N:\..\i3\0-rlb-crop rlb

ii. “New Filenames” – as it is set up in Figure 7.10 will add the view code and ordinal number to the end of the e-file name.
   - It is crucial that the destination e-folder and the view code match!

iii. “Preview” – shows an example of how the new e-file names will appear

iv. Check that the view code noted on destination e-folder matches the view code being added to the e-file name.

4. For “i9” Images
   
   a. Location: “N:\Images\Economides\to edit\to crop\i9”
   
   b. Open Photoshop’s Browsing window
   
   i. Refer to Figure 7.1 and Figure 7.2
   
   c. In browse window, locate the “i9” e-folder
   
   d. Select all images and right click
   
   e. Click on “Batch Rename…”
   
   f. Repeat batch rename for all five view codes
   
   i. View codes: “antb,” “llb,” “mdo,” “mxo,” and “rlb”
   
   ii. These will be edited in Stage 6
   
   g. See Figure 7.11: ‘Batch Renaming’ Window – Stage 5: i9
   
   i. “Destination Folder” – by selecting “Copy to other folder,” the e-file selected will be copied; the e-file names will be changed, and pasted into the selected e-folder.
   
   - Location: “N:\Images\Economides\to edit\to crop\i9”
   
   e-folder destination add view code
   N:\..\i9\0-antb-crop antb
   N:\..\i9\0-llb-crop llb
   N:\..\i9\0-mdo-crop mdo
   N:\..\i9\0-mxo-crop mxo
   N:\..\i9\0-rlb-crop rlb

ii. “New Filenames” – as it is set up in Figure 7.11 will add the view code and ordinal number to the end of the e-file name.

iii. “Preview” – shows an example of how the new e-file names will appear

iv. Check that the view code noted on destination e-folder matches the view code being added to the e-file name.

h. E-files with a sixth inter-oral image (see Figure 7.4 for example)

   i. Copy from “N:\Images\Economides\to edit\to crop\i9”
   
   ii. Paste in “N:\Images\Economides\ to edit\ to crop\i9\other”
   
   iii. Add view code as appropriate. If view is unclear, use view code “other.”

5. For “other” images

   a. Location: “N:\Images\Economides\to edit\to crop\other”
b. Edit e-file name as required depending on image.
i. If image is of an x-ray:
   - Change the “P_” to “X_”
   - Add the appropriate view code (“lat,” “pan,” etc.)
ii. See Appendix B: Image Naming Convention

H. Stage 6: Batch edit photos for single images
i. Notes:
   a. The actions for batch editing the images have already been created. See Section 8B: To create/record an action for an example of creating an action
   b. There is one action that is for the “.i1” images that require rotating, specifically “mdo” and “mxo.” For the “.i3” images, there are three actions, and there are six actions for the “.i9” images.
   c. See Figure 7.12: ‘Orthodontic Actions’ for Photo Editing. This figure shows the different actions that have been created for editing the electronically received images.
   ii. Open first image (in Photoshop) within the e-folder to be edited
   iii. File → Automate → Batch
      a. See Figure 7.13: Batch Photo Editing
      b. Steps use the “antb” view of the “.i3” images as an example.
      c. The same steps will be required for all “.i3” and “.i9” views.
   iv. “Play” box
      b. “Set: Orthodontic Actions”
      c. “Actions: i3 – crop antb”
         i. “Source” box
            a. Select: “Source: Folder”
            b. “Choose…” – e-folder selected needs to match the action selected
               i. Location: “N:\Images\Economides\to edit\to crop\”
         ii. “Destination” box
            a. Select “Destination: Save and Close”
   iii. Click “OK”
   iv. Visual check of images for correct views, and change e-file name as needed.
      a. Notes: “Orthodontic Actions” for batch editing actions crop to specific portions of the original images. However, not all original images have the same views in the same locations. Change e-file names if view does not match view code.
   b. See Figure 7.14: Example of cropped images requiring name changes

I. Stage 7: Move and sort edited images to final location
1. Edited images in e-folders: (“N:\Images\Economides\to edit\”)  
   a. N:\...	o crop\i1
      i. All images should be final
   b. N:\...	o crop\i1\antb
   c. N:\...	o crop\i1\mdo-rotate
   d. N:\...	o crop\i1\mxo-rotate
   e. N:\...	o crop\i1\other
2. Scan through all images in all e-folders (a-n) to ensure that images are correctly edited and have the correct view code.

3. Remove any “a” associated with dates
   a. See **Stage 4, step 6**
   b. Use “Bulk Rename Utility” to search for e-files containing “a_”
      i. Searching this way will no pick up on the “a” in the view code “antb”
      ii. Delete “a”
      iii. If attempting to delete the “a” returns the error message that there is already an e-file with this name, change the ordinal number, and then remove the “a”.

4. Cut and paste all images from e-folders (a-n)
   a. Paste to: “N:\Images\Orthodontics\all images-ready for web”

5. Sort all e-files into the patient’s individual e-folders

J. Stage 8: Delete copies created during editing
   1. Copies located in e-folders
      a. N:\Images\Economides\to edit\to crop\i3
      b. N:\Images\Economides\to edit\to crop\i9

   2. These e-files were copied and view codes added to the copies.
      a. It is best to wait to delete these e-files until all images have been batch edited in case mistakes are made.

   3. All “.i1” images were edited without additional copies being made. Therefore, there are no copies of “.i1” images which require deleting.
Figure 7.1: Browsing Images

This option will cause this window to open.
Figure 7.2: Preparing to Batch Rename
Figure 7.3: ‘Batch Rename’ Window – Stage 2
Figure 7.4: ‘N:\ Images\...	o crop’ – Unsorted

**Types of E-Files:**

- **CMT files**
- **Face images**
- **“.i1” images (2 examples)**
- **“.i3” images (2 examples†)**
- **“.i9” images (2 examples†)**

* These files also have an “.i1” extension.
† Note: The first example has 8 (5 inter-oral) images while the second example has 9 (6 inter-oral) images.

† Note: See Figure 7.14 for consequences of different inter-oral views. The first arrangement is more common than the second.
Figure 7.5: ‘N:\ Images\...\to crop’ – Sorted
Figure 7.6: Bulk Rename Utility

A  Name  File names in this column are as they currently are.

B  New Name  File names in this column are as they will appear once the specified changes have been made.

C  Repl. (3)  Text entered into the “Replace” field will be identified and replaced with any text entered into the “With” field.

D  Remove (5)  Will remove/delete all text located after character # (noted in “From” field) to character # (noted in “to” field)

E  Add (7)  Adds any text entered into the “Insert” field such that the first character in the “Insert” field is the # character (noted in the “at pos.” field)

F  “Rename”  Clicking this button will change the files names as described. This action cannot be undone. Therefore, check the file names in the “New Name” column (B) carefully before clicking.
Figure 7.7: Examples of Bulk Renaming

Example 1

Notes:
All images are selected, and yet only e-files that include “96.i3” will have their name changed. This is because there is text entered to “Replace” under “Repl. (3),” but not for “With.” This removes the text only for those e-file names that contain the text.

Although text is inserted to “Add (7)” the box is not checked and so will not be added.

Example 2

Note:
Only the 6 files with dates from 1996 are selected. Because of this, with boxes for both “Repl. (3)” and “Add (7)” checked, the text “96.i3” will be replaced and “1996” will be added.
Figure 7.8: Sorting “.i1” Images
Figure 7.9: ‘Batch Rename’ Window – Stage 5: i1
Figure 7.10: ‘Batch Rename’ Window – Stage 5: i3
Figure 7.11: ‘Batch Rename’ Window – Stage 5: i9
Figure 7.12: ‘Orthodontic Actions’ for Photo Editing

- Use in **Section 8: Batch Image Processing**
- Rotates 180°. Use for “mdo” and “mox.”
- Crops “.i3” into the center, right, and left images
- Crops “.i9” into individual images. Bottom center, bottom right, bottom left, middle right, middle left, and middle center.

**Edit using action “rotate 180”**

**Edit using action “i3 – crop llb”**

**Edit using action “i3 – crop antb”**

**Edit using action “i3 – crop rlb”**
Figure 7.12: continued

Edit using action “i9 – crop antb”

Edit using action “i9 – crop llb”

Edit using action “i9 – crop, rotate mdo”

Edit using action “i9 – crop, rotate mmo”

Edit using action “i9 – crop rlb”

Edit using action “i9 – crop other”
Figure 7.13: Batch Photo Editing
Figure 7.14: Examples of cropped images requiring name changes

After editing using action “i9 – crop, rotate mxo,” these four images were cropped and rotated to these four images.

However, because the inter-oral view (A) is different than view (B), even though their location in the 9x9 grid is the same, the resulting edited images, (A’) and (B’), are different.

The e-file name for image (A’) needs to be changed from “_mxo_1” to “_mdo_1” to correctly describe the view depicted.

Note: Inter-oral views in non-standard locations occur for both “.i3” and “.i9” e-files. These e-files should be corrected during Stage 7, step 2.
VIII. Batch Image Processing for Image Conversion to JPEG

A. Notes:
1. Batch editing works by applying the same action to numerous images. When setting all images to a uniform size, Photoshop shrinks (or expands) the image to fit within the square provided without changing the width to height ratio of the original image.
2. Batch image processing should be done in increments of 500 patients. (Each e-folder within N:\Images\Orthodontics\Scanned photos.) This way all of the sub e-folders get done at once.
3. For images to work on the website they need to be no larger than 800 pixels square and need to be saved as a JPEG
4. End goal for file location:
   a. Original image e-files remain in the patient’s e-folder
      i. Location: N:\Images\Orthodontics\Scanned photos
      ii. File types:
         - .TIF format
         - Photoshop (.PSD or .PDD)
   b. JPEG image for web
      i. Location: N:\Images\Orthodontics\all images-ready for web
      ii. File type: JPEG
5. After you have batch edited a folder of images, contact the HS Library and Informatics Center Manager, so that he can refresh the website with the added images.
   a. See Appendix A: Directory for contact information
6. The steps described in Section B are only for creating/recording an action. If actions are already created (and they probably are) then skip to Section C: To perform batch editing. Section C describes how to run an action that has already been created.

B. To create/record an action for batch editing for web
1. Open first image (in Photoshop) within series to be batch edited
2. Window → Actions
   a. See Figure 8.1: Actions Window
   b. Letters describing buttons will be used to identify buttons in directions
3. See Figure 8.2: Screen Shots for Creating/Recording an Action
4. Click button “D – Create new set”
5. Name “New Set” as “Orthodontic Actions” → Click “OK”
   d. See Figure 8.2A
6. Click button “E – Create new action”
7. Name “New Action” as “Batch Edit for Web” → Click “Record”
   d. See Figure 8.2B
8. File → Automate → Fit Image
   a. Set both “Width” and “Height” to 800 pixels
   b. By setting “Fit Image” to a square, will prevent image ratio from being changed
   c. See Figure 8.2C and Figure 8.2D
9. File → Save for Web and Devices  
   a. Options: “JPEG,” “High,” “Quality: 60”  
   b. Select “Save”  
   c. See Figure 8.2E and Figure 8.2F
10. Specify folder where it should save the image  
    a. Folder: “N:\Images\JPEG's”  
    b. Select “Save”  
    c. See Figure 8.2G
11. Click button “A – Stop playing/ recording” to stop recording  
    a. Note: Steps 8 – 10 record what has been done as the action from Step 7
12. Exit out of the Actions window

C. To perform batch editing using “Batch Edit for Web” Action  
   1. Open Photoshop  
   2. File → Automate → Batch  
   3. See Figure 8.3: Batch Photo Editing  
   4. “Play” box  
   d. “Set: Orthodontic Actions”  
   e. “Action: Batch Edit for Web”  
   f. This will perform the steps defining the “Batch Edit for Web” to all e-files within the e-folder selected below.  
   5. “Source” box  
      a. Select: “Source: Folder”  
      b. “Choose…” – to specify the e-folder to be batch edited  
         i. Location: “N:\Images\Orthodontics\Scanned photos”  
         ii. E-folder of 500 within the above e-folder  
      c. For “Batch edit for Web,” include subfolders, check “Include All Subfolders”  
   6. “Destination” box  
      a. Select: “Destination: Folder”  
      b. “Choose…” – to specify the e-folder to place copies image  
      c. Location: “N:\Images\JPEG's\TIF’s”  
      d. Notes:  
         i. At the completion of “Batch Edit for Web” there will be three (3) sets of all images contained in the source folder.  
            - (1) original set, unmodified, and still in their separate e-folders within “N:\Images\Orthodontics\Scanned photos”  
            - (1) edited set, modified and copied to the e-folder “N:\Images\JPEG’s” as was specified in the steps of “Batch Edit for Web” action.  
            - (1) edited set, copied to the e-folder “N:\Images\JPEG's\TIF's”  
         ii. The images in “N:\Images\JPEG’s\TIFs” need to be deleted when done with the batch editing.  
         iii. It is unclear if it is necessary it is to create this third set of images, but as they are duplicates, it is appropriate to delete them.  
   7. Click “OK”
Figure 8.1: Actions Window

A  Stop playing/recording
B  Begin recording
C  Play selection
D  Create new set
E  Create new action
F  Delete

Button “A” is blue and button “B” is red when an action is being recorded.
Figure 8.2: Screen Shots for Creating/Recording an Action

Figure 8.2A: Step 5

Figure 8.2B: Step 7

Figure 8.2C: Step 8

Figure 8.2D: Step 8a
Figure 8.2: continued

Figure 8.2E: Step 9

Figure 8.2F: Step 9a

Figure 8.2G: Step 10
Figure 8.3: Batch Photo Editing

Select e-folder within this e-folder

Select e-folder within this e-folder
IX. General Notes on Data Entry
   A. Accessing the database
      1. Open the database
         a. Location: \Database
         b. File: “Orthodontics.mdb”
         c. File type: Microsoft Access
      2. Click “Open” if you get a “Open File – Security Warning” window
      3. If you get a “Securing Warning” bar across the top of the screen
         a. Click: “Options…”
         b. Window pops up “Microsoft Office Security Options”
         c. Select: “Enable this content”
         d. Click: “OK”
         e. Note: If you get the “Securing Warning” but do not tell Microsoft Access to enable the content, you will be unable to access any of the tables

   B. Locating the patient in the database
      1. In “Datasheet View” look up patient by name
         a. Can be easiest to locate a patient if patients are alphabetized by last name in the “Datasheet View”
      2. Highlight the row with the patients name, and switch to “Form View”

   C. Prior to beginning data entry
      1. Remove all documents/ papers, photos, and x-rays from the patient’s folder
      2. Items will either be returned to the folder, pulled for copying, or pulled as confidential.
         a. See Section X: Removal of Confidential Information

   D. Count all inter-oral pictures and x-rays in the folder
      1. Number of inter-oral pictures and x-rays in the folder should match the number of images in the e-folder “N:Images\Orthodontics\Scanned photos”
      2. If an inter-oral picture was not scanned – scan the picture
      3. If an x-ray was not scanned, why not? Some x-rays are too thick, this seems to be especially true for transfer patients. Regardless of why an x-ray was not scanned, note its presence in the Comments field.

   E. Additional images from Dr. Economides
      1. See Section VII. Editing Electronically Received Photos
      2. Unedited copies of all images received from Dr. Economides
         a. Location: “N:\Images\Economides\Image”
         b. Back-up copy, not involved in image editing process
            i. Location: “N:\Images\Economides\backup all images”
      3. Edited copies
         a. Location: “N:\Images\Orthodontics\all images-ready for web”
         b. The sub e-folders within contain edited for web scanned images

   F. See Section IX. Data Entry Instructions
X. Data Entry Instructions

A. NOTES:
   1. See Figure 10.1: Blank Data Entry Screen
      a. Names of sections, fields, pull down menus, checkboxes and buttons in the
database are underlined

B. Patient Information
   1. NOTE: This information is found on the patient identification card
   3. Name – Check the name
      a. For First Name, enter the full name, not just a nickname, if full name is not
already entered
      b. Enter Middle Name if given, or initial if given
   4. Date of Birth
      a. M/D/YY
      b. Database will auto format the date
   5. Sex
      a. “M” – male
      b. “F” – female
   6. Address / City, State, Zip
      a. The address listed in the database is the most recent address that Dr.
Economides had for the patient. Therefore, do NOT correct address from the
address listed on the card.
      b. Correcting “Ne” to “NE” (for Northeast) is appreciated (or Nw, Se, Sw)
   7. Phone Number
      a. (505) 123-4567
      b. The database will automatically format the phone number
      c. Do enter the area code – 505
      d. Leave phone number field blank if:
         i. If address in database is out of state
         ii. If no phone number is listed

C. Patient History
   a. NOTE: This information is found on the patient identification card
   b. Check the appropriate squares for:
      a. Thumb sucking
      b. Mouth breathing
      c. Lisp
      d. Tonsillectomy (tonsils removed)
      e. History of Supernumerary Teeth

D. Ancestry Estimates
   1. NOTE: TWO people must do this independently!
      i. Each ancestry estimation should be its own record
   2. See Section 1C: Orthodontic Database Reporter to add a new reporter
   3. Ancestry estimation is required if:
a. If full face photos of the patient are included.

b. Full face photos may be in the folder, or in the e-folder of Economides images

c. Either slide images, digital, or hard copy photographs are acceptable.

4. For ancestry estimation:

a. **EstimateDate**: date when you are making the estimation
   i. Enter today’s month/day for date
   ii. The database will auto format and add year.

b. **Reporter**: enter your name (last, first)
   i. Begin typing your last name in the Reporter field. The database will highlight the name that matches.
   ii. Alternatively, pull down menu will allow for selection of the reporter

c. Check squares for:
   i. **Patient’s Race**:
      - You can select more than one
      - Either more than one per record, or more than one record per reporter
      - See Section 4d below
   ii. **Race Estimate based on**:
      - Traits used for ancestry estimation(s)
      - Select all that were used

d. NOTE: If you feel that different traits suggest different ancestry estimation(s), you can use multiple records to indicate different ancestry estimations and the traits that support that ancestry estimation.

5. Ancestry and trait options

1. **Patient’s Race**:
   i. **Amerind** – “American Indian or Alaska Native”
      - “A person having origins in any of the original peoples of North and South America (including Central America), and who maintains tribal affiliation or community attachment.”
      - Selection of this race will cause a pull down menu of the different recognized tribes to appear
      - If you feel confident selecting a tribal affiliation, do so in this pull down menu
   ii. **Asian** – “Asian”
      - “A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.
   iii. **AfAm** – “Black or African American”
      - “A person having origins in any of the black racial groups of Africa. Terms such as “Haitian” or “Negro” can be used in addition to “Black or African American.”
   iv. **Hisp** – “Hispanic or Latino”
      - “A person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race. The terms, “Spanish origin,” can be used in addition to “Hispanic or Latino.”
   v. **Hawaiian** – “Native Hawaiian or Other Pacific Islander”
vi. EuAm – “White”
- A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.”

Available on-line at:

2. Race Estimate based on:
   i. Address Indicator
      - This can be especially useful in tribal affiliation if the home address is on a reservation
   ii. Name Indicator
   iii. Skin Color Indicator
   iv. Hair Form Indicator
   v. Facial Features Indicator

6. Maintain a list of patient’s requiring a second ancestry estimation
   a. Word document with the list of patient’s requiring second ancestry estimation
   b. Location: “N:\Database”
   c. File name: “Second Ancestry Estimation Needed.doc”

E. Treatment Events
   1. TreatmentDate:
      a. Each day of treatment requires its own record with the appropriate date
      b. A “Treatment” consists of any
         i. Photo or x-ray taken
         ii. Any of the Clinical Events: Procedures
      c. Click: Fuzzy Date if day, month, or year is unknown
      d. Click: No Date if no date is given for the treatment even
      e. Click: Treatment Completed for day treatment is completed if given
      f. If either an x-ray or a picture is listed as not having a date, CHECK to see if you can find one
         i. For example:
            - If the date cannot be read, but the age (year and month) can be read and can be matched with another image, change the date.
            - If the date can be partly read, the complete date can sometimes be found on the outside of the patient’s folder.
         ii. If you change the date, or anything about the file name after it has been uploaded to the website:
            - Email the analyst/programmer specialist (Kimberly Hagen) with the name changes or file additions.

   2. Clinical Events:
      a. See Figures 10.2 – 10.7 for examples of forms containing treatment information
      b. Treatment information may also be found on the outside of the folder
c. Pull down menu Procedure:
   i. Permanent Extraction Request
   ii. Permanent Extraction Performed
   iii. Deciduous Extraction Request
   iv. Deciduous Extraction Performed
   v. Banding/Bracketing
   vi. Surgical Exposure Request
   vii. Surgical Exposure Performed
   viii. De-banding
   ix. Orthognathic Surgery
   x. Retention
   xi. Orthodontic diagnosis
   xii. Congenitally Missing Teeth
   xiii. POG

d. For Extractions:
   i. Click: Details to specify teeth extracted
      - See Appendix E: Tooth Naming Convention
   ii. When present, enter both extraction request and conformation of extraction performed as separate treatment events, each on the appropriate date.
   iii. NOTES:
      - If tooth identified in the folder as having been extracted, but does not specify when the extraction occurred, note as “performed,” enter as the date when extraction was noted, and under Comments note as “prior M/D/YY extraction performed”
      - On front of the folder if says “no 8’s” enter as Permanent Extraction Request

e. For Banding/Bracketing: sometimes is referred to as appliances placed

f. For Surgical Exposure:
   i. Click: Details to specify teeth exposed
      - Specify if exposure is requested or performed
   ii. Also noted in file as “uncover” or “close bond”
   iii. See Appendix E: Tooth Naming Convention

g. For Orthognathic Surgery → then Click: Details
   i. Under Details record dental arc involved in the surgery
   ii. Note in the Comments Field (Section E. Comments) the type of surgery
   iii. Format: M/D/YY surgery type
   iv. Definition:
      orthognathic surgery – surgery of the facial skeleton, such as the mandible or maxilla, to restore proper anatomic or functional relationship.

h. For Orthodontic Diagnosis → then Click: Details
   i. Malocclusion class and division/type if given
   ii. Crowding if noted
   iii. TMJ or other problems, select “Other” under Orthodontic Diagnosis
      - Note in Comments
iv. For examples of forms with diagnostic information see:
   - Figure 10.2: Sample Case Analysis and Treatment Plan
   - Figure 10.3: Sample Medicaid Utilization Review Forms
   - Figure 10.4: Sample Orthodontic Insurance Form
   - Figure 10.5: Sample Patient Identification Card
Figure 10.6: Sample Transfer Form
- Figure 10.7: Sample Treatment Record

i. For Congenitally Missing Teeth → Click: Details
   i. For TreatmentDate, use date when missing tooth was noted
   ii. Use same tooth naming convention as for tooth extraction
   iii. See Appendix E: Tooth Naming Convention
j. For POG: enter date of form where mentioned

3. Photos: for each photo taken on a given day
   a. View: select view of a given photo
      i. mxo maxillary occlusal
      ii. mdo mandibular occlusal
      iii. antb anterior, teeth in occlusion
      iv. llb left lateral, teeth in occlusion
      v. rlb right lateral, teeth in occlusion
      vi. unknown unknown
   b. Photo Date: date photo was taken
      i. NOTE: Once the date has been entered into the TreatmentDate field, clicking in this field will cause the database to automatically fill in the date.
      ii. If no date is available, click the No Date box
   c. File Location: leave blank during data entry.
      i. Files will be automatically linked
      ii. Exception: images without a date.
         - Manually copy and paste text of e-file names into this field
      iii. Images located in “N:\Images\Orthodontics\all images-ready for web”
         - In this e-folder, images are organized by accession number
         - Images in these e-folders are a combination of two sources, electronically received and scanned.
            - N:\Images\Economides
            - N:\Images\Orthodontics\Scanned photos
   d. Note: Multiple pictures taken on the same day are entered in the same record

4. X-Rays: select view of a given x-ray
   a. View:
      i. lat lateral
      ii. pan panaview
      iii. part partial panaview
      iv. AP Anterior-Poster
      v. hd hand
      vi. unknown unknown
      vii. mxo maxillary dentition
      viii. mdo mandibular dentition
      ix. rtmj right TMJ
      x. ltmj left TMJ
      xi. tmj TMJ side unknown
      xii. waters Waters view
      xiii. other other
b. **Xray Date**: date x-ray was taken  
   i. NOTE: Once the date has been entered into the TreatmentDate field, clicking in this field will cause the database to automatically fill in the date.  
   ii. If no date is available, click the No Date box  

c. **File Location**: leave blank during data entry.  
   i. Files will be automatically linked  
   ii. Exception: images without a date.  
      - Manually copy and paste text of e-file names into this field  
   iii. Images located in “N:\Images\Orthodontics\all images-ready for web”  
      - In this e-folder, images are organized by accession number  
      - Images in these e-folders are a combination of two sources, electronically received and scanned.  
      - N:\Images\Economides  
      - N:\Images\Orthodontics\Scanned photos  

d. **Cephalometrics**:  
   i. Match date of cephalometrics as close as possible to date of x-ray  
   ii. Enter cephalometrics to link to lateral x-ray when possible  
   iii. If there is no associated x-ray for the date of cephalometrics:  
      - Save the file “no xray” as “X_2005_19_accession_date_lat_1”  
      - File location: “N:\Images\Orthodontics”  
      - Do a “SAVE AS” to keep it separate from the original  
      - Move patient’s e-file (no xray) to patient’s e-folder within  
         “N:\Images\Orthodontics\all images-ready for web”  
      - In database, select View → Other  
      - See **Figure 10.8: Sample Cephalometrics Form**  
         - Example form commonly found in patient’s folder  
      - See **Figure 10.9: Sample Cephalometrics Measurements Screen**  
         - Blank data entry screen  
      - See **Appendix F: Cephalometrics**  

F. **Comments** – NOTES:  
   1. This field is searchable.  
   2. Additional information regarding patient treatment events should be entered here.  
   3. When possible, include the date associated with any comment.  

G. **General Notes**:  
   1. Replace all photos and x-rays into the folder  
   2. Papers will either be replaced in the folder or pulled if they contain confidential information  
   3. See **Section XI: Removal of Confidential Information**
Data entry screen as seen in Microsoft Access. Letters and numbers correspond to instructions found in Section IX. Data Entry Instructions.
Figure 10.2: Sample Case Analysis and Treatment Plan

James K. Economides, D.D.S., M.S.D.
Specialist In Adult & Children’s Orthodontics
10820 Comanche N.E. Suite # A
Albuquerque, New Mexico 87111

Patient’s Name:
Date:
Patient Case Number:
Patient’s age:

Case Analysis and treatment Plan:
1. Options:
   A. Class I, crowded
   B. Anterior cross-bite, labial cuspids
   C. Gingival stripping lrt1, needs graft
2. Pre-orthodontic Guidance Program []
3. Standard Orthodontic Treatment Plan [x]
4. Treatment Plan Steps:
   1. NHA extract four first bicuspids
   2. Wait 3 months for right cuspid to drop
   3. Bond posterior segments and close cusps
   4. Bond anteriors and align
   5. Close and interdigitate with elastics
   6. Retain upper and lower arches
   7. Four eights no room
   8.
   9.
   10.

Treatment Total:
Financial Contract Work Sheet:

- Fee Phase 1
- Minus down payment
- Months of estimated treatment time
- Calculated Third party payment
- Estimated monthly payment by patient
- Records Charges (Transfer)
- Total charges before transfer
- Total amount paid before transfer
- Unpaid amount still owed transfer Dr
- Balance of fee not charged at transfer

This form does include treatment information and may include handwritten confidential information that needs to be removed. See Section XI: Removal of Confidential Information.
This form does include treatment information. However, it also does include insurance information (Medicaid). See Section XI: Removal of Confidential Information.
This form may include treatment information as well as payment information and other confidential information. See Section XI: Removal of Confidential Information.
The Patient Card often has diagnostic information on the back. If the diagnosis matches that on the “Case Analysis” or on another form, do not enter the same diagnosis multiple times. However, the diagnosis does not match, enter the diagnosis using the date on the front of the card as the Treatment Date.

If there is insurance information or monies information, copy the card, then black out on the card and place the copy into the confidential file.
This form does include treatment information and can also include payment information and other confidential information. See Section XI: Removal of Confidential Information.
This form does include treatment information and can also include payment information and other confidential information. See Section XI: Removal of Confidential Information.
Figure 10.8: Sample Cephalometrics Form

These two pages are typical of cephalometrics taken by Dr. Economides. However, they are by no means the only source of measurements and are provided solely as an example.

See Appendix F: Cephalometrics for matching of names as listed on this form to the abbreviations used in the database.

---

### Patient’s measurements

Enter the measurements in this column. Other columns do not reflect the patient, rather they refer to the descriptive statistics for the measurements.

---

## Test Results for: Analysis:

<table>
<thead>
<tr>
<th>Description</th>
<th>Norm</th>
<th>Std</th>
<th>Low</th>
<th>Pat</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>01 Denture to skeleton</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower central to apg plane</td>
<td>2.20</td>
<td>2.60*</td>
<td>5.71</td>
<td>3.51</td>
<td></td>
</tr>
<tr>
<td>Upper incisal angle</td>
<td>Deg 135.10</td>
<td>8.8*</td>
<td>3.08</td>
<td>2.51</td>
<td></td>
</tr>
<tr>
<td>Impa angle</td>
<td>Deg 93.30</td>
<td>6.00*</td>
<td>7.49</td>
<td>85.81</td>
<td></td>
</tr>
<tr>
<td>Upper one sella nasion</td>
<td>Deg 104.00</td>
<td>5.50</td>
<td>109.44</td>
<td>2.44</td>
<td></td>
</tr>
<tr>
<td>Lower central to nb line</td>
<td>25.30</td>
<td>6.00</td>
<td>25.23</td>
<td>0.23</td>
<td></td>
</tr>
<tr>
<td>Molar relationship</td>
<td>6.00</td>
<td>2.00***</td>
<td>12.72</td>
<td>6.72</td>
<td></td>
</tr>
<tr>
<td>Nb line to/lower central</td>
<td>5.00</td>
<td>2.50</td>
<td>0.86</td>
<td>4.14</td>
<td></td>
</tr>
<tr>
<td>Overbite</td>
<td>2.50</td>
<td>2.00</td>
<td>0.55</td>
<td>1.95</td>
<td></td>
</tr>
<tr>
<td>Overjet</td>
<td>2.00</td>
<td>2.00***</td>
<td>6.34</td>
<td>4.34</td>
<td></td>
</tr>
<tr>
<td>Gista-upper /pmt occusal</td>
<td>20.00</td>
<td>6.00**</td>
<td>4.45</td>
<td>19.55</td>
<td></td>
</tr>
<tr>
<td>Upper central/lip embrasure</td>
<td>2.00</td>
<td>2.00*</td>
<td>1.01</td>
<td>0.99</td>
<td></td>
</tr>
</tbody>
</table>

| **02 Skeletal relationships**      |      |     |     |     |      |
| Condyion to gnathion               | mm 113.60 | 4.70*| 120.15| 6.75|
| Comission to occlusion             | mm 58.00 | 4.00*| 59.71| 6.72|
| Condyion to ss                     | mm 95.00 | 5.00***| 12.88| 82.11|
| Facial taper                        | Deg 88.00 | 3.50***| 6.76| 83.24|
| Facial angle                       | Deg 00.00 | 3.00**| 6.60| 04.00|
| Convexity                          | Deg 2.00 | 2.00*| 4.10| 2.10|
| Sella nasion to mand. line         | Deg 34.00 | 6.00**| 24.44| 2.10|
| Palatine plane to mand. plane      | Deg 26.00 | 5.40| 28.66| 2.66|

| **03 Lip relationships**           |      |     |     |     |      |
| Natio labial angle                 | Deg 100.00 | 3.50**| 7.58| 92.42|
| Soft tissue chin thickness         | mm 20.00 | 6.00**| 16.72| 3.72|
| Upper lip thickness                | mm 12.00 | 3.50**| 20.82| 6.92|
| Subnasale to upper lip             | mm 20.00 | 6.00| 12.92| 6.12|
| Subnasale to upper lip             | mm 20.00 | 6.00**| 7.76| 2.70|
| Upper-upper lip thickness          | mm 12.00 | 6.00| 21.10| 9.10|

| **04 Y axis group**                |      |     |     |     |      |
| Facial axis                        | Deg 0.00 | 3.50***| 10.82| 10.82|
| Y axis to sella nasion             | Deg 65.10 | 8.38**| 68.14| 7.04|
| Y axis to mnto xkip horizontal     | Deg 67.10 | 4.10***| 10.56| 56.54|

| **05 Deep internal structures**    |      |     |     |     |      |
| Fma angle                          | Deg 26.50 | 4.30***| 38.89| 12.38|
| Sella/nasion/pogonon               | Deg 81.50 | 1.80***| 92.93| 11.59|
| Sella/nasion/supremale             | Deg 77.80 | 4.00***| 92.42| 15.42|
| Sella/nasion/ss                    | Deg 81.50 | 4.00***| 88.17| 7.13|
| Sella-mm                           | Deg 3.20 | 1.36| 4.24| 1.04|

| **06 Airway widths**               |      |     |     |     |      |
| Adenoid space                      | mm 12.00 | 2.00****| 30.43| 18.43|
| Tona-tomp                          | mm 12.00 | 3.50*| 16.68| 4.68|

| **07 Special measurements**        |      |     |     |     |      |
| Mandibular arc                     | Deg 26.00 | 4.00*| 23.49| 6.72|
| Lower facial height                | Deg 47.00 | 4.00*| 44.97| 4.00|
| Wits analisys                      | mm 6.00 | 1.77****| 10.56| 10.56|

---

## Test Results for: Analysis:

<table>
<thead>
<tr>
<th>Description</th>
<th>Norm</th>
<th>Std</th>
<th>Low</th>
<th>Pat</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>08 Facial ratio’s</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Face low/face all/percent</td>
<td>0.33</td>
<td>5.30</td>
<td>0.49</td>
<td>0.16</td>
<td></td>
</tr>
<tr>
<td>Face 1/face low/percent</td>
<td>0.66</td>
<td>5.30</td>
<td>0.61</td>
<td>0.16</td>
<td></td>
</tr>
<tr>
<td>Face mid/ face low/percent</td>
<td>0.26</td>
<td>0.00</td>
<td>0.66</td>
<td>0.40</td>
<td></td>
</tr>
<tr>
<td>Face 1/face mid/percent</td>
<td>0.22</td>
<td>4.00</td>
<td>0.30</td>
<td>0.08</td>
<td></td>
</tr>
<tr>
<td>Face mid/face all/percent</td>
<td>0.33</td>
<td>2.50</td>
<td>0.01</td>
<td>0.32</td>
<td></td>
</tr>
<tr>
<td>Face upper/face all/percent</td>
<td>0.33</td>
<td>3.50</td>
<td>0.14</td>
<td>0.19</td>
<td></td>
</tr>
</tbody>
</table>

| **09 Facial lengths**              |      |     |     |     |      |
| Face all                           | mm 6.00 | 3.50****| 135.40| 33.40|
| Face lower incisor to chin %       | mm 6.00 | 3.50****| 41.46| 41.44|
| Face low                           | mm 71.00 | 3.50*| 2.72| 68.28|
| Face mid                           | mm Not Available | 45.14| 45.14| 45.14|
| Face up                            | mm 0.00 | 3.50****| 26.27| 26.27|
| Glabella to subnasale              | mm 0.00 | 3.50****| 82.26| 82.26|
| Lower chin tangent -lower lip      | mm 24.00 | 6.00**| 22.77| 10.77|
| Lip embrasure to menton            | mm 42.00 | 6.00*| 46.29| 46.29|
| Upper lip to chin tangent          | mm 0.00 | 3.50****| 46.35| 46.35|
| Anterior facial height             | mm 118.00 | 6.40*| 113.40| 6.40|
| Subnasale to lower lip             | mm 27.00 | 5.30| 26.86| 6.40|
| Subnasale/lip embrasure            | mm 22.00 | 2.00*| 22.88| 0.88|
| Subnasale to chin tangent          | mm 52.00 | 2.00***| 58.26| 6.26|
| Bpa-pyg                           | mm 0.00 | 3.50****| 60.69| 60.69|

---
Data entry screen as seen in database when Cephalometric button is clicked.
XI. **Removal of Confidential Information**

A. **Pulling confidential paperwork**

1. **Purpose of pulling confidential paperwork**
   a. To comply with HIPAA, and to protect patient confidentiality
   b. **Examples of confidential information:**
      i. Insurance information
         - Including Medicaid/Medicare information
      ii. Monies past due
      iii. Patient/parent(s) social security number
         - It is not necessary to pull forms simply because they contain a patient’s social security number.
         - If a form that is already being pulled also contains the SS#, it can be blacked out.
         - This is particularly relevant for the patient identification cards. Do not black out the SS# on the cards.
      iv. Patient/parent(s) employer information
         Note: Examples (i.) and (ii.) are the most important.

2. **What gets pulled? (includes, but not limited to)**
   a. Forms/pages with insurance information
      i. See **Figure 11.1: Sample Orthodontic Insurance Form**
      ii. See **Figure 11.2: Sample Medicaid Utilization Review Forms**
   b. Forms/pages with monies due/past due
      i. See **Figure 11.3: Sample Bill**
      ii. See **Figure 11.4: Sample Transfer Form**
      iii. See **Figure 11.5: Sample Treatment Payment Plan**
      iv. See **Figure 11.6: Sample Treatment Record**
      v. See **Figure 11.7: Sample Treatment Contract Agreement**
   c. Returned letter from Dr. Economides, such as bills
   d. Letters from patient (or guardian) discussing payment, but not treatment
   e. 30 Day Letters
      i. See **Figure 11.8: Sample 30 Day Letter**
   f. Forms/pages relating to bankruptcy
      i. See **Figure 11.9: Sample Bankruptcy Form**
      ii. See **Figure 11.10: Sample Bankruptcy Letter**

3. **Other possible locations of confidential information**
   a. Patient information card
   b. Exterior of the patient’s folder
      i. Examples:
         - “Pd”
         - “08080” or “08090” etc
         - Insurance company information

B. **Deidentifying confidential paperwork**

2. Papers with confidential information will placed in the patient’s *confidential file*
   a. Archival Quality file folder
   b. Confidential file needs to be labeled with the patient’s accession number
c. Label file folder with a “Sharpie® Permanent Marker Ultra Fine Point”

3. Pages without treatment information
   a. Examples:
      i. See Figure 11.5: Sample Treatment Payment Plan
      ii. See Figure 11.7: Sample Treatment Contract Agreement
      iii. See Figure 11.8: Sample 30 Day Letter
      iv. See Figure 11.9: Sample Bankruptcy Form
      v. See Figure 11.10: Sample Bankruptcy Letter
   b. To deidentify:
      i. These forms/letters get pulled
      ii. Place in the patient’s confidential file

4. Pages that also contain treatment information
   a. Examples:
      i. See Figure 11.1: Sample Orthodontic Insurance Form
      ii. See Figure 11.2: Sample Medicaid Utilization Review Form
      iii. See Figure 11.3: Sample Bill
      iv. See Figure 11.4: Sample Transfer Form
      v. See Figure 11.6: Sample Treatment Record
   b. To deidentify:
      i. These forms/letters get pulled
      ii. Cover confidential information with a post-it® note or piece of paper
         - Cut or tear post-it® or paper as needed to obtain reasonable sized pieces
         - Yellow post-it® work best as they do not show on the photocopy
      iii. Photocopy form/letters with post-it® or paper in place
         - Make sure not to cover important information such as the patient number
      iv. Photocopy gets placed in the patient’s folder
      v. Original gets placed in the patient’s confidential folder

5. Other locations (patient identification card and folder)
   a. Photocopy card/folder
   b. The photocopy goes in the patient’s confidential file
   c. The confidential information on the card/folder gets black out
      i. Use a “Sharpie® Permanent Marker Fine Point” to black out confidential information
      ii. If confidential information can still be read through the blacking out, then scribble over with a pen
      iii. On patient information card – be careful of the marker bleeding though card
   d. Replace card in the patient’s folder
This form may include treatment information as well as confidential information. Cover the confidential information with a post-it® for photocopying.
This form does include treatment information. However, it also does include insurance information (Medicaid). Cover the confidential information with a post-it® for photocopying.
This form may include treatment information as well as confidential information. Cover the confidential information with a post-it® or piece of paper for photocopying.
This form does include treatment information and can also include payment information. Cover the confidential information with a post-it® for photocopying.
This letter usually does not include any information that is relevant to the patient’s treatment. Therefore, this letter can get pulled and placed into the confidential file. It does not need to be photo copied.
This form does include treatment information and can also include payment information. Cover the confidential information with a post-it® or piece of paper for photocopying.

Read through the treatment information section for references to 30 day letters, monies paid or due, and other confidential information. Cover or black out all confidential information.
Figure 11.7: Sample Contract Agreement

Orthodontic Treatment Contract Agreement
James K. Economides DDS, MSD, Orthodontic Specialist.
10820 Comanche NE, Albuquerque, New Mexico 87111

This patient has or will have a complete dental examination and necessary treatment.

Responsible party __________ Date __________

Patient’s Name __________________________ Date __________

This treatment includes:
1. Initial Consultation
2. Pretreatment records, diagnosis, and treatment plan.
3. Placement of appliances and adjustments (includes emergency) appointments for a period of __________ Months.

This treatment does not include:
1. Required six (6) months cleanings and exams.
2. Fillings, extractions, and other dental procedures.
3. Retainers.

Our staff makes a sincere effort to schedule convenient appointments for our patients. However, during the school term, after school appointment will be rotated to equally accommodate each patient. Advance notice of 48 hours is requested to cancel an appointment. There is a minimum charge for missed appointments. $35.00 __________

Prompt payment is expected. Payments are due monthly regardless of scheduled appointments. Accounts which become delinquent will result in the discontinuation of treatment until the account is made current. $25.00 __________

Generally, active treatment is completed within the prescribed period. If treatment extends beyond the estimated treatment time due to factors beyond the Doctor’s control (e.g., missed appointments, lack of cooperation, excessive breakage of appliances, poor oral hygiene, not following prescribed instructions, etc.) There will be an additional monthly charge of $69.00 until active treatment is completed. Visual evaluations will be available at every visit where the original will be visible to compare the progress of this treatment.

Orthodontic Fees
1. Initial examination $3649.05
2. Diagnostic Records $1000
3. Initial Placement of appliances $7200.05
4. Phase One Early Treatment $4500.05
5. Active Treatment $7200.05
6. Removal and Retainers $2500.05
7. Lost Retainer assignments $2500.05
8. Special cases $2500.05
9. Taxes $1000

TOTAL FEE $36669.05

Method of Payment
A. Active Treatment
B. Equal Monthly Payments

$1161.42 Per month for __________ Months

B. Retainers

Initial Upper and lower Retainers
Includes two years of visits and final records, x-rays, and photographs

There are no finance or interest charges imposed

Under this agreement a late charge will apply to all past due accounts.

Should it be necessary to enforce the provisions of this agreement through an attorney or by legal proceedings, the undersigned promise to pay all cost of collections, including a reasonable attorney fee and all court costs.

I hereby certify that I have read and received a copy of the foregoing disclosure statement on this ______ Day of __________

Signature of Responsible Party __________ Signature of Consultation Person __________

** Entire fee must be paid in full before removing orthodontic appliances.
Discounts may apply. Transfer fees will be charged in accordance with fees for services rendered scale. Please ask our Financial supervisor for a copy of this scale of deferral fees.

This form does not include any information that is relevant to the patient’s treatment. Therefore, this form can get pulled and placed into the confidential file. It does not need to be photocopied.
RE:

Dear

It is with deep regret that this letter has to be written. In view of the continuing lack of cooperation, this is in your best interest. If the financial contract was broken, emergency appointments were still available to you, until something satisfactory could be arranged. You were notified several times and had many opportunities to correct the problem. In some cases, though, you have cancelled and/or not shown for many scheduled appointments. In these cases, you were also contacted and asked to reschedule.

Based on the above, we will provide thirty (30) days of emergency treatment from the date of this letter, then I shall terminate treatment. You are urged to seek the services of another orthodontist. We will forward your records to the orthodontist of your choice, upon request.

If you decide not to have another orthodontist take over treatment within the 30 day period, I recommend that you contact my office to have the appliances removed, since there may be health problems from wearing appliances without periodic maintenance.

Sincerely,

James K. Economides, D.D.S.,M.S.D.
JKE/KL

This form does not include any information that is relevant to the patient’s treatment. Therefore, this form can get pulled and placed into the confidential file. It does not need to be photocopied.
This form does not include any information that is relevant to the patient’s treatment. Therefore, this form can get pulled and placed into the confidential folder. It does not need to be photocopied.
This letter does not include any information that is relevant to the patient’s treatment. Therefore, this letter can get pulled and placed into the confidential folder. It does not need to be photocopied.
XII. Five Percent Check
   A. For every 100 patients entered, 5% of them need to be checked
      1. Randomly pull 5 patients from each 100 patients entered
      2. Check all data entered
         a. Name
         b. Date of birth
         c. Sex
         d. Phone number / address
         e. Ancestry estimates – for each estimation
            i. EstimateDate
            ii. Reporter
            iii. Patient’s Ancestry Estimation
               - Traits upon which estimation estimate was based
               - Minimum of 2 reporter’s ancestry estimation
         f. Other characteristics (thumb sucking, mouth breathing, etc.)
   g. Treatment Events
      i. Tooth extraction
      ii. Banding/Bracketing
      iii. Surgical Exposure
      iv. De-banding
      v. Orthognathic Surgery
      vi. Retention
      vii. Orthodontic Diagnosis
      viii. Congenitally Missing Teeth
      ix. POG
      x. Inter-oral photos
      xi. X-Rays
   h. Cephalometrics

   B. Record errors found:
      1. In file “5% check”
      2. File location: “N:\"
Appendix A: Directory

Not available.
Appendix B: Image Naming Convention

ImageType_Year_Accession#_Object#_TreatmentDate_ViewCode_Ordinal

Where:
1 – ImageType = P (Photo) or X (R-Ray)

2 – Year = 2005

3 – Accession# = 19

4 – Object# = 1 through x, the unique number assigned to this patient

5 – TreatmentDate = YYYYMMDD the image was taken
   For images where the entire date is not legible, type “X” where numbers are unknown.
   For example: if the month cannot be read but the year and day can be read, the
   TreatmentDate is “YYYYXXDD”

6 – ViewCode describes the view in the image
   P (Photo) – can also be used for x-rays if needed
   antb Anterior bite [closed teeth]
   llb Left lateral bite [closed teeth]
   mxo Maxillary occlusal
   mdo Mandibular occlusal
   rlb Right lateral bite [teeth closed]
   X (X-Ray)
   AP Anterior-posterior
   hd Hand (has also been saved as “hr,” “hl,” and “hand”)  
   lat Lateral
   pan Panaview
   TMJ TMJ view (can also be saved as “LTMJ” or “RTMJ,” left or right side)
   waters Waters View
   unknown View unknown, or of a type not listed above. Also is used for the “no xray”
   image for cephalometrics without x-rays

7 – Ordinal = 1, 2, etc. with default of 1 (to account for multiple images of the same view on
   the same date - these should be physically marked for future matching)

Examples:
   Photo of anterior view of teeth in occlusion taken on February 3, 1999 of patient 2005.19.70
   P_2005_19_70_19990203_antb_1
   Panaview x-ray of the same patient taken January 16, 2002
   X_2005_19_70_20020116_pan_1
## Appendix C: Tooth Naming Convention

### Deciduous Dentition

<table>
<thead>
<tr>
<th>Side</th>
<th>Right</th>
<th>Left</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tooth Type</td>
<td>m m c i i</td>
<td>i i c m m</td>
</tr>
<tr>
<td>Tooth Letter</td>
<td>e d c b a</td>
<td>a b c d e</td>
</tr>
<tr>
<td>Database</td>
<td>A B C D E</td>
<td>F G H I J</td>
</tr>
</tbody>
</table>

| Tooth Letter | e d c b a | a b c d e |
| Tooth Type   | m m c i i | i i c m m |

### Permanent Dentition

<table>
<thead>
<tr>
<th>Side</th>
<th>Right</th>
<th>Left</th>
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</thead>
<tbody>
<tr>
<td>Tooth Type</td>
<td>M M M P P C I I</td>
<td>I I C P P M M M</td>
</tr>
<tr>
<td>Tooth #</td>
<td>8 7 6 5 4 3 2 1</td>
<td>1 2 3 4 5 6 7 8</td>
</tr>
<tr>
<td>Database</td>
<td>1 2 3 4 5 6 7 8</td>
<td>9 10 11 12 13 14 15 16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tooth #</th>
<th>32 31 30 29 28 27 26 25</th>
<th>24 23 22 21 20 19 18 17</th>
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</thead>
<tbody>
<tr>
<td>Tooth Type</td>
<td>M M M P P C I I</td>
<td>I I C P P M M M</td>
</tr>
</tbody>
</table>

### Deciduous Dentition

- A Deciduous Right Maxillary Second Molar
- B Deciduous Right Maxillary First Molar
- C Deciduous Right Maxillary Canine
- D Deciduous Right Maxillary Lateral Incisor
- E Deciduous Right Maxillary Central Incisor
- F Deciduous Left Maxillary Central Incisor
- G Deciduous Left Maxillary Lateral Incisor
- H Deciduous Left Maxillary Canine
- I Deciduous Left Maxillary First Molar
- J Deciduous Left Maxillary Second Molar
- K Deciduous Left Mandibular Second Molar
- L Deciduous Left Mandibular First Molar
- M Deciduous Left Mandibular Canine
- N Deciduous Left Mandibular Lateral Incisor
- O Deciduous Left Mandibular Central Incisor
- P Deciduous Right Mandibular Central Incisor
- Q Deciduous Right Mandibular Lateral Incisor
- R Deciduous Right Mandibular Canine
- S Deciduous Right Mandibular First Molar
- T Deciduous Right Mandibular Second Molar
- #1 Permanent Right Maxillary Third Molar
- #2 Permanent Right Maxillary Second Molar
- #3 Permanent Right Maxillary First Molar
- #4 Permanent Right Maxillary Second Premolar
- #5 Permanent Right Maxillary First Premolar
- #6 Permanent Right Maxillary Canine
- #7 Permanent Right Maxillary Lateral Incisor
- #8 Permanent Right Maxillary Central Incisor
- #9 Permanent Left Maxillary Central Incisor
- #10 Permanent Left Maxillary Lateral Incisor
- #11 Permanent Left Maxillary Canine
- #12 Permanent Left Maxillary First Molar
- #13 Permanent Left Maxillary Second Molar
- #14 Permanent Left Maxillary First Molar
- #15 Permanent Left Maxillary Second Molar
- #16 Permanent Left Maxillary Third Molar
- #17 Permanent Left Mandibular Third Molar
- #18 Permanent Left Mandibular Second Molar
- #19 Permanent Left Mandibular First Molar
- #20 Permanent Left Mandibular Second Premolar
- #21 Permanent Left Mandibular First Premolar
- #22 Permanent Left Mandibular Canine
- #23 Permanent Left Mandibular Lateral Incisor
- #24 Permanent Left Mandibular Central Incisor
- #25 Permanent Left Mandibular Central Incisor
- #26 Permanent Right Mandibular Lateral Incisor
- #27 Permanent Right Mandibular Canine
- #28 Permanent Right Mandibular First Premolar
- #29 Permanent Right Mandibular Second Premolar
- #30 Permanent Right Mandibular First Molar
- #31 Permanent Right Mandibular Second Molar
- #32 Permanent Right Mandibular Third Molar

-89-
## Appendix D: Cephalometrics

### Local Index Number:

<table>
<thead>
<tr>
<th>Text Description of Measurement</th>
<th>Economides Abbreviations</th>
<th>Type of Measurement</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>Denture to Skeleton</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apo to Lower Incisor</td>
<td>APO _PT II</td>
<td>length</td>
<td>Distance from the incisal edge of the mandibular central incisor perpendicular to the A-Pogonion line</td>
</tr>
<tr>
<td>Inter Incisal Angle</td>
<td>INC/ANGLE</td>
<td>degrees</td>
<td>The intercisal angle, which is the anterior angle formed at the intersection of the long axes of the maxillary and mandibular central incisors.</td>
</tr>
<tr>
<td>IMPA Angle to Lower Inc to Go GN</td>
<td>IMPA</td>
<td>degrees</td>
<td>The posterior-superior angle between the long axis of the mandibular central incisor and the mandibular plane (Gonion to Gnathion)</td>
</tr>
<tr>
<td>Upper One to S-N</td>
<td>ILS/NSL</td>
<td>degrees</td>
<td>The posterior-inferior angle formed by the long axis of the maxillary central incisor and the Sella-Nasion line</td>
</tr>
<tr>
<td>Lower Incisor to Nasion-B Point</td>
<td>ILI/N-SM</td>
<td>degrees</td>
<td>The inferior angle formed by the long axis of the mandibular central incisor and the Nasion-B point line</td>
</tr>
<tr>
<td>Molar Relationship</td>
<td>MOLAR REL</td>
<td>length</td>
<td>The distance from between the distal crown convexities of the upper and lower permanent first molars, measured along the occlusal plane</td>
</tr>
</tbody>
</table>

-91-
<table>
<thead>
<tr>
<th>Text Description of Measurement:</th>
<th>Economides Abbreviations</th>
<th>Type of Measurement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denture to Skeleton - Continued</td>
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<td></td>
</tr>
<tr>
<td>Measured Line NB to II</td>
<td>NB_LINE II</td>
<td>length</td>
<td>The distance from the incisal edge of the mandibular central incisor to the Nasion-B point line</td>
</tr>
<tr>
<td>Overbite</td>
<td>OVERBITE</td>
<td>length</td>
<td>The distance between the incisal edges of the upper and lower central incisors measured perpendicular to the occlusal plane</td>
</tr>
<tr>
<td>Overjet</td>
<td>OVERJET</td>
<td>length</td>
<td>The distance between the incisal edges of the upper and lower central incisors measured along the occlusal plane</td>
</tr>
<tr>
<td>Distal U6 to PTV at Occlusal Plane</td>
<td>DU6_PTV</td>
<td>length</td>
<td>The distance from the distal crown contact of the maxillary first molar measured back to Pterygoid-Vertical (line from Pterygoid, perpendicular to the Frankfort horizontal)</td>
</tr>
<tr>
<td>Upper One to Lip Embrassure</td>
<td>IS-LIP EMB</td>
<td>length</td>
<td>The vertical distance from the tip of the maxillary central incisor to Lip Embrassure (the contact point between upper and lower lips), measured perpendicular to the palatal plane</td>
</tr>
<tr>
<td>Skeletal Relationships</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condylion to GN</td>
<td>CO-GN</td>
<td>length</td>
<td>The straight line distance between Condylion and Gnathion</td>
</tr>
<tr>
<td>Condylion to Gonion</td>
<td>CO-GO</td>
<td>length</td>
<td>The distance between Condylion and Gonion</td>
</tr>
<tr>
<td>Text Description of Measurement:</td>
<td>Economides Abbreviations</td>
<td>Type of Measurement</td>
<td>Description</td>
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<tr>
<td>Skeletal Relationships – Continued</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Max. Length</td>
<td>CO-SS</td>
<td>length</td>
<td>The distance between Condylion and A point</td>
</tr>
<tr>
<td>Facial Taper</td>
<td>GO-GN-SS</td>
<td>degrees</td>
<td>The superior-posterior angle formed by the Nasion-Pogonion line and the mandibular line (Gonion to Menton)</td>
</tr>
<tr>
<td>Facial Angle</td>
<td>N-PG/FH</td>
<td>degrees</td>
<td>The posterior-inferior angle at the intersection of the Nasion-Pogonion line and the Frankfort Horizontal plane</td>
</tr>
<tr>
<td>Angle of Convexity</td>
<td>N-SS-PG</td>
<td>degrees</td>
<td>The superior angle between the line Nasion-Subspinale (A point) and the line A point-Pogonion</td>
</tr>
<tr>
<td>Sella Nasion to Mandibular Line</td>
<td>NSL-ML</td>
<td>degrees</td>
<td>The anterior angle formed by the Sella-Nasion line and the Mandibular line (Gonion-Menton)</td>
</tr>
<tr>
<td>Angles Describing Inclination</td>
<td>NL-ML</td>
<td>degrees</td>
<td>The angle formed by the Nasion-Subspinale (A point) line and the mandibular line (Gonion-Gnathion)</td>
</tr>
<tr>
<td>Lip Relationships</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Holdaway Angle</td>
<td>NS-LCT-LS</td>
<td>degrees</td>
<td>The inferior-posterior angle between the H line (The most anterior superior point of the soft tissue chin and Labrale superius) and the Frankfort Horizontal Plane</td>
</tr>
<tr>
<td>Local Index Number:</td>
<td></td>
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</tr>
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<td><strong>Text Description of Measurement:</strong></td>
<td><strong>Economides Abbreviations</strong></td>
<td><strong>Type of Measurement</strong></td>
<td><strong>Description</strong></td>
</tr>
<tr>
<td>Lip Relationships – Continued</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soft Tissue Chin Thickness</td>
<td>PG-PGS</td>
<td>length</td>
<td>The distance from hard tissue Pogonion to soft tissue Pogonion, measured parallel with Frankfort Horizontal plane.</td>
</tr>
<tr>
<td>Lip, Upper Thickness (MM)</td>
<td>PLS-LS</td>
<td>length</td>
<td>The distance from Labrale Superius back to the maxillary central incisor measured parallel with Frankfort Horizontal Plane.</td>
</tr>
<tr>
<td>sub nasal to upper lip</td>
<td>SN-UL</td>
<td>length</td>
<td>Upper lip length from subnasale to Upper Lip Stomion</td>
</tr>
<tr>
<td>Sub Nasal Sulcus</td>
<td>SN-SNP</td>
<td>length</td>
<td>Distance from the H-Line(line extending from Soft Tissue Pogonion to Labrale Superius) to the Superior Labial Sulcus</td>
</tr>
<tr>
<td>Lip Thickness Upper/Upper</td>
<td>SS-PSSS</td>
<td>length</td>
<td>Distance from hard tissue A point to soft tissue A point</td>
</tr>
<tr>
<td>Y Axis Group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facial Axis</td>
<td>BA-CC-GN</td>
<td>degrees</td>
<td>The inferior angle between the Basion-Nasion line and CC (Pterygoid-Gnathion line)</td>
</tr>
<tr>
<td>Y Axis to Frankfort Horizontal</td>
<td>FH/S-GN</td>
<td>degrees</td>
<td>The anterior-inferior angle between the Frankfort Horizontal line and the Sella-Gnathion line</td>
</tr>
<tr>
<td>Y Axis to Se-Na</td>
<td>N-S-GN</td>
<td>degrees</td>
<td>The anterior-inferior angle formed by the intersection of the Sella-Nasion line and the Sella-Gnathion line</td>
</tr>
<tr>
<td>Text Description of Measurement</td>
<td>Economides Abbreviations</td>
<td>Type of Measurement</td>
<td>Description</td>
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</tr>
<tr>
<td><strong>Deep Internal Structures</strong></td>
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<tr>
<td>FMA Angle</td>
<td>FMA</td>
<td>degrees</td>
<td>The anterior-inferior angle formed by the Frankfort Horizontal line and the Mandibular line (Gonion-Menton)</td>
</tr>
<tr>
<td>Angles Describing SNPG</td>
<td>S-N-PG</td>
<td>degrees</td>
<td>The inferior-posterior angle formed by the Sella-Nasion line and the Nasion-Pogonion line</td>
</tr>
<tr>
<td>Sella/Nasion/Pogion)/Mandibular relationship</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Angles Describing SNB</td>
<td>S-N-SM</td>
<td>degrees</td>
<td>The inferior-interior angle defined by Sella, Nasion and Supramentale (B point)</td>
</tr>
<tr>
<td>Sella/Nasion/Supramentale)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angles Describing SNA</td>
<td>S-N-SS</td>
<td>degrees</td>
<td>The posterior-inferior angle formed by Sella, Nasion, and Subspinale (A point)</td>
</tr>
<tr>
<td>Sella/Nasion/SS</td>
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<tr>
<td>Angles Describing Antero-Post/ANB</td>
<td>SS-N-SM</td>
<td>degrees</td>
<td>Angle defined by Subspinale (A point), Nasion, and Supramentale (B point)</td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
<td><strong>Airway Widths</strong></td>
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<tr>
<td>Adenoid Space</td>
<td>ADENOIDS</td>
<td>length</td>
<td>Distance from one adenoid to the other</td>
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<tr>
<td></td>
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<tr>
<td>Tonsilar Width</td>
<td>TONSIL</td>
<td>length</td>
<td>Distance of the tonsil from anterior to posterior</td>
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</tbody>
</table>
### Special Measurements

<table>
<thead>
<tr>
<th>Text Description of Measurement:</th>
<th>Economides Abbreviations</th>
<th>Type of Measurement</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Mandibular Arc</td>
<td>CO-XI-DC</td>
<td>degrees</td>
<td>The anterior-superior angle formed by Condylion to Xi (geographic center of the ramus) to DC (the midpoint of the outline of the condylar process where it is crossed by the inferior border of the cranial base)</td>
</tr>
<tr>
<td>Lower Facial Hgt. Angle</td>
<td>SPA-XI-PM</td>
<td>degrees</td>
<td>The anterior angle formed by Spinale Anterior (ANS) to Xi (geographic center of the ramus) to Suprapogonion (Pm- point along curvature of symphysis which changes form convexity to concavity)</td>
</tr>
<tr>
<td>Wits Analysis</td>
<td>AO-BO</td>
<td>length</td>
<td>Distance between A point and B point, each projected to the Functional Occlusal Plane (line passing through posterior cusp of the maxillary first molar and a line along the occlusion of the maxillary and mandibular premolars and a line perpendicular to it through the averaged anterior contact of the first maxillary premolars with the maxillary canine(cuspid)</td>
</tr>
</tbody>
</table>

### Facial Ratios

<p>| Face Low/Face All/Percent        | Face Low/Face All/Percent | percentage | The ratio of the distance from Subnasale to soft tissue Menton to the distance from the hairline to soft tissue Menton multiplied by 100 |</p>
<table>
<thead>
<tr>
<th>Text Description of Measurement:</th>
<th>Economides Abbreviations</th>
<th>Type of Measurement</th>
<th>Description</th>
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</table>

**Facial Ratios – Continued**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>percentage</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Face L/L Face Low/Percent</td>
<td>Face L/L Face Low/Percent</td>
<td>percentage</td>
<td>The ratio of the distance from the embrassure of the lower central incisor to the Chin Tangent to the distance from Subnasale to soft tissue Menton multiplied by 100</td>
</tr>
<tr>
<td>Face Mid/Face Low/Percent</td>
<td>Face Mid/Face Low/Percent</td>
<td>percentage</td>
<td>The ratio of the distance from soft tissue Glabella to Subnasale to the distance from Subnasale to soft tissue Menton multiplied by 100</td>
</tr>
<tr>
<td>Face L/L Face All/Percent</td>
<td>Face L/L Face All/Percent</td>
<td>percentage</td>
<td>The ratio of the distance from the embrassure of the lower central incisor to the Chin Tangent to the distance from soft tissue Menton multiplied by 100</td>
</tr>
<tr>
<td>Face Mid/Face All/Percent</td>
<td>Face Mid/Face All/Percent</td>
<td>percentage</td>
<td>The ratio of the distance from soft tissue Glabella to Subnasale to the distance from the hairline to soft tissue Menton multiplied by 100</td>
</tr>
<tr>
<td>Face L/L Face Mid/Percent</td>
<td>Face L/L Face Mid/Percent</td>
<td>percentage</td>
<td>The ratio of the distance from the embrassure of the lower central incisor to the Chin Tangent to the distance from soft tissue Glabella to Subnasale multiplied by 100</td>
</tr>
<tr>
<td>Face Upper/Face All/Percent</td>
<td>Face Upper/Face All/Percent</td>
<td>percentage</td>
<td>The ratio of the distance from the hairline to soft tissue Glabella to the distance from the hairline to soft tissue Menton multiplied by 100</td>
</tr>
<tr>
<td>Text Description of Measurement</td>
<td>Economides Abbreviations</td>
<td>Type of Measurement</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------</td>
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</tr>
<tr>
<td>Facial lengths</td>
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<td></td>
</tr>
<tr>
<td>Face All</td>
<td>Face All</td>
<td>length</td>
<td>The distance from the hairline to Menton (soft tissue)</td>
</tr>
<tr>
<td>Face Lower Incisor to Chin</td>
<td>Face Lower Incisor to Chin</td>
<td>length</td>
<td>The distance from the embrassure of the lower central incisor to the Chin Tangent</td>
</tr>
<tr>
<td>Face Low</td>
<td>Face Low</td>
<td>length</td>
<td>The distance from soft tissue Subnasale to soft tissue Menton</td>
</tr>
<tr>
<td>Face Mid</td>
<td>Face Mid</td>
<td>length</td>
<td>The distance from soft tissue Glabella to Subnasale</td>
</tr>
<tr>
<td>Face Up</td>
<td>Face Up</td>
<td>length</td>
<td>The distance from the hairline to soft tissue Glabella</td>
</tr>
<tr>
<td>Glabella to Subnasale</td>
<td>GA-SN</td>
<td>length</td>
<td>Distance from Soft tissue Glabella to Subnasale (Parallel to Frankfort Horizontal Plane)</td>
</tr>
<tr>
<td>Lower Chin Tangent/Lower Lip</td>
<td>LI-LCT</td>
<td>length</td>
<td>Distance from Labrale Inferius to Lower chin tangent (The most anterior superior point of the soft tissue chin) (Parallel to the Frankfort Horizontal Plane)</td>
</tr>
<tr>
<td>Lip Embrassure to Menton</td>
<td>LIP_EMB-ME</td>
<td>length</td>
<td>Distance from the Stomion inferius to the Soft Tissue Pogonion (Parallel to the Frankfort Horizontal Plane)</td>
</tr>
<tr>
<td>Text Description of Measurement:</td>
<td>Economides Abbreviations</td>
<td>Type of Measurement</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------------------</td>
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</tr>
<tr>
<td><strong>Facial lengths – Continued</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper Lip to Chin Tangent</td>
<td>LS_LCT</td>
<td>length</td>
<td>Distance from Labrale superius to Lower chin tangent (The most anterior superior point of the soft tissue chin) (Parallel to the Frankfort Horizontal Plane)</td>
</tr>
<tr>
<td>Anterior Facial Height</td>
<td>AFH</td>
<td>length</td>
<td>Distance between Nasion and Menton</td>
</tr>
<tr>
<td>Subnasale to Lower Lip</td>
<td>SN-LI</td>
<td>length</td>
<td>Distance from the Labius inferius to Subnasale projected onto the Frankfort Horizontal Plane</td>
</tr>
<tr>
<td>Subnasale/Lip Embrassure</td>
<td>SN-LIP E</td>
<td>length</td>
<td>Distance from the Labius superius to Subnasale projected onto the Frankfort Horizontal Plane</td>
</tr>
<tr>
<td>SPA-PG</td>
<td>SPA-PG</td>
<td>length</td>
<td>Distance from the Spinus Anterior to pogonion</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subnasale/Lower Lip</td>
<td>SN-LI</td>
<td>length</td>
<td>Distance from the Labius inferius to Subnasale projected onto the Frankfort Horizontal Plane</td>
</tr>
<tr>
<td>Posterior Facial Height</td>
<td>PFHGT</td>
<td>length</td>
<td>Distance from the CF point (where the Frankfort Horizontal line crosses the Pterygoid vertical line) to Gonion</td>
</tr>
<tr>
<td>Incisor mandibular plane angle</td>
<td>ILI/ML</td>
<td>degrees</td>
<td>The posterior-superior angle between the long axis of the mandibular central incisor and the mandibular plane</td>
</tr>
<tr>
<td>Text Description of Measurement:</td>
<td>Economides Abbreviations</td>
<td>Type of Measurement</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>--------------------------</td>
<td>--------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Naso-Labial Angle</td>
<td>LNT-SN-LS</td>
<td>angle</td>
<td>The anterior angle between the base of the nose and the Subnasale to Labrale superius line</td>
</tr>
<tr>
<td>McNamara 90/Nasion</td>
<td>MC90-N</td>
<td>length</td>
<td>The distance from the McNamara 90 point to Nasion</td>
</tr>
<tr>
<td>Upper Incisor/Nasion-A Point</td>
<td>ILS/N-SS</td>
<td>degrees</td>
<td>The superior angle formed by the long axis of the maxillary central incisor and the Nasion-Subspinale (A point) line</td>
</tr>
<tr>
<td>Upper One to Nasal Line</td>
<td>ILS/NL</td>
<td>degrees</td>
<td>The superior angle formed between the long axis of the maxillary central incisor and the Nasal line (Anterior Nasal Spine to Posterior Nasal Spine)</td>
</tr>
<tr>
<td>CO-SPA</td>
<td>CO-SPA</td>
<td>length</td>
<td>The straight line distance between Condylion and Spinale Anterior (A point)</td>
</tr>
<tr>
<td>Frankfort Horizontal</td>
<td>FH (Po-Or)</td>
<td>length</td>
<td>The linear distance between Porion and Orbitale</td>
</tr>
<tr>
<td>Mandibular Line</td>
<td>ML</td>
<td>length</td>
<td>The distance between Gonion and Gnathion</td>
</tr>
<tr>
<td>Occlusal Plane</td>
<td>OCC-PL</td>
<td>length</td>
<td>The distance between the midpoint of the line connecting the lower and upper incisal edge and the midpoint of the line connecting the anterior cusp tip of the maxillary and mandibular first molar</td>
</tr>
<tr>
<td>Text Description of Measurement:</td>
<td>Economides Abbreviations</td>
<td>Type of Measurement</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------</td>
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<td>-------------</td>
</tr>
<tr>
<td>Other – Continued</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Line McNamara to IS</td>
<td>IS-MCIS</td>
<td>length</td>
<td>The distance of the incisal edge of the maxillary central incisor relative to the A line (Line through A point and perpendicular to the Frankfort horizontal plane)</td>
</tr>
<tr>
<td>Posterior Face Height</td>
<td>PFH</td>
<td>length</td>
<td>Distance from Sella to Gonion</td>
</tr>
<tr>
<td>Ramus Height</td>
<td>RH</td>
<td>length</td>
<td>Distance from Articulare to Gonion</td>
</tr>
<tr>
<td>Spa to Vert Line</td>
<td>SPA-ME</td>
<td>length</td>
<td>Distance from menton projected perpendicular to the palatal plane (Anterior to Posterior nasal spine)</td>
</tr>
<tr>
<td>Gonial Angle</td>
<td>AR-GO-ME</td>
<td>degrees</td>
<td>The angle formed by Articulare, Gonion and Menton</td>
</tr>
<tr>
<td>Nose Chin Line/ Nose Chin length</td>
<td>LNT-LCT</td>
<td>length</td>
<td>Lower Nasal Tangent( to the Lower Chin Tangent (The most anterior superior point of the soft tissue chin)</td>
</tr>
<tr>
<td>S-N to Palatal Plane</td>
<td>NSL-NL</td>
<td>degrees</td>
<td>The angle between the Sella-Nasion line and the Palatal plane (ANS-PNS)</td>
</tr>
<tr>
<td>Extras- Not on Cephalometric sheet in database</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subnasale to Chin Tangent</td>
<td>SN-PGS</td>
<td>length</td>
<td>The distance from Subnasale to the Chin Tangent (the most anterior superior point of the soft tissue chin)</td>
</tr>
<tr>
<td>Local Index Number:</td>
<td>Text Description of Measurement:</td>
<td>Economides Abbreviations</td>
<td>Type of Measurement</td>
</tr>
<tr>
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<td>----------------------------------</td>
<td>--------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Extras- Not on Cephalometric sheet in database – Continued</td>
<td>Palatal plane - Mandibular plane</td>
<td>PP-ML</td>
<td>degrees</td>
</tr>
<tr>
<td></td>
<td>Lower Lip/menton</td>
<td>LI-ME</td>
<td>length</td>
</tr>
<tr>
<td></td>
<td>Line SS to McNamara 90</td>
<td>SS-MCSS</td>
<td>length</td>
</tr>
<tr>
<td></td>
<td>Subnasale/Menton</td>
<td>SN-ME</td>
<td>length</td>
</tr>
<tr>
<td></td>
<td>Posterior Cranial Base Length</td>
<td>PCL</td>
<td>length</td>
</tr>
<tr>
<td></td>
<td>Cranial Length Anterior</td>
<td>CC/N</td>
<td>length</td>
</tr>
<tr>
<td></td>
<td>Lower Incisal Axis</td>
<td>II-AI</td>
<td>length</td>
</tr>
<tr>
<td></td>
<td>Upper Incisal Axis</td>
<td>IS-AS</td>
<td>length</td>
</tr>
<tr>
<td></td>
<td>Mandibular Body Length</td>
<td>MBL</td>
<td>length</td>
</tr>
<tr>
<td>Text Description of Measurement</td>
<td>Economides Abbreviations</td>
<td>Type of Measurement</td>
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</tr>
<tr>
<td>---------------------------------</td>
<td>--------------------------</td>
<td>---------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Nasal Line</td>
<td>NL</td>
<td>length</td>
<td>The distance between the Anterior and Posterior Nasal Spine</td>
</tr>
<tr>
<td>Nasion Sella Line</td>
<td>NSL</td>
<td>length</td>
<td>The distance between Sella and Nasion</td>
</tr>
<tr>
<td>Palatal Plane Angle</td>
<td>NSL-PP</td>
<td>degrees</td>
<td>The angle between the Sella-Nasion line and the Palatal plane (ANS-PNS)</td>
</tr>
</tbody>
</table>
Glossary:

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>accession number</td>
<td>Identifying number assigned to each patient as they are accessioned into the Maxwell collection. Contains three parts. The first two (2005.19.) are shared by all patients included within the Economides' collection, while the third is unique to each patient.</td>
</tr>
<tr>
<td>cast</td>
<td>Dental casts belonging to a specific patient</td>
</tr>
<tr>
<td>confidential file</td>
<td>Archival quality file folder labeled with the patient's accession number. These files are stored in a separate box than the box with the patient folders.</td>
</tr>
<tr>
<td>e-folder</td>
<td>Electronic folder located on the N: drive that contains all images for a given patient. (N:\Images\Orthodontics) These e-folders are organized within e-folders of 50 patients which are within e-folders of 500 patients</td>
</tr>
<tr>
<td>folder</td>
<td>The physical patient folder donated by Dr. Economides</td>
</tr>
<tr>
<td>HIPPAA</td>
<td>Health Insurance Portability and Accountability Act Law to protect patient confidentiality</td>
</tr>
<tr>
<td>Hospital Security</td>
<td>Office located on the first floor of UNMH Phone number: 272-2160</td>
</tr>
<tr>
<td>HSC ID badge</td>
<td>ID badge issued by the HSC This badge is required for entry into the Radiology Department</td>
</tr>
<tr>
<td>HSC username and password</td>
<td>Username for the Health Science Center network Password – your password for this username</td>
</tr>
</tbody>
</table>
| **Learning Central** | Website for Health Science Center online training  
https://learningcentral.health.unm.edu/plateau/user/login.jsp |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>object number</strong></td>
<td>Unique number for each patient. Last of the three parts of the accession number</td>
</tr>
</tbody>
</table>
| **Osteology Lab**   | Maxwell Museum Laboratory of Human Osteology  
Anthropology building, room #165  
Phone number: 277-3535 |
| **PACS username and password** | Username and Password will be provided upon request  
Used only for logging onto the computers in the Radiology Department at the UNM Hospital |
| **patient identifier** | Any information that identifies the patient as an individual. Includes name, date of birth, and patient number |
| **patient number**  | Identifying number assigned to each patient by Dr. Economides. In general this number begins with the last one or two digits of the year when the patient joined his practice |
| **Radiology Department** | Located on the first floor of UNMH  
Phone number: 272-2269 |
| **reporter**        | Employee on the Orthodontic Project who enters data. Specifically to identify which employee made the ancestry estimation for a patient |
| **UNM Net ID and password** | UNM Net ID - **username@unm.edu**  
Password – your password for your UNM accounts |