Seminar 2: Expectations of the session

Taking a Lateral Ceph
1. Why is a head-holder needed?
   *To standardize the lateral and frontal ceph images, positioning the head in a consistent position between the x-ray source and film cassette. Without this standardization, cephalometric “norms” would not be possible. In addition, the head-holder serves to reduce the “tilting to the side” and “looking to the side” head positioning errors.*

2. Why is a soft tissue shield needed?
   *To “soften” the outline of the soft tissue profile, so the x-ray does not ‘burn out’ these structures. If a soft tissue shield is not available, then a second choice is to paint barium paste from the forehead to the chin at the midline, showing up as a radio-opaque outline.*

3. Why is it important to take all ceph images (start, progress, finish) for a given patient on the same machine, whenever possible?
   *To enable the dentist to ‘superimpose’ or ‘overlay’ these successive cephalometric images, avoiding magnification errors, determining where the teeth and hard/soft tissue moved during growth and/or treatment.*

4. If the patient does not bite their teeth together for the lateral cephalometric, what is the problem? Can this be corrected if it is inconvenient to get a new x-ray?
   *Some of the measurements will be in error, the most important being the Frankfurt mandibular plane angle and the palatal plane vs. mandibular plane angle, used to determine if the patient is skeletal open/average/or closed. The x-ray should be retaken, but if this is not possible, a correction can be made moving the incisors and molars together, rotating the mandible ‘up’ to meet the new tooth positions.*

5. How do you correct for an x-ray taken with the profile to the left instead of right?
   *In dentalcad, click ‘filter/rotate’ button, then ‘flip horizontal’ and OK.*

Scanning and importing
6. What are the scanner settings to scan a lateral cephalometric x-ray?
   *96 dpi resolution, black and white (8-bit grayscale), film (with film area guide) on Epson scanners.*

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7. What happens if you scan in color?
   The image can still be used, just that the size of the file is MUCH larger. Color is not necessary and is undesirable when making many dental vto predictions (a copy of the ceph), and then exporting the file for internet transfer.

8. What can happen if you save as a jpeg (instead of tif or bmp)?
   The compression of jpg, of which there are a 1000 variations in the world, can change the proportions of the image, making the lineal measurements incorrect. Tif and Bitmap (bmp) are the two standards for ‘uncompressed’ files.

9. What is the problem of taking a photograph of the lateral ceph for tracing?
   The image will NOT be a 1:1 calibration, what you need to accurately measure the ceph, using the findings in a diagnosis.

10. Why do you need an 8x10 transparency lid on your scanner?
    Those with digital cephs do NOT need a transparency lid, but those with ‘film’ images, need to digitize the x-ray for use in the dentalcad program. The 8x10 transparency lid will scan this type of image (x-ray) with a light source on both sides of the image. 8x10 is needed due to the size of the panoramic and cephalomeric x-rays (most scanners have 4x6 transparency).

11. How can you tell if a digital ceph is in 1:1 calibration?
    If there is a millimeter ruler or markers on the ceph image, then in the dentalcad program, take two dots that are measured (eg. Condylion and A point measures maxillary length)and place on the ruler to see what the lineal measurement is and if it corresponds with the ruler.
    If there is NOT a ruler on the ceph image, then tape a piece of metal (straight archwire or endo file)of known length on the film cassette and then measure as described above.

12. What is the problem with x-rays that are out of calibration?
    The lineal measurements are not accurate. The angular measurements are ok. The dental vto does not look right and may not result in the best treatment decision.

13. What button do you click in dentalcad to scan directly into the software?
    The “Acquire” button.

14. What button do you click in dentalcad to import a digital x-ray saved in the x-ray machine database?
    Import image button
15. Can you use E-models for model measuring, avoiding the need for a scanner?
Yes. This can be done especially if you already have your x-rays in digital form.

Lateral cephal tracing
16. How do you start the tracing and what key is used to advance through the points?
Click ‘points and contours”, then select the first point, Nasion for the lateral cephal. The “F2” key has been reprogrammed to move you consecutively through the list of points. (note: Mac users click “function+F2”)

17. What can be the problem of ‘selecting’ the points from the list?
You are able to ‘miss’ a point, not placing it, and then the calculations either will not work or a measurement(s) is missing.

18. if you want to change the position of a point, how and when can you do this?
Simply move the cursor to the previous point you want to move, and move it to the new location. The next time you click the “F2” key, you are taken back into the proper sequence of points.

19. Where are the ‘sublabial’ points (upper and lower profile) placed?
On the soft tissue (profile) at the level of the upper and lower incisor apices. This is the point that the lips rotate around (for the dental vto) when the incisors move back and forth.

20. How to you change the curves on the structures (lips, mandible, maxilla) to match the anatomy?
After placing all the points on the structure, then ‘drag’ the 2 small round points between the square points to ‘bend’ the line.

21. Why is it important to accurately trace the bone around the teeth
This is what will be used to determine if there is skeletal resistance (cortical bone) resisting your intended tooth movement. Range of bracket torque templates (powerpoint “all templates”) is used for this purpose. The incisal edge and occlusal planes are referenced, checking if the retraction limit (if the incisor is moving back) or advancing limit (if the incisors are moving forward) is occupying space of the cortical bone at that incisor inclination.

22. if you see several round circles for the external auditory meatus, where to you place Porion? The radiolucency that is 3-4 mm in diameter at the approximate height of the condylar head. If you still cannot distinguish, then next best is mechanical porion, superior of the head positioning ‘metal washer’.

23. How do you confirm that the Frankfurt Horizontal is accurate? The angle between Frankfurt horizontal and the SN line is usually 9-13 degrees, divergent from posterior to anterior.

24. If there are two mandibles on the inferior edge, which mandible do you trace? Or should you average between the two? Why? The more superior mandible. This is an indication of “tilting the head to the side” head positioning error. In this type of error, you want to trace the ‘double’ structures on the same side of the face. Orbitale is the most superior (cannot see the more inferior), Porion is the most superior, Molars are the most superior, and the mandible is therefore the most superior.

  Averaging between the two mandibles shows a lack of understanding of why there are two mandibles, although this is commonly taught at the university. In a very few cases, there is a vertical asymmetry right vs. left, in which case averaging may be the most appropriate method. To determine if there is a true vertical asymmetry right vs. left, review the frontal ceph.

25. if there are two molars, one superior and one inferior, which one should you place the molar image on? The most superior, as described in question 24 above.

26. if there are two incisors, one more in front of the other, how do you determine where to place the incisor image during tracing? Place the incisor in the place that most represents the incisor position. By standard in orthodontics, the incisor would be placed on the most forward of the two incisors, but that can be changed according to the situation.

27. if you cannot clearly see A point, describe the methods you use to see it better. Filter the x-ray (filter rotate button, invert image+equalize is a good place to start), then zoom tool. If you still cannot clearly see A point, trace the labial bone starting from the incisor and moving superior.
Filters, cropping, labeling

28. How do you use filters to enhance an image? Can you select more than one filter? The dentalcad filters are found in the filter-rotate button. The ones I most commonly use are invert image and equalize. Yes, you can use more than one filter. For study models, use the ‘smooth’ filter since the model is often not very smooth at 96dpi. Scans.

29. can you change the filter during the tracing?
Yes, but if you have cropped the image, you may have problems keeping the points where you have them.

30. how do you crop an image? What happens if the x-ray image is too large (digital ceph) and is not cropped? After clicking filter-rotate, Move the ‘dotted line’ surrounding the image to eliminate the unnecessary parts of the x-ray, then click “crop” and OK. If you do not do this on a digital ceph, the size of your patient file will increase again and again as you make dental vto predictions. Note: leave C2,3,4 on growing patients.

31. How do you turn off vectors, points, x-ray, drawing?
By checking and unchecking the boxes on the left of dentalcad.

32. If you do NOT like your tracing and what to start over, how do you get rid of the existing project?
By clicking the small x on the upper right hand corner, then cancel. If you click the big red X, above the small x, the program will close.

33. Can you [custom] label a project with anything you want?
No, that feature was NOT included in the programming. The needed double database would have made some computers not work well.

34. How is labeling distinguished between non-growing and growing ceph projects?
Use the ending “model” for non-growing projects, and the ending “vto” for all growing projects.

Head positioning errors
35. How can you tell if there is ‘tilting the head to the side’ positioning errors on a lateral ceph x-ray?
You see 2 mandibles on the inferior border, molars stacked on top of each other, and multiple porions, stacked vertically.

36. What are the double structures you need to be concerned with on ‘tilting the head to the side’ positioning error?
Inferior of the mandible, porion, orbitale, molars.
37. Which double structure do you trace in the ‘tilting the head to the side’ positioning error x-ray?  
   Most superior orbitale (you may only see one radioleucency), superior porion, superior molars, superior mandible.

38. How can you tell if there are “looking to the side” positioning errors on a lateral ceph x-ray?   
   The first indication is a double mandible on the posterior ramus. Then you may see two posterior eye sockets, molars jumbled anterior-posterior, 2 porions positioned next to each other on the horizontal.

39. What measurements are effected by ‘looking to the side’ positioning errors?  
   The measurements on the ceph are not really effected, but overlaying successive cephs is a challenge with trying to trace the same molar.

40. Are there any problems with the ‘looking to the side’ positioning error? Does the ceph need to be retaken?  
   Superimpositions (overlays) are the most difficult. The ceph does NOT need to be retaken.

Lateral Ceph Measurements
41. Which measurements define skeletal open, average, or closed bite?  
   FMA (Frankfurt mandibular angle), the angle between the mandibular plane (menton and gonion) and Frankfurt horizontal (porion to orbitale)

42. What do you do if the two measurements for skeletal open, average, or closed do not agree when clicking the ‘retrieve measurements from dentalcad’ button in the blue cephalometrics tab?  
   First check to be sure the points have been placed correctly (Porion, Orbitale, menton, gonion, PNS, ANS), Then look at the picture and ask if the jaws are divergent, average, or closed.

43. What is the different treatment response when extracting bicuspids in a skeletal open versus average versus closed bite case?  What is moving to make this different response?  
   Bicuspid extraction space closes quickly, and sometimes spontaneously in skeletal open bite cases. The molars are drifting mesial. [TPA is often used to engage the buccal cortical bone to reduce drifting]. In skeletal closed bite cases, the molars will not drift mesial, and the time to close the extraction space will be longer (1 year?) due to the associated tight muscles. In skeletal average cases, the extraction space will close in 6-8 months, without spontaneous mesial molar drifting.

44. What is the significance of the ANB measurement?
ANB defines the relation of the upper jaw (maxilla) versus the lower jaw (mandible). Skeletal class II, ANB > 4.5 degrees, means either the upper jaw is too far forward or the lower jaw is too far back or a combination. Skeletal class III, ANB < 0, indicates either the upper jaw is retruded or the lower jaw is protruded. Skeletal class I, ANB 2-4.5 indicates jaws that are well related.

45. What is the significance of the Wits measurement in class III cases? The larger the [negative] wits, the more skeletal resistance to tooth movement can be expected, until either lower lingual corticotomy or orthognathic surgery is needed for a successful treatment.

46. What is the importance of the interincisal angle when making the extraction vs. non-extraction treatment decision? A balanced looking interincisal angle will be in the neighborhood of 125 degrees plus/minus 10 degrees. If the interincisal angle gets less than 115 degrees (too acute), then the incisors look “protrusive” as seen in bimaxillary protrusive cases. If the interincisal angle is more obtuse than 135 degrees, the incisors may look too retruded.

In cases starting with obtuse interincisal angles, we often treat these cases non extraction, advancing the crowns to make a more pleasing incisor inclination. In cases starting with acute interincisal angles, we often extract bicuspids to move the incisors back, in the process making the inclination more pleasing.

47. What is the significance of lower 1 to APo in the specialty? In the days of Charlie Tweed and Robert “Rick” Ricketts, the specialty felt the most stable position and the most esthetic position of the incisors was when the lower incisor was near the APo line. This was changed in 1985 when Bob Little (U. Washington, Seattle) showed research that the cases were no more stable when the lower incisor was finished near the APo line than any other position, and NO cephalometric number predicted the cases that would be stable or not after retention.

48. How can you determine if the upper incisor is protruded or not? Look at the ‘picture’ on the ceph, asking yourself if the upper incisor is protruded. You can be assisted by reviewing the upper 1 to APo measurement and upper 1 to Nasion Perpendicular measurement.

49. What is the difference between retruded and retroclined? Retruded is a term that refers to an incisor being ‘back’ in the face. Retroclined is a term that describes the incisors inclination. The two terms usually work together since retruded incisors are usually retroclined, but not always.

Growth adjusted cephs:

50. What ‘estimated’ growth numbers do you use for class I girls and boys? Class I girls and boys? +3mm girls, +5mm boys Class II girls and boys? +2mm Girls, +4mm boys
Class III girls and boys? +5mm girls, +8mm boys. (note: Wits should be more negative than -5)

51. How do you make an exact copy of the lateral cephalometric in preparation to make a growth adjusted cephalometric?

*With the cephalometric project open that you want to copy, click the icon “paste analysis in new page”*

52. What structures do you move to represent differential horizontal growth on the cephalometric copy?

*Mandible, lingual symphysis, lower incisor, lower molar, lower profile. (note: the lower profile is best moved only part of the way forward that the lower incisor is moved, and then rotated at the most inferior point of the lower profile by dragging as you hold down the shift key.)*

**Taking the frontal cephalometric**

53. Does the frontal cephalometric take MORE or LESS radiation than the lateral cephalometric?

*More radiation since there is more bone in the Posterior-anterior direction than the lateral direction. Sometimes as much as 40% more radiation is needed.*

54. Why do they call this a “PA” cephalometric?

*Because the patient faces the film cassette, the x-ray passing from posterior of the head to anterior of the head.*

55. How do you change the headholder to take a frontal cephalometric (after first taking a lateral cephalometric)?

*There is usually a ‘pin’ at the top of the headholder that is lifted to enable the head holder to be rotated 90 degrees.*

56. Describe how the head is positioned in the headholder when taking a frontal cephalometric

*Ear rods are placed firmly in the ears, securing the head. Be certain that the Frankfurt horizontal is parallel to the floor and the patient is looking straight forward (not to the side), teeth together (eyes closed to keep the patient from moving), push the button.*

**Tracing the frontal cephalometric**

57. Why is it important to first crop the vertical of the frontal cephalometric BEFORE tracing?

*The cephalometric image and numbers must all fit on one page. If the head is too “tall”, then the numbers will be on top of the image.*

58. What happens if you crop AFTER you have already traced a cephalometric?
The point locations are all lost and you must move ALL the structures to the new cropped image.

59. what is a quick check that you have the points correct for Nasion and zygoma right/left?
The sagittal plane passes through ANS.

60. Approximately how far below the orbit (eye) is the zygomatic plane?
Only 5-10mm.

61. If a patient has a functional shift of the mandible to one side, what feature of the frontal ceph is important to confirm this?
Menton to the sagittal plane. (the last number on the list)

62. How to you determine if a patient has size differences of the face from right to left?
Compare the millimeter numbers on the right and left columns.

Tracing model measuring
63. What are the scanner settings to scan a 1:1 image of the occlusal surfaces of the model (double occlusal view)?
96dpi for 1:1 image, reflective for flatbed scanner (no transparency), black and white (8bit grayscale)

64. In what format should you save the model measuring scanned image? Why?
Tif or bmp (bitmap) since these are non-compressed formats, used on images that are measured.

65. How do you import a scanned and saved “double occlusal” image into dentalcad?
Click the import button, find where the saved image is kept in your computer (patient file folder?) and click ok.

66. What is the filter used to improve the model image in dentalcad?
Smooth
67. How do you start the tracing and then which key do you use to progress through the sequence of points and archwires?

*Change the project to model measuring from the default lateral ceph, select the first point (36D) and then use the F2 key (function+F2 for mac) to progress through the points and shapes.*

Once you get to the archwires, F3 moves forward through the sequence, F5 back through the sequence. After positioning the shape or archwire, then F2 moves to the next set of wires.

68. Where are the dots placed on a tapered incisor?

*“in the air” extending from the incisal edge, referencing the width of the contact point.* The [white] center of the blue dot is the point.

69. Why is it important that the red lines connecting the mesial and distal dots represent the rotation of each tooth?

*Because these red lines are used to in the diagnosis of tooth rotations, which then is used to select brackets for each tooth.*

70. What are the problems if you make the teeth too small?

*The dental vto then under-estimates the incisor advancement and you may make a non extraction diagnosis that finishes too protrusive. The other problem is that the 19x25 loops (keyhole and T) do not fit when the time comes to insert these archwires.*

71. Where are the archwires placed in permanent dentition?

*On the incisal edges, slightly back from the center. Average the crowding*

72. Where are the archwires placed in the mixed dentition?

*Just in front of the incisors.*

73. How do you rotate the archwire to center it on the model, correcting for non-vertical positioning of the model on the scanner?
Click on the archwire or shape of the mandible to turn it blue (selected), then on the “right end” of the wire or shape, drag the wire to rotate it.

74. Where are the ‘buccal points” placed on the bicuspids and molars?  
*On the buccal surface where the archwire would pass if engaged into the bracket of that tooth.*

75. if there is a missing bicuspid, where do I place the dots for that tooth in the initial model measuring tracing?  
*Usually on the other bicuspid in that quadrant, or a similar bicuspid in the opposite quadrant, so as to get the size correct. Be sure to make a separate red line for the missing tooth so it is obvious you have 2 teeth represented on the one tooth.*

76. if there is a missing molar, where do I place the dots for that tooth in the initial model measuring tracing?  
*The distal dot generally goes where the distal of the molar “would be” if it was present. The mesial dot should be placed on the distal of the bicuspid (do not leave space or this will result in incisor retraction). The buccal point can be estimated or placed on the 2nd molars to measure transverse width. **if you use the 2nd molar for 36/46B point, then use 16/26C points on the upper second molar mesial-buccal cusp tips.*
What does the ‘shape of the mandible’ represent?
*The cortical bone shape of the mandible. Otherwise known as the lingual shadow.*

**Editing cephs and model measuring**

78. How do you check the sublabial points on a lateral ceph for correct positioning?
*Select the upper or lower profile and check that the 3rd point from the incisor (square point) is at the level of the upper or lower incisor apex. This is the point that the lips rotate on the dental vto.*

79. How do you check the points on a lateral ceph traced by another?
*Turn off vectors, turn off drawing, turn back on points. Check points and move as needed, calculate and save.*

80. How do you check the points on a frontal ceph traced by another?
*Leave on the vectors so you can see where the points are positioned. Move any points that need to be moved, then calculate and save.*

81. How do you check the points on a model measuring?
*Lock the archwire, turn off the archwire, check the points and red lines to be sure they represent the widest mesial-distal width and represent the rotation of each tooth. Turn back on the archwire, be sure the upper archwire and shape of the mandible are centered and in the correct position on the incisors. If not, turn on-off ‘lock’ the archwire, then move as needed, calculate and save.*

82. How do you change archwire shape and size in a previously completed model measuring?
*Select the archwire or shape you want to change, turning it blue. Click F3 to move forward in the sequence of wires and shapes or F5 to move back through the sequence. Position the shape, rotate as needed, calculate and save.*

**Dental VTO, alignment and bicuspid extraction**

83. What does “vto” mean?
Visual treatment objective.

84. How do you make an alignment vto and what does this represent in the permanent dentition?

Once you have completed model measuring and lateral ceph tracings, open the lateral ceph, click the VTO button. If you only have one model, the alignment vto will automatically appear. If there is more than one model measuring project, you need to select the start model measuring.

This represents where the incisors would be positioned if you simply straightened the teeth using the archwire shape and size selected. How much advancement or retraction.

85. What does the alignment vto represent in the mixed dentition?

The final dental position if you straighten the teeth with the lower molar maintained in the current position (no shift into E space, use a Lower lingual arch?). Note: if you want to represent the alignment vto without a lower lingual arch placed, then 36/46M points are placed 1.5mm more forward.

86. How do you make an exact copy of the model measuring in preparation to make a class II elastic vto?

Open the model measuring you want to copy (start or alignment model measuring) then click the “paste analysis in new page” icon. Label Class II elastic model if non-growing, class II elastic vto if growing.

87. Which points do I move to make a class II elastic vto and what does this represent?

36/46M points are moved forward the amount of the class II. When class II elastics are used to correct class II, the lower arch moves forward to make the correction.

88. Which points do I move to make a “distalization vto” and what does this represent?

16/26M points are moved back the amount of the class II. Distalization mechanics, such as the use of cervical headgear, would be applied to get this dot representation. The further the dots move back, the more you will need to extract molars to get the final picture (vto) represented by the model measuring.

89. Which points do I move to make a “moderate anchorage” bicuspid extraction vto and what does this represent?

[lock the archwire], then move 34/44M points back ½ the bicuspid (moderate anchorage). Then move 14/24M points back ½ the bicuspid + the amount of class II (if there is any).
The space made on the mesial of the bicuspid is consumed by the anterior 6 teeth, aligning the crowding on the inside of the archwire shape, then if there is any remaining space, the anterior segment moves back to fill it up.

The space distal to the newly positioned mesial dots, with a red line still from the distal-to-mesial dots, represents the forward movement of the posterior segment.

90. which points do I move to make a “moderate-maximum anchorage” vto and what does this represent?
[lock the archwire], then move 34/44M points back ¾ of the bicuspid (moderate-maximum anchorage). Then move 14/24M points back ¾ the bicuspid+the amount of class II (if there is any).

The space made on the mesial of the bicuspid is consumed by the anterior 6 teeth, aligning the crowding on the inside of the archwire shape, then if there is any remaining space, the anterior segment moves back to fill it up.

The space distal to the newly positioned mesial dots, with a red line still from the distal-to-mesial dots, represents the forward movement of the posterior segment.

91. which points do I move to make a “maximum anchorage” vto and what does this represent?
14/24/34/44Mesial points are all moved back (after first locking the archwire) to be on top of the distal points. The front teeth are aligned, and any remaining space is consumed by the anterior segment moving back. The molars stay 100% stationary.

Note: if you move the mesial points further back than the distal points, then this represents less molar anchorage, the molars are then moving forward the amount of the red line between D-M points…do NOT do this.

92. What is a ‘growth adjusted” vto and how is this made?
This is a visual estimate of the differential horizontal growth that this patient will experience during the treatment.
**Step 1**: growth adjusted ceph: A copy of the start ceph is made, and labeled “[non-extract]vto”. The mandible, lower incisor, lower molar, lingual symphysis, and lower profile are all moved forward the amount of the estimated differential horizontal growth.

**Step 2**: growth adjusted model measuring, label “non ext vto”. Make a copy of the start model measuring. For non extraction, move 16/26M points forward the amount of added growth (upper teeth follow the extra growth of the mandible).

**Step 3**: open the growth adjusted ceph, click the VTO button and select “nonext vto”. Label the resulting dental vto with “non ext vto” so you can see all these projects work together.

93. If I do NOT like a dental vto and I want to throw it away, how do I do this WITHOUT losing my start ceph?
Click the ‘small x’ on the upper right hand corner, then cancel. Do NOT click the red X next to the save icon or you will lose the highlighted start ceph.

Treatment plans: downloading and editing

94. Why is it important to list all the treatment options that may be considered by the orthodontists in your community?
To protect yourself from criticism that you did not consider the treatment option that others might consider as the standard of care.

95. Why is it important to list “orthognathic surgery” in the treatment options considered for all severe class II and all class III cases?
To show that you considered surgery when making your treatment decision, protecting yourself from attack from the legal community.

96. How do I download a treatment plan? What happens if I do not have an active internet connection?
First select the links that you want to consider for this case. Then double click on the link while connected to the internet. A window should appear with the treatment plan you want. Click the lower left hand corner button to download the plan into your patient file.
If you do not have an active internet connection, you will not see the treatment plan you want, and you cannot download this into the patient file. In this case, you can use treatment plan 200 as a blank page to write your notes.
*** as of this writing, the 2011 treatment plans (with photos) are NOT available to directly download from the internet. These were made active, but many plans take a LONG time to download and during that time your computer is locked up. Until they can fix this problem, you will first download a treatment plan from the internet, and save. Then change patients to g6.section1 plans, a patient file, find the plan you want, single click to make it active, right click, select all, right click copy, change patients back to the one you are working on, single click to open the previous plan, right click select all, DELETE KEY, right click paste the new plan into place, save. (sorry!)

97. How do I indicate the treatment decision?
Select the link of your treatment decision and ‘mark it in red” button. Note: when reopening a patient file, single click on the red link 1 time to reopen the plan.
98. When reopening the patient file, there will not be a visible treatment plan, even though I am sure I downloaded and edited a plan. How do I get that treatment plan into view?
*Single click on the link marked in red.*

99. What is the importance of the “consultation key points” in preparing and documenting the 2<sup>nd</sup> consultation.
*If you prepare what you want to say to the patient/parent and how you want to say it, you will present yourself with more confidence, resulting in a higher percentage of successful consultations.*

2<sup>nd</sup> consultation:

100. How do you tell the patient “[the final decision] is exactly as we discussed at our last visit”. What is important about this statement?
*By first recording what you told the patient at the first consultation when they made the decision to take records (and pay for them). If you stay within your estimate, then you can say these words, assuming the patient will start since they already approved the estimate. No surprises!*

101. Why is a contract important in orthodontics and where do you find this [draft] document?
*Establishes what is included and not included in the fee. Establishes what happens if the patient does not complete the treatment. The draft document is at the end of the patient report.*

102. Why is an informed consent important in orthodontics and where do you find this [draft] document?
*Legally, the patient must be informed of what they are agreeing to in the treatment and contract. Complications must be explained in advance when they make the decision to start this treatment. The draft document is found at the end of the patient report.*

103. Who in your practice will review the informed consent and contract with the patient?
*At first the doctor, but then hopefully a business manager to reduce doctor time in the case and separate the doctor from the financial issues.*

104. How long do you want to schedule your doctor time for the 2<sup>nd</sup> consultation?
*If the doctor spends more than 10 minutes at a second consultation, the rate of refusals (have to think about it) will go way up!*

105. What appointments follow the 2<sup>nd</sup> consultation, what time intervals between appointments, and how long do you want for these?
*Placing separators: should be done at the conclusion of the 2<sup>nd</sup> consultation. 5-10 minutes only.*
Fitting bands: 2-3 days after separators are placed for kids, 1 week for adults. At the start, 15 minutes per band, after experience, 5 minutes per band. Bonding brackets and archwire tie-in. Any time after the patient has accepted treatment, you have the brackets specific for that case, and you both have the time. At the start, 2 hours, after experience 1 hour with only 10 minutes doctor time.

Tutorials
106. Where can I find the [free] tutorials for ceph tracing and model measuring?
   On your memory stick, session 2 file folder, videos folder, or on www.posortho.com, current student, additional training, IPsoft instructions.

Administration
107. What materials MUST I have at session 3?
   Bonding light
   Education kit.
   Section 1 student book
   Section 1-2 memory stick if not copied to your computer
   Optional instruments from your practice
   1. scaler (any type, to remove excess adhesive from around brackets)
   2. mosquito hemostat (locking)
   3. Bard parker blade handle