

ABO POLICY STATEMENT REGARDING LATERAL CEPHALOMETRIC RADIOGRAPHS AND SUPERIMPOSITION OF TRACINGS

With the advent of three dimensional technologies, the inherent inaccuracies of traditional radiographs have come into question. While no person has ever believed that cephalometric data collection was an exact science, orthodontics has continuously placed a high degree of importance on superimpositions as an accurate way of:

1. Determining changes in growth and development and treatment.
2. Ascertaining the amount and direction of tooth movement.

Three dimensional volumetric assessments produce exact measurements.^{1,2} When this type of data is compared to traditional cephalometric information (analogue and digital technology), indiscriminant errors in the actual location of vital landmarks necessary to establish superimpositions are found.

In spite of this problem, the Board encourages the continued use of "like" cephalograms (i.e. cephalograms produced on the same machine), and expects examinees to produce high quality cephalometric radiographs using the ABO measurements to determine diagnostic approaches for patient care and to reveal the final treatment results. Use of these accurately traced cephalograms will give the examinee very valuable information about tooth movement, amount and direction of growth, or lack thereof.

While the Board recognizes that magnification errors will always be present unless three dimensional volumetric radiographs are utilized, it does not dismiss the examinee's responsibility:

- A. to inform the Board the conditions under which the initial, progress, and final cephalometric radiographs were obtained.
- B. to create radiographic superimpositions demonstrating the highest degree of accuracy possible.

Where initial and final cephalograms are not performed on the same unit, cephalometric tracings are still required, but superimposition(s) are not required. It is the responsibility of the examinee to explain the reason for the absence of superimposition(s). Also, the examinee must be prepared to explain the changes that occurred during treatment.

When the examinee chooses to present a case that cannot be superimposed due to the usage of cephalograms produced on different units, the examinee will be provided with a Superimposition Assignment selected by the Board so that the examinee can display their ability to superimpose a case to the Board examiners. This assignment must be included in the case binder that is sent to the ABO for grading.

¹. Adams GL, Miller AJ, Harrell Jr. WE, and Hatcher DC. Comparison between traditional 2-dimensional cephalometry and a 3-dimensional approach on human dry skulls. Am J Orthod Dentofacial Orthop 2004; 126:397-409

². Harrell WE, Jr., Hatcher DC, Bolt RL. In search of anatomic truth: 3-dimensional digital modeling and the future of orthodontics. Am J Orthod Dentofacial Orthop 2002; 122:325-330.