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### Image Quality Improvement for Panorex Imaging in a Hospital Radiology Department

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## Background/Conceptual Framework

Panoramic Imaging is a popular method of imaging dental anatomy. This type of imaging is not only done in dental offices but also within hospital radiology departments. Although mandible imaging using a Panorex machine seems pretty straight forward and simple to perform, we discovered various issues leading to image distortion and overall poor quality. Our Technologists were unhappy because they lacked the knowledge to fix the issue and our Radiologists were unhappy because we were provided non-diagnostic imaging.

## Teeth Artifact:

Chin raised too high obstructing teeth



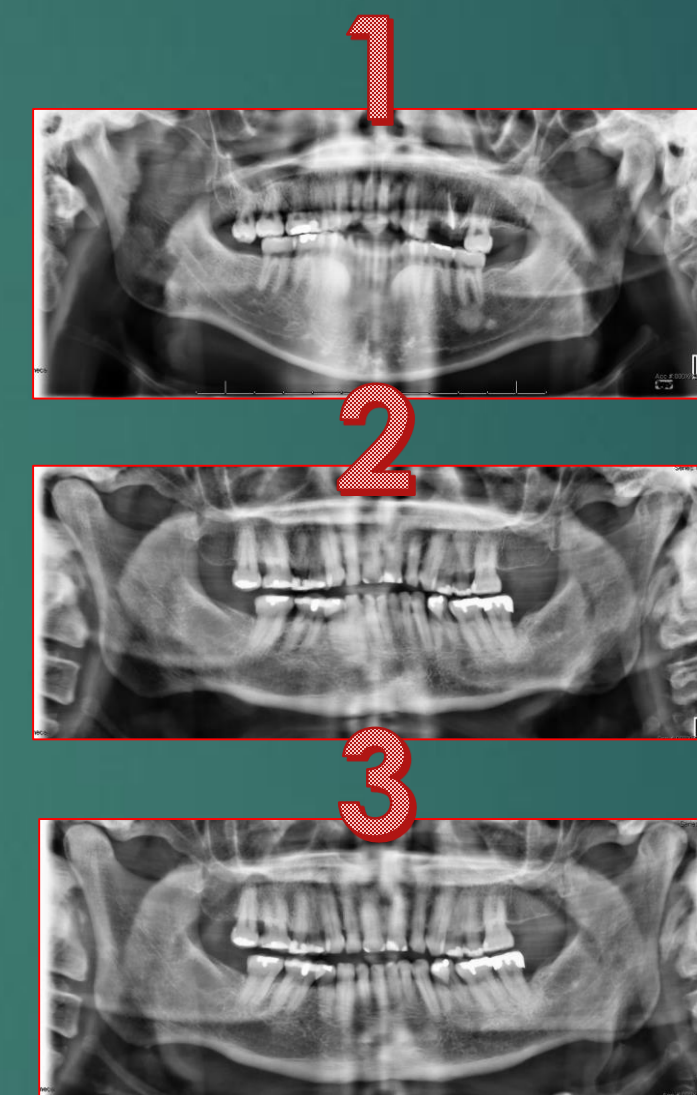
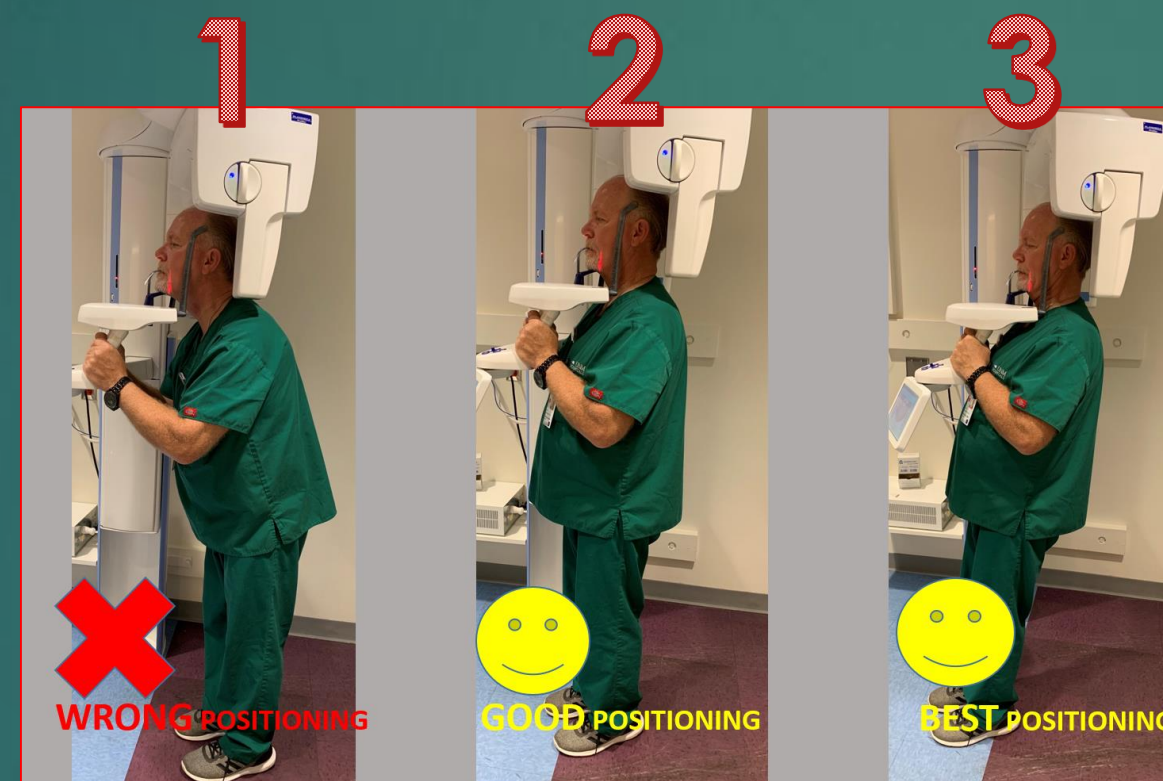
Lowered chin visualizing all teeth



## Image Quality Improvement for Panorex Imaging in a Hospital Radiology Department

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## Midline Blur:



## Purpose of the project/innovation

Radiology Panorex imaging at our hospital was less than proficient. Technologists avoided doing Panorex exams due to lack of comfort and knowledge. Images were severely blurred in the center, obstructing the view of the teeth and gum lines. TMJs were being cut off with no understanding of how to fix. Artifacts projecting over either the top or bottom teeth were impossible for the Radiologists to read.

## Results

Implementation of the new positioning methods showed a marked improvement in our Panorex image quality. Midline blur, teeth artifact obstruction, and TMJ cutoff are now easily fixed with these methods. Cheat sheets were placed in the Panorex imaging room to assist technologist during exams.

## Materials and Methods

Research of common positioning errors lead to some testing to see if the positioning adjustments to the patients would create quality images. Once we knew how to fix the midline blur, teeth artifact obstruction, and TMJ cutoff, we presented our findings at staff meetings and created cheat sheets to store in the Panorex room. One on one training was provided for each technologist.

## Conclusion

New positioning training on the Panorex dramatically improved imaging for our Patients, Technologists, and Radiologists. We no longer have sub quality, non-diagnostic Panorex imaging. Our Technologists no longer avoid Panorex exams, our Radiologists receive optimal imaging to dictate, and our patients receive a high quality of care.

## TMJ Cutoff:

Patient positioned too far Back (image appears too large)



Patient positioned too far forward (image appears small and narrowed)



## References

Peretz, B., Gotler, M., & Kaffe, I. (2012). Common errors in digital panoramic radiographs of patients with mixed dentition and patients with permanent dentition. *International journal of dentistry*, 2012, 584138. doi:10.1155/2012/584138