Despite our best efforts, orthopaedic surgeons do not always achieve desired results in acetabular cup positioning in total hip arthroplasty (THA). Although ideal abduction and anteversion angles vary depending on surgeon preference, patient factors and anatomy, studies have shown that improperly positioned cups lead to increased failure rates in THA.[1] While there have been many technological advancements in THA, including using CT-guided and fluoroscopic techniques,[2] the cost for the hospital and time required to use this technology sometimes force hospitals not to use them. New advancements in digital radiography and image analysis software allow contemporaneous assessment of cup position in real-time during the surgical procedure. Intra-operative, or “trial radiographs” with the patient in lateral decubitus position can be digitally manipulated to match pre-operative radiographs obtained with patients in the supine position to enable calculation of the abduction and anteversion angle in these patients. In our single surgeon experience, digital radiography takes approximately 4-6 seconds in order to obtain an AP pelvic radiograph. The use of the software to measure the cup position adds only 1-2 minutes to the operative time and minimizes interference with workflow.[3] The adjustments that can be made intra-operatively with this technology allow the surgeon to learn what factors in his surgical approach and technique are useful in achieving the desired component position. This allows the surgeon to have precise control over the cup position during the operation rather than experience disappointment and frustration while viewing the post-operative film. This cost-effective and efficient tool allows the surgeons to achieve the best results for their patients in real time without having to leave the operating room.

References: