

Appendix A: Pre- Course/Study Participant Survey

1. Please enter your name: _____
 2. Do you perform Hip surgeries? Yes/No
 3. What is your self-assessed level of expertise in hip surgeries? (5 proficient; 1 Beginner)
 4. Do you routinely perform Dynamic Hip Screw replacements on patients? (5 very frequently; 1 very rarely)
 5. Over the past year, how frequently have you performed a Dynamic Hip Screw replacement on patients? (5 very frequently; 1 very rarely)
 6. Have you ever used Touch Surgery? (app on smartphone or tablet computer) Yes/No
 7. Have you ever used the DHS Module in Touch Surgery? (5 very often; 1 very rarely)
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Appendix B: Performance Checklist

Participant Name: _____ Date: _____

Observer's Name: _____

Procedure: Dynamic Hip Screw and plate

Description		Steps completed	Sequence-check if not correct	Error	Sentinel Error
	Phase 1: DHS screw assembly & insertion				
	BEGIN TIME:				
	<u>Begin:</u> Place guidewire using the angled guide				
1.	Place guidewire using the 135°-angled guide. <i>Sentinel error: not using the 135°-angled guide</i> <i>Error: guide not flushed to the lateral cortex</i>				
2.	Place the measuring device over the guidewire <i>Sentinel Error: not using the measuring device</i>				
3.	Set the triple reamer length 10mm shorter than the guidewire measurement <i>Sentinel Error: setting the triple reamer longer than the guidewire measurement</i> <i>Error: setting the triple reamer 15 mm shorter than the guidewire measurement</i>				
4.	Use the triple reamer <i>Sentinel error: violating the femoral head articular surface with the reamer</i> <i>Error: removing the triple reamer on reverse</i>				
5.	Use the tap to prepare for the lag screw. <i>Sentinel error: not using the tap</i> <i>Error: not using the centering sleeve with the tap and/or tapping 5mm more or less than the lag screw length</i>				
5b	Sentinel: Penetrating the femoral head articular head with the tap <i>Error: tapping 5 mms more or less than the lag screw length.</i>				

6.	Insert the coupling screw into the one-step insertion wrench. Error: not inserting the coupling screw				
7.	Slide the 4-hole DHS plate onto the shaft of the one-step insertion wrench. <i>Error: not placing the plate on the shaft of the wrench</i>				
8.	Seat the measured DHS lag screw onto the one-step wrench. <i>Error: not seating the lag screw</i>				
9.	Thread the coupling screw into the end of the lag screw. Sentinel Error: not using the coupling screw				
10.	Mount the centering sleeve onto the wrench between the lag screw and the plate. <i>Sentinel Error: not using the centering sleeve</i>				
11.	Turn the wrench clockwise to insert the DHS lag screw until it is flush with the lateral cortex (zero mms) <i>Sentinel error: penetrating the femoral head articular surface with the lag screw</i> <i>Error: Over or under insertion of the lag screw by 5 mm.</i>				
12.	Remove the centering sleeve <i>Error: leaving the centering sleeve</i>				
13.	Ensure that the one-step insertion wrench handle is aligned with the long axis of the femoral shaft. <i>Sentinel Error: not leaving the wrench handle parallel to the femoral shaft</i>				
Phase 2: DHS Plate impaction onto the bone					
14.	Advance the DHS plate along the shaft of the one-step insertion wrench and insert the barrel into the reamed hole. <i>Error: Not engaging the plate on to the lag screw</i>				

15.	Impact the DHS plate onto the bone using the mallet and the DHS impactor for the One-Step Insertion Technique. <i>Sentinel error: fracturing the lateral cortex of the femur when seating the plate</i> <i>Error: not getting the plate seated to the lateral femoral cortex</i>				
16.	Remove the insertion instruments and the guidewire. <i>Error: leaving the one-step insertion wrench, or guidewire in place</i>				
Phase 3: DHS Plate fixation to the femoral shaft					
17.	Drill a 3.2mm hole bicortically in the first hole of the plate <i>Sentinel error: use a drill bit other than 3.2mm</i> <i>Error: Not using the 3.2mm drill sleeve in a neutral position</i>				
18.	Measure the screw length with the depth gauge <i>Sentinel error: not using the depth gauge</i> <i>Error: measuring the screw length by more than 4mm</i>				
19.	Use the 4.5mm tap to prepare for the 4.5mm cortex screws Sentinel error: not using the tap Error: not using the soft tissue sleeve while tapping				
20.	Insert the non-self-tapping 4.5mm cortex screw <i>Sentinel error: If using power, inserting the screw all the way into the plate with power causing the screw to strip</i>				
21.	Perform final tightening manually. <i>Sentinel error: stripping the screw by overtightening</i>				

22.	Insert at least one more of the remaining screws into the plate using the same technique as in steps 17-21. Sentinel error—placing less than 2 screws and error not placing a screw in the distal hole. Error: not placing a screw in the most distal hole of the plate				
23.	Insert compression screw a) Error: not using the compression screw b) Error: not removing the compression screw after compressing				
	END: Removal of the compression screw END TIME:				

TOTAL TIME TAKEN (in mins and seconds): _____

TOTAL NUMBER OF STEPS COMPLETED: _____

TOTAL NUMBER STEPS OUT OF SEQUENCE: _____

TOTAL NUMBER OF ERRORS: CRITICAL: _____; SENTINEL:

COMMENTS:

OBSERVER'S SIGNATURE: _____