Background. Developmental dysplasia of the hip (DDH) is a common musculoskeletal birth abnormality, and delayed diagnosis can lead to surgery and poor outcomes. Screening is critical but inconsistent, with true pathology identified in only 4–16% of cases. The Michigan Hip (MiHip) DDH simulator was developed to replicate the infant hip exam and improve diagnostic testing. Although MiHip has shown moderate success aligning resident exams with expert assessments, its use alongside clinical scenarios to teach DDH workup has not been studied. This study evaluates a pilot educational initiative (DDH lecture+MiHip simulation) on resident DDH exam performance and management knowledge.

Methods. This multicenter prospective study included Orthopedic Surgery and Pediatrics residents (PGY-1-5) who participated in expert-led DDH lectures with interactive MiHip sessions. Four MiHip models with distinct exam findings (Ortolani+, Barlow+, combined Barlow/Ortolani+, and normal) were used. Survey data assessing DDH management knowledge using a patient vignette and residents' physical exams were analyzed with paired t-tests ($\alpha = 0.05$).

Results. Forty-five residents (23 Ortho, 22 Pediatrics) participated in the MiHip activity, with 33 completing pre- and post-intervention surveys. Residents demonstrated improved identification of unilateral Ortolani (+13.8%, $p = 0.161$) and unilateral Barlow (+12.9%, $p = 0.211$), though the change was not statistically significant (Table 1). Alongside clinical scenarios, correct DDH management responses also increased for Ortolani+ (+15.6%, $p = 0.134$) and combined Ortolani/Barlow+ models (+18.2%, $p = 0.136$), though this was not statistically significant. Accuracy remained high for identifying normal physical exams (97%) and appropriate DDH management (94.1%).

Conclusions. This pilot DDH simulation initiative modestly improved identification of positive Ortolani findings and DDH management. High accuracy recognizing normal exams suggests general pediatric exam training is adequate, while DDH-specific instruction may be limited. Future work will expand to a larger longitudinal study to support resident curriculum development and improve early DDH detection.

Tables/Figures.

Table 1. Combined Pediatric and Orthopedic Surgery Resident Pre-Lecture vs. Post-Lecture A) % Correct Physical Exam Maneuvers and B) Correct Responses to Management of DDH

Table 1A: % Correct Physical Exam Maneuvers					
Case	**N (paired)**	**Pre (% correct)**	**Post (% correct)**	**Δ Post–Pre (95% CI)**	**p-value**
Case 1: Only Ortolani Positive	29	51.7	65.5	13.8 (-5.8 - 33.4)	0.161
Case 2: Barlow and Ortolani Positive	26	26.9	26.9	0 (-25.5 - 25.5)	1.000
Case 3: Only Barlow Positive	31	64.5	77.4	12.9 (-7.7 - 33.5)	0.211
Case 4: Normal Exam Findings	33	97	97	0 (-8.9 - 8.9)	1.000
Table 1B: Correct Responses to Management of DDH					
Case	**N (paired)**	**Pre (% correct)**	**Post (% correct)**	**Δ Post–Pre (95% CI)**	**p-value**
Case 1: Only Ortolani Positive	32	34.4	50	15.6 (-5.1 - 36.3)	0.134
Case 2: Barlow and Ortolani Positive	33	42.4	60.6	18.2 (-6.0 - 42.4)	0.136
Case 3: Only Barlow Positive	33	27.3	18.2	-9.1 (-27.6 - 9.4)	0.325
Case 4: Normal Exam Findings	34	94.1	94.1	0 (-12.1 - 12.1)	1.000