

Parent-Derived Health State Utilities for Developmental Dysplasia of the Hip

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INTRODUCTION:

Utility scores for health states are the patient-reported perceptions of a given condition, treatment, or outcome based on a standardized, graded scale. These utility scores, along with direct and indirect treatment costs and the probabilities of all possible outcomes, can be utilized to perform cost-benefit analyses of different treatment pathways. A comprehensive set of utilities related to health states experienced by patients with hip dysplasia throughout the lifespan, either treated or untreated, has not previously been elucidated. The primary aim of this study was to collect utility scores for DDH health states for inclusion in future cost-utility and other economic analyses regarding the diagnosis and treatment of hip dysplasia.

METHODS:

Thirteen vignettes describing health states encountered in patients with treated or untreated DDH were developed. Utilities were ascertained from parents of patients treated for DDH at a tertiary care institution between 2/1/2016-3/13/2023. Utility scores were collected using the validated feeling thermometer (FT) scale. Using the FT, an interviewee is given a vignette and asked to grade a health state on a scale of 0-100, where "0" represents the worst situation (or death) and "100" represents perfect health. Utility scores are calculated by dividing the FT score by 100 and are reported on a scale from 0.00 to 1.00. Median scores and interquartile ranges (IQR) were determined.

Health States:

1. Baby <6 months old in Pavlik harness
2. Baby <6 months old in rigid hip abduction brace
3. Baby/Toddler in spica cast after open/closed reduction
4. Toddler/Young Child 2-12 years old post-pelvic/femoral osteotomy (no spica cast)
5. Child with proximal femoral growth disturbance
6. Patient aged 13-40 with pain prior to periacetabular osteotomy (PAO)
7. Patient immediately post-PAO
8. Patient 1-year post-PAO (healed)
9. End-stage arthritis in setting of DDH
10. Adult post-total hip arthroplasty (THA) for DDH
11. Adult 1-year post-THA (healed)
12. Adult with unilateral hip dislocation (untreated)
13. Adult with bilateral hip dislocations (untreated)

RESULTS:

Ninety parents were enrolled (**Table 1**) of whom 45 had a child treated surgically and 45 had a child treated nonsurgically. There were 82 (91%) female patients (67 (74%) female parent respondents) at a current median 4.9 years of age. Utilities scores are presented and ranged from a low of 0.200 for the health state of an adult with bilateral hip dislocations and 0.900 for the health state at one-year post-PAO (**Table 1**).

DISCUSSION AND CONCLUSION:

Utility scores were ascertained from a group of parents well-versed in the treatments and diagnosis of DDH. This study has several limitations, including that responses were collected from a patient population at a singular tertiary care center. However, we believe that this utilities dataset will be the standard reference for future cost-utility and other economic analyses related to diagnosis and treatment of DDH.

Table 1. Developmental Hip Dysplasia Health State Utilities.

Health State	Utility Score Median (IQR)
Pavlik harness	.78 (.70-.90)
Abduction Brace	.80 (.60-.86)
Spica Cast after Closed/Open Reduction	.40 (.20-.60)
Pelvic or Femoral Osteotomy (Toddler/Child)	.45 (.30-.65)
Avascular Necrosis	.40 (.22-.50)
Hip Pain Prior to PAO	.35 (.20-.45)
Post-op PAO	.50 (.30-.65)
1-Year Post-PAO	.90 (.80-.95)
End-stage Hip Arthritis	.40 (.20-.50)
Post-op THA	.65 (.50-.80)
1-Year Post-THA	.85 (.80-.95)
Adult with Unilateral Hip Dislocation	.30 (.10-.40)
Adult with Bilateral Hip Dislocation	.20 (.09-.31)

IQR: Interquartile Range; PAO: Periacetabular Osteotomy; THA: Total Hip Arthroplasty