

Developmental Dysplasia of the Hip: Quantifying if Patients Read, Understand, and Act on Online Resources?

Holly K. Conger, BS; Stuart Weinstein, MD; Burke Gao, MD; Trevor Gulbrandsen, MD; Alan Shamrock, MD; Mary Kate Skalitzky, BA; Joshua Holt, MD

University of Iowa, Dept. of Orthopedic Surgery, Iowa City, IA



Recipient: Holly K. Conger, BS

Introduction: Parents often access online resources to educate themselves when a child is diagnosed with developmental dysplasia of the hip (DDH). In order to be fully understood by the average adult American, online health information must be written at an elementary school reading level. It was hypothesized that current available online resources regarding DDH would score poorly on objective measures of readability (syntax reading grade-level), understandability (ability to process key messages), and actionability (providing actions the reader may take). It was additionally hypothesized that the readability, understandability, and actionability would not correlate with search rank.

Methods: Patient education materials were identified utilizing two independent online searches of the term “DDH” utilizing a commonly used search engine. From the top 50 search results, websites were included if directed at educating patients/parents regarding

DDH. News articles, non-text material (video), research and journal articles, industry websites, and articles not related to DDH were excluded. The readability of included resources was quantified using the Flesch-Kincaid Grade Level Index. The Patient Education Materials Assessment Tool (PEMAT) was used to assess understandability and actionability using a 0-100% scale for both measures of interest.

Spearman’s rho was used to examine the association between a website’s average search rank (from first to last) and its readability, understandability, and actionability. Statistical significance was defined as $p < 0.05$.

Results: From 60 unique websites, 37 websites met inclusion criteria. The mean reading grade level (Flesch-Kincaid) was 12.54 ± 2.72 , with no websites having a reading level ≤ 6 . No readability statistics were statistically associated with search rank (lowest three p-values: 0.80, 0.83, 0.85). Mean understandability and actionability scores were 55.19 ± 13.96 and 16.58 ± 21.69 , respectively. Among understandability criteria, only 27.03% (10/37) resources made their purpose evident and only 10.81% (4/37) included summaries. Among actionability categories, 40.54% (15/37) of websites identified ≥ 1 action for readers, but only 5.41% (2/37) studies broke down actions into explicit, easy to understand steps. The order of search results was not associated with understandability ($\rho = -0.21$, $p = 0.22$) or actionability ($\rho = 0.0878$, $p = 0.61$).

Conclusion: Overall, the online DDH patient/parent educational materials that were assessed scored poorly with respect to readability, understandability, and actionability. Currently, search rank for DDH materials is not associated with the readability, understandability, or actionability of these resources. In the era of shared decision-making and readily available information, patients often turn to the internet for additional insight into the diagnosis, management, and outcomes of DDH.

Therefore, future efforts should be made by medical professionals to improve the readability,

understandability, and actionability of online resources in order to optimize parental understanding and facilitate informed decision-making.

The Mission of the AAP Section on Orthopedics is to foster the health of children through the AAP by mentorship, education, advocacy, and research. The AAP Section on Orthopedics has also collaborated with POSNA in joint leadership meetings creating shared strategic plans. Through these shared visions and collaborations our organizations have collectively partnered with the 50,000 pediatricians within the AAP to advocate for injured and ill children throughout the world.