

## Probing Online Searches and Websites Related to Surgeries for Clubfoot

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### INTRODUCTION:

Clubfoot is a prevalent congenital musculoskeletal anomaly that presents with a combination of hindfoot equinovarus, cavus and forefoot adductus. The current gold standard treatment method for idiopathic clubfoot, the Ponseti Method, involves a series of casts followed by prolonged bracing, and is a well-documented and effective treatment for idiopathic clubfoot. Surgical release, or lengthening, of the Achilles tendon, known as percutaneous Achilles tenotomy, is often required in conjunction with casting as a final stage of the Ponseti Method. Alternative surgical techniques, such as posterior medial release, are typically reserved for recurrent or complex clubfeet.

Annually, clubfoot impacts approximately 2 in every 1,000 newborns worldwide, leaving many parents seeking information on care options. To probe information available to patients, we utilized Google's "People Also Ask" algorithm and identified common questions searched online regarding clubfoot surgeries. The objective of this study was to examine the types of questions patients are asking online and the availability and quality of online resources related to clubfoot surgeries. We hypothesized that resources on clubfoot would be limited and that analyzing these common queries would highlight prevalent concerns and information needs among caregivers regarding surgical options for clubfoot.

### METHODS:

To obtain the most commonly asked questions online about clubfoot surgeries, we entered the following key terms into a Google Web Search on a new (history-cleared) Google Chrome browser: "achilles lengthening clubfoot", "tenotomy clubfoot", "percutaneous lengthening clubfoot", "posterior medial release clubfoot", "percutaneous tenotomy clubfoot" and "surgery clubfoot". These terms output 1207 total questions, each associated with a website. Questions were rated using the established Rothwell's Classification and labeled as a fact, policy or value. Fact questions were classified as specific activity, cost, recovery or technical detail. Policy questions were classified as management or risks, and value questions were classified as evaluation of surgery or pain. Websites were sorted by type (medical practice, commercial, government, academic, social media) and rated for reliability via JAMA Benchmark Criteria (presence of date, authorship, references, disclosures).

### RESULTS:

Of the 1207 questions extracted, 215 were excluded for not discussing clubfoot or clubfoot surgeries. 769 (63.7%) questions and 908 (75.2%) websites were repeated, though were included in analyses to accurately represent criteria related to search terms for each surgery.

Of the 992 included queries (*Figure 1*), technical details (including about what a procedure entails and anatomical structures involved, e.g. "What is the surgery for clubfoot release?") accounted for half of all questions asked (n=487, 49.1%). Other common questions were on management and risks (n=195, 21.2%, e.g. "What is the most common residual deformity after clubfoot surgery?"), evaluation of the surgery and associated pain (n=121, 13.1%), and recovery (n=102, 11.1%).

The most technical detail-related questions were about posterior medial release (n=117), clubfoot surgery (n=100) and percutaneous lengthening (n=91). Chi square testing between posterior medial release and other procedures indicated significant differences versus tenotomy clubfoot (n=65,  $\chi^2=14.86$ ,  $p=0.0001$ ), percutaneous tenotomy clubfoot (n=34,  $\chi^2=14.23$ ,  $p=0.0002$ ) and Achilles lengthening clubfoot (n=48,  $\chi^2=28.85$ ,  $p<0.0001$ ).

Questions on management and risks centered on general surgery for clubfoot (n=50) and Achilles lengthening (n=44). Chi square testing indicated significant differences for "surgery clubfoot" versus tenotomy (n=27,  $\chi^2=6.87$ ,  $p=0.008$ ), posterior medial release (n=25,  $\chi^2=8.33$ ,  $p=0.004$ ), percutaneous tenotomy (n=31,  $\chi^2=4.45$ ,  $p=0.03$ ) and percutaneous lengthening (n=18,  $\chi^2=15.06$ ,  $p=0.0001$ ).

Most questions were linked to academic sources (55.9%, e.g., Johns Hopkins, PubMed), followed by medical practices (16.7%), commercial (13.4%, e.g. WebMD) and government (13.2%, e.g. Encyclopedia MedlinePlus) websites. JAMA

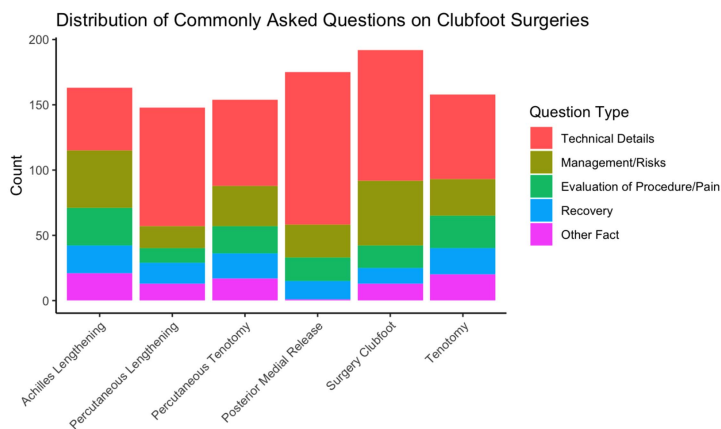
scores averaged at  $1.79 \pm 1.63$  out of 4, suggesting moderately reliable sources. Only 37.5% of sources provided references.

## DISCUSSION AND CONCLUSION:

The most frequently asked questions searched on Google about clubfoot surgeries focus on technical details and concerns about management and risks. Our results suggest that parents want to know more about technical details relating to surgical options, specifically on posteromedial release and percutaneous lengthening. Questions on risks were significantly more common for general searches about surgery for clubfoot, rather than specific procedures. This may indicate that parents are unaware of specific procedures that require surgical intervention, as overall searches on risks for clubfoot surgery were common.

The small number of unique websites available and prevalence of repeated information across websites suggests a gap in comprehensive resources, underscoring the need for further research in this area. Future studies and websites on clubfoot may aim to focus on details relating to surgical procedures and risks and management associated with each to comfort parent's concerns.

Overall, this study identifies specific patterns of questions searched and websites available regarding clubfoot surgeries. Managing clubfoot in infancy presents significant challenges, stress and questions for families, especially when surgical intervention is involved. Thus, insights from this study can inform pediatric orthopedic surgeons and support impactful consultations tailored to the needs of families navigating the complexities of clubfoot options.



**Figure 1.** Questions on technical details were the most frequently searched across procedure types. These questions concerned basic facts relating to clubfoot or the surgery. Questions on recovery and management/risks were also common and identify procedures where parents may have additional questions.