Published Surgical Success Rates in Pediatric Urology—Fact or Fiction?

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Purpose: Parents counseled for surgery are quoted operative risks based on published results in the literature. However, outcomes from single surgeon or single institution retrospective studies are not generalizable. We assessed whether published outcomes were perceived to be representative of personal practice by pediatric urologists. We also correlated patterns of perceptions with surgical volumes and demographic variables.

Materials and Methods: A survey of 26 questions on 8 topics was e-mailed to 269 members of the American Academy of Pediatrics Section on Urology. Topics studied included distal and single stage proximal hypospadias, pyeloplasty, ureteral reimplantation with or without tapering, bladder neck reconstruction, and single and 2-stage bladder exstrophy repair. Participants were asked whether their rates of results were lower, the same or higher than specific published outcomes on a 5-point Likert scale. Study participants were also requested to provide demographic data and to estimate their annual case volume for each condition.

Results: Of the 269 section members who were contacted 110 (40.9%) completed the survey. More than 80% of respondents practice pediatric urology exclusively with 50.9% reporting operative volumes of more than 400 cases per year. A greater proportion of participants reported worse outcomes than published reports for hypospadias fistula rates (distal $p = 0.001$, proximal $p = 0.023$), bladder neck repair ($p = 0.018$) and exstrophy repair continence rates (single and 2-stage $p < 0.001$). Improved outcomes compared to published data were reported for ureteral reimplantation ($p = 0.013$) and pyeloplasty ($p = 0.003$). However, these findings did not correlate consistently with case volume or other demographic characteristics.

Conclusions: A significant proportion of pediatric urologists perceive their personal outcomes to be different than those in the published literature, regardless of practice setting, operative volume or time in practice. In an era of pay for performance and quality improvement, publication bias can have implications for patient care, reimbursement and malpractice.

Key Words: outcome assessment, treatment outcome, urologic surgical procedures, pediatrics, data collection

Abbreviation and Acronym

BNR = bladder neck repair

Study received institutional review board approval.

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In medicine there is long tradition through which scientific evidence and data are disseminated to a larger community through journals and society meetings. The voluntary peer review process lends credibility to published results, although specific outcomes may not be representative of or generalizable to a larger population. It is apparent that a systemic publi-

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cation bias exists whereby studies with favorable results are more likely to be submitted and published than those with negative findings.[1] These series often originate from centers of excellence with a high surgical volume and low complication rates, and are subsequently adopted as the standard performance metrics for a specific procedure. Furthermore, stakeholders in research may unintentionally inflate their success through the misinterpretation of data, underreporting and poor statistical controls for confounding variables or bias. The global, or real, outcomes of major surgical procedures incorporating community practice and other academic centers may differ from the outcomes reported in the literature. Thus, it is not clear whether the benchmarks reported for pediatric urological procedures reflect the results that can be achieved in clinical practice.

In an ideal world physicians would collect personal results and report their complication rates when discussing operative risks with patients. In the absence of these data, outcomes from single surgeon or single institution retrospective studies are often quoted during the informed consent process. Even meta-analyses and systematic reviews can be misleading if populated with a skewed proportion of positive studies.[2] Authors of review articles compile the results of original research in a digestible format that is often evidence-based but is inevitably biased. Published surgical benchmarks are assimilated into textbooks and from there into the clinical practice of the surgical community.[3,4] As Snodgrass noted in a 2010 editorial, hypospadias reporting is dominated by retrospective studies with incomplete Materials and Methods sections, making meaningful comparison among outcomes in the literature difficult.[5] He identified this as a common theme in scientific reporting in the pediatric urology specialty generally. We hypothesized that the results reported in the literature for common and complex pediatric urological procedures are different from those obtained globally in clinical practice. Therefore, we devised a survey to assess whether published outcomes for common pediatric urological procedures were perceived to be representative of personal practice by physician providers. A secondary objective was to correlate patterns of perceptions with self-reported surgical volumes and demographic variables.

MATERIALS AND METHODS

Institutional review board approval was obtained from our institution before data collection or analysis. An online survey of 26 questions was e-mailed to 269 members of the American Academy of Pediatrics Section on Urology. Complication and success rates for common and complex pediatric urology surgical procedures were presented on 8 topics including distal and single stage proximal hypospadias, pyeloplasty, ureteral reimplantation with or without tapering, bladder neck reconstruction, and single and 2-stage repair of bladder exstrophy. Several topics had multiple questions. For instance, hypospadias categories included fistula rates and overall complications (dehiscence, stenosis etc). Exstrophy categories included continence and dehiscence rates. Thus, there were 12 questions for the 8 topics. Participants were asked whether their personal experience resulted in perceived outcome rates that were lower, the same or higher than those of specific published outcomes on a 5-point Likert scale. Options included much lower, somewhat lower, the same, slightly higher, much higher and do not perform this. Respondents estimated their annual case volume for each procedure. Demographic data were collected including age, years in practice and percentage of practice in pediatrics, AUA (American Urological Association) section, annual overall pediatric urology volume and practice setting.

Incomplete surveys were excluded from analysis. Partially completed surveys were included in the study if at least 75% of the questions were answered. Responses of do not perform were excluded from the final data analysis. Due to the small sample size for several Likert scale options, we condensed the results into a 3-point Likert scale of lower, the same or higher. We analyzed the data using SPSS® version 18 and performed 1-sample t tests or Pearson chi-square goodness of fit analysis as appropriate. All tests were 2-sided and $p < 0.05$ was considered statistically significant.

RESULTS

Of the 269 section members 142 partially responded to the survey and 110 surveys (40.9%) were included in the study. Demographic data are shown in table 1. Of the 110 respondents 108 opted to participate in the optional demographic queries. Most participants were 41 to 60 years old (82.4%) and had been in practice for more than 15 years (55.5%). More than 80% of respondents practice pediatric urology exclusively with 50.9% performing more than 400 cases per year. Another 28.7% of respondents stated that they perform 301 to 400 cases annually. Fewer than 5% of participants reported that their practice was less than 75% pediatric urology and 58% identified some component of their practice setting as academic. The greatest proportion of participants was from the Western section of the AUA, followed closely by the North Central and Southeastern sections (21.5%, 19.6% and 18.7%, respectively).

The data were analyzed with the assumption that most surgeons have the same complication rates and successful outcomes as reported in the literature according to a normal distribution. However, a larger than expected proportion of survey participants believed that their personal outcomes differed from published results in 7 of the 12 categories, as demonstrated in table 2. Personal outcomes were