Why Is Clinical Research Important for a Pediatric Surgeon?

Several surgeons wonder why they should get themselves involved in research. They often feel that their clinical work does not offer them time and they are happy with whatever technique that works in their hand. The Medical Council of India recently mandated publications in peer-reviewed journals as essential criteria for promotions in teaching institutions. This aspect is essential for financial incentives. Publications also bring reputation and establish authority of an individual in their field of practice.

However, in addition to the personal motive, one has to be a little altruistic and think about benefitting the humankind in addition to “the human.” Research has been the fuel for future progress and has significantly shaped perspectives in medicine.[1] To take the example of COVID pandemic, without initial research, no one would have attempted hydroxychloroquine as a treatment. Likewise without further research and meta-analysis, the world would not have found out that the “cure is more grievous than the endurance.” With increasing side effects, the WHO had to eventually stop the solidarity trial.

Publication of any simplest technical innovation or even a dressing method could bring immense learning to the pediatric surgical community at large and could eventually benefit their patients. For example, it may be a novel spatulation technique[2] or a new stenting technique[3] during a laparoscopic pyeloplasty. One does not always have to look for new technical innovation to publish. Even a rare case report or a rare management that succeeded is worth reporting. One has to consult a statistician upfront to determine the sample size so that their finding is not limited by small numbers. One has to understand simple statistical principles. For example, if the data are skewed (not normally distributed), one has to use median (interquartile range) to describe the data and nonparametric tests (Mann–Whitney U-test) to analyze the significance of outcomes.

Senior pediatric surgeons should ponder over the issue of teaching research to junior doctors. For a young pediatric surgeon who is interested in an academic career, understanding the research process helps him/her to develop scientific skill. Junior surgeons the ability to critically analyze the results of an article published. Roughly around 85% of research was found to be wasteful or inefficient,[3] with deficiencies in the following aspects: relevance for clinicians or patients; appropriateness of the design and methods; inferences not being based on their results; and lack of an unbiased or clinically meaningful reporting. Before embarking on any research, the clinician has to ensure that the study he/she is planning is feasible, interesting, novel, ethical, and relevant (remembered by the mnemonic “FINER”).

One of the simplest studies a pediatric surgeon can perform is comparing outcomes with or without a medication[6] or outcomes of two different operative techniques (laparoscopy vs. open). For this, one needs to have prospective record keeping, structured follow-up plan, and defined outcomes. One of the main reasons why clinical research papers get rejected is a flaw in the research methodology. Hence, it is essential to sit and formulate a clear protocol and plan the methodology meticulously. One has to consult a statistician upfront to determine the sample size so that their finding is not limited by small numbers. One has to understand simple statistical principles. For example, if the data are skewed (not normally distributed), one has to use median (interquartile range) to describe the data and nonparametric tests (Mann–Whitney U-test) to analyze the significance of outcomes.

To get any new research idea, one has to inculcate the habit of reading the latest publications and develop the ability to critically analyze the results of an article published. Roughly around 85% of research was found to be wasteful or inefficient,[3] with deficiencies in the following aspects: relevance for clinicians or patients; appropriateness of the design and methods; inferences not being based on their results; and lack of an unbiased or clinically meaningful reporting. Before embarking on any research, the clinician has to ensure that the study he/she is planning is feasible, interesting, novel, ethical, and relevant (remembered by the mnemonic “FINER”).

One of the simplest studies a pediatric surgeon can perform is comparing outcomes with or without a medication[6] or outcomes of two different operative techniques (laparoscopy vs. open). For this, one needs to have prospective record keeping, structured follow-up plan, and defined outcomes. One of the main reasons why clinical research papers get rejected is a flaw in the research methodology. Hence, it is essential to sit and formulate a clear protocol and plan the methodology meticulously. One has to consult a statistician upfront to determine the sample size so that their finding is not limited by small numbers. One has to understand simple statistical principles. For example, if the data are skewed (not normally distributed), one has to use median (interquartile range) to describe the data and nonparametric tests (Mann–Whitney U-test) to analyze the significance of outcomes.

Senior pediatric surgeons should ponder over the issue of teaching research to junior doctors. For a young pediatric surgeon who is interested in an academic career, understanding the research process helps him/her to develop scientific skill. Junior surgeons

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

How to cite this article: Babu R. Why is clinical research important for a pediatric surgeon? J Indian Assoc Pediatr Surg 2020;25:263-4.
should be well motivated to understand and undertake research. It is also essential to guide them through the basic principles of research and to mentor them during their initial research projects. They should learn how to structure and design a research project involving pediatric surgical outcomes. The model proposed by Chang et al. consists of three phases: study design, data preparation, and data analysis.

Apart from producing a quality thesis, pediatric surgical trainees should try to develop analytical, conceptual, and critical thinking skills to the highest academic level. Academic institutions should reward researchers on a long-term basis and help them focus on working toward a meaningful research. Thakur et al. reported that the number of randomized controlled trials (RCTs) are significantly less in pediatric surgical journals compared to general surgical journals.

Premium institutes with facilities should focus on basic science laboratory research, translational research, clinical/population-based research, and RCTs which help overcome bias. RCTs provide prospective investigator-controlled studies and represent the highest level of evidence that defines the ultimate practice guideline.

Apex bodies of pediatric surgeons should sit together and formulate the methodologies to plan multicenter trials. There are some rare conditions that warrant systematic review and meta-analysis. Gender dysphoria in disorders of sexual differentiation, long-term outcomes of laparoscopic hepaticoduodenostomy, and sexual outcomes of hypospadias repair are some examples where meta-analysis is likely to throw some useful information.

To summarize, the zeal for research should not die down and young pediatric surgeons should be mentored to develop an interest in clinical research. Quality of research is the key factor which improves citation of an article. Journals always welcome well-researched and well-written articles as they help in improving the impact factor of the Journal. In this regard, it is essential for the authors to join hands with the Journal in producing a quality publication.

Ramesh Babu
Department of Pediatric Urology, Sri Ramachandra Institute of Higher Education and Research, Chennai, Tamil Nadu, India

Address for correspondence: Prof. Ramesh Babu, Department of Pediatric Urology, Sri Ramachandra Institute of Higher Education and Research, Porur, Chennai, Tamil Nadu, India.
E-mail: drrameshbabu1@gmail.com

Submitted: 26-May-2020.
Revised: 26-May-2020.
Accepted: 27-May-2020.
Published: 01-Sep-2020.

REFERENCES
1. Dellis A, Skolarikos A, Papatsoris AG. Why should I do research? Is it a waste of time? Arab J Urol 2014;12:68-70.
2. Chandrasekharam VV. Simple technique of ureteric spatulation & handling during laparoscopic pyeloplasty in infants & children. J Pediatr Urol 2013;9:384-7.
3. Babu R, Arora A, Raj N. Stenting ante grade via veress needle during laparoscopic PyeloplastY (“SAVVY” Technique). J Indian Assoc Pediatr Surg 2019;24:117.
4. Babu R, Ninan B, Sai V. Evaluating neonates with antenatal hydronephrosis using a standard protocol: An audit of hospital records. Indian Pediatr 2018;55:966-8.
5. The Lancet. What is the purpose of medical research? Lancet 2013;381:347.
6. Babu R, Chakravarthi S. The role of preoperative intra muscular testosterone in improving functional and cosmetic outcomes following hypospadias repair: A prospective randomized study. J Pediatr Urol 2018;14:29.e1-6.
7. Abdullah F, Ortega G, Islam S, Barnhart DC, Peter SD, Lee SL, et al. Outcomes research in pediatric surgery. J Pediatr Surg 2011;46:221-5.
8. Chang DC, Rhee DS, Papandria D, Aspelund G, Cowles RA, Huang EY, et al. Outcomes research in pediatric surgery part 2: How to structure a research question. J Pediatr Surg 2011;46:226-31.
9. Thakur A, Wang EC, Chiu TT, Chen W, Ko CY, Chang JT, et al. Methodology standards associated with quality reporting in clinical studies in pediatric surgery journals. J Pediatr Surg 2001;36:1160-4.
10. Karakiewicz PI, Briganti A, Chun FK, Valiquette L. Outcomes research: A methodologic review. Eur Urol 2006;50:218-24.