Pediatric Nephrology (2021) 36:3493–3497
https://doi.org/10.1007/s00467-021-05105-9

EDITORIAL COMMENTARY

Importance of clinical practice guidelines to practicing pediatric nephrologists and IPNA survey

Pankaj Hari[1] · Khalid Alhasan[2] · Arvind Bagga[1] · Melvin Bonilla-Felix[3] · Paula Alejandra Coccia[4] · Ali Duzova[5] · Ill-So Ha[6] · Giovanni Montini[7,8] · Koichi Nakanishi[9] · Susan Samuel[10] · Hong Xu[11] · Olivia Boyer[12] · Dieter Haffner[13]

Received: 17 April 2021 / Revised: 17 April 2021 / Accepted: 27 April 2021 / Published online: 20 May 2021

Abstract

Clinical practice guidelines (CPGs) are systematically developed statements backed by scientific evidence to assist practitioners in management in clinical practice. An international cross-sectional survey was conducted by the IPNA to examine the perceptions of pediatric nephrologists on guidelines and their usage and to identify important diseases for future clinical practice guidelines (CPGs). The survey found that the majority of pediatric nephrologists find CPGs useful in clinical practice and admitted to using them most of the time. Developing CPGs is challenging and there are standards available to develop trustworthy guidelines. While evidence-based global guidelines are ideal, pediatric nephrologists expressed the desire that they address regional differences. Most respondents (89.2%) to the survey agreed that adult guidelines did not cover the pediatric perspective adequately and 71.4% opined that consensus-based pediatric guidelines can be developed when evidence for the pediatric population is lacking. The development of high-quality practice guidelines requires substantial resources and may not be feasible in resource-poor countries. Adaptation of an existing guideline has been suggested as an alternative and the ADAPTE collaboration provides a systematic approach to adapting guidelines. Several diseases where pediatric guidelines are needed as a priority including IgA and C3 glomerulopathy were identified in the survey. Implementation of guideline-based care is challenging and the survey found that lack of availability of guidelines (43%) and resources (22.8%) are important reasons for poor implementation in lower-middle and low-income countries. Perceived complexity of guidelines, physician attitudes, and lack of training also contribute to non-adherence to guidelines.

Keywords Clinical practice guidelines · CPG · Children · Kidney

✉ Khalid Alhasan
kalhasan@ksu.edu.sa; kalhasan28@yahoo.com

[1] Department of Pediatrics, Division of Nephrology, All India Institute of Medical Sciences, New Delhi, India

[2] Department of Pediatrics, College of Medicine, King Saud University, Riyadh, Saudi Arabia

[3] Department of Pediatrics, University of Puerto Rico, Medical Sciences Campus, San Juan, Puerto Rico

[4] Division of Pediatric Nephrology, Department of Pediatrics, Hospital Italiano de Buenos Aires, Buenos Aires, Argentina

[5] Division of Pediatric Nephrology, Hacettepe University Faculty of Medicine, Ankara, Turkey

[6] Department of Pediatrics, Seoul National University Children's Hospital, Seoul, Korea

[7] Nephrology, Dialysis and Transplant Unit, Fondazione Ca' Granda IRCCS, Policlinico di Milano, Milano, Italy

[8] Giuliana and Bernardo Caprotti Chair of Pediatrics, Department of Clinical Sciences and Community Health, University of Milano, Milano, Italy

[9] Department of Child Health and Welfare (Pediatrics), Graduate School of Medicine, University of the Ryukyus, Okinawa, Japan

[10] Department of Pediatrics, Section of Pediatric Nephrology, Alberta Children's Hospital, University of Calgary, Calgary, Canada

[11] Department of Nephrology, Children's Hospital of Fudan University, Shanghai, China

[12] Pediatric Nephrology and Dialysis Unit, Reference Center for Idiopathic Nephrotic Syndrome in Children and Adults and MARHEA and MAT, Imagine Institute, Paris University, Necker Children's Hospital, APHP, 75015 Paris, France

[13] Department of Pediatric Kidney, Liver and Metabolic Diseases, Children's Hospital, Hannover Medical School, Carl-Neuberg-Str 1, 30625 Hannover, Germany

Clinical practice guidelines

The Institute of Medicine defines clinical practice guidelines (CPGs) as systematically developed statements to assist practitioners and patient decision-makers in appropriate healthcare for specific clinical circumstances [1]. The guidelines are aimed at bridging the gap between research and clinical practice and intend to reduce the variation in clinical care given by practitioners [2]. Evidence-based clinical management in pediatric nephrology is challenging and an important goal of the International Pediatric Nephrology Association (IPNA). Indeed, most diseases pediatric nephrologists deal with are severe and rare, requiring optimal management in the face of a limited number of randomized clinical trials.

The Best Practices and Standards Committee of IPNA conducted an international cross-sectional survey on clinical practice guidelines in May 2020 to assess the importance and utility of CPGs among practicing pediatric nephrologists. The survey was administered online via email using a hyperlink. Feedback from pilot testing was used to modify ambiguous or 'double-barreled' questions (Supplementary Table 1). Countries were classified according to the 2018 World Bank country classification by income level (Supplementary Table 2) [3].

A total of 763 responses to the survey were received from 94 countries. Of the 1670 IPNA members who were invited to participate in the survey, 37.4% responded. Additionally, 139 (19.2%) non-IPNA members participated in the survey. More than half (57.9%) of the respondents were practicing in a high-income country (HIC), 25.1% in an upper-middle-income country (UMIC), and 16.8% were in lower-middle income (LMIC) and low-income countries (LIC) (Supplementary Table 2). Most respondents were from Asia (34.7%), followed by America (32.7%) and Europe (25.4%); 4.9% were practicing in Africa. Most participants (64.9%) had been practicing pediatric nephrology for > 11 years. A significantly higher proportion of respondents in HICs had longer years of clinical practice compared with those in LMICs and LICs (43.5% for HICs vs. 22% for LMICs and LICs) ($P < 0.001$).

The majority (99%) of respondents agreed that evidence-based guidelines were useful in clinical practice and 64% strongly agreed with this statement. Approximately 80.3% admitted to using CPGs most of the time. Most (79.4%) respondents had access to national or regional guidelines available for pediatric kidney diseases. Less than half (44%) of respondents reported that the guidelines were available through PubMed (https://pubmed.ncbi.nlm.nih.gov). Irrespective of the country's income status, most respondents believed that CPGs were useful and admitted to using them in clinical practice (Table 1).

Local vs. global CPGs

While several CPGs are available, there is a paucity of global guidelines in pediatric nephrology. Some of the CPGs are formulated by national societies and are country-specific while others are developed by regional societies. There is considerable variation among regional guidelines on a single disease; therefore, their recommendations are often inconsistent. This is largely because of the variable methodologies used for framing these guidelines. Thus, appraisal tools are needed for assessing the quality of guidelines [4]. Researchers have developed the Appraisal of Guidelines for Research & Evaluation (AGREE) instrument and its revised version, AGREE II [5], is currently the most commonly applied and comprehensively validated guideline appraisal tool worldwide.

Global guidelines are an initial step toward uniform management of diseases worldwide. Experts argue that despite variability in local resources, it is feasible to rigorously develop evidence-based global guidelines because evidence-based care of patients is independent of geographical location [6]. In the IPNA survey, about half of the respondents opted for international guidelines with regional differences while 19%

Table 1 Comparison of responses from high-income, upper-middle-income, and lower-middle- and low-income countries

	HIC (%)	UMIC (%)	LMIC and LIC (%)	*P* value
Response				
Think that guidelines are useful	98.6	99.5	98.4	0.15
Mostly use guidelines	77.3	86.9	82.7	0.04
Pediatric nephrology guidelines are available	84.6	75.4	69.3	< 0.001
Have published guidelines	69.1	54.5	62.9	0.002
Prefer international guidelines with regional differences	48.1	46.1	59.8	0.07
Reason for poor implementation of guidelines				
Non-availability	46.9	40.8	34.6	< 0.001
Lack of resources	16.6	23.6	43.3	
Lack of willingness to use	17.7	12.6	10.2	

desired national or regional guidelines. A large proportion of respondents from LICs and LMICs opted to have international guidelines with regional differences addressed. While variability in practice exists across countries regarding the management of kidney diseases in children, guidelines created by international bodies such as IPNA should consider regional differences to encourage implementation in LICs and LMICs.

Guidelines should be population specific

Although guidelines are generally agreed to have a positive impact on clinical decision-making, it is necessary for guidelines to be applicable to a specific population. Most respondents (89.2%) in the IPNA survey felt that adult guidelines did not cover the pediatric perspective adequately. For example, pediatric nephrologists argue that childhood IgA nephropathy differs from the adult in terms of severity at onset and progression and the KDIGO 2012 guidelines on management of IgA nephropathy are poorly suited for children [7]. However, KDIGO decided not to include an update on childhood IgA nephropathy in their new glomerulonephritis guidelines due to scarcity of evidence. Most respondents (71.4%) to the IPNA survey opined that expert opinion/consensus-based guidelines should be used when evidence for the pediatric population is lacking, while some (17.7%) suggested using adult guidelines. The participants of this survey also rated the need for having guidelines on IgA nephropathy as high, underscoring the need for pediatric guidelines, even if consensus-based, on such diseases.

Guidelines should be trustworthy

CPGs aim to translate the progress in biomedical research to patient care by establishing standards of care, backed by strong scientific evidence. In order to be able to use guidelines as a reliable basis for decision-making, their quality, i.e., their methodological rigor and transparency, needs to be ensured. Developing guidelines presents a number of challenges including lack of transparent methodological practices, difficulty reconciling conflicting guidelines, and conflicts of interest. Ideally, recommendations in CPGs should be informed by a systematic review of evidence and an assessment of the benefits and harm, and costs of alternative care options. Certain standards have been proposed for developing trustworthy clinical practice guidelines which emphasize transparency, conflict of interest, conducting systematic reviews, establishing evidence foundations for and rating strength of guideline recommendations, articulation of recommendations, external review, and updating [8].

Adaptation of global guidelines

The development of high-quality practice guidelines requires substantial resources and may not be feasible in resource-poor countries. Therefore, the adaptation of an existing guideline has been suggested as an alternative. The ADAPTE collaboration provides a systematic approach to adapting guidelines produced in one setting for use in a different cultural and organizational context [9]. One of the interventions for improving the implementation of global guidelines is to adapt them to suit local needs. The ADAPTE process ensures that

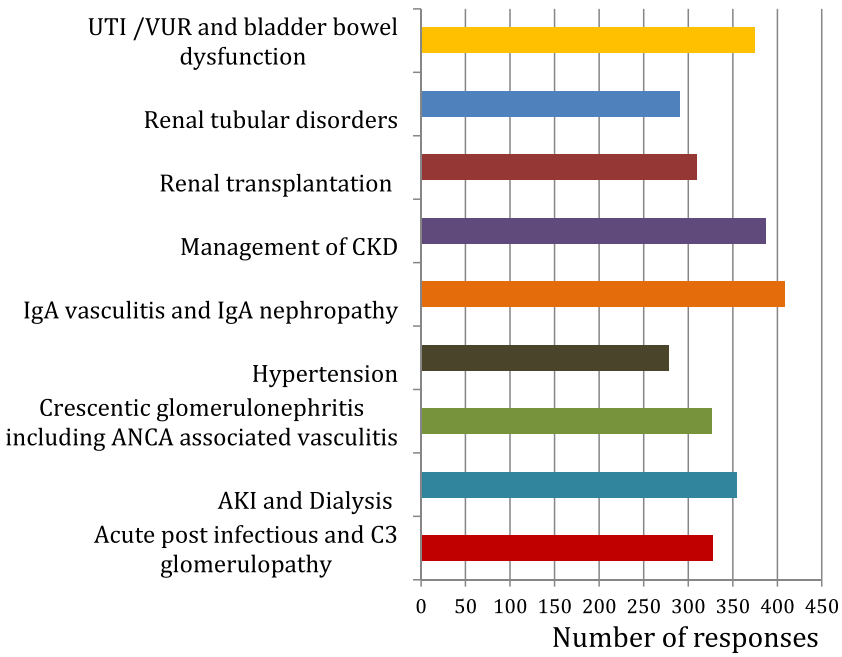

Fig. 1 Distribution of respondents' opinions regarding childhood diseases that the IPNA should consider a priority to formulate guidelines

the adapted guideline not only addresses health questions relevant to the local context but also is suited to the needs, priorities, legislation, policies, and resources in the targeted setting [9]. Such adaptation can be a cost-effective alternative to developing de novo guidelines in LICs and LMICs. In our survey, a large proportion of respondents from LICs and LMICs were open to the idea of using international guidelines with regional differences addressed.

Clinical practice guidelines in pediatric nephrology

Clinical practice guidelines are ubiquitous in our healthcare system. The Guidelines International Network (GIN) database currently lists more than 2900 guidelines from all over the world (https://guidelines.ebmportal.com/). The IPNA survey identified a range of opinions about diseases for which guidelines are readily available and those in need of development. Guidelines on glomerular diseases were most commonly available (72.6%), followed by congenital anomalies of the kidney and urinary tract (CAKUT) and urinary tract infection (UTI) (55.2%), acute kidney injury (AKI) and dialysis (48.3%), chronic kidney disease (CKD) (42.2%), and tubular and inherited kidney disorders (26.4%) (Supplementary Fig. 1). Most participants suggested that IPNA should develop guidelines on IgA vasculitis and nephropathy (57.1%), followed by CKD (54.2%), UTI and vesicoureteric reflux (VUR) (52.5%), AKI and dialysis (49.6%), acute post infectious glomerulonephritis and C3 glomerulopathy (45.8%), crescentic glomerulonephritis (including anti-neutrophil cytoplasmic antibody (ANCA) vasculitis) (45.6%), kidney transplantation (43.3%), renal tubular disorders (40.6%), and hypertension (38.9%) (Fig. 1). Specific glomerular diseases where there is insufficient evidence in pediatric populations such as crescentic glomerulonephritis and C3 glomerulopathy were also rated as priority diseases for future CPGs.

Challenges in implementation of guidelines

Studies have shown that 30–40% of patients would continue to receive treatments that are non-adherent to guideline recommendations despite guideline availability [10, 11] due to several factors. These include lack of translation of knowledge contained within guideline statements, lack of access to guidelines, and at times inability to implement guidelines within a local context due to lack of resources or culture of care. Furthermore, perceived complexity of guidelines, physician attitudes, and lack of training promote non-adherence to guidelines [12]. Global guidelines are not well-integrated into routine care in LMICs. Factors such as availability, cost of health care resources, specialty skills, and needs of the patient population have been reported to affect successful guideline implementation in LICs and LMICs [12].

A significantly large proportion of respondents (84.6%) from HICs had pediatric nephrology guidelines available as compared to those in LMICs and LICs (69.3%, $P < 0.001$). Respondents from LMICs and LICs were of the opinion that lack of availability (43.3%) and lack of resources and optimal health care (34.6%) were chief reasons for poor implementation of guidelines, while those in HICs opined that lack of availability (46.9%) and willingness to use guidelines (17.7%) were chief reasons for poor implementation of guidelines. The underdeveloped infrastructure of health care systems in LMICs and LICs contributes to impaired clinical practice. A survey in Tehran found that only 31% of physicians were familiar with clinical guidelines and reported difficult access to guidelines and lack of facilities as important barriers to their use [13]. Lack of human and material resources in these countries have been reported as major barriers to the implementation of guidelines [14]. Thus, before implementing guidelines formulated by national societies, it is necessary for healthcare administrators and policymakers in LMICs to improve the quality of health care services to facilitate diagnosis and treatment [15], which will require governments in LMICs to spend more on health.

Conclusion

Pediatric nephrologists, irrespective of their countries of practice, consider evidence-based guidelines to be useful in clinical practice. Developing trustworthy guidelines requires substantial resources and a systematic adaptation of global guidelines to suit local needs seems to be a pragmatic approach. The IPNA survey identified specific pediatric kidney diseases where knowledge gaps in management exist, suggesting the need for new CPGs for these diseases and that they should be readily available to all pediatric nephrologists worldwide.

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1007/s00467-021-05105-9.

Acknowledgements Thank you to Lucie Semanska for designing the survey and online platform and administering it to the participants.

Declarations

Conflict of interest The authors declare no competing interests.

References

1. Institute of Medicine (US) Committee to Advise the Public Health Service on Clinical Practice Guidelines (1990) In: Field MJ, Lohr

KN (eds) Clinical Practice Guidelines: Directions for a New Program. National Academies Press, Washington
2. Gundersen L (2000) The effect of clinical practice guidelines on variations in care. Ann Intern Med 133:317–318
3. World Bank (2018) World Bank List of Economies 2018. https://hupo.org/resources/Documents/World%20Bank%20list%20of%20economies%20(June%202018).pdf
4. Grilli R, Magrini N, Penna A, Mura G, Liberati A (2000) Practice guidelines developed by specialty societies: the need for a critical appraisal. Lancet 355:103–106
5. AGREE Next Steps Consortium (2013) Appraisal of guidelines for research and evaluation II: AGREE II instrument. http://www.agreetrust.org
6. Eknoyan G (2008) Are global nephrology guidelines feasible? Nat Clin Pract Nephrol 4:521
7. Coppo R (2021) Treatment of IgA nephropathy in children: a land without KDIGO guidance. Pediatr Nephrol 36:491–496. https://doi.org/10.1007/s00467-020-04486-7
8. Institute of Medicine (US) (2011) Committee on Standards for Developing Trustworthy Clinical Practice Guidelines. In: Graham R, Mancher M, Miller Wolman D, Greenfield S, Steinberg E (eds) Clinical Practice Guidelines We Can Trust. National Academies Press, Washington
9. The ADAPTE Collaboration (2009) The ADAPTE Process: Resource Toolkit for Guideline Adaptation. Version 2.0. http://www.g-i-n.net
10. Grol R (2001) Successes and failures in the implementation of evidence-based guidelines for clinical practice. Med Care 39(8 Suppl 2):II46–II54
11. Sheldon TA, Cullum N, Dawson D, Lankshear A, Lowson K, Watt I, West P, Wright D, Wright J (2004) What's the evidence that NICE guidance has been implemented? Results from a national evaluation using time series analysis, audit of patients' notes, and interviews. BMJ 329:999
12. Jha V, Arici M, Collins AJ, Garcia-Garcia G, Hemmelgarn BR, Jafar TH, Pecoits-Filho R, Sola L, Swanepoel CR, Tchokhonelidze I, Wang AY, Kasiske BL, Wheeler DC, Spasovski G, Conference Participants (2016) Understanding kidney care needs and implementation strategies in low- and middle-income countries: conclusions from a "Kidney Disease: Improving Global Outcomes" (KDIGO) Controversies Conference. Kidney Int 90:1164–1174
13. Mounesan L, Nedjat S, Majdzadeh R, Rashidian A, Gholami J (2013) Only one third of Tehran's physicians are familiar with "Evidence-Based Clinical Guidelines". Int J Prev Med 4:349–357
14. Puchalski Ritchie LM, Khan S, Moore JE, Timmings C, van Lettow M, Vogel JP, Khan DN, Mbaruku G, Mrisho M, Mugerwa K, Uka S, Gülmezoglu AM, Straus SE (2016) Low- and middle-income countries face many common barriers to implementation of maternal health evidence products. J Clin Epidemiol 76:229–237
15. Barker PM, Mphatswe W, Rollins N (2011) Antiretroviral drugs in the cupboard are not enough: the impact of health systems' performance on mother-to-child transmission of HIV. J Acquir Immune Defic Syndr 56:e45–e48