

# Pediatric Ultrasound: A Practical Guide

## Review 1

*Pediatric Ultrasound: A Practical Guide*, by Allison Holley, is a how-to guide for the experienced sonographer in a general hospital or clinic setting. It outlines ultrasound techniques for producing adequate imaging of the pediatric patient. For sonographers not routinely scanning children, this book provides techniques that, although available elsewhere, may be difficult to access.

Holley is an experienced pediatric sonographer who endeavours in her book to provide information to the general sonographer. The target audience is sonographers and residents who want to improve their scanning skills pertaining to the pediatric population.

Speaking for myself, I found the information very applicable to this population. The hand-drawn diagrams were concise and easy to understand. The corresponding imaging is appropriate. I feel the target audience is well served by the provision of both diagrams and ultrasound images. The images used were of high quality and appropriate for each topic. Using the tips in this book, sonographers would be able to produce appropriate imaging for this specialized population.

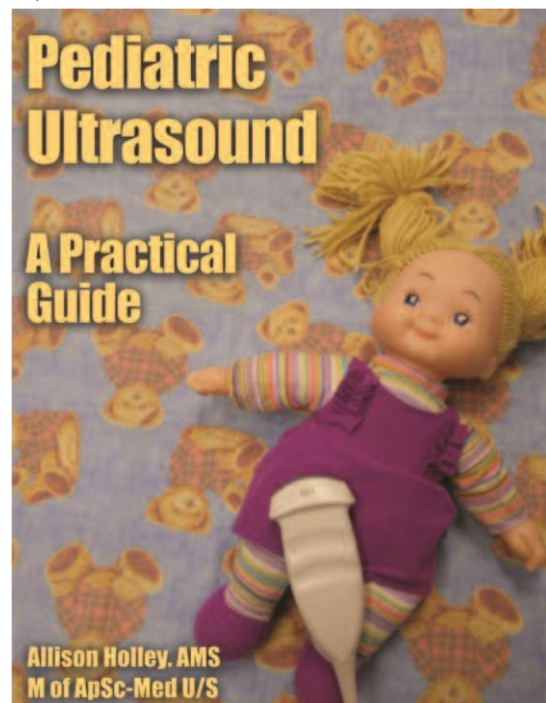
For sonographers who do not routinely scan this specific population, the author's tips would be very helpful as dealing with children is vastly different from working with the adult population. The author's initial suggestions at the beginning of the book, about how to approach children, are spot on. Holley provides many different references and offers a variety of viewpoints. She does not seem to favour one argument over another, and presents the points of view in a concise manner. Holley is aware that there are limitations in sonography in general; sonography is an art as well as a science.

The book is well organized and easy to follow. The author starts with an introduction of each type of sonography, stating the common reasons for examining a particular area. Holley also suggests transducers that can be used. Scanning techniques are discussed. In appropriate chapters, variations from adult anatomy are discussed.

*Pediatric Ultrasound* is also available electronically, a version that is more interactive. Unfortunately, I was not able to assess this version.

In conclusion, *Pediatric Ultrasound* may help professionals in general hospitals and clinics to provide more appropriate imaging for pediatrics. I feel it would be a very helpful reference text for many departments.

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## Review 2

*Pediatric Ultrasound: A Practical Guide* is a very good learning tool for students and sonographers who do not have a lot of experience in pediatric imaging. It contains accurate information on techniques, protocols, and normal values currently used in a pediatric setting. It also provides comprehensive illustrations that correspond with the ultrasound images to produce a better understanding.

Below, I provide my critical assessment of this book, chapter by chapter.

**Chapter 1: Dealing with the pediatric patient and their parents.** This chapter presents an acronym, *PEDIATRICS*, that summarizes the approach to be taken to maximize a child's cooperation and to allow for the best possible ultrasound examination. I would have liked to see the author suggest starting with the area of concern or with Doppler interrogation, if required, in a younger child, where co-operation may become an issue. In addition, keeping infants warm and draped appropriately as much as possible during the examination is helpful.

**Chapter 2: Cranium.** The description of the required views and the illustrations of the brain are very good. I would like to note that at my institution, we do not change the depth during the brain examination once we have set it to include the posterior fossa and the occipital bone. Adding to the superficial scanning with the high-resolution linear transducer, in neonates we repeat views of the whole brain with the linear transducer. I would have liked to have seen a few images of the more common pathologies in premature and full-term babies that the author refers to in her literature review.

**Chapter 3: Abdomen.** The scanning technique and the literature review are explained very well. Holley offers a lot of different references regarding organ echogenicity. Also, she provides a list of normal values and subjective assessments for organ sizes, which are both very useful. It would have been helpful to have included a view of the left and main portal veins to complete the liver imaging.

**Chapter 4: Renals.** There is no mention about imaging of the posterior urethra in males to look for a posterior urethral valve sign. The images should have included a scan of a duplex kidney and horseshoe kidney, which we often see incidentally in children coming for follow-up for a urinary tract infection. The image of the neonatal kidney on page 78 is of poor quality; it does not correlate to the subsequent discussion in the literature.

**Chapter 5: Female pelvis.** Information regarding the pediatric female pelvis is well covered.

**Chapter 6: Right iliac fossa.** Unfortunately, neither image of the inflamed appendix is optimal; they are too dark.

**Chapter 7: Intussusception.** This chapter provides a very good, simple explanation, along with drawings of the intussusception. The scan images are a little too dark; the narrow sector does not show enough of the immediate surroundings. Colour Doppler images would have been helpful to demonstrate the classic target of the intussusception.

**Chapter 8: Pylorus and the midgut.** Very good explanations and illustrations of the positive pyloric stenosis are provided. The inclusion of an image of the normal opened pylorus muscle would have emphasized the positive one for the less experience sonographer. I would also have liked to see an image of a midgut volvulus/whirlpool sign with colour Doppler sonography.

**Chapter 9: Hip.** A detailed explanation and measurement options are provided for developmental dysplasia of the hip. The simple explanation for hip effusion is also well done. It would have been helpful to include a dual picture of the right and left hips in the sagittal plane for quick comparison. Also, in a limping younger child with right hip pain, a negative hip sonogram should include the right lower quadrant to note the appendix.

**Chapter 10: Chest – extracardiac.** The explanation for chest evaluation is excellent. I would have appreciated a few more images of possible complications often seen on chest sonograms, for example, loculated fluid and lung abscesses.

Thymus imaging is rarely requested in our department.

**Chapter 11: Scrotum.** The author suggests using the stand-off gel pad for neonates and preemies, but at our institution we use the compact linear probe "hockey stick" or the 17 linear probe. Unfortunately, there is also no mention of torsion of appendages as a result for acute scrotal pain, or the inclusion of a typical scan of appendage torsion.

**Chapter 12: Neck.** A very good review is provided for neck sonography.

**Chapter 13: Spine.** In this chapter, it would have been helpful to include a sagittal panoramic view from the coccyx to lower thoracic spine, as well as the normal variant often seen within the proximal filum, the filar cyst. In addition, some of the scans are too dark.

**Chapter 14: Soft tissue and foreign bodies.** A good evaluation and images are provided for the discussion of soft tissue and foreign bodies.

## Conclusion

*Pediatric Ultrasound: A Practical Guide* is a great, easy-to-understand, well-organized reference handbook on pediatric sonography and imaging techniques. Its purpose is well explored, giving sonographers and students a simple overview of the more commonly requested examinations in pediatric sonography. Holley has included drawings and labelled ultrasound images; this is especially helpful for the less experienced pediatric sonographer. Patient preparation and transducer selections for every examination are well detailed at the beginning of each

chapter. Holley provides a variety of acceptable approaches and analyses of the data, which are well explained for each topic. She remains impartial regarding the information presented.

A few of the ultrasound images were not of high quality and were therefore difficult to correlate with the author's literature review. The addition of more images of some of the common pathologies discussed by the author would have benefited the sonographers who are less accustomed with pediatric scanning and therefore with the appearances of pathological findings. Overall, this book is a very good, up-to-date, practical guide for student sonographers and sonographers working in community hospitals or clinics, where pediatric examinations may not be routinely performed.

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