



## Editors' notebook: what is 'pediatric'?

Peter J. Strouse<sup>1</sup> · Andrew T. Trout<sup>2,3,4</sup> · Amaka C. Offiah<sup>5,6</sup>

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As editors reviewing manuscripts, we spend considerable time discussing and determining what are and are not appropriate patient populations for papers published in our journal. *Pediatric Radiology* is, by definition and in name, a pediatric journal. But what is “pediatric”?

Etymologically, “pediatric” (or “paediatric” in Europe and elsewhere) comes from *paedo*, English for “children” and *iatros*, Greek for “physician.” Traditionally, “pediatrics” refers to the health care of children. Classically, “childhood” is defined as being between birth and puberty. Adolescent medicine, however, is still within the realm of pediatrics. Some definitions of adolescence include up to 21 years of age. From a medical standpoint there is no magical transformation from child to adult on an 18<sup>th</sup> or 21<sup>st</sup> birthday.

Many children with congenital and acquired disease processes are cared for in the pediatric environment into adulthood. Most notably, this includes children with congenital heart disease, urologic and orthopedic conditions and some gastrointestinal conditions. Children with cancer are frequently cared for into young adulthood, and adults presenting with pediatric-like tumors such as some sarcomas are cared for at pediatric facilities. We commonly see patients well past their pediatric years on our imaging worklists.

Compounding this, many institutions are redefining their partitions between pediatric and adult medicine. Reasons for this redefinition are complex and, in addition to medical justifications, involve economic and space-allocation issues. This evolution has created challenges — institutional ambiguity of pediatric vs. adult, proper exam routing in combined adult/pediatric institutions with shared picture archiving and communication systems (PACS), and antiquated certificate-of-need regulations not accounting for the increased number of adult-age “pediatric” patients.

Further, definitions of “pediatric” among governmental and other organizations are not uniform. The United States National Institutes of Health, the United Nations and its Children’s Fund (UNICEF), and the European Union define “children” as persons younger than 18 years [1–3]. For medical devices, the United States Food and Drug Administration defines “pediatric” as birth through age 21 [4]. The American Academy of Pediatrics, which previously recommended an upper limit of 21 years old for pediatrics, has recently opined that an upper age limit of pediatrics is not easily demarcated and varies depending on the individual patient [5]. The “child” filter on [pubmed.ncbi.nlm.nih.gov](https://pubmed.ncbi.nlm.nih.gov) encompasses ages 0–18 years inclusive, with the “adult” filter encompassing age 19 years and older [6].

So how does *Pediatric Radiology* define “pediatric” and what criteria do we use to determine whether a patient population is acceptable for publication in our journal? Not surprisingly, the answer is not straightforward. Importantly, for publications in *Pediatric Radiology*, individual institutional definitions of “pediatric” are not pertinent.

In general, work submitted to the journal should be focused on children — that is, patients who have not yet reached their 18<sup>th</sup> birthday. If only patients who have not yet turned 18 years old are included, the study can be called “pediatric” and the terms “child” or “children” can be used throughout and in keywords. More important, such articles allow for comparison and compounding with other pediatric studies without contamination by adult patient data. Regardless of what your institution calls them, patients who are 18 years or older are “adults” or “young adults” and

✉ Peter J. Strouse  
Rad-Ped-Radiol-Journal@med.umich.edu

<sup>1</sup> Section of Pediatric Radiology, C. S. Mott Children’s Hospital, Room 3-231, Department of Radiology, Michigan Medicine, 1540 E. Hospital Drive, Ann Arbor, MI 48109, USA

<sup>2</sup> Department of Radiology, Cincinnati Children’s Hospital Medical Center, Cincinnati, OH, USA

<sup>3</sup> Department of Radiology, University of Cincinnati College of Medicine, Cincinnati, OH, USA

<sup>4</sup> Department of Pediatrics, University of Cincinnati College of Medicine, Cincinnati, OH, USA

<sup>5</sup> Department of Oncology and Metabolism, University of Sheffield, Sheffield Children’s Hospital, Sheffield, UK

<sup>6</sup> Department of Radiology, Sheffield Children’s NHS Foundation Trust, Sheffield, UK

not “children.” Inclusion of these older patients needs to be noted in the article title, in the abstract, in the text and in the keywords. It gets cumbersome.

We do not use the word “pediatric” in our keywords. Rather, we use keywords that identify the age band(s) of the studied patients: fetuses (not yet born), newborns (first day of life), neonates (less than 1 month old), infants (up to 1 year old), children (birth to 17 years old), adolescents (13–17 years old), young adults or adults (18 years and older).

For most scientific work in our journal (original articles), there is little utility in the inclusion of patients 18 years old and older, and this needlessly complicates terminology. If you are studying a common disease, for example Crohn disease or coronavirus disease 2019 (COVID-19), ideally the study should be limited to subjects younger than 18 years. Including a few older patients to inflate the numbers is frowned upon. If authors think that their paper is improved by including some patients 18 years or older, then they should provide justification for inclusion at the time of submission.

When is it acceptable to include patients older than 17 years? Studies involving continuity of care from childhood are pertinent. Studies of childhood diseases in adults, and of adults living with effects of childhood diseases — e.g., congenital heart disease, Fontan-associated hepatopathy — are quite acceptable for our journal. Longitudinal studies of pediatric diseases and the complications and side effects of their treatment are of much interest. Such studies are pertinent to the readership of *Pediatric Radiology* if the patients are routinely cared for in the pediatric health care environment or if the complications and side effects are the result of radiology tests or interventional radiology procedures that occurred during childhood. For disease processes that are less common but bridge the pediatric and adult age groups — e.g., desmoplastic small round cell tumor of the abdomen — it might be acceptable to include both adolescents and young adults in order to compile a complete experience of the pathology. Finally, studies that, by necessity, involve adult volunteers to validate techniques being developed for pediatric use might be acceptable.

The editorial team will keep an open mind. Articles focused on adult patients are rarely, if ever, acceptable. The addition of spurious adult patients to increase numbers or illustrate a point is to be avoided. Case reports must be of patients younger than 18 years. Illustrations in pictorial

essays and review articles are preferably of pediatric age, not 18 years or older.

More than 100 journals listed in PubMed have the words “pediatric,” “child” or “children” in their name. Perusal of the author instructions of the top 10 of these journals (by impact factor) revealed a general lack of definitions or nebulous definitions of “pediatric.” It would be helpful to have a better understood, consistent definition of “pediatric” across journals. This would promote consistency for patient inclusion and purer pediatric studies for the advancement of care, for inter-study comparison and compounding (meta-analyses), and for learning. In the interim, we will work for sensible and open-minded consistency in our own small portion of the health care world.

## Declarations

**Conflicts of interest** None

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