

The Lure of Pediatric Radiology

Richard B. Gunderman¹

*To see a world in a grain of sand,
And a heaven in a wild flower—
Hold infinity in the palm of your hand,
And eternity in an hour.*

William Blake [1]

At a time when the demand for pediatric radiologists exceeds the supply and the number of radiology residents electing to take fellowships in pediatric radiology is unusually low, it is vital that pediatric radiologists find ways to attract outstanding medical students and radiology residents [2]. To achieve this goal, it is not sufficient merely to offer them good training in pediatric radiology. Although quality education is surely a powerful selling point, it is also important to provide students and residents with broader perspectives that help them to make well-informed career choices. Pediatric radiologists can ensure that students and residents see what the field truly has to offer by showing them its distinctive appeal. Pediatric radiologists should provide each potential recruit with an opportunity to reflect on the pros and cons of a career in the field.

Recruiting could be couched in immediate and tangible terms, such as the current shortage of pediatric radiologists. The great need for additional pediatric radiologists in North America should persist for years to come, yet trainees should not enter pediatric radiology primarily because jobs are readily available. A better strategy would be to help medical students and residents identify intrinsic features of the field

that appeal to them and to reflect on its future [3]. Recruitment should be based on features that will continue to characterize pediatric radiology for many years to come, through many peaks and valleys in the employment cycle [4]. The purpose of this article is to describe some of the special features that distinguish pediatric radiology from other radiology subspecialties. Taken together, these features constitute the distinctive lure of children's imaging, the special characteristics that drew many people into the field in the first place and continue to sustain their commitment and enthusiasm after many years of practice.

The Care of Children

Part of the lure of pediatric radiology arises from the fact that children are especially vulnerable. In debates over health care policy and finance, ranging from the hospital ward, to the corporate boardroom, to the halls of congress, children cannot act as their own advocates. Unlike other vulnerable populations, such as the elderly, they have no direct voice. Yet our children are our future. It is through children that we experience the world anew and learn to recognize many of the wonders to which we may otherwise soon grow inured. Much can be said about a community or a society by how it cares for its weakest members, its children. Nothing touches the human heart quite like a child in distress. In committing their professional lives to the care of children, pediatric radiologists answer a special call of tender mercy

toward our most fragile creatures and play an important role in fostering our future.

The Family Connection

Another appeal of pediatric radiology is its special invitation to interact not only with individual patients but also with parents and families. No case is ever merely a disease, but a patient with a disease. Similarly, the patient is never merely a patient, but a patient situated in a larger familial and social context. Frequently, it is only family members, and not the patient, who can understand the radiologist's procedure. Because pediatric patients are so strongly embedded in a social context, the pediatric radiologist enjoys a distinctive opportunity to interact with and care for families on a daily basis.

Tending children invites a special commitment to personal interaction, through helping families prepare for imaging examinations, care for their child during examinations, and understand the results at completion. Most patients and families assume that their images are being interpreted correctly. In their minds, a great radiologist has a sincere commitment to communication and a caring attitude, qualities that the practice of pediatric radiology draws on and fosters to a special degree.

The Resilience of Children

Pediatric radiology also proves especially rewarding because of the great resilience of children. Children heal quickly, and they fre-

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¹Department of Pediatric Radiology, Indiana University, 702 Barnhill Dr., Rm. 1053, Indianapolis, IN 46202-5200. Address correspondence to R. B. Gunderman.

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quently recover completely from insults that might leave an adult devastated. Even children suffering from chronic and incurable diseases often exhibit extraordinary strength of character, coping cheerfully with difficult and sometimes dire circumstances. Seeing children live gracefully with serious illness and mount extraordinary recoveries offers an unparalleled glimpse into the natural nobility of the human spirit. The life force pulsates with special vigor in these small bodies, and participation in their struggles provides the pediatric radiologist a glimpse of life's larger possibilities. In these children's extraordinary sagas, even those ending sadly in death, lie deeper insights into what it really means to live.

The Whole Organism

One of the most distinctive characteristics of pediatric radiology is the fact that it encompasses the whole human organism. Most radiology subspecialties address only a particular anatomic part or organ system. By contrast, pediatric radiology encompasses all anatomic parts and organ systems. Moreover, pediatric radiologists are privileged to behold more of the manifestations of multiorgan system processes, such as HIV and AIDS or Langerhans' cell histiocytosis, and to use and develop a wider range of expertise in human anatomy, physiology, and pathology than physicians in most other radiology subspecialists. Simply put, pediatric radiologists enjoy the opportunity to study the whole human gem, rather than focusing on only one or two of its facets.

A general radiologist could, of course, make the same claim. Yet within academic radiology proper, pediatric radiology arguably represents the last bastion of generalism, in which one can both study the whole patient and thrive in the distinctively academic missions of research and education. The American Board of Radiology offers a Certificate of Added Qualification in pediatric radiology. At the moment, pediatric radiology is one of only four radiology subspecialties to offer this certificate; the others are nuclear medicine, neuro-radiology, and vascular or interventional radiology. This professional recognition testifies to pediatric radiology's standing as a distinct and integrated field of medical practice.

All Imaging Techniques

A further distinctive feature of pediatric radiology is its routine reliance on all imaging techniques. The pediatric radiologist uses unenhanced radiography, fluoroscopy, CT, sonogra-

phy, MR imaging, and nuclear medicine—in short, the entire armamentarium of the contemporary radiologist. Radiologists in other fields, such as nuclear medicine, also image the whole patient, using a single technique. Moreover, as new imaging techniques are introduced, they are certain to be used in the imaging of children. This potential will give the pediatric radiologist an opportunity to keep abreast of the latest technologic developments in the wider world of diagnostic imaging.

Certain imaging techniques enjoy special opportunities for success in the pediatric context. For example, sonography is especially advantageous in children. Areas of adult anatomy that are difficult to see on sonography, such as the chest and brain, prove exquisitely accessible in pediatric patients. Certain diseases of children are especially amenable to sonographic diagnosis, such as intraventricular hemorrhage and pyloric stenosis. Likewise, the pediatric radiologist enjoys special opportunities not only to diagnose but also to treat disease. For example, intussusception represents a common condition in which the radiologist can usually cure the patient through imaging-guided reduction, sparing the patient the risks, costs, and morbidity of general anesthesia and laparotomy.

Human Development

Another integrative feature is the focus of pediatric radiology on human growth and development. Because hereditary, congenital, and developmental disorders play a more prominent role in pediatric radiology than in other imaging subspecialties, the pediatric radiologist is likely to have a strong grasp of such foundational medical disciplines as genetics and embryology. The pediatric radiologist can understand the human body plan from its ontogenic roots. Understanding the embryologic blue print provides special insights into normal structure and function, as well as into diseases. For example, by virtue of daily contact with congenital heart disease, the pediatric radiologist is likely to have a strong understanding of cardiac anatomy and pathophysiology.

Behind this focus on growth and development lies a deeper philosophic insight: to understand the condition, it is important to understand its source. To understand a fundamental gastroenterologic condition such as malrotation, it is helpful to understand how the gut normally rotates; to understand skeletal dysplasias, it is helpful to understand normal bone growth and development; to understand

holoprosencephaly or spina bifida, it is helpful to understand the embryology of the central nervous system. Among diagnostic imagers, pediatric radiologists stand out for their understanding of normal development and, by extension, abnormal development.

With this kind of understanding comes the opportunity to cultivate a special appreciation for the miracle of human life, in all its beauty and complexity. The emergence of the human form in each infant and child invites communing with something larger, to gaze in wonder as the eternal slowly unfolds itself in space and time. Beholding this remarkable process on a daily basis constitutes one of the most sublime prerogatives of the pediatric radiologist. In addition, it opens up distinctive opportunities for radiology research, focused on the unique afflictions of children. Contributing to biomedical knowledge is especially rewarding when children stand to benefit.

Congenial Environment

Another attractive feature of pediatric radiology is the fact that pediatric wards and children's hospitals are among the nicest places to work in the health care system. The physical plant is usually bright and cheerful, and employees are generally upbeat. The physicians, nurses, and allied health professionals involved in children's health care are among the most congenial and pleasant. Moreover, they seem more likely than other health professionals to truly value the contributions of radiologists and to develop good consultative relationships. Even community spirit tends to be higher in pediatric health centers, as reflected in high levels of charitable giving and volunteer activity. Medical students and residents may tend to regard the quality of work environment, collegial relationships, and community support as relatively minor concerns. Yet over the course of decades, they can exert a huge effect on professional commitment and satisfaction.

One major reason that children's hospitals are such pleasant places to work is that the health professionals share an unusually strong commitment to the patients in their care. Pediatrics is not attractive because of the money or prestige, but because of a special calling to serve the health of children. The touch of a tiny baby's hand and the expression of trust in a parent's smile mean something special to these professionals. Commitment to the care of sick children is an especially philanthropic calling, manifesting a special degree of generosity and compassion. The opportunity to behold such

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good works is like having good seats every day at a symphony of human excellence. We encounter some truly exceptional people in this line of work, who fill our hearts with joy, hope, and admiration.

Great Colleagues

Like other radiology subspecialties, pediatric radiology is made up of many exceptional individuals whose mutual dedication to children's imaging nurtures lifelong collaborations and friendships. The annual meetings of the Society for Pediatric Radiology and the European Society of Pediatric Radiology are characterized by an unusually high level of camaraderie, which extends across national boundaries. This strong fellowship is grounded not only in a shared commitment to children but also in the rich traditions and history of pediatric radiology. The tone of excellence for pediatric radiology, one of the first areas to become a distinct subspecialty society, was set by such giants as John Caffey, Edward Neuhauser, and Frederic Silverman, among numerous others.

In my own institution, this spirit of dedication is embodied by Dr. Eugene Klatte, a founding member of the Society for Pediatric Radiology in 1958; a long-time chairman of the departments of radiology at Vanderbilt and Indiana Universities; and recipient of the

Gold Medals of the Radiological Society of North America, the American Roentgen Ray Society, and the Association of University Radiologists. Despite a rich family life and a career of radiology achievement that would provide accolades enough for a number of academic radiologists, Dr. Klatte continues to work full-time as a pediatric radiologist at James Whitcomb Riley Hospital for Children, providing a living testament to what this field means to its best practitioners.

Human Excellence

The practice of pediatric radiology draws on and refines a number of human excellences. Dealing with sick children requires compassion, generosity, and unselfish concern for the welfare of patient and family. Yet caring for children is anything but a purely selfless activity. The great pediatric radiologists know that caring for children is profoundly good for the soul. It reminds us that our lives have purposes that extend far beyond the price of our possessions. It reminds us that nothing lives for itself alone. It reminds us of the fragility of life and helps us to appreciate the preciousness of each moment. It reminds us that we are but parts of a larger whole and helps us see the nature of that larger whole more clearly. It brings out the best of the compassion, understanding, and courage

we have in us. In short, it provides us ample opportunity to become better human beings.

In summary, pediatric radiology represents a vital radiology subspecialty. It offers a challenging and rewarding career that directly serves the health care needs of infants, children, and adolescents. There is great demand for fellowship-trained pediatric radiologists, both now and for the foreseeable future. This manpower shortage will persist for at least the next few years because of the growing demand and the small number of trainees currently in the training pipeline. All radiologists, particularly those in academic centers, must help meet this need. However, we should not encourage residents to enter the field on the basis of current labor conditions, but on the intrinsic strengths of pediatric radiology. We need to do a better job, especially in the area of articulating these strengths.

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