Organizational Structure
The organization of the Center for Pediatric Contrast Ultrasound (CPCU) is divided into three main groups. The Center is co-lead by a pediatric radiologist, Dr. Susan Back, and a pediatric sonographer, Laura Poznick. This is so the two main users of the modality, radiologists and sonographers, are well represented and visible, emphasizing that the Center for Pediatric Contrast Ultrasound (CPCU) is all-inclusive in terms of professionals. The Executive Committee is composed of representatives from the three main Divisions using ultrasound contrast agents, as well as others with specific major roles. The Clinical Imaging Subspecialty Advisory Committee includes representatives from various imaging subspecialties that frequently use contrast ultrasound and can provide advice regarding their specific applications. The Clinical Advisory Committee is composed of representatives of pediatric subspecialists who make up the major referral base for contrast ultrasound. The center is located in the Department of Radiology.

Contact Information
Please contact Sphoorti Shellikeri, MS, Program Manager, at shellikers@email.chop.edu for further information regarding the Center for Pediatric Contrast Ultrasound (CPCU) as well as the Pediatric Contrast Ultrasound Workshop.

If you have questions about technical aspects of pediatric contrast ultrasound, please contact Laura Poznick, RDMS, Co-Director, at poznickl@email.chop.edu.
Contrast ultrasound is a diagnostic tool that uses a contrast agent to improve the image quality of an ultrasound scan. The contrast agent is made of tiny, gas-filled microbubbles that enhance the image, which leads to easier, faster, and accurate diagnostic results. One of the most important aspects of Contrast ultrasound is that it is safe, since it does not use any radiation. Additionally, it is more comfortable for pediatric patients than other imaging modalities since it can be performed at the bedside.

Contrast ultrasound in children has been used in Europe since the late '90s. For many years, ultrasound contrast agents were only available in the US for use in adult echocardiography. In 2016, the Food and Drug Administration (FDA) of the US approved the use of an ultrasound contrast agent for non-cardiac applications in both Europe since the late '90s.

Contrast ultrasound was first introduced at Children’s Hospital of Philadelphia in 2013. CHOP began its work with contrast ultrasound with a comparative study of contrast enhanced Voiding Urosonography (ceVUS) with fluoroscopic voiding cystourethrography (VCUG) for the diagnosis of vesicoureteric reflux. After the approval of an ultrasound contrast agent by the FDA for pediatric use, CHOP significantly expanded the use of contrast ultrasound in the Department of Radiology, which includes intravenous contrast enhanced ultrasound (CEUS) use in the evaluation of many different organs; intravesical use for contrast enhanced genitography; intravenous and intracavitary contrast ultrasound use in interventional procedures in CHOP’s Division of Interventional Radiology; and intralymphatic contrast ultrasound use for intranodal needle placement for MR lymphangiography.

The Department of Radiology has both on and off label pediatric contrast ultrasound, using intravenous, as well as intracavitary which includes intravesical and intralymphatic routes. Furthermore, research in the field of contrast ultrasound is expanding. This not only includes prospective studies in children under FDA approval, but also evaluation of novel applications in the lab for potential use in children in the future.

Establishment of the Center for Pediatric Contrast Ultrasound

There were many factors which led to the idea to create a well-coordinated, focused, and centralized center for contrast ultrasound in children. Contrast ultrasound use was expanding at CHOP, both in terms of clinical procedures as well as research by various Divisions in the hospital. These divisions include the Division of Body Imaging and Division of Interventional Radiology from the Department of Radiology, as well as the Division of Emergency Medicine from the Department of Pediatrics. In September 2018, the “Center for Pediatric Contrast Ultrasound (CPCU)” was officially inaugurated. This accomplishment was made possible through generous support by Bracco Diagnostics Inc. and the Chair’s Fund of the Department of Radiology.

Mission

The Center for Pediatric Contrast Ultrasound (CPCU) at CHOP is a dedicated entity for the advancement of pediatric contrast ultrasound and was established with the following objectives:

1. Education: Contrast ultrasound is a very hands-on imaging modality. The availability of a dedicated pediatric center for learning contrast ultrasound is a major factor in facilitating the exposure of sonographers, pediatric radiologists, and other pediatric subspecialties to this modality. Therefore, the aim is to provide training opportunities for both internal and external candidates, making CHOP an educational center of excellence for pediatric contrast ultrasound, both nationally and internationally.

2. Clinical Service: Since contrast ultrasound is a new modality, there is a need to educate referring physicians of various subspecialties. Therefore, the objective is to coordinate and conduct contrast ultrasound educational sessions, as well as explore potential new applications with referring physicians.

3. Research: Contrast ultrasound research targeting pediatric indications is an important measure for advancing the field of pediatric contrast ultrasound. Therefore, the aim is to provide ancillary support for contrast ultrasound clinical and basic science research.

Major Activity

A major activity created by the Center for Pediatric Contrast Ultrasound is a monthly/bi-monthly small group, one-day, hands-on contrast ultrasound course at CHOP for pediatric radiologists, pediatric sonographers, pediatric subspecialists, and ultrasound application specialists. The workshop is conducted using case-based presentations, didactic lectures, hands-on in-vitro demonstrations, and live ultrasound scanning. The program teaches participants how to start a pediatric contrast ultrasound program as well as how to perform the studies and interpret the results. The goal of the course is to teach the skills necessary to start a successful pediatric contrast ultrasound program.