FINAL DRAFT

Boston Children's Hospital and GE Healthcare Working Together to Create Smart Imaging Technology to Better Detect Pediatric Brain Disorders

- *Collaboration aims to help doctors interpret pediatric brain images faster and more accurately*
- *Targeted tool is intended to help reduce misdiagnosis of brain disorders in children, potentially saving money, time and emotional anguish*

Chicago, Illinois - November 28, 2016 - Boston Children's Hospital and GE Healthcare today announced a collaboration to develop and commercialize digital solutions to advance the diagnosis and treatment of specific childhood diseases – starting with diseases that affect the brain. The first project, detailed today at the 102nd annual meeting of the Radiological Society of North America in Chicago, Ill., seeks to improve diagnostic accuracy in pediatric brain scans by providing real-time contextual information at the time and place the radiologist needs it.

Every day, tens of thousands of children undergo medical imaging. At Boston Children's alone, nearly 1,000 imaging studies are performed each day. For general radiologists and pediatric imagers alike, the rapid changes in the body that occur as part of normal childhood development can pose challenges to accurately differentiate normal from abnormal. Keeping up with the ever-growing litany of specific diagnoses can frustrate even the most experienced of radiologists.

Leveraging the software expertise of GE Healthcare, the high-volume computing power of the GE Health Cloud and the clinical knowledge of radiologists at Boston Children's, the two organizations are working to develop a decision support platform that is intended to help distinguish the large variability in brain MRI scans.

The system will be pre-loaded with normative reference scans from young children of different ages for doctors worldwide to use as a benchmark when reading scans of pediatric patients.

"Interpreting pediatric brain scans requires a specific understanding of the developing brain," said Richard Robertson, MD, radiologist-in-chief at Boston Children's. "Since most pediatric imaging is not performed in children's hospitals by specialists, this new

digital tool, once available, will provide non-specialists with access to knowledge and expertise to help effectively diagnose children. We believe that by providing decision support at the time of interpretation, we can improve both the confidence and performance of the interpreting radiologist."

Ad hoc image databases are often limited to the pediatric departments of major academic institutions. General radiologists without access to such databases lack large reference points and context, which could lead to potential misdiagnosis. Changes in myelination occurring during the first few years of life are particularly likely to be confused with disease states or, conversely, may lead to misinterpretation of the exam as normal for the patient when the abnormality is symmetric in the brain.

"Pediatric brain scans of children under the age of four can be particularly tricky to read because the brain is rapidly developing during this period of childhood," said Sanjay Prabhu, MBBS, pediatric neuroradiologist at Boston Children's. "Since pediatric neuroradiologists are very scarce, we approached GE Healthcare to collaborate on the development of digital tools to help physicians of varying expertise read the scans."

During infancy and childhood, complicated disorders, especially when affecting the brain symmetrically, may be misinterpreted as normal brain maturation. Conversely, normal expected developmental changes are sometimes misinterpreted as pathologic leading to unnecessary follow-on imaging or other diagnostic tests, which can be expensive, stressful and inconvenient to the child and family.

"This brain app that we are targeting to develop will be the first of many digital tools we are creating for our deep learning library, said Charles Koontz, chief digital officer, GE Healthcare. "By 2020, we'll have hundreds of apps in the GE Health Cloud, enabling insights that will transform healthcare in each disease area and help the seven billion people on earth."

Boston Children's is participating via its Innovation and Digital Health Accelerator (IDHA), led by Jean Mixer, VP Strategy and Digital Health, and John Brownstein, PhD, Chief Innovation Officer. IDHA seeks to enable clinicians anywhere in the world to access the hospital's expertise and data in rare and complex pediatric care through digital tools.

About Boston Children's Hospital

Boston Children's Hospital is home to the world's largest research enterprise based at a pediatric medical center, where its discoveries have benefited both children and adults since 1869. More than 1,100 scientists, including seven members of the National Academy of Sciences, 11 members of the Institute of Medicine and 10 members of the Howard Hughes Medical Institute comprise Boston Children's research community. Founded as a 20-bed hospital for children, Boston Children's today is a 404-bed comprehensive center for pediatric and adolescent health care. Boston Children's is also the primary pediatric teaching affiliate of Harvard Medical School. For more, visit

our [Vector](#) and [Thriving](#) blogs and follow us on our social media channels: [@BostonChildrens](#), [@BCH_Innovation](#), [Facebook](#) and [YouTube](#).

About GE Healthcare

GE Healthcare provides transformational medical technologies and services to meet the demand for increased access, enhanced quality and more affordable healthcare around the world. GE Healthcare (GE) works on things that matter - great people and technologies taking on tough challenges. From medical imaging, software & IT, patient monitoring and diagnostics to drug discovery, biopharmaceutical manufacturing technologies and performance improvement solutions GE Healthcare helps medical professionals deliver great healthcare to their patients. http://www.gehealthcare.com

- ### -

CONTACTS:

Keri Stedman
Boston Children's Hospital
617-919-3110 | keri.stedman@childrens.harvard.edu

Jennifer Fox
GE Healthcare
414-530-3027 | jennifer.r.fox@ge.com