



Case Study

GSI Xtream Improves Clinical Excellence and Operational Workflow at Peking University People's Hospital



GSI Xtream's 40 keV VR image, Courtesy of Peking University People's Hospital.

Peking University People's Hospital (PKUPH) is optimizing their clinical outcomes with GE Healthcare's GSI Xtream volume spectral CT technology. In a single exam and with no impact to workflow, clinicians at PKUPH are able to quickly access enriched diagnostic information to better inform treatment options for patients and potentially reduce downstream costs. A non-profit health care institution nationally renowned for its clinical services and research, PKUPH specializes in organ transplantation, hematology, oncology, joint replacement, spine reconstruction, and cardiovascular disease.

Peking University People's Hospital, Beijing, China

Site Profile

2016 Annual Outpatient Volume: 2,677,000
2016 Annual Inpatient Volume: 78,500
Average daily CT throughput: 80-100 exams per scanner

Average GSI Xtream throughput:
8-10 exams per hour

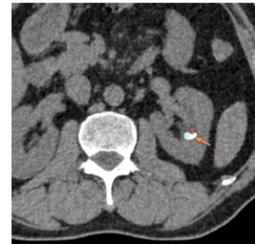
Enabling Technology

Introducing GSI Xtream on Revolution CT, the first volume spectral technology designed to improve small lesion detection, tissue characterization and metal artifact reduction, with a simplified workflow that can be integrated into daily practice. The entire GSI experience has been enhanced from scanning to reconstruction to visualization. Enabled by innovations such as Gemstone Clarity detector, volume coverage and fast kV switching, only GE can deliver this breakthrough. Additionally, the remarkable scan speed with GSI HyperDrive and full 50 cm scan field of view (FOV) make GSI Xtream an asset in several clinical scenarios. GSI Xtream helps clinicians diagnose disease with more confidence, which could ultimately put patients on the right treatment path sooner.

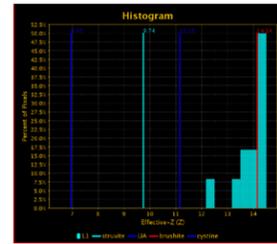
Case 1

Kidney Stone Characterization

Kidney stones are estimated to affect 7.5 percent of the mainland China population, and the trend is on the rise.¹ Already challenged with high patient volumes, clinicians at PKUPH are using GSI Xtream volume spectral CT to access more comprehensive diagnostic information about the chemical composition of kidney stones, and recommending more informed treatment decisions for these patients without adding any additional steps to their workflow.



70 keV to show left kidney stone (arrow)



Effective Z histogram² indicating stone composition – brushite

Time on table



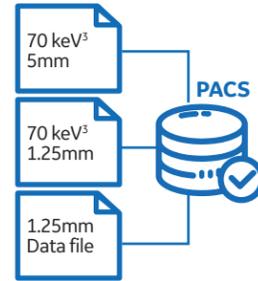
68 sec

Recon time



18 sec
689 images

Reconstruction workflow



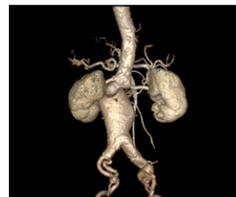
Case 2

Vascular

Contrast agents are a critical component of CT Angiography to visualize the integrity of the vessels within the body, but optimizing their use is vital for patient safety. Using GSI Xtream, clinicians can be assured their protocols sharpen the balance by optimizing contrast volumes and using the monochromatic images at lower keV to better visualize the contrast agent. At PKPHU, clinicians have been able to reduce contrast iodine load by ~30 percent using GSI Xtream.



40 keV



40 keV

Time on table



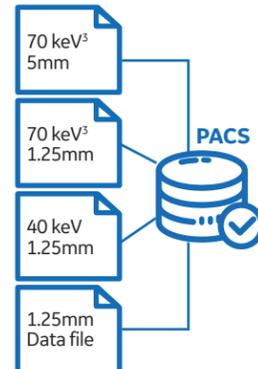
113 sec

Recon time



76 sec
3,068 images

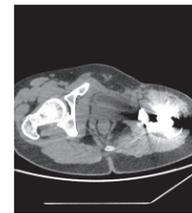
Reconstruction workflow



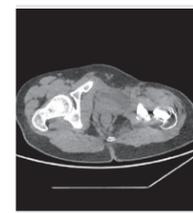
Case 3

Metal Artifact Reduction

Artifacts from metal implants can degrade the quality of CT images, but GSI Xtream Metal Artifact Reduction (MAR) can reduce the obscurities caused by metal artifacts and reveal the patient's true anatomical details. With simplified protocols and GSI Xtream's automated reconstruction algorithms, clinicians can seamlessly integrate improved visualization and reduced artifacts into everyday workflow.



Without GSI MAR
70 keV



With GSI MAR
70 keV



Without GSI MAR
70 keV



With GSI MAR
70 keV

GSI MAR can effectively reduce artifacts caused by metal and reveal anatomic details.

Time on table



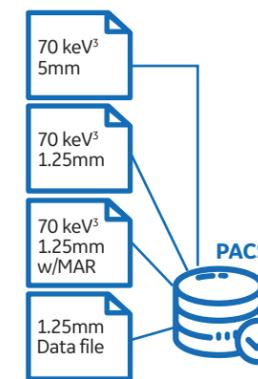
162 sec

Recon time



72 sec
2,469 images

Reconstruction workflow



Simplified Workflow

The most effective workflow is nearly undetectable. From setup to post processing, GSI Xtream is as intuitive as a single energy exam. GSI Assist and Clinical ID help standardize and automate protocol selection with images directly transferred to PACS and/or AW. These improvements, combined with native GSI reconstruction, deliver spectral CT workflow that's twice as fast.

¹ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5282506/>

² From GSI Viewer.

³ Similar to 120 kV.

“ Scanning is as simple as a single energy study and the speed of reconstruction is fast! Even though we did not have GSI experience before, our site has been able to adopt it very quickly. ”

“ For CT Angiography, it can reduce the amount of contrast agent and injection rate, we can see more distal vessels and ultimately improve our success rates for scanning. In kidney stones, we can see the benefit in selecting clinical treatment methods by understanding the properties of the kidney stone. ”



Imagination at work

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