



uINNOVATION-GLOBAL

Issue Highlights

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Expert interview: Cardiac Imaging, Inc. Interview with Jens Huettges

Jens Huettges ^a

^a Chief Technology Officer at Cardiac Imaging, Inc.

JW: Tell me about your business and why there is a need for mobile Cardiac PET imaging?

JH: There is a need for mobile Cardiac PET (Positron Emission Tomography) imaging services, particularly in areas with low population density and limited access to advanced medical facilities. There are challenges faced by smaller towns and rural areas where the availability of high-end medical equipment and specialized services like Cardiac PET is scarce. These challenges are due to financial constraints, lack of patient volume, and difficulties in acquiring necessary isotopes.

CII, in collaboration with United Imaging has addressed these challenges with mobile Cardiac PET imaging. CII brings expertise, equipment quality, isotopes, and knowledge to make the Cardiac PET service successful. A specialized trailer was designed with the required equipment to overcome hurdles like power availability at remote sites. The company also utilizes fast internet connectivity for data processing and quality control off-site. By providing their own staff, they offer a comprehensive service that doesn't burden the local facilities.

Jens also discussed the advantage of Cardiac PET imaging for patients in low-density areas, particularly older patients, where access to high-quality cardiac diagnostics can significantly impact patient care. He explains that their use of updated technology, such as CFR (Coronary Flow Reserve) measurements, leads to improved accuracy, image quality, and better patient outcomes compared to older systems that may still be in use in some locations.

JW: What types of patients benefit from your cardiac PET service?

JH: The importance of higher sensitivity and specificity provided by their exams, which allow for more accurate characterization of patients' conditions. This leads to better treatment decisions, ensuring that patients receive the appropriate treatment when needed and avoiding

unnecessary treatments when they're not required.

Jens highlights the significance of quantification software and research in the PET field, which allows for predictive diagnosis, patient management, and care optimization.

Looking to the future, CII aims to provide solutions for a wide range of cardiac needs. They offer both mobile and fixed-site services, and they're actively involved in supporting physicians and facilities. He expresses the vision of making cardiac PET scans more accessible to patients, replacing older modalities with state-of-the-art technology.

JW: What are the attributes of cardiac PET perfusion that contribute to the high quality of cardiac PET perfusion images?

JH: Jens discusses several factors that contribute to the quality of cardiac PET images:

1. Understanding the Workflow: A deep understanding of the workflow is crucial in nuclear medicine. This involves knowing how the process works and handling various elements effectively.
2. Patient Preparation: Patient cooperation is essential for minimizing movement during scans. The patients should be instructed not to move much, as patient motion can affect image quality significantly.
3. Quality of Scanner: While the scanner is a key factor, it's not the sole contributor. Having a high-quality scanner is important, but it's only one part of the equation.
4. High Sensitivity: High sensitivity in producing quality images. Higher sensitivity leads to more counts for image reconstruction, resulting in clearer images.
5. Image Reconstruction: Image reconstruction with higher counts improves the clarity of the images, enhancing the overall quality.
6. Quantification: The importance of quantification, which is a significant aspect of nuclear medicine. Precise and

reliable quantification is challenging but crucial for accurate functional assessments.

7. **Functionality vs. Resolution:** While nuclear medicine might not always focus on achieving high-resolution images, functional assessment is critical. This is particularly relevant in cardiac PET perfusion imaging.

JW: Why do you think that cardiac PET myocardial perfusion imaging is not more widely utilized?

JH: There are several advantages of cardiac PET imaging over other methods, such as lower radiation doses, faster scans, and the absence of residual radioactivity after the procedure.

Despite these benefits, he outlines the challenges that hinder widespread adoption:

1. **Reimbursement Variability:** Reimbursement for cardiac PET varies across different regions in the US, making it less accessible in some areas due to financial considerations.
2. **Provider Willingness:** Not all healthcare providers are willing to invest in or pay for cardiac PET scans, which could impact the technology's penetration in the market.
3. **Coexistence with SPECT:** Jens suggests that while cardiac PET is advancing, SPECT (Single Photon Emission Computed Tomography) will likely still be around in the next decade as certain medical communities continue to work on it.
4. **Isotope Costs:** The cost of isotopes used in cardiac PET is a significant factor. These isotopes have a constant cost, regardless of patient volume, and this can affect the financial feasibility of adopting the technology.
5. **Geographical Density:** The viability of adopting cardiac PET also depends on the population density of a given area. In more densely populated regions, there's a higher likelihood of accumulating enough patients to make the technology financially sustainable.

JW: Where do you see the use of Cardiac PET in the next few years?

JH: 1. **Expansion and Attractiveness of Business Model:** Jens mentions that their business is expanding, and they have plans to introduce their cardiac PET services in more states. The rate that CII is growing indicates that there's a demand for this technology among healthcare providers. The attractiveness of their business model suggests that

physicians and healthcare facilities see value in offering cardiac PET services to their patients.

2. **Interest and Education in PET Technology:** There is a growing interest in cardiac PET technology, seminars and conferences are focused on discussing PET technology and its applications. This interest implies that the medical community is recognizing the potential benefits and advancements that cardiac PET can bring to patient care and disease management.

3. **Higher Sensitivity and Specificity:** Cardiac PET is known for its higher sensitivity and specificity compared to SPECT (Single Photon Emission Computed Tomography). This means that cardiac PET can provide more accurate and detailed information about the physiological and functional aspects of the heart. This improved accuracy can lead to better disease detection, diagnosis, and treatment planning.

4. **Disease Prevention and Early Detection:** Cardiac PET can play a significant role in disease prevention and early detection. By providing accurate and detailed images of the heart's function and blood flow, it can help identify cardiac issues at earlier stages. Early detection allows for timely intervention and treatment, potentially preventing the progression of diseases and improving patient outcomes.

5. **Cost Savings and Efficient Resource Allocation:** The higher accuracy of cardiac PET can lead to more targeted and effective treatment plans. This, in turn, can result in better patient outcomes and potentially reduce the need for costly interventions and hospitalizations that might have otherwise been necessary with less accurate imaging methods.

6. **Patient Experience and Safety:** Cardiac PET offers benefits like lower radiation doses and faster scan times compared to certain alternatives. This improved patient experience can lead to greater patient satisfaction and reduced stress during diagnostic procedures. Moreover, the absence of residual radioactivity after the procedure eliminates the need for patients to wait before returning home.

7. **Challenges and Market Penetration:** Despite the advantages of cardiac PET, Jens acknowledges that challenges exist in terms of reimbursement variability, provider willingness to invest in the technology, and the need for sufficient patient volume in some areas. Overcoming these challenges is crucial to making cardiac PET more accessible across different regions and healthcare settings.

Cardiac PET holds promise in disease prevention, accurate diagnostics, patient experience improvement, and potential cost savings for the healthcare system. While challenges exist,

the growing interest, expanding business, and higher accuracy of cardiac PET suggest that it is an important technology for the future of medical imaging and patient care.

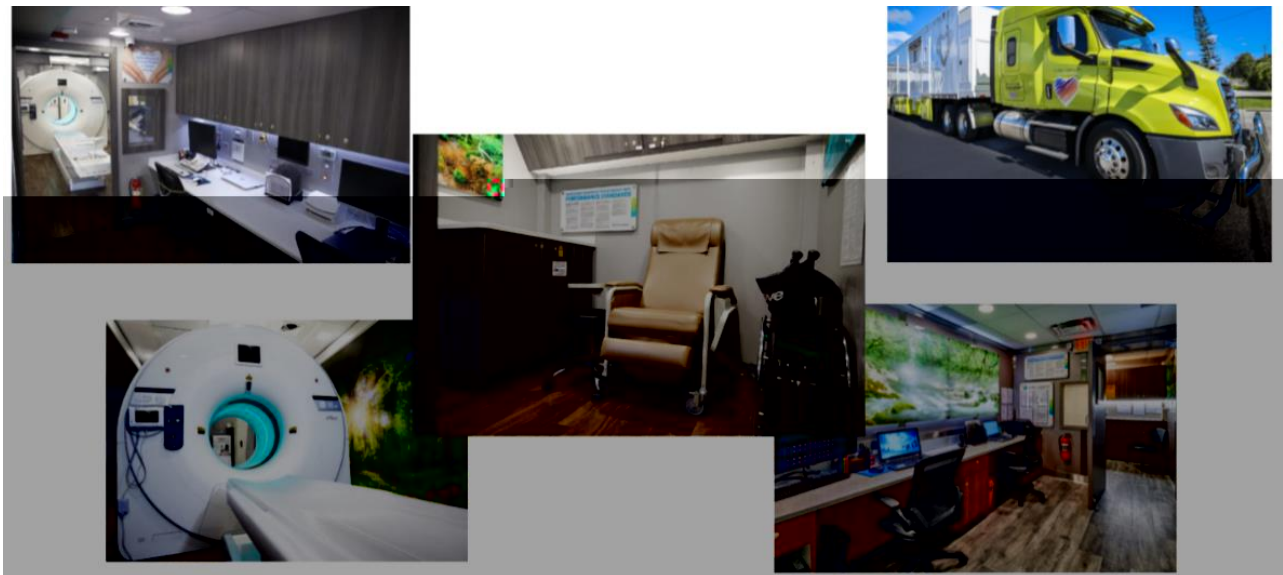
Expert's Biography



Jens Huettges
Chief Technology Officer,
Cardiac Imaging, Inc.

Jens Huettges joined Cardiac Imaging Inc in 2020 as the Chief Technology Officer (CTO) with now 2 decades of nuclear medicine experience. As CTO, Jens is responsible for acquiring, maintaining, servicing and improving all of Cardiac Imaging Inc equipment including: PET and PET/CT scanners, Mobile imaging trailers, digital infrastructure.

Cardiac Imaging, Inc. (CII) is a leading provider of PET cardiology imaging services in the United States performing Rubidium-82 PET myocardial perfusion imaging (MPI) exams. CII offers the latest cardiac technology including the uMI® 550 mobile digital PET/CT system. CII's mission is to bring the latest cardiac technology to cardiologists and their patients. We had an opportunity to talk to Jens Huettges, Chief Technology Officer about PET MPI imaging.



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