
Affidea Experience: Improving Patient Safety with AI



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Artificial intelligence (AI) has advanced from a debate into a large collection of different technologies with applicability in everyday life, meant to bring a difference in people's life, from the way we interact between us, take decisions, buy products, set goals or monitor health.

The healthcare sector makes no exception. We all know that the industry is impacted by significant challenges such as ageing population, growing demands for medical services, increased costs, healthcare staff shortages, digital transformation and the bigger role of patients in taking decisions for their own health. In this context, AI has found a fertile ground where to grow and offer solutions. In the past years, the speed of innovation in AI applications for the healthcare industry has been skyrocketing .

With no doubt, AI in healthcare promises a lot but the question that remains is what value it will deliver in reality and how can healthcare providers evaluate the AI algorithms and operationalize them in a multi-country environment.

At [Affidea](#), over the past two years, we have started several pilots to assess the clinical, operational use and commercial opportunity associated with AI-enabled technologies in Diagnostic Imaging. Our goal was to verify how some AI solutions can qualitatively support the reporting activity of our radiologists in specific disciplinary areas, or how these can contribute to increase the safety of our patients who undergo diagnostic tests or to optimize the operational processes in our daily workflow. Along this journey, we have expanded our knowledge and experience, confirming once again that artificial intelligence capabilities are developing every year and innovation can certainly make life easier for overburdened resources, without replacing the unique skills of doctors and practitioners in healthcare. Definitely, AI will offer radiologists enhanced "powers" so the radiologists that use AI will prevail over those that don't.

Clearly, validating the safety and efficacy of a technology solution is one major hurdle to overcome but a real challenge is how to demonstrate the operational or commercial benefits of an AI solution when introduced into a clinical workflow. Thanks to the excellent work carried out by Affidea Clinical Team over the past two years, we have now a structured framework for the evaluation and commercialization of AI solutions in Diagnostic Imaging and I am delighted to announce that Affidea will roll-out an AI-enabled solution in Italy, Poland and Romania in early 2021. The partnership that Affidea has announced with Subtle Medical has successfully proved that by combining the innovation of AI with the clinical know-how of an European medical provider, it can result in outstanding clinical outcomes with incredible results for patient safety.

SubtlePET is a software that uses an artificial intelligence algorithm to improve the quality of the PET/CT images that have been acquired with reduced dose or reduced scan time. In order to validate the algorithm, a pilot was carried out at Affidea IRMET center in Torino, Italy, a UEMN/EBNM and EARL accredited PET-CT site, to assess whether SubtlePET could produce images of adequate diagnostic confidence when reducing the administered F18-FDG dose of the standard institutional dose, and whether the outcomes were reproducible between different PET scanner models.

Despite the significant challenge of Covid-19, the Affidea IRMET team was able to produce outstanding results and achieved a 33% reduction in FDG dose without compromising image quality. So, lower dose for the patient results in greater safety with the same image quality and operational efficiencies.

Affidea IRMET clinical team continues trialing the artificial intelligence algorithm in its second phase for scan time reduction up to 50%, with excellent preliminary results. This is especially important in the case of the centers where the workflow optimization is requested due to increased number of PET CT exams. Looking forward, I am confident that this innovation installed in Affidea PET-CT centers across Europe will bring a significant support to large hospitals in the post-Covid crisis, Affidea being able to support them with the PET-CT scans, in this way reducing the long waiting list and helping oncological patients to access faster this examination.

In Q2 2021, our final goal will be to achieve scan time reduction in combination with FDG dose reduction, expecting that we will produce similar results and conclude the clinical validation.

Meantime, Affidea PET/CT centers in Italy, Romania and Poland will introduce the AI solution SubtlePET in January 2021 bringing tremendous clinical benefits for patient safety and operational efficiency.

We are very proud to have successfully implemented our first AI-enabled solution across multiple countries. The patient is the one that benefits from this innovative solution and we, at Affidea, are committed to continuously improve patient safety, being internationally recognised for this.

We have big ambitions to replicate this success in 2021 in other clinical areas as well, such as the breast, lung and brain pathologies, in collaboration with other AI partners with whom we are closely working according to our structured framework for the evaluation and commercialization of AI solutions.

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