vyaire™
MEDICAL

Automated Interpretation of Pulmonary Function Tests

SentrySuite® software with ArtiQ.PFT

Interpretation of PFT today is ...

Time Consuming – Pulmonologist spend up to hours per week protocolling and report writing for PFTs

Expert Dependent – Comprehensive report writing requires expert knowledge in lung function.

Highly Variable – Variation exists even between expert interpretations of PFTs in the diagnostic process.

Not Specific for Diagnosis – PFT results often don't provide experts with enough information to prioritize diagnostic options optimally.

This can lead to redundant **additional tests**, (initial) **misdiagnosis** and **increased costs**.

ArtiQ.PFT

The ArtiQ.PFT software automates the interpretation of pulmonary function tests (PFTs). It reduces the administrative burden and allows pulmonologists to focus on clinical decision making and patient consult. ArtiQ.PFT uses artificial intelligence to support detection of disease patterns early on in the diagnostic process and thus holds the potential to reduce redundant testing.

Spend your time wisely

Spend your time on clinical decision making and patient consultation, not on PFT protocolling.

Boost your consistency

Standardize every PFT report at your center in line with international guidelines.

Maximize diagnostic accuracy

Leverage the power of AI to predict probabilities of disease presence.

Define your next steps

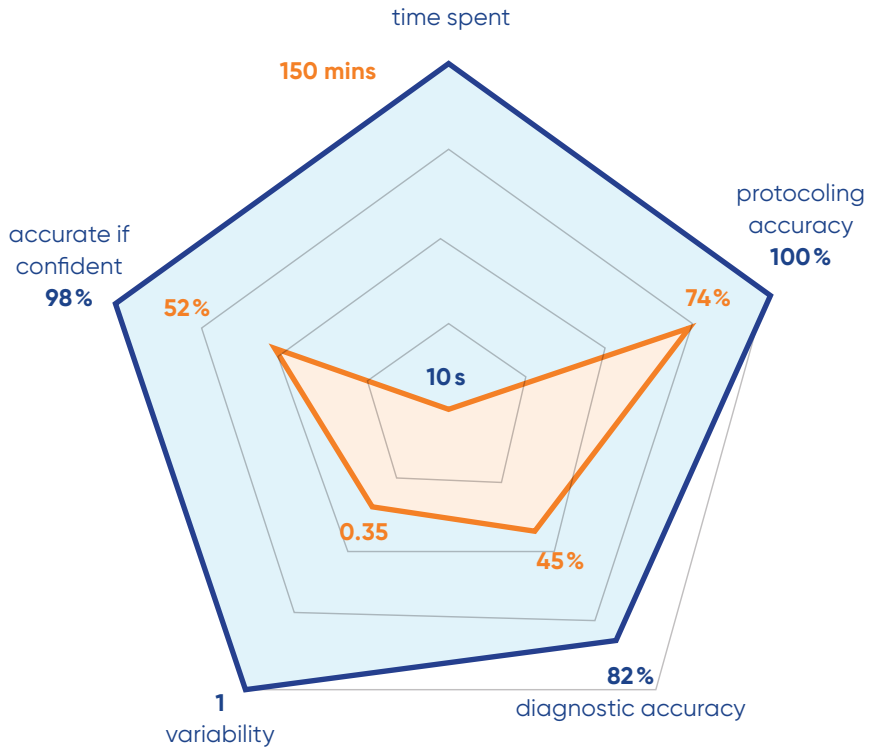
Get recommendations on appropriate next steps.

Proven Impact of ArtiQ.PFT

The algorithms of **ArtiQ.PFT** have been validated in a European multi-center study published in the European Respiratory Journal. The study investigated if artificial intelligence is accurate enough to provide a second opinion that is helpful for pulmonologists

Therefore, **120 pulmonologists from 16 European hospitals evaluated 50 cases** based on pulmonary function test results and some basic clinical information, resulting in 6000 independent interpretations. The AI software examined the same data.

When asked for the most probable diagnosis, the AI software recognized the disease pattern correctly in 82% of the cases, compared to 45% on average by the pulmonologists.



16 hospitals (**5** countries) **50** patients

N = 120 (**6000** interpretations)

ArtiQ.PFT

Topalovic et al. Eur Resp J. 2019

How does ArtiQ.PFT work?

Based on PFT data (spirometry, airways resistance, lung volumes and diffusion capacity) and patient characteristics (age, pack-years, sex, height …), an automated report is generated in less than 1 second.

EACH REPORT CONTAINS THREE KEY COMPONENTS :

1. PFT protocol:

Automated interpretation of the lung function according to international guidelines.
It describes the patterns of abnormalities and signs of physiological dysfunctions.

2. Disease probabilities:

The core intelligence of the software uses artificial intelligence (AI) to calculate probabilities of disease presence to help reach the final diagnosis faster.

3. Recommended further steps:

Recommendations for the appropriate next steps that can be taken with the patient for diagnostic optimization.

Who is ArtiQ?

- **Spin-off from KU Leuven (Belgium)**
- After 8 years of extensive research
- Founded by AI engineer, 2 Pulmonologists, and MedTech expert

- **Mission:**
  ArtiQ empowers medical professionals with artificial intelligence to accurately and timely diagnose, treat and follow-up patients with lung diseases.

ArtiQ.PFT within SentrySuite Review

ArtiQ.PFT is truly integrated in SentrySuite Review and Mobile Review, offering different ways to support your PFT review. Making your workflow more streamlined, so not one extra click is required. The ArtiQ.PFT report is automatically and instantaneously placed exactly where you want it.

- Select in "Review" mode ArtiQ.PFT interpretation and optional integrate text into SentrySuite Report.
  Further interpret the report when needed and send to the Hospital Information System (HIS).
- Create ArtiQ.PFT interpretation report directly from "Visit View" and open report for further analysis when needed and send to the Hospital Information System (HIS).
- Send directly from "Visit View" to the Hospital Information System (HIS).

"In the past, a large amount of data was collected from pulmonary function tests. We had to interpret this data and recognise patterns to come to a diagnosis. The biggest advantage now is that computers are doing it automatically. The software instantaneously makes a protocol and gives probabilities of disease presence."

Prof. Dr. Wim Janssens,
Adjunct head of the department of
Respiratory Diseases.

What does the report look like?

Patient information

Protocol

Interpretation of PFT according to the international guidelines

- Pellegrino 2005, and
- Reversibility testing
- Airways resistance
- Air trapping
- Hyperinflation
- Signs of small airways disease

Disease Probabilities

- **Artificial Intelligence based**
- **Provides probabilities for 8 diseases based on the multi-center validation study**

Conclusions & suggestions

- **Highest disease probability called out**
- **Recommendations for next steps** based on highest probability disease and common clinical practice
- **Warnings**

Physicians and technicians comments

REFERENCE

Topalovic et al. Artificial intelligenceoutperformspulmonologists in the interpretation of pulmonary function tests. European Respiratory Journal. 2019

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