

## StethoMe® creates unique lung and heart screening systems which improve primary care diagnostics.

### OUR PRODUCTS



#### StethoMe® Smart Stethoscope

StethoMe® is a smart electronic stethoscope. It enables more precise auscultation of patient's lungs and heart.



#### StethoMe® AI Algorithms

StethoMe® AI is a smart sound analysis system based on AI algorithms that detect and classify abnormal lung sounds.

### CERTIFICATION

The device and AI algorithms have received class IIa medical certification (CE 2274) in the EU and TÜV Medical Devices-Quality management system.



### 3 ways to work with StethoMe®



#### Using an innovative wireless stethoscope:

- after connecting earphones, it works as a traditional stethoscope
- the remote auscultation mode allows contactless examination



#### Using a mobile phone & the StethoMe® application, which can be used in two modes:

- for doctors - designed for professionals, with the aim of supporting them in their work\*
- for patients - supporting them in performing examinations on their own



#### Using the doctor's platform - web platform designed to support professionals in:

- accessing detailed patient examination sounds and results
- managing patient data

\* This mode is still in the testing phase, and therefore there may occur bugs that will be fixed at a later stage.

### See how StethoMe® helps you work:



#### MORE CONVENIENT

##### Stethoscope has 3 modes to choose from:

1. Traditional, with earphones.
2. Wireless, with StethoMe® mobile application and sound recording.
3. Remote, with sound recording option.

#### How does it work?

StethoMe® stethoscope is a wireless device. It can work in three modes. You decide which one is the most convenient to you:

- As a **traditional stethoscope**. By attaching regular earphones to the device you can perform a **standard auscultation**.
- By using a mobile app you can **perform auscultation wirelessly**. Stethoscope connects to the phone via wireless technology and sends sounds to your mobile. It is **helpful during medical checks of little children**. Parents can apply the stethoscope while you listen to the sounds on your phone.
- You can **share the device with your patient** staying at home, who can perform the examination and **send you the recording** from via the doctor web platform. You can play back the sounds and provide a diagnosis.



#### GIVES YOU BETTER SOUND

##### Provides pure, clear sound:

1. More precise than a traditional stethoscope.
2. Works with two separate modes for lungs and heart filtering the sounds.

#### How does it work?

StethoMe® stethoscope is **very sensitive to sounds**. It provides a very clear sound that is louder and **much more precise** than that from a **traditional stethoscope**:

- Filters allow **coping with low-frequency muscle noises and high-frequency external noises**. Thanks to them it is possible to process physiological and pathological sounds originating from lungs or heart.
- StethoMe® also **clears away the doubts related to the assessment of the auscultation**. Dynamic compression allows amplifying auscultations sounds without distortion. It also reduces the level of loud noises.
- The two separate modes for:  lungs  heart ensure the purity of the sound, and lack of any disturbances.



#### MORE EFFICIENT

##### Access to the doctor web platform provided by StethoMe®:

1. Supports automatic & immediate diagnoses based on 4 auscultation sound classes [ERS system].
2. The sounds are recorded & saved automatically, can be played back anytime, and stored as a given patient's medical history.

#### How does it work?

With StethoMe® you receive access to the doctor web platform. During the medical check, Artificial Intelligence [StethoMe® AI] supports you in providing the right diagnosis:

- It **analyses and identifies abnormal sounds based on 4 sound classes [ERS system]**: the algorithms work automatically and immediately. They detect sounds typical of respiratory system diseases: **wheezes, rhonchi, and fine and coarse crackles**.
- After the examination, at the doctor web platform, you can immediately see:
  - a **high-quality recording that can be played back** to ensure the right diagnosis,
  - **spectrograms with a precise indication of abnormalities** at each auscultation point and an alert of the appearance of abnormal lung sounds and heart murmurs,
  - **RR and BPM values**.
- StethoMe® AI algorithms are **29% more accurate than human ear** in detecting pathological sounds.

StethoMe's doctor web platform also provides an easy way of managing your patient data:

- The recordings from **examinations can be played back anytime and stored** as a given patient's medical history.
- Easy way of **monitoring chronic diseases** (such as asthma) and supervising the treatment process.
- The online platform **can be easily integrated into the platform of your workplace** to ensure that you work on a single piece of software.



#### SAFER & INDEPENDENT

##### Remote mode:

1. Reduces the need for physical contact during the examination.
2. Step by step instructions featured in the recording mode allows users and even patients themselves to perform examinations.
3. Allows you also to link with your patients via online appointments and telemedicine.

#### How does it work?

The remote auscultation options with recording and access to the doctor web platform give you:

- **Freedom to outsource the performance of examination** to a nurse or even to the patient himself/herself at home.
- StethoMe® stethoscope is designed to show in simple steps how to perform the examination. This ensures control over the quality of examination. The system records sound only when the stethoscope is applied properly. Thanks to that, it **enables a non-professional person to perform an accurate examination of lungs and heart**.
- Remote auscultation becomes crucial during a time of pandemic, when physicians work with infected patients. **The lack of need for physical contact during the examination limits the probability of becoming infected**.

### The effectiveness behind StethoMe® AI

#### The only medically certified AI algorithms and device of their respective kind on the market.

StethoMe® AI and stethoscope are unique on the market since they are the only combination of AI algorithms and stethoscope that has received a class II a medical-grade certification [CE 2274].

#### 29% more accurate than pulmonologists.

Our AI algorithms are 29% more accurate than pulmonologists in detecting pathological sounds caused by pulmonary infections, asthma, COPD, etc.

#### The algorithms were created by a group of scientists and the best pulmonologists, based on:

- **38 530** dedicated medical descriptions
- **1 015 866** detailed sound tags
- **2 397** patients [8-12 auscultation points per patient]

### Scientific publications

Hafke-Dys, H., Bręborowicz, A., Kleka, P., Kociński, J., Biniakowski, A. [2019]

The accuracy of lung auscultation in the practice of physicians and medical students, PLoS one, 14(8)

Grzywalski, T., Piecuch, M., Szajek, M., Bręborowicz, A., Hafke-Dys, H., Kociński, J., Pastusiak A., Belluzzo, R. [2019]

Practical implementation of artificial intelligence algorithms in pulmonary auscultation examination, European journal of pediatrics, 178(6): 8 83-890

Tomasz Grzywalski, Marcin Szajek, Honorata Hafke-Dys, Anna Bręborowicz, Jędrzej Kociński, Anna Pastusiak, Riccardo Belluzzo

Respiratory system auscultation using machine learning - a big step towards objectivation? ERS International Congress.

### Prices



RSP [net + 8% VAT] **€299.00 [€276.85 net]**

includes: Access to StethoMe® Mobile App [patient] and StethoMe® Platform [doctor] for 24 months, no limit to the number of AI analyses, device warranty [12 months].



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