

## QUICK GUIDE MIR iSPIROMETRY™ APP

**Spirobank Smart™** is a pocket-sized system for measuring the following respiratory parameters:

- PEF (Peak Expiratory Flow)
- FEV1 (Forced Expiratory Volume in 1 sec)
- FVC (Forced Vital Capacity)
- FEF2575 (Average flow between 25% and 75% of the FVC)
- FEV6 (Volume expired in the initial 6 seconds of the test)
- FEV1/FVC (Tiffeneau index)



The device connects to a Smart Phone via Bluetooth SMART technology, via the iSpirometry™ App available free of charge for iOS and Android



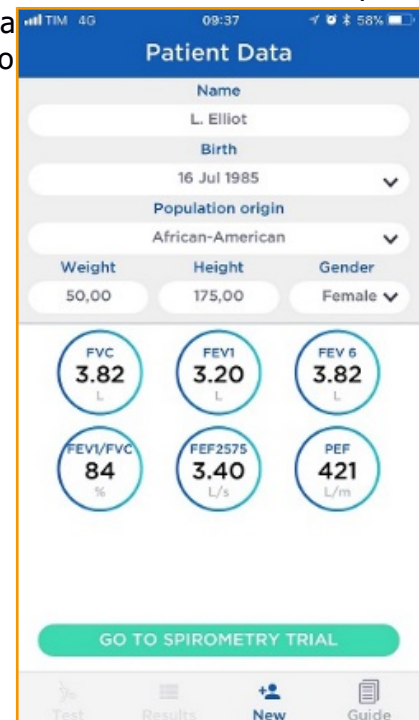
### ALLOW THE ACCESS TO YOUR DEVICE LOCATION

First thing you need to do after you installed the APP iSpirometry™ is to allow the access to your device location. This will make the Spirobank Smart™ “visible” via Bluetooth to your Smart Phone and consequently will enable you to use it.

### PATIENT DATA

It is important to input personal and anthropometric data (height, date of birth, sex, weight and origin) of a patient before each trial. This is mandatory to perform a Spirometry test. The information will be temporarily saved and stored on the Smart Phone memory only and in no case stored on the Spirobank Smart device, which has no internal memory. When a new patient is inserted, all previous data is deleted.

Depending on the language settings of your Smart Phone, your APP settings will be displayed in **cm/kg or in/lbs**. Just change language settings on your Smart Phone to switch to your preferred system. E.g. English (USA) to set the Imperial system, English (Canada) to set the Metric instead, Italian and so on.



iSpirometry™ APP use the GLI-2012 algorithm to perform spirometry.

After you input patient data and click on “**go to spirometry trial**”, the APP will automatically search and connect with the Spirobank Smart device “visible” by the Bluetooth.

The APP communicates with the device using Bluetooth 4.0. The first time the APP is launched it pairs and connects automatically to the device. From the second time the APP is launched it gets connected and disconnected automatically to the paired device as fast as possible. The APP is also able to search for any compatible device in range. The user can connect/disconnect to/from any device discovered.

### **PERFORM A SPIROMETRY TRIAL**

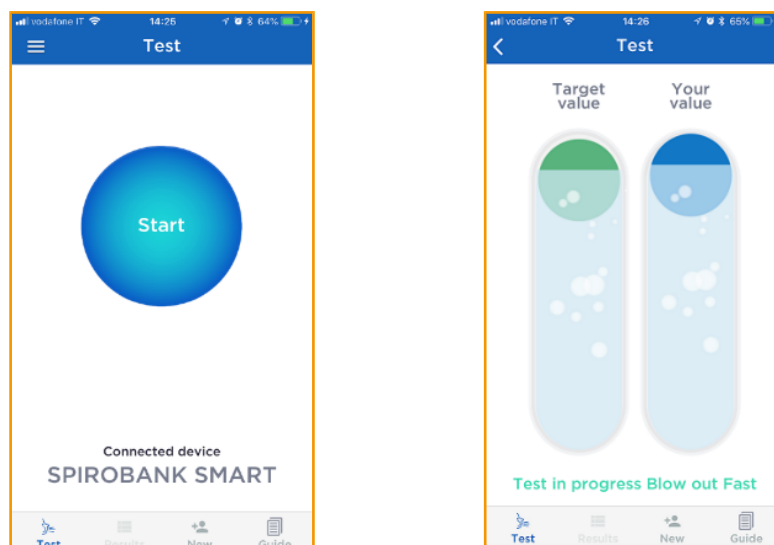
The APP displays the main expiratory parameters: PEF, FEV1, FVC, FEF2575, FEV6, FEV1/FVC. In order to perform properly the manoeuvre, proceed as follows:

1. pick up the Spirobank Smart™ with the hand as if it were a Phone
2. the test must be performed inspiring before the maximal expiration
3. when the patient is ready, tap START
4. expire all the air in the lungs with the maximum speed as possible

**NOTE: If the patient makes the maximal inspiration after tapping on START, the APP will be wait for the expiration.**

After tapping START and when the next window will open, the patient starts expiring into the mouthpiece and keep blowing for at least 6 seconds. After exhalation, slowly remove the device from the mouth and check the data on the Smart Phone. Three tests, in the same session, are required for each trial.

Our suggestion is to perform the 3 tests so that the “best spirometry” (as better described below) will be the one occurred within the session. During the test the APP shows a real time feedback to incentive the patient and obtain the maximum compliance.



Click on the “blow” command on top right of the head bar menu, to proceed with the next test. Perform as many tests as you want but try to keep it within a limited time frame (5 minutes would be ok). You cannot delete a single trial so if you think you did not perform a good trial, just perform a new one.

Do not forget to add notes and comments to each trial, this will help you keep an e-diary including your daily symptoms, drug treatments, etc.

## RESULTS

A list of all the trials performed is available in the results page plus the BEST acceptable spirometry test will be high lined for FEV6, FEV1 and FEV1/FVC.

**NOTE: the BEST spirometry is the acceptable test that provide the highest sum of FVC + FEV1.**

### TEST ACCEPTABILITY AND QUALITY GRADE

According to the ERS/ATS recommendations, Quality grade is a scale from A to F and follow these criteria:

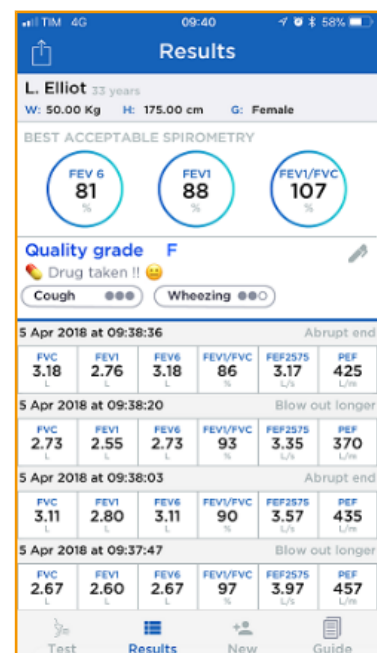
A = at the end of two acceptable tests, the variation of the two highest FEV1 values and the two highest FEV6 values are less than or equal to 100 mL

B = at the end of two acceptable tests, the variation of the two highest FEV1 values is between 101 and 150 mL

C = at the end of two acceptable tests, the variation of the two highest FEV1 values is between 151 and 200 mL

D = only one test was acceptable or there is more than one acceptable test but the variation of the two highest FEV1 values is greater than 200 mL

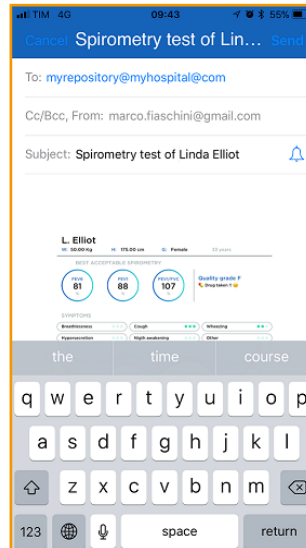
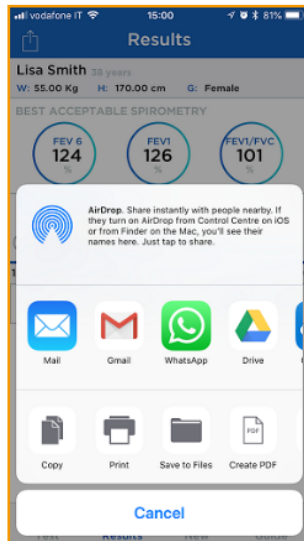
F = no acceptable test.



When the spirometry session is finished, and you are satisfied with the test results you eventually want to transfer it for storing. Considering that there is not a SAVE function in the APP, because it is not possible to save the results of a spirometry session in your Smart Phone, **we strongly recommend send/share/printing a pdf report with test results at the end of each spirometry session in order not to lose your data.** In fact, if you continue to use the APP without sharing current test results first, such results will be **deleted** and replaced by new spirometry results of a new patient.

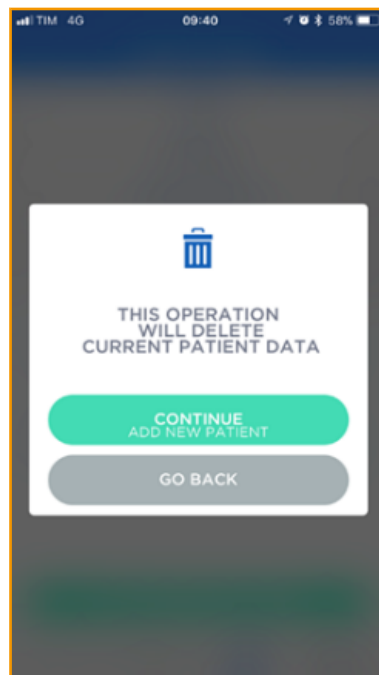
At the end of each spirometry session we recommend following the instruction below:

- click on the sharing icon to perform one of the following actions, or even more:
- send the pdf report to a cloud storage
- send the pdf report to an email account
- send the pdf report to a WhatsApp or any other instant messaging account
- send the pdf report to a Bluetooth printer for immediate print



### OPEN A NEW PATIENT SESSION

After you sent/shared/print spirometry results, you can move on and open a new patient session from the top menu icon.



## **Common issues:**

### **Is your SmartPhone/Tablet compatible with MIR iSpirometry™ APP?**

Android: minimum operating system requirement is Android 4.4 or higher, and Bluetooth 4.0 or higher. Even if the operating system is compatible, the hardware may not.

iOS (Apple): minimum operating system requirement is iOS 8 or higher.

### **You just purchased a new SmartPhone/table and want to transfer data on it?**

We recommend you to use the instruction provided by your operating system provider, Android or iOS, about how to transfer data from an old to a new device.

### **Your SmartPhone/tablet cannot connect with your Spirobank Smart™?**

Check the batteries in your Spirobank Smart device, low battery cause bad connection.

The Bluetooth of your Spirobank Smart may need an update. You can perform this update using a different APP (free of charge, only available for Android: [FIX SPIRO](#)).

### **What firmware and bluetooth version are installed on my Spirobank Smart device?**

Android: open the iSpirometry™ app and click on the "info" button;

iOS (Apple): open your iPhone/iPod "Settings", select the iSpirometry™ app from the list below, and the "info" will be displayed.

### **List of Android Smartphones/Tablet tested and compatible with iSpirometry App**

ASUS ASUS\_Z00AD Android 5.0  
ASUS ASUS\_Z017D Android 7.0  
HUAWEI CUN-L21 Android 5.1  
HUAWEI NOVA 2i Android 7.0  
HUAWEI RIO-L01 Android 6.0.1  
HUAWEI SCL-L01 Android 5.1.1  
HUAWEI TAG-L01 Android 5.1  
Mediacom M-PPxG410 Android 5.1  
Motorola Moto G (first generation) Android 4.4.2  
Motorola XT1635-02 Android 6.0.1  
OPPO F15 Android 5.1  
Samsung Galaxy A7 SM-A700F Android 5.0.2  
Samsung Galaxy S3 Neo GT-I9301I Android 4.4.2  
Samsung Galaxy S4 GT-I9505 Android 5.0.1  
Samsung Galaxy S6 SM-G920F Android 5.1.1  
Samsung GT-I9505 Android 5.0.1  
Samsung SM-G531F Android 5.1.1  
Samsung SM-G800F Android 6.0.1

Samsung SM-G920F Android 6.0.1  
Samsung SM-G935F Android 7.0  
Samsung SM-J320FN Android 5.1.1  
Samsung SM-J500FN Android 5.1.1  
Samsung SM-N910F Android 6.0.1  
Samsung SM-T585 Android 6.0.1  
Wiko RAINBOW JAM Android 5.1  
Wiko RAINBOW JAM Android 5.1

### **List of iOS Smartphones/Tablet tested and compatible with iSpirometry App**

iPhone 4S  
iPhone 5C model A1429 iOS 9.3.5  
iPhone 5S  
iPhone 6 iOS 10.2.1  
iPhone 6 iOS 9.2  
iPhone 6 iOS 9.2.1  
iPhone 6 Plus iOS 10.0.1  
iPhone 6 Plus iOS 10.0.1  
iPhone SE  
iPhone 6S iOS 10.2.1  
iPhone 6S Plus  
iPad Air  
iPad Mini 2  
iPad Mini  
iPad 3<sup>rd</sup> generation iOS 9.3.5  
iPod Touch 6<sup>th</sup> generation

### List of iOS Smartphones/Tablet tested and NOT compatible with Mir Smart One App

iPhone 4  
iPhone 3G s  
iPad2  
iPad1  
iPod touch 4th gen  
iPod touch 3rd gen  
iPod touch 2nd gen