

HEALTH SCREENING SERVICES



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“Health screening services are public health services in which individuals (usually asymptomatic) are tested or assessed to identify those at risk of a disease or its complications, so that early intervention and treatment can be provided to reduce morbidity and mortality.”

1. This is the the provision of **basic diagnostic and monitoring tests** in a community pharmacy setting
2. It is aimed at: Early detection of diseases , Monitoring existing conditions and Referring patients to physicians when necessary
3. It **does not replace the physician’s role**, but supports: **Disease prevention , Health promotion and Continuity of care**

Importance of Health Screening Services

1. Early detection of diseases

1. Identifies diseases like: Hypertension, Diabetes, Dyslipidemia
2. Enables early treatment

2. Prevention of complications

1. Reduces risk of: Heart Disease, Stroke , Kidney Damage

3. Accessibility

1. Easily available at: Community Pharmacies, Health Centers
2. Improves healthcare reach

4. Cost-effective

1. Low-cost tests, Affordable for general population

5. Patient awareness

1. Educates patients about: Disease Risks, Lifestyle Modifications

6. Monitoring of chronic diseases

1. Helps in: Regular Follow-up , Evaluating Treatment Effectiveness

7. Reduces healthcare burden

1. Decreases workload on: Hospitals , Physicians

Significance of Health Screening Services

The health screening services are very important and are highly significant because of the following reasons:

1. **Accuracy and reliability:** These are very small tests and thus accurate and can be trusted for over a perfect diagnosis of disease.
2. **Easily Available:** primary health care tests are easily available in the nearby community or health screening centers. Even certain pharmacists can perform such tests like blood pressure, blood glucose estimation etc.
3. **Cost Effective:** these tests do not involve high cost. Such tests can be afforded by most of the population whenever they feel need of them i.e. At a point of occurrence of symptoms etc.
4. **Can Be Performed Anywhere:** today most of the tests can be performed by digital portable devices and thus can be carried out anywhere. Even the costs of the digital devices are not too high and a common man can easily afford for such devices.
5. **Side-effects:** certain secondary health screening services have their own side effects but no side effects or adverse effects on the body were observed with primary health screening.

Types Of Health Screening Tests

Health screening tests are broadly classified into the following types:

1. Primary health screening tests (clinical/diagnostic screening)

Primary health screening tests are those performed: When prescribed by a physician, or

When a patient undergoes testing after the onset of symptoms

Purpose: To diagnose the disease , To determine the stage or severity of the disease

Key features

1. Also called clinical screening or diagnostic screening
2. Helps in early detection and initiation of treatment
3. Can be done at community pharmacies or health centers

Examples

Blood pressure measurement , Blood glucose estimation, Cholesterol testing etc.

2. Secondary health screening tests

Secondary health screening tests are performed **after the diagnosis** of a disease.

Purpose

1. To monitor disease progression
2. To prevent complications
3. To detect recurrence of disease

Key features

1. Performed only under physician supervision
2. Important for long-term disease management

Examples

Hba1c monitoring in diabetes , Lipid profile follow-up and Regular BP monitoring in hypertensive patients

Feature	Primary Health Screening Tests	Secondary Health Screening Tests
Definition	Tests done to diagnose disease after symptoms appear	Tests done after diagnosis of disease
Also Called As	Clinical / Diagnostic Screening	Follow-up / Monitoring Screening
Purpose	Detect disease and determine its stage/severity	Monitor disease, prevent complications, detect recurrence
When Performed	Before or at the time of initial diagnosis	After disease has been confirmed
Prescription	May or may not require physician advice	Always requires physician prescription
Focus	Identification of disease	Management and control of disease
Frequency	Occasional / when symptoms appear	Regular and continuous monitoring
Examples	BP measurement, Blood glucose, Cholesterol test	HbA1c, Lipid profile follow-up, Regular BP monitoring
Role in Care	Helps in early diagnosis and treatment initiation	Helps in treatment evaluation and outcome improvement

Role of Community Pharmacist in Health Screening Services

Community pharmacists play a vital role in early detection, monitoring, patient education, and referral, thereby improving public health outcomes and supporting the healthcare system.

1. Early Detection of Diseases
2. Providing accessible healthcare
3. Conducting basic screen tests
4. Patient Counselling and education
5. Monitoring chronic diseases
6. Referral to physicians
7. Improving Medication Adherence
8. Documentation and Record Keeping
9. Ensuring Safety and Quality
10. Reducing Healthcare Burden

1. Early detection of diseases

- a. Community pharmacists help in identifying individuals at risk of diseases such as: Hypertension ,Diabetes mellitus, Dyslipidemia
- b. By performing basic screening tests, they contribute to early diagnosis and timely intervention.

2. Providing accessible healthcare

- a. Pharmacists offer easily accessible screening services in community settings, making healthcare available to: Rural populations and Individuals with limited access to hospitals

3. Conducting basic screening tests

- a. Community pharmacists perform various simple and reliable tests, including: BP measurement , Blood glucose testing Cholesterol estimation, Body mass index (BMI) calculation, Peak expiratory flow rate (PEFR)

4. Patient counseling and education

- a. Pharmacists educate patients about:
 - 1. Disease conditions
 - 2. Risk factors
 - 3. Lifestyle modifications (diet, exercise, smoking cessation)
 - 4. Proper use of medications

5. Monitoring chronic diseases

- a. They assist in regular monitoring of chronic conditions such as: Diabetes, Hypertension and Asthma
- b. This helps in assessing treatment effectiveness.

6. Referral to physicians

- a. Pharmacists **do not diagnose or treat independently**
- b. They refer patients with abnormal results to **physicians** for: Confirmation of diagnosis and initiation or modification of therapy

7. Improving medication adherence

- a. Encourage patients to **follow prescribed therapy**
- b. Help in reducing **non-compliance**

8. Documentation and record keeping

- a. Maintain records of: Screening results, patient history
- b. Ensure continuity of care

9. Ensuring safety and quality

- a. Follow proper: Equipment handling, hygiene practices, standard guidelines

10. Reducing healthcare burden

- a. Decreases workload on: hospitals and physicians
- b. Promotes **preventive healthcare**

Methods for Health Screening Services Provided by Community Pharmacists

S. No.	Screening Method	Purpose	Technique/Device Used
1	Blood Pressure Measurement	Detect hypertension	Sphygmomanometer / Digital BP monitor
2	Blood Glucose Testing	Detect & monitor diabetes mellitus	Glucometer (capillary blood glucose)
3	Blood Cholesterol Estimation	Assess lipid profile & CV risk	Cholesterol kits / Digital monitors
4	Body Mass Index (BMI)	Assess obesity & nutritional status	Height & weight calculation
5	Peak Expiratory Flow Rate (PEFR)	Assess asthma & airway obstruction	Peak flow meter
6	Lung Function Tests	Evaluate respiratory efficiency	Spirometer
7	Capillary Blood Tests	General health screening	Test strips / portable devices
8	Weight Monitoring	Assess overall health & therapy outcomes	Weighing scale

Estimation of Blood Pressure

Blood pressure is basically a pressure exerted by the blood on the walls of artery. This pressure is produced by the blood pumping action of heart.

Two types of pressure is exerted by the blood: systolic and diastolic systolic pressure is always higher than the diastolic pressure,

(A) the systolic pressure is the maximum pressure in an artery at the moment when the heart is beating and pumping blood through the body.

(B) the diastolic pressure is the lowest pressure in an artery in the moments between beats when the heart is resting.

Blood pressure varies from individual to individual and is dependent upon a number of factors, such as age and weight, physical condition, or gender.

The classic normal reading for an adult between the ages of 18 and 45 is 120/80.

Classification Of Blood Pressure (JNC 7) – Adults ≥ 18 Years

Category	Systolic BP (SBP mmHg)	Diastolic BP (DBP mmHg)
Normal	< 120	< 80
Prehypertension	120 – 139	80 – 89
Hypertension Stage 1	140 – 159	90 – 99
Hypertension Stage 2	≥ 160	≥ 100

JNC 8 (2014) – Classification (Simplified Clinical Use)

Category	Systolic BP (SBP mmHg)	Diastolic BP (DBP mmHg)
Normal	< 120	< 80
Prehypertension	120 – 139	80 – 89
Hypertension	≥ 140	≥ 90

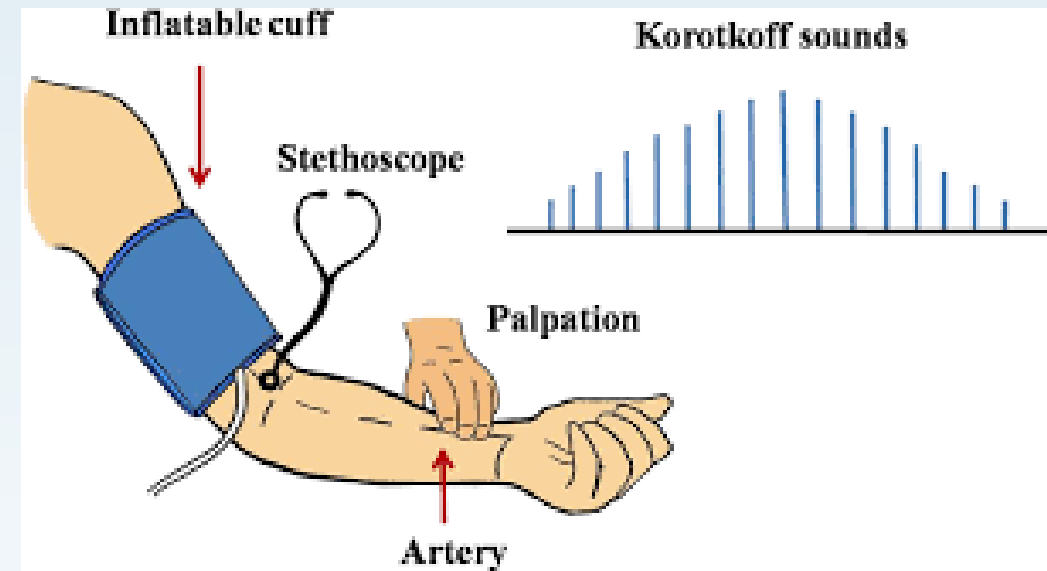
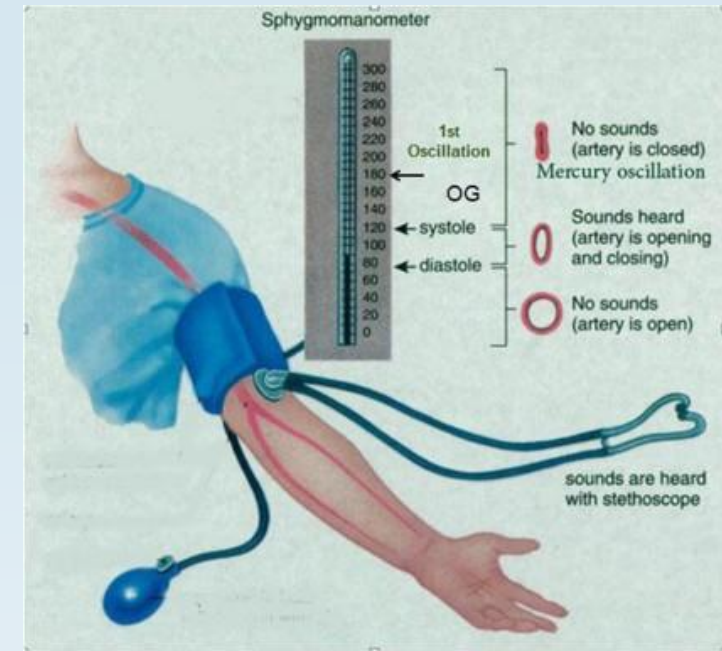
ACC/AHA 2017 Classification (Latest Widely Used)

Category	Systolic BP (SBP mmHg)	Diastolic BP (DBP mmHg)
Normal	< 120	< 80
Elevated	120 – 129	< 80
Hypertension Stage 1	130 – 139	80 – 89
Hypertension Stage 2	≥ 140	≥ 90
Hypertensive Crisis	≥ 180	≥ 120

1. A person is considered as hypertensive when on two or more consecutive BP measurements, diastolic blood pressure is more than 90 mmhg and the systolic blood pressure is more than 140 mmhg.
2. Poor control of blood pressure may cause target organ damage like cardiac, cerebro vascular, renal, and ocular and may become a cause for death.
3. Pharmacists as a part of health care system, taking initiatives to measure the blood pressure of the people with risk will have the following advantages.
 1. New hypertensive patients can be detected.
 2. Can help patients to monitor their blood pressure and observe the usefulness of medications
 3. Motivate the patients to improve medication adherence behavior.
 4. Can prevent hypertensive consequences.
 5. Can minimize the work load of general practitioner.
4. Only qualified and well trained persons are advised to measure the blood pressure.
5. Blood pressure is measured to detect or to diagnose HTN. The instrument used to record BP is Sphygmomanometer.

There are three methods to measuring blood pressure

1. **Palpatory method:** study of pulses from wrist, neck etc. It is done only if proper instruments are not available or in case of emergency.
2. **Oscillatory method:** this method is used in digital meters and involves the study of oscillations produced due to blood.
3. **Auscultatory method:** it is done by applying pressure over the artery and to stop the blood and then study the blood pressure by releasing the pressure slowly. Based on last two methods there are certain devices to measure B.P. These include:



BP Measurement Devices

Mercury sphygmomanometer

1. This device is based on the auscultatory method of blood pressure determination.
2. The device consists of mercury column, cuff, pressure pump and a stethoscope.
3. To take a blood pressure reading, you need to be relaxed and comfortably seated, with your arm well supported. Alternatively, you can lie on an examination couch.
4. A cuff that inflates is wrapped around your upper arm and kept in place with velcro. A tube leads out of the cuff to a rubber bulb.
5. Another tube leads from the cuff to a reservoir of mercury at the bottom of a vertical glass column. Whatever pressure is in the cuff is shown on the mercury column. The mercury is held within a sealed system - only air travels in the rubber tubing and the cuff.
6. Air is then blown into the cuff and increasing pressure and tightening is felt on the upper arm.
7. The doctor puts a stethoscope to your arm and listens to the pulse while the air is slowly let out again.
8. The systolic pressure is measured when the doctor first hears the pulse, This sound will slowly become more distant and finally disappear.
9. The diastolic pressure is measured from the moment the doctor is unable to hear the sound of the pulse.
10. The blood pressure is measured in terms of millimeters of mercury (mmhg).
11. It is highly simple and the oldest method and even do not need any calibration.

Digital monitors

- a. These are digital monitors which can be cuff tied on the upper elbow region and then the monitor studies the oscillations produced in the blood vessel due to pulsary moments of the blood.
- b. These monitors work on oscillometric technique.
- c. These monitors can be used for overweight and obese patients. They also require frequent calibration.



Finger monitors

- a. These are digital monitors. They have a small cuff that can be tied around the finger.
- b. After a few seconds, the monitor automatically shows the reading. Such devices need proper calibration before usage.



Aneroid sphygmomanometer

- a. They are similar to mercury sphygmomanometers but have a dial to be read.
- b. They are comparatively less expensive, portable and light in weight. It also requires calibration prior to its use.



Following techniques are practiced for accurate measurement of blood pressure using sphygmomanometer:

1. Patients should be seated quietly for at least 5 minutes in a chair with their backs supported and their arms bared and supported at their heart level.
2. Patients should be refrained from smoking or ingesting caffeine during the 30 minutes preceding the measurement.
3. Correct measurement of blood pressure requires the use of a cuff that is appropriate to the size of the upper right arm.
4. The bell of the stethoscope should be lightly placed over the brachial artery pulse, proximal and medial to the cubital fossa, and below the bottom edge of the cuff (i.e., About 2 cm above the cubital fossa).
5. The cuff should be inflated to 30 mmhg above palpated systolic blood pressure (sbp) and deflated at a rate of 2 to 3 mmhg/second. Both SBP and diastolic blood pressure (DBP) should be recorded. The first appearance of sound (phase 1) is used to define SBP. The disappearance of sound (phase 5) is used to define DBP in adults.
6. Two or more readings separated by 2 minutes should be averaged. If the first two readings differ by more than 5 mmhg, additional readings should be obtained and averaged.
7. Elevated blood pressure must be confirmed on repeated visits before characterizing an individual as having hypertension.
8. The blood pressure measured should be provided in verbal and written form and advice to consult a physician if there is high blood pressure.

Estimation of Blood Glucose

1. Blood glucose monitoring is a way of testing the concentration of glucose in the blood (glycemia).
2. Particularly important in the care of diabetes mellitus, a blood glucose test is performed by piercing the skin (typically, on the finger) to draw blood, then applying the blood to a chemically active disposable 'test-strip'.
3. Different manufacturers use different technology, but most systems measure an electrical characteristic, and use this to determine the glucose level in the blood.
4. Blood glucose measurement within a pharmacy can provide valuable information in identifying the individuals with abnormal blood glucose levels.
5. It helps the individual with diabetes and unable to perform his/her own blood glucose monitoring.
6. Blood glucose measurements in community pharmacies should not be used to initiate or alter the treatment pharmacist may send a written report through the patient to the physician for further follow up only.

1. Healthcare professionals advise patients with diabetes on the appropriate monitoring regime for their condition.
2. Most people with type 2 diabetes test at least once per day.
3. Diabetics who use insulin (all type 1 diabetes and many type 2s) usually test their blood sugar more often (3 to 10 times per day), both to assess the effectiveness of their prior insulin dose and to help determine their next insulin dose.
4. Normal results of blood sugar:
 - a. Before meals: 70-130 (mg/dl)
 - b. After meals: less than 180 mg/dl
5. Values can vary depending on physical activity, meals, and insulin administration. Normal value ranges may vary slightly among different laboratories.

Blood Glucose Measurements And Recommendations

Category	Result (mg/dl)	Recommendation / Interpretation
Non-diabetic (Fasting)	< 80	Diabetes is unlikely
Non-diabetic (Random)	< 99	Diabetes is unlikely
Non-diabetic (Fasting)	99 – 138	Further investigation required; clinical referral
Non-diabetic (Random)	138 – 150	Further investigation required; refer to doctor
Diabetic	> 180	Needs medical attention

Who should have blood glucose measured?

1. Patients who are expressing anxiety about the development of diabetes mellitus
2. Patients' hyperglycemia was controlled by either diet alone or by oral hypoglycemic drugs.
3. Individuals who are diabetic and require regular blood glucose monitoring for evaluating the drug therapy
4. Individuals showing symptoms of diabetes such as poly uria, poly phasia, tiredness and weight loss etc.

Blood glucose screening should not be performed by pharmacists on

1. Persons under 18 years of age unless requested by doctor.
2. Persons with visible evidence of infection on fingers and nails.
3. Immunocompromised individuals including persons who are on immunosuppressant drugs.

Capillary Blood Glucose (CBG)

1. Measurement of capillary blood glucose (CBG) has become simple with the recently introduced glucometers.
2. The glucometer manufacturers made them very simple and user friendly and even patients can measure their CBG without any difficulty

Capillary Blood Glucose (CBG) Values

Type of Measurement	Normal Range (mg/dL)
Fasting CBG	70 – 100
Post Prandial CBG	110 – 150
Random CBG	100 – 150

Digital glucometers/ blood glucose meters

1. A blood glucose meter is an electronic device for measuring the blood glucose level. A relatively small drop of blood is placed on a disposable test strip which interfaces with a digital meter. Within several seconds, the level of blood glucose will be shown on the digital display.
2. Needing only a small drop of blood for the meter means that the pain associated with testing is reduced and the compliance of diabetic people to their testing regimens is improved. Although the cost of using blood glucose meters seems high, it is believed to be a cost benefit relative to the avoided medical costs of the complications of diabetes.



1. A blood glucose test is performed by piercing the skin (typically, on the finger steri using alcohol cotton swab) applying a small drop of blood on to a chemical across the disposable test strip with digital meter calorimetrically detects and read. with in 5 seconds, the capillary blood glucose value will be displayed on the glucomete.
2. The fasting capillary blood glucose level (FBG), capillary random blood sugar (RBS) and capillary post prandial blood sugar (PPBS) can be measurd using glucometer
3. The values of capillary blood glucose measured should be provided in verbal and written format to consult a physician if there is high blood glucose level.

How to measure blood glucose levels?

1. To measure blood glucose, a device called glucometer is required, Glucometers function on calorimetric principle.
2. For measuring the blood glucose levels, a glucometer's strip is used.
3. This glucometer strip possess a hallow place or an identified place, where a blood drop should be placed.
4. The blood reacts with the reagent present in the identified space and color change is detected by the glucometers.
5. Before measuring, the glucometer should be placed in quite and comfortable place.
6. Insert the strip in to the device. This will turn on the machine.
7. Compare the strip code with the code number shown on the screen. If both are different, set the code in the machine using the button.
8. Sterilize the finger with cotton swab containing an antiseptic agent. Prick the finger with the safe disposable lancet and place the drop of blood on the strip at the loading place.
9. The machine gives the result within 5 to 30 seconds.

Evaluation of Blood Cholesterol

Cholesterol Is The Major Sterol Present In Plasma, Existing In Two Forms:

Unesterified (Free): 30–40% and Esterified: 60–70%

The Ratio Remains **Constant In Normal Individuals**.

Purpose Of Estimation: Cholesterol Testing Is Done To Measure:

1. Total Cholesterol (TC)
2. Low-density Lipoprotein (LDL) – Bad Cholesterol
3. High-density Lipoprotein (HDL) – Good Cholesterol
4. Triglycerides (TG)

Helps In Assessing **Cardiovascular Risk**.

Methods of estimation

1. Enzymatic method: Most commonly used in **laboratories** Accurate and reliable

2. Colorimetric method (ZAK test)

1. Cholesterol reacts with chemical reagents (it contains ferric perchlorate ethyl acetate and sulphuric acid) to form a **reddish-purple (lavender) colored complex** ,
Cholesterol + cholesterol reagent produces lavender colored complex (sample)
2. This reddish purple color complex is measured calorimetrically.
3. color intensity $\propto$ cholesterol concentration

Reaction:

Serum (sample-protein free) + ferric chloride acetic acid reagent+ sulphuric acid $\square$ reddish purple colored complex

Interpretation: serum cholesterol varies from 150-240 mg/100ml of blood in a healthy adult.

Types of cholesterol testing

- 1. Basic test** Measures only **total cholesterol (TC)**
- 2. Full lipid profile** Includes: TC, HDL , LDL , Triglycerides
- 3. Single-use kits** Blood applied on collection card , Sent to lab , Compared with colour chart
- 4. Digital cholesterol monitors:** Reusable cholesterol monitors are available and they use reflectance photometry technology to convert the color changes produced into A rapidly on A liquid crystal display screen.

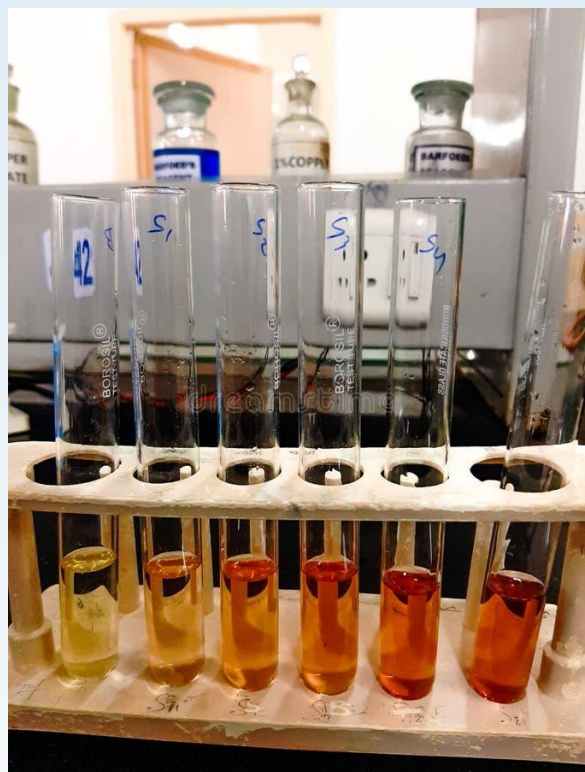
Normal values: Serum cholesterol: 150–240 mg/dl

Interpretation

Normal levels → **healthy condition**

High levels → risk of: Heart disease , atherosclerosis

Optimal (mg/dL)	Intermediate (mg/dL)	High (mg/dL)
TOTAL CHOLESTEROL		
<200	200-239	>239
LDL (LOW-DENSITY LIPOPROTEIN)		
<130	130-159	>159
HDL (HIGH-DENSITY LIPOPROTEIN)		
>60	40-60	<40
TRIGLYCERIDES		
<150	150-199	>199
NON-HDL CHOLESTEROL		
<130	130-159	>159
TC/HDL		
<3	3.1-3.8	>3.8



Estimation of Lung function test

Lung function tests are tests used to check how well the lungs are working.

They measure:

1. How much air the lungs can hold
2. How fast air can move in and out of the lungs
3. How well the lungs supply oxygen and remove carbon dioxide from the blood

These tests help to:

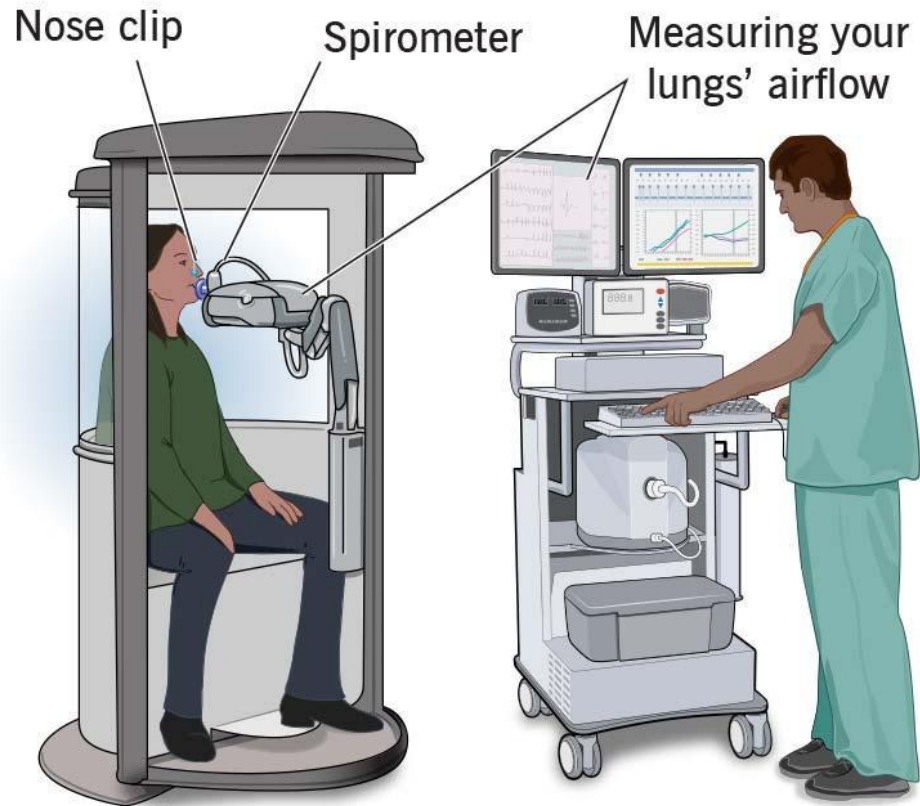
1. Diagnose lung diseases
2. Check the severity of lung problems
3. Monitor how well treatment is working

Overall, lung function tests help in understanding the **efficiency of the lungs**

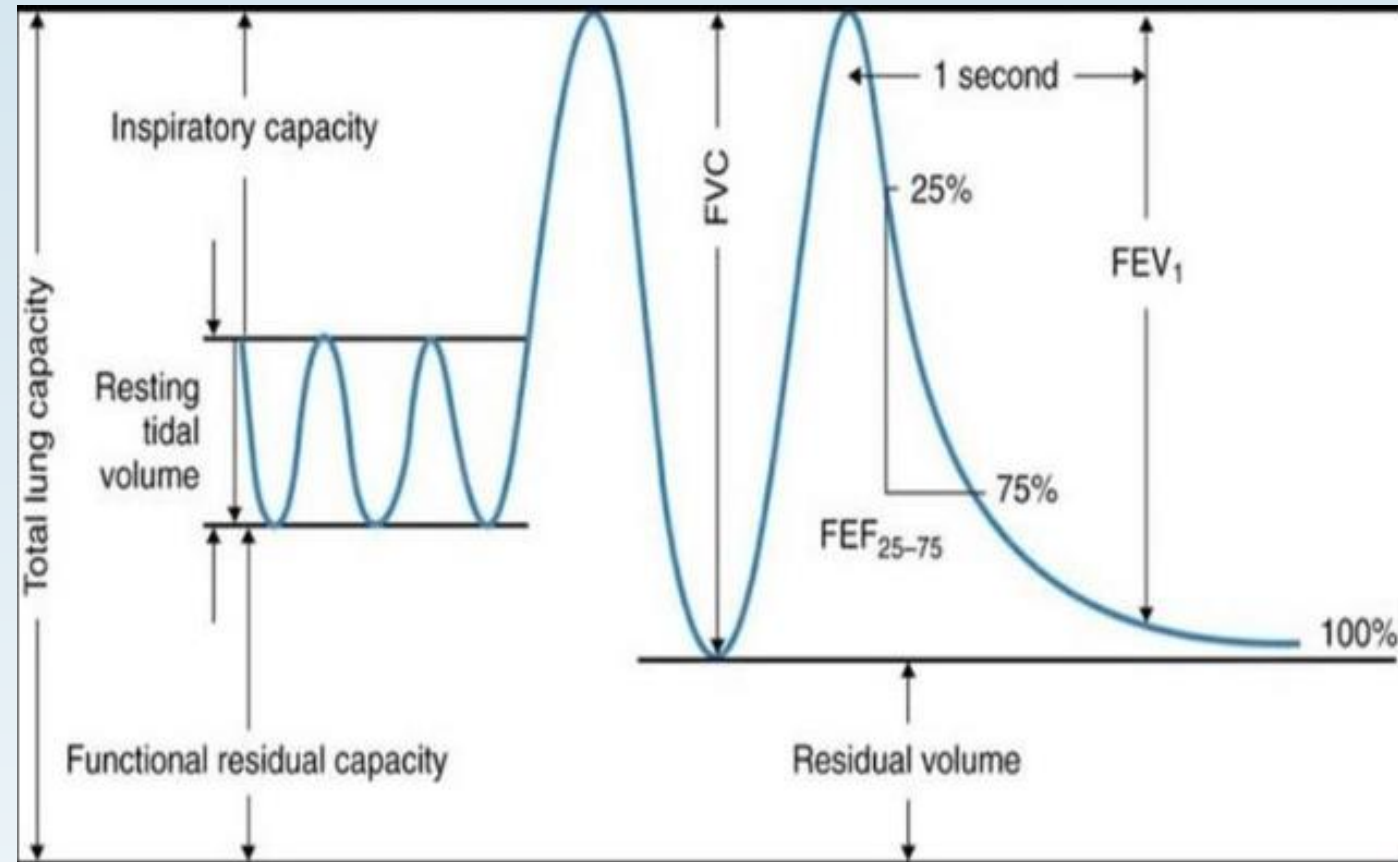
Spirometry

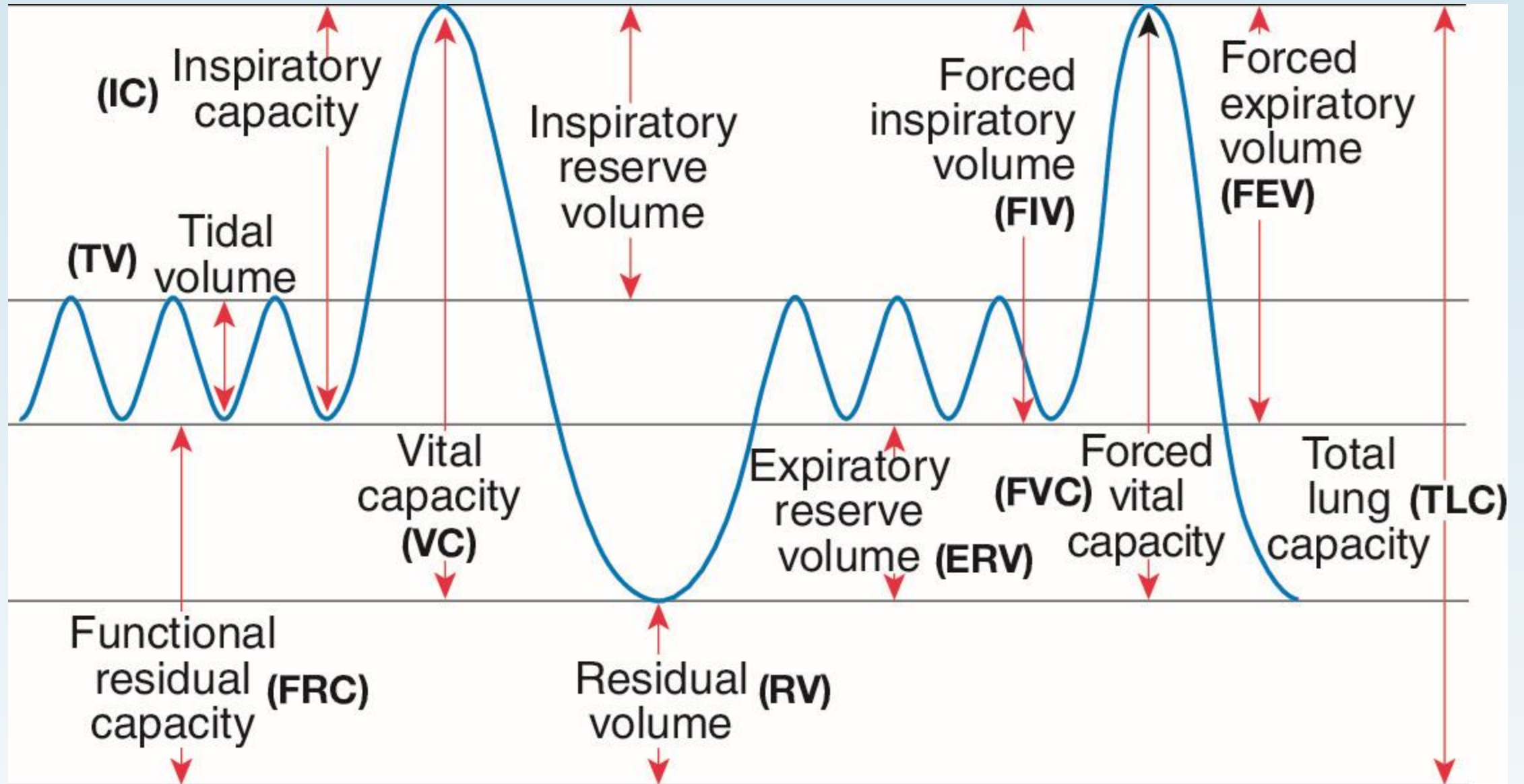
1. It is the oldest method of testing lung functioning and thus very important.
2. In this test, the patient is required to breathe very forcefully into the mouthpiece which is attached to an electronic recording device called as spirogram.
3. The spirogram records the information and presents the information in the form of a chart and the chart is called as spiograph.
4. The various parameters which can be calculated using this test include:
 1. TLC (total lung capacity),
 2. FVC (forced vital capacity),
 3. FEV (forced expiratory volume),
 4. FEF (forced expiratory flow),
 5. PEF (peak expiratory flow),
 6. ERV (expiratory reserve volume),
 7. RV (residual volume) and
 8. IRV (inspiratory reserve volume).

Spirometry



Pulmonary function test





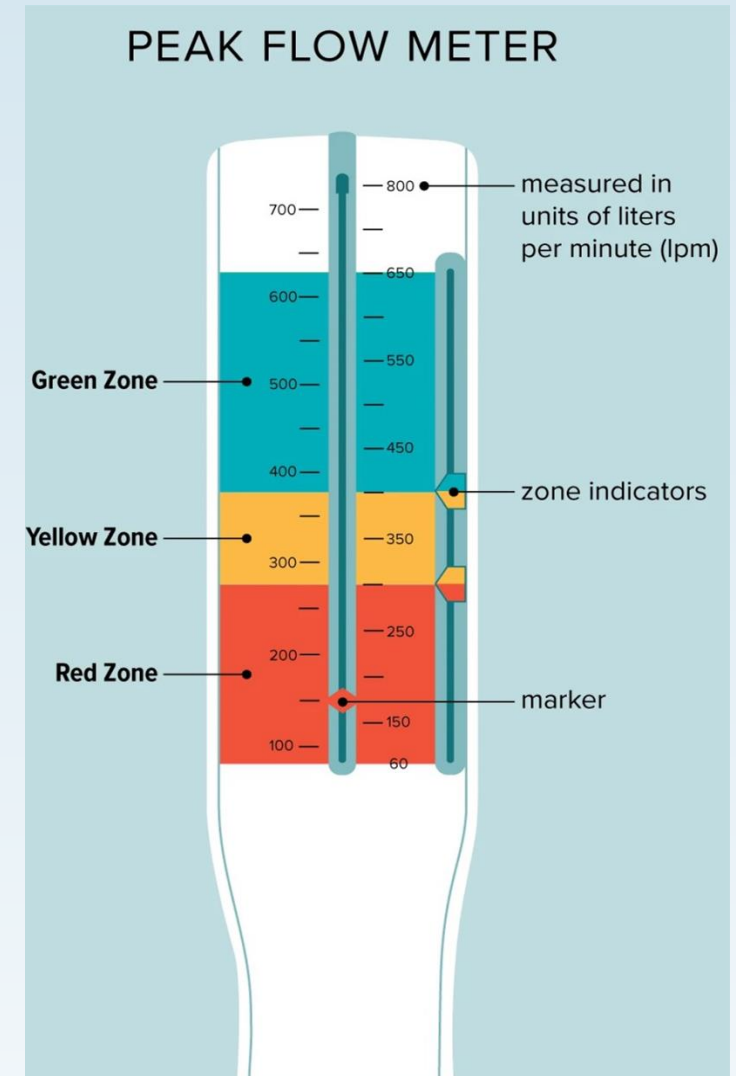
1. **Forced Vital Capacity (FVC):** This measures the amount of air you can exhale with force after you inhale as deeply as possible.
2. **Forced Expiratory Volume (FEV):** This measures the amount of air you can exhale with force in one breath. The amount of air you exhale may be measured at 1 second (FEV1), 2 seconds (FEV2), or 3 seconds (FEV3). FEV1 divided by FVC can also be determined.
3. **Forced Expiratory Flow 25% To 75%:** This measures the air flow halfway through an exhale.
4. **Peak Expiratory Flow (PEF):** This measures how quickly you can exhale. It is usually measured at the same time as your forced vital capacity (FVC).
5. **Maximum Voluntary Ventilation (MVV):** This measures the greatest amount of air you can breathe in and out during one minute.

6. **Slow Vital Capacity (SVC):** This measures the amount of air you can slowly exhale after you inhale as deeply as possible.
7. **Total Lung Capacity (TLC):** This measures the amount of air in your lungs after you inhale as deeply as possible.
8. **Functional Residual Capacity (FRC):** This measures the amount of air in your lungs at the end of a normal exhaled breath.
9. **Residual Volume (RV):** This measures the amount of air in your lungs after you have exhaled completely. It can be done by breathing in helium or nitrogen gas and seeing how much is exhaled.
10. **Expiratory Reserve Volume (ERV):** This measures the difference between the amount of air in your lungs after a normal exhale (FRC) and the amount after you exhale with force (RV).

Test/Parameter	Normal Value (Approx.)
Forced Vital Capacity (FVC)	3–5 L ($\approx$ 80–120% of predicted)
FEV ₁	$\approx$ 80% of FVC
FEV ₁ /FVC Ratio	$\geq$ 70–80%
FEF 25–75%	60–120% of predicted
Peak Expiratory Flow (PEF)	300–600 L/min (varies with age/sex/height)
Maximum Voluntary Ventilation (MVV)	125–170 L/min
Slow Vital Capacity (SVC)	Similar to FVC
Total Lung Capacity (TLC)	4–6 L
Functional Residual Capacity (FRC)	2–3 L
Residual Volume (RV)	1–1.5 L
Expiratory Reserve Volume (ERV)	1–1.5 L
Inspiratory Reserve Volume (IRV)	2–3 L

Estimation Of Peak Expiratory Flow Rate (PEFR)

1. Peak flow meter is a small device used to measure the person's maximum speed of expiration.
2. PEFR readings are useful in determining the lung functionality, severity of asthma symptoms and treatment options.
3. During asthma and chronic obstructive pulmonary disease (COPD), patients will have decreased airway ventilation due to bronchoconstriction.
4. In such situations, peak expiratory flow rate (PEFR) is a useful device to assess the lung function in such patients.
5. This test also helps patient and pharmacist in identifying the usefulness of bronchodilators in the management of asthma or COPD.



How to Take a Peak Flow Measurement



1
Purchase a peak flow meter (from \$10)



2
Place marker at 0 (or lowest number)



3
Stand up. Inhale deeply



4
While holding breath, place mouthpiece between teeth with lips sealed



5
Blow out as hard and fast as possible

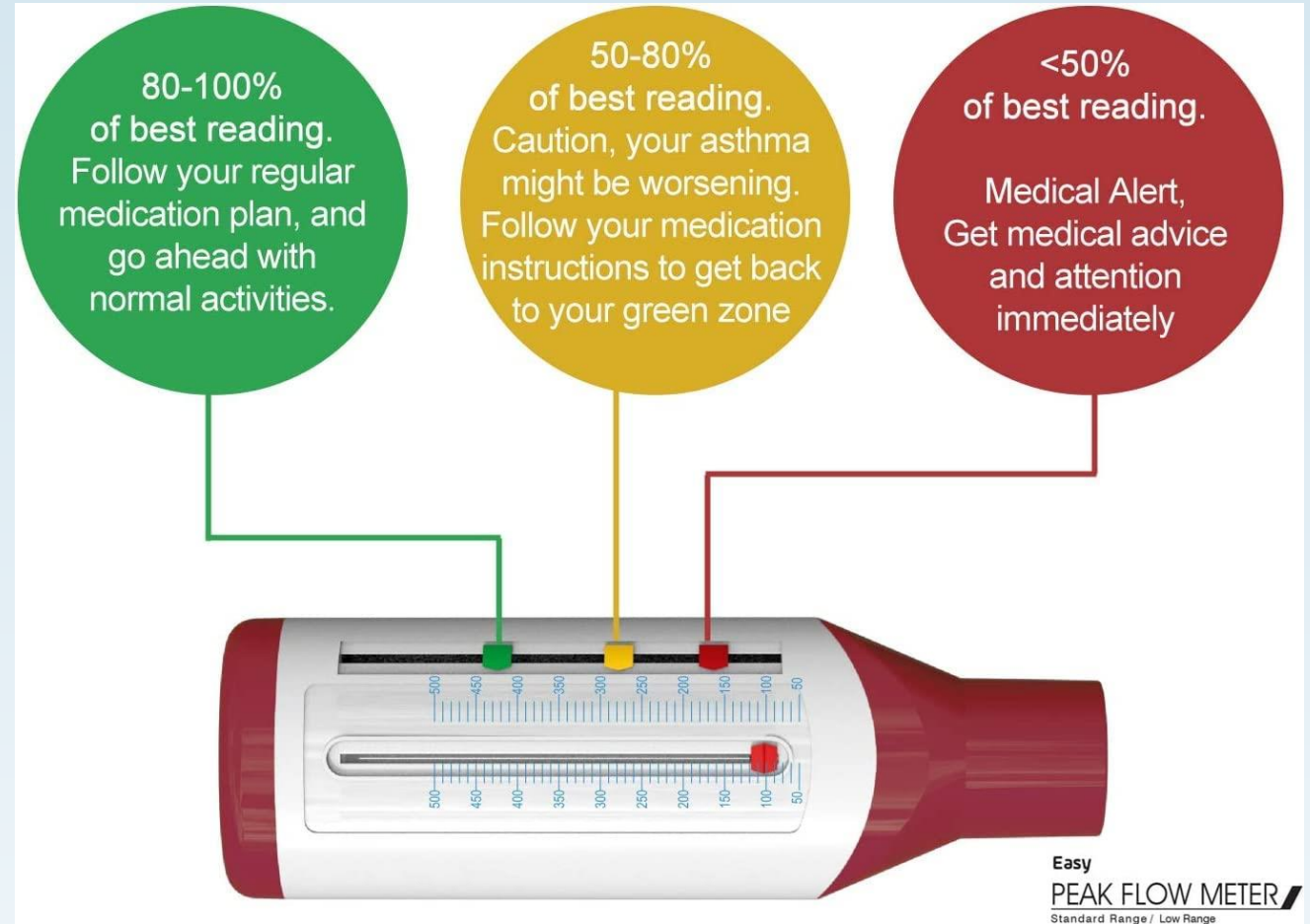


6
Write down number shown on meter



7
Repeat twice

verywell



Techniques for measurement of peak expiratory flow rate (PEFR) by peak flow meter:

1. Check to place the peak flow meter pointer at zero
2. Preferably make the patient stand or sit in a comfortable, upright position
3. Hold the peak flow meter level (horizontally) and keep the fingers away from the pointer
4. Ask the patient to take a deep breath and close lips firmly around the mouthpiece
5. Then ask the patient to blow as hard as possible
6. Look at the pointer and check the reading
7. Reset the pointer back to zero and do this three times and record the highest reading

The higher and lower PEFR values indicates patients airways are constricted

1. The PEFR 80-100% indicates that the person is relatively symptom free;
2. PEFR 50-80% indicated caution should be taken and is worsening, and
3. PEFR 50% indicates that the disease is in a very severe condition.