



Children's SpiroFlow™ Peak Flow Meter

INSTRUCTION MANUAL



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Introduction

You are using the **Children's SpiroFlow™** manufactured by Spirometrics. This monitor meets all the technical standards established by the National Asthma Education and Prevention Program and other international standards.

Your Children's **SpiroFlow™** was designed for use by patients having a peak flow below 370 liters per minute. If your peak flow is above 370 liters per minute, you should use the adult (standard) version of the **SpiroFlow™**.

The 1997 National Heart Lung and Blood Institute in the National Asthma Education and Prevention Program recommended that individuals age five and older with moderate or severe asthma monitor peak flow. Peak flow may NOT be used to completely evaluate lung function.

The **SpiroFlow™** measures peak expiratory flow (PEF), which is a valuable indicator of lung function and changes in your asthma. A peak flow meter may be used to check your asthma like a blood pressure cuff is used to check high blood pressure.

In order to help your physician provide the most appropriate treatment, proper use of the **SpiroFlow™** is essential.

Note: A physician should be involved in the initiation of home peak flow monitoring. Persons with cardiovascular or respiratory diseases should not use the SpiroFlow™ unless under the care of a physician.

What does peak flow measure?

Your *peak flow* is the flow that you can achieve when blowing out as fast as possible after breathing in as much air as possible. Your **best** peak flow or *Best Effort* is **unique to you** and will be determined with the assistance of your doctor or respiratory therapist.

Why should I use a Peak Flow Meter?

Asthma may cause the airways to narrow and limit how well you can get the air out of the lungs. Your peak flow may help to make you aware of these changes before you feel poorly. It is important to monitor your symptoms and changes in peak flow. Monitoring changes in your lung function will help you know when your asthma is changing. Many times medications can be taken before symptoms worsen. It may also help you avoid a serious asthma episode.

Your doctor can further explain the importance of measuring your peak flow. Knowledge of your normal or near normal peak flow, or at least being able to achieve your best possible result as a response to therapy, can give you security in the knowledge that you are as good as you can be.

How does monitoring peak flow improve my asthma care?

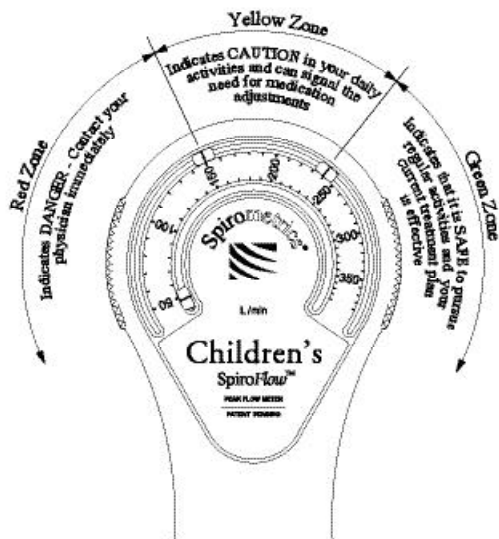
Monitoring peak flow helps your physician and other health care providers evaluate how well your asthma is being controlled. Always take the peak flow meter and daily recorder chart to doctor appointments.

If you need to go to an emergency room or urgent care, always take your peak flow meter and daily recorder chart. It provides valuable information when treating asthma symptoms or acute episodes.

How to setup the **SpiroFlow**[™]

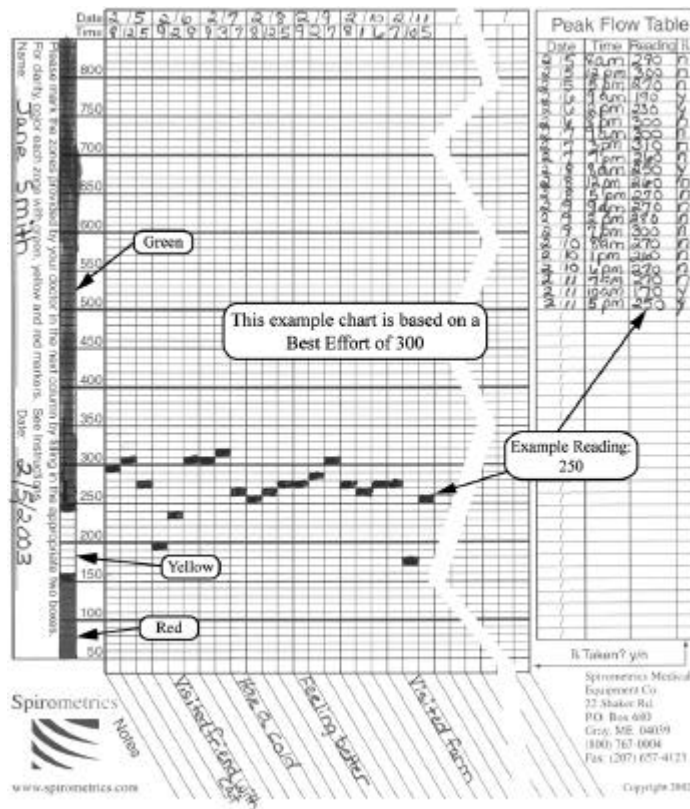
Note: Your asthma educator or physician may be able to assist you.
(Your Best Effort and Zone settings may differ from this example.)

- Once you have obtained your Best Effort reading from your physician, determine your “Zone” indicator settings according to the following:
 - **Red Zone** - 50% of Best Effort and below. Example:
For a Best Effort of 300, set your Red Zone indicator to $150 = 300 \times 50\%$.
 - **Green Zone** - 80% of Best Effort and above. Example:
For a Best Effort of 300, set your Green Zone indicator to $240 = 300 \times 80\%$.
 - **Yellow Zone** - 50% to 80% of Best Effort or between your Green Zone indicator and your Red Zone indicator.
- Use a pen or similar item to move the Zone indicators to the positions determined above.
- Your **SpiroFlow**[™] is now ready for use!



- Setup your peak flow chart by recording your Name, Date and Zone indicator settings as shown below:
- Perform your tests as prescribed and record the test results in your chart. Record the date, hour, and if you took medication along with the reading.

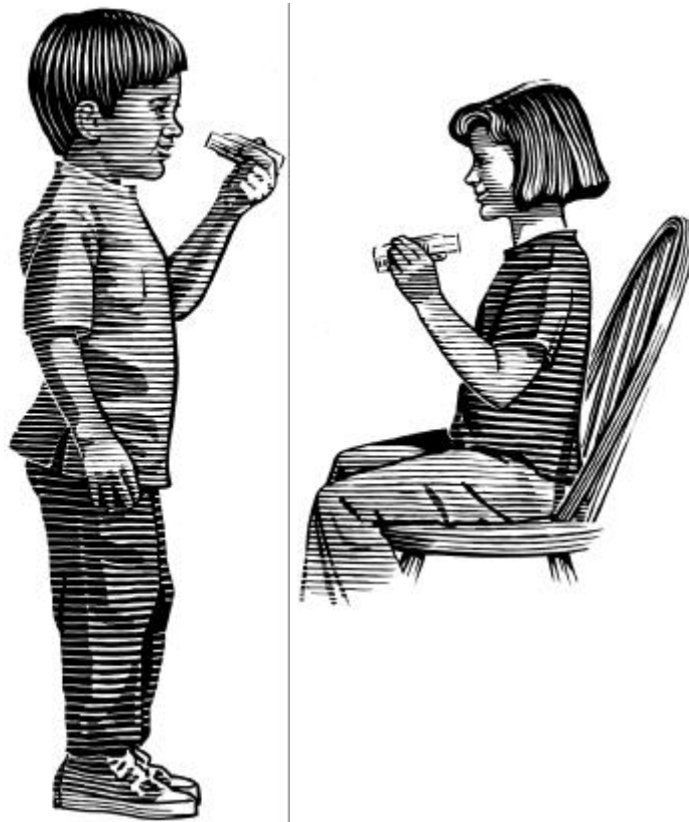
Fill in the box above the line of your reading.



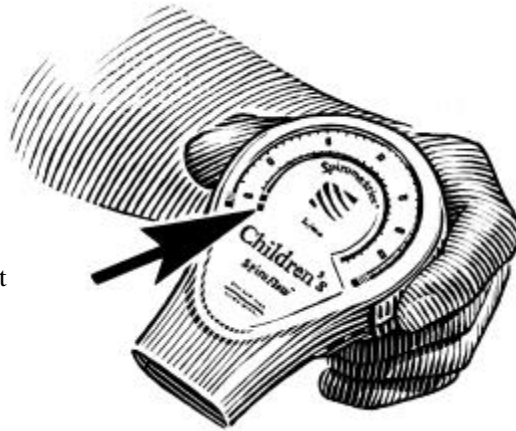
How to use the SpiroFlow™

Step One:

Your mouth must be empty. For best results, you should stand.
If you are unable to stand, sit-up straight.

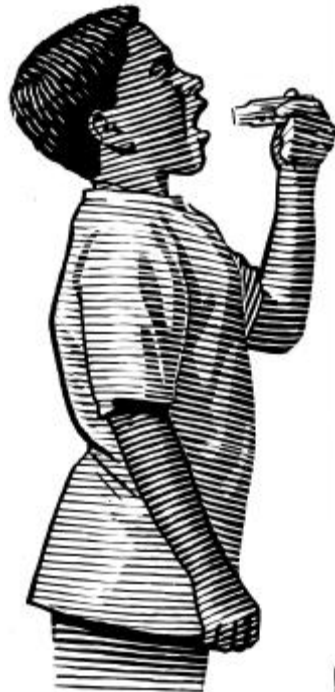


Step Two:
Move the Peak Indicator to start position where shown.

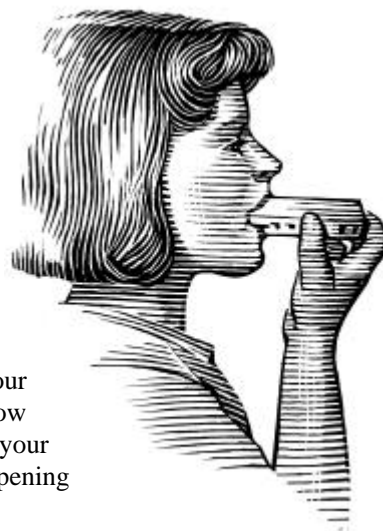


Step Three:
Hold the *SpiroFlow™* in your hand with your thumb and forefinger on the grips and the mouthpiece facing toward you. Younger children may opt to hold the device with both thumbs underneath and fingers on the grips as shown. **Avoid blocking the vent holes as much as possible and do not allow fingers to interfere with the red Peak Indicator.**





Step Four:
Take as deep a
breath as possible
filling your lungs
completely with air.



Step Five:
Place your mouth on the
mouthpiece, past your teeth
and form a tight seal with your
lips. Place your tongue below
the mouthpiece. Make sure your
tongue is not blocking the opening
at any time.

Step Six:

Blow out as **HARD** and **FAST** as you can. This will cause the indicator to move and indicate your peak flow. Do not spit or cough into the device. If this occurs, repeat the test from Step Two.



Step Seven:

Do not reset peak indicator. Repeat Steps Four through Six two more times for a total of three maneuvers. The indicator will automatically point to the best of the three efforts.

Step Eight:

Once you have completed three maneuvers, record your best effort on your “Daily Recorder Chart” provided with your **SpiroFlow™**. The line or arrow in the middle of the Peak Indicator points to your result.



What is my Best Effort peak flow?

Your physician, asthma coordinator/counselor, nurse or respiratory therapist should establish threshold or target values including your Best Effort peak flow. Once the targets are determined, your physician will use the information to write an asthma management plan based on your needs.

What should I do when my peak flow changes?

It is important to develop an asthma management plan in partnership with your physician. Your physician’s advice should be followed to make changes in your asthma care based on the peak flow results and symptoms.

Caring for your SpiroFlow™

Always take your peak flow meter with you when scheduled for breathing tests. The National Asthma Education and Prevention Program guidelines recommend comparing peak flow and spirometry at least once each year.

The **SpiroFlow™** is for single patient use, therefore it is not necessary to clean it after each use. Once a week should be sufficient.

The **SpiroFlow™** is dishwasher safe. Make sure it is placed in the silverware basket. Take care to not allow any items to go inside the unit and turn off drying heat if possible.

You may also wash the **SpiroFlow™** in warm soapy water. Rinse well, shake out any excess water and let it dry before next use.

The **SpiroFlow™** was designed to last at least one year. Examine your **SpiroFlow™** occasionally to make sure it is operating properly.

Ensure that there is no food or other debris in the unit after cleaning and before each use.

If you have cleaned your **SpiroFlow™** as described above and still obtain unusual readings or suspect that your **SpiroFlow™** may not be working properly check the following:

The red peak indicator should not be loose or move when the **SpiroFlow™** is tilted from side to side without shaking.

The red peak indicator should move freely when pushed with your finger or some other soft object.

If either condition above is not met, or you still suspect malfunction, please refer to our warranty policy later in this manual.

Normal Predicted Average Peak Expiratory Flow

This page and the next contain tables of average peak flows based on tests of large numbers of people. The peak flow for an individual can vary widely. Individuals at altitudes above sea level should be aware that peak flow readings may be lower than those provided in the tables. Please apply the appropriate altitude correction factor shown later in this manual.

CHILDREN & ADOLESCENTS - NHANES III*												
PEAK EXPIRATORY FLOW RATE [liters/minute]												
AFRICAN-AMERICAN MALES							AFRICAN-AMERICAN FEMALES					
Height [inches (cm)]							Height [inches (cm)]					
Age	50 (127)	55 (140)	60 (152)	65 (165)	70 (178)	75 (191)	45 (114)	50 (127)	55 (140)	60 (152)	65 (165)	70 (178)
8	184	239	300	366	438	514	159	195	235	279	327	379
10	190	245	306	372	443	520	179	215	255	299	347	398
12	204	260	320	386	458	535	198	235	275	319	366	418
CAUCASIAN MALES							CAUCASIAN FEMALES					
Height [inches (cm)]							Height [inches (cm)]					
Age	50 (127)	55 (140)	60 (152)	65 (165)	70 (178)	75 (191)	45 (114)	50 (127)	55 (140)	60 (152)	65 (165)	70 (178)
8	197	248	303	364	429	499	155	190	227	269	314	363
10	210	261	317	377	442	512	192	226	264	305	350	399
12	230	281	337	397	462	532	220	254	292	334	397	427
MEXICAN-AMERICAN MALES							MEXICAN-AMERICAN FEMALES					
Height [inches (cm)]							Height [inches (cm)]					
Age	50 (127)	55 (140)	60 (152)	65 (165)	70 (178)	75 (191)	45 (114)	50 (127)	55 (140)	60 (152)	65 (165)	70 (178)
8	197	258	326	399	478	563	156	197	242	291	345	403
10	205	266	334	407	486	571	185	225	271	320	374	432
12	220	281	348	422	501	585	207	248	293	342	396	454

CHILDREN & ADOLESCENTS - POLGAR †				
PEAK EXPIRATORY FLOW RATE [liters/minute]				
HEIGHT		MALE	FEMALE	MALES & FEMALES COMBINED
[inches]	[cm]			
43	109	143	153	147
44	112	157	166	160
45	114	171	178	174
46	117	185	190	187
47	119	199	202	200
48	122	214	215	214
49	125	228	227	227
50	127	242	239	240
51	130	256	252	254
52	132	270	264	267
53	135	285	276	280
54	137	299	289	294
55	140	313	301	307
56	142	327	313	320
57	145	341	326	333
58	147	356	338	347
59	150	370	350	360
60	152	384	363	373
61	155	398	375	387
62	158	412	387	400
63	160	427	400	413
64	163	441	412	427
65	165	455	424	440
66	168	469	437	453
67	170	483	449	467

CHILDREN 3 TO 6 YEARS ZAPLETAL††		
HEIGHT		PEAK EXPIRATORY FLOW RATE [liters/minute]
[inches]	[cm]	
35	89	93
36	91	99
37	94	105
38	97	112
39	99	119
40	102	125
41	104	133
42	106	140
43	109	147
44	112	155
45	114	163
46	117	171
47	119	180
48	122	189
49	125	197
50	127	206
51	130	216

* Hankinson J, Odencrantz J, Fedan K: Spirometrics Reference Values from a Sample of the General U.S. Population (NHANES III). Am J Respir Crit Care Med 1999;159:179-187.

† Polgar G, Promhadt V: Pulmonary function testing in children: Techniques and standards. Philadelphia, W.B. Saunders Company, 1971.

†† Zapletal A, Chalupova J: Forced Expiratory Parameters in Healthy Preschool Children (3 - 6 Years of Age). Pediatric Pulmonology 2003; 35:200-207.

Temperature and Altitude Effects

Your **SpiroFlow™** was designed for use within the temperature range indicated on the next page under “Performance Specifications”. Outside this temperature range your device may not be accurate.

Your **SpiroFlow™** and all similar devices are also affected by altitude. Your readings do not require correction when you use your **SpiroFlow™** at sea level. Your readings will be lower when you use your **SpiroFlow™** at higher altitudes and will require correction. Follow the instructions below to correct for the effects of altitude on your peak flow readings.

Altitude Correction

In the chart below find the row with the reading that is closest to your peak flow and the column with the altitude that is closest to your current altitude. Add the correction value located where this row and this column meet to your measured peak flow to obtain your true, altitude corrected, peak flow.

Record this value in your peak flow chart as appropriate.

ALTITUDE CORRECTION VALUES					
PEAK FLOW READING [liters/min]	ALTITUDE [feet]				
	1000	2000	3000	4000	5000
100	2	3	5	7	8
150	3	5	8	10	13
200	3	7	10	13	17
250	4	8	13	17	21
300	5	10	15	20	25
350	6	12	18	23	29
400	7	13	20	27	33

Web Sites about Asthma

National Asthma Education and Prevention Program (NAEPP)
NHLBI Information Center
www.nhlbi.nih.gov/about/naepp

Allergy and Asthma Network - Mothers of Asthmatics, Inc.
www.aanma.org

Asthma and Schools
www.asthmaandschools.org

National Jewish Medical and Research Center
www.njc.org

American Association for Respiratory Care
www.aarc.org

Warranty

The **SpiroFlow™** comes with a one-year replacement warranty.

If your **SpiroFlow™** is not operating properly, contact Spirometrics® and do not use the damaged meter.

Performance Specifications

This device meets the requirements of the following standards:

Standardization of Spirometry, 1994 Update; American Thoracic Society (ATS)

Statement on Technical Standards for Peak Flow Meters; January, 1991; National Heart, Lung and Blood Institute

Respiratory Therapy Equipment - Peak Expiratory Flow Meters; September, 1994; Australian/New Zealand Standard

Peak expiratory flow meters, BS EN 13826:2003, European Committee for Standardization

Scale (Display): 50 to 370 liters / minute @ BTPS

Accuracy: ±7.5% or ±10 liters / minute

**Repeatability: ±5% or ±10 liters / minute whichever is greater
Does not exceed 20 liters / minute**

Flow Resistance: 6.7 cm of water @ 370 liters / minute

Environmental Conditions for Use:

10 to 50 °C and 0 to 100% Relative Humidity

Storage Requirements:

-40 to 70 °C and 0 to 75% Relative Humidity

REORDER INFORMATION

2450 Children's SpiroFlow™ Peak Flow Meter
20058 Peak Flow Chart only

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