

Spirometry

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HOW RELIABLE IS THIS?

- American Study >20,000 US adults underwent history
 + clinical examination versus spirometry (1988-1994)
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 If you relied on history and clinical examination to make a diagnosis of OAD, <u>63.3% remained underdiagnosis</u>
- Even, 50% of patients with severe OAD were missed (NHANES Study, Mannino et al, Arch Int Med 2000; 160: 1683-1689)
- Similar observations in UK, France, Spain and other European countries
- (Huchon, ERJ 2002; Pena, Am J Respir Crit Care Med 2001)

>50% cases of OAD remain undetected in clinical practice, if we do not use Spirometry

Role of Spirometry in Clinical Practice:

- Diagnose Obstruction
- Differentiate between Asthma and COPD
- Grade the Severity of Obstruction
- Assess response to treatment & follow up tool
- Detect a Restrictive Pattern
- Useful role in smoking cessation
- Screening of high risk population
- Detect large airways obstruction
- Pre operative evaluation

How can you measure airflow obstruction by just blowing into a machine?





















Concept of Predicted Values

Patient Information				
Name: Height at test (in): 61.4 Weight at test (lb): 103.4	ID: CAMP/C/41 Sex: Female Age at test: 22			
Results				
Result	Pred	Best	%Prd	
FVC (L)	*3.03	¤2.17	72%	
FEV1 (L)	*2.64	¤2.07	78%	
FEV1/FVC	0.87	0.95	109%	
FEF25-75% (L/s)	4.03	3.01	75%	
PEFR (L/s)	6.73	5.56	83%	
Vext %		2.09		
Exp time (s)		1.88		
FIVC (L)	*3.03	1.93	64%	
PIFR (L/s)		3.64		



WHEN TO STOP?

1 - Acceptability: Look at curves (both flow-volume & volume-time) and decide

- Repeatability: Difference between the two best blows for FEV1 and FVC is <5% (around 150ml)

2. At least 3 maneuvers which are acceptable & repeatable should be obtained

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INTERPRETING SPIROMETRY













PRE Trial date 11/8/2008 8:57:36 PM POST Bronchodilation with Salbuta									
Parameters	BTPS	Pred	PRE	%Pred	POST	%Pred	%Chg		
Forced Vital Capacity									
Best values from	all loops								
FVC	L	3.77	3.04	(81)	4.03	107	33		
FEV1	L	3.16	1.51	48	2.61	83	73		
FEV1/FVC	%	84.6	(49.7)	59	64.8	77	30		
PEF	L/s	8.55	3.88	45	5.05	59	30		
Values from best loop									
FEF2575	L/s	3.95	0.82	21	1.66	42	102		
FEF25	L/s	7.92	1.52	19	3.78	48	149		
FEF50	L/s	4.67	0.83	18	1.78	38	114		
FEF75	L/s	1.94	0.37	19	0.66	34	78		
FIVC	L	3.77	2.98	79	3.68	98	23		
FIV1	L	3.16	1.60	51	3.68	117	130		
FIV1/FIVC	%	84.6	53.7	63	100.0	118	86		
ELA	Years	33	98		54	164	-45		
Lung Volumes and breathing pattern									
-	1.								

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SPIROMETRY IS DIFFICULT TO INTERPRET

