

CO (ppm)	%COHB
20 and above	3.20+
20	3.20
19	3.04
18	2.88
17	2.72
16	2.56
15	2.40
14	2.24
13	2.08
12	1.92
11	1.76
10	1.60
9	1.44
8	1.28
7	1.12
6	0.96
5	0.80
4	0.64
3	0.48
2	0.32
1	0.16

Heavy smoker

Smoker

Light smoker

Non-smoker

Frequently asked questions about Breath Carbon Monoxide (CO) Monitoring

Q. What does a CO breath test show?

A. It shows the amount of carbon monoxide (ppm CO) in the breath, which is an indirect, non-invasive measurement of blood carboxyhemoglobin (%COHb).

Q. What does ppm mean?

A. Parts Per Million. It is a unit of measure. In this case, one part CO in one million parts air (breath).

Q. How does smoking elevate COHb?

A. In a typical puff of a cigarette smoke there is about 5% CO by volume. This will compete with oxygen very successfully to form COHb (combination of CO and blood). This will eventually be excreted via the lungs; the same way it went in.

Q. What else does breath CO show?

A. It acts as an indicator as to the possible level of some 4000 toxic substances in cigarette smoke, some 60 of which cause cancer.

Q. How quickly does the CO disappear from the body after smoking stops?

A. It takes about 5 to 6 hours to reduce the original level by a half. Usually after a maximum period of 48 hours the ex-smoker would show the level of a non-smoker living in the same environment.

Q. How long after a cigarette should the test be conducted?

A. More than 10 minutes.

Q. What levels of breath CO do you expect to see?

A. ♦ 0-6 non-smoker ♦ 7-10 light smoker ♦ 11-20 smoker ♦ 20+ heavy smoker

Q. If a smoker cuts down, will this reduce breath CO by an equivalent amount?

A. Probably not. Studies show a smoker may smoke fewer cigarettes but will require the same amount of nicotine. Thus, they may smoke less cigarettes more aggressively and therefore inhale more smoke than expected (and thus more CO).

Q. Is it necessary to hold the breath before taking a test?

A. Not absolutely necessary. Clinical research has shown that an optimum period of 20 seconds breath hold is required to get the best correlation with COHb. A 15-second breath hold gives almost the same correlation. Less than this will depress the breath CO reading. However, as long as the person is encouraged to exhale completely, this "end-tidal" breath sample will give a good indication.

Q. Do cigars and pipes give low readings?

A. No. On the contrary. An inhaled puff of pipe or cigar smoke is much more concentrated and will give surprisingly high COHb.

Q. Why do non-smokers sometimes give higher than expected readings?

A. This could be for several reasons:

- ♦ They have been exposed to high ambient levels of CO. For example, at home or in the car. It could be useful to check other family members in order to eliminate possible chronic CO poisoning.
- ♦ Certain occupations may expose workers to high CO levels.

Q. How hygienic is the test?

Micro Direct is the only US company to offer a filtered mouthpiece for CO breath testing. The SafeBreath™ is the only viral/bacterial filtered mouthpiece for carbon monoxide (CO) breath testing available on the US market. SafeBreath is a unique solution offering a combined filter and cardboard mouthpiece with >99% and >98% protection against both bacteria and viruses respectively. Using SafeBreath not only protects your patient from potential cross infection during testing but also protects and increases the life of your fuel cell!



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