

Mr. GUDE. So if we detect .15 in any particular area in Washington, then in that particular area asthma patients would have more difficulty.

Dr. KAILIN. We would expect that.

Mr. GUDE. Is this a scientific method that you are describing?

Dr. KAILIN. Yes.

Mr. GUDE. In the second paragraph of your statement you appear to discuss the fact that certain irritant gases cause the lung air passages to close down and as a result of that carbon monoxide begins to build up.

Dr. KAILIN. No. There are two thoughts there Mr. Gude. A person who is barely getting enough oxygen to his tissues because he does not have enough red cells to carry it or because his heart is not working well, needs to be able to breathe freely in the first place to absorb it. Therefore, his air tubes have to be opened. Or the person with anemia or heart disease, if part of his red cells are plugged up with carbon monoxide, as an alternative mechanism he also does not have the ability to get as much oxygen to his tissues.

Carbon Monoxide is something he gets out of auto exhaust from the air. These are two completely separate ways of diminishing the oxygen available to the man's tissues.

He will get carbon monoxide too if he smokes, you know.

Mr. GUDE. If you have an irritating gas in the atmosphere, the patient cannot take in as much oxygen.

Dr. KAILIN. That is because his air tubes clamp down. If independently of this he is also breathing some carbon monoxide, maybe he is driving in his automobile in heavy traffic and his blood carbon monoxide levels go up, and this has been measured on a number of occasions, again his blood cells are not available to take such oxygen as his lungs pick up.

Mr. GUDE. Isn't there somewhat of a snowballing effect that goes on here? First you have the irritation through the lungs, which then are less able to function. At the same time, while the pollutant is going up in the air the carbon monoxide is also building up. So what the person is breathing is supplying him with more carbon monoxide than he would get if the air was cleaner.

Dr. KAILIN. There is likely to be more than one oxygen interfering agent in the air at one time; yes. One is bad, another may not be bad. But usually it is.

Mr. GUDE. In other words, having a variety of pollutants in the air can cause a greater effect than just one pollutant by itself.

Dr. KAILIN. That is correct.

Mr. GUDE. In other words, when we are talking about polluted air we are describing a very complex mixture.

Dr. KAILIN. And there are many more pollutants than we are able to measure.

Mr. GUDE. I wonder if you could provide for us the source of the figures that you quoted in the first paragraph, so we could have them for the record.

Dr. KAILIN. Yes.

Mr. GUDE. We would then have a scientific source.

Mr. MULTER. When we receive them we will make them part of the record.