long-term followup study. The COHb concentrations reported in the Crocker and Walker (1985) as well as in the Klees et al. (1985) studies were measured after hospital admission and may have been considerably lower than concentrations at the end of the CO exposure, as was also described in the Klasner et al. (1998) study. The percentage of children that received oxygen before hospital admission was probably considerably higher in Crocker and Walker (1985) and Klees et al. (1985) because, after acute exposure to high CO concentrations (e.g., by fires in homes), severe poisoning symptoms occurred. Oxygen administration reduces the elimination half-life in children to about 44 min (Klasner et al. 1998).

The observations in children are supported by observations in experimental animals. In the study by Purser and Berrill (1983) at a COHb little higher than 16-21%, syncopelike effects occurred in monkeys and mice; memory impairment was found in the offspring of rats exposed continuously at a COHb of 15.6% during gestation (Mactutus and Fechter 1985).

2. Caravati et al. (1988) and Koren et al. (1991) described cases of stillbirth after CO exposure of pregnant women. In these cases, the COHb concentrations measured in the maternal blood were higher than 22-25%. There are no studies reporting effects on the unborn after a single acute exposure resulting in lower COHb levels (EPA 2000). Cigarette smoking of pregnant women is associated with a lower birth weight; however, these effects cannot be clearly attributed to CO only because cigarette smoke is a complex mixture of chemicals (EPA 2000). There is no evidence that a single elevation of COHb has any negative effects on pregnancy.

3. There is no evidence that elderly people without cardiovascular disease are more susceptible to an acute CO exposure than younger adults (WHO 1999a; EPA 2000). Therefore, AEGL-2 values derived on effects in coronary artery disease patients are likely to protect other elderly people.

4. In smokers with a background COHb of 3-8% from smoking, exposure to the AEGL-3 concentration–time combinations will result in 6.2-11.5% COHb (see Table B-2 in Appendix B). Smokers may show an adaptive response to their chronically elevated COHb levels, as evidenced by increased red-blood-cell volumes or reduced plasma volumes (EPA 2000). This adaptive response is likely to reduce the effect level in smokers compared with nonsmokers exposed to the same total COHb level. The estimated COHb exposure level in smokers who are healthy adults is unlikely to lead to significant health effects (Stewart et al. 1970; Nielsen 1971; Kizakevich et al. 2000). For pregnant women, cigarette smoking alone may cause effects on the unborn (EPA 2000). A single additional exposure to COHb levels of 6.2-11.5% over a "smoking background" of 3-8% COHb is considered unlikely to contribute significantly to the effects of smoking during pregnancy. No study is available that compared the effects on the cardiovascular system of a 4% elevation of the background COHb level in nonsmoking and smoking patients with coronary artery disease. However, a single exposure to COHb levels of 6.2-11.5% over a smoking background of 3-8%