Indoor air pollution emerges as an important risk factor for acute respiratory infections (ARI) in developing countries. In many developing countries, in addition to an increasing amount of tobacco smoke, many homes contain high levels of smoke from the combustion of biofuels such as wood, crop residues, and animal dung for cooking or heating. In about half the world’s households, such fuels are used for cooking daily, usually without a flue or chimney and with poor ventilation. Results of investigations in 6 developing nations have shown the range of indoor pollution in such circumstances. The best single indicator for comparison of toxic noncancerous effects is most likely respirable particulates, similar to tar reported for cigarette emissions. Results of studies in animals suggest any difference in respiratory-system toxicity according to mass is not likely to be large. On the basis of the small amount of evidence available, peak and daily exposures to indoor particulate levels in villages in developing countries seem to be about 20 times greater than in developed nations. The results of a semi-quantitative epidemiological study conducted in Nepal showed a direct relation between reported hours/day spent near the stove by infants and children aged under 2 years and episodes of life threatening acute respiratory infections. If one discounts the many possible confounding factors, extrapolation shows that by moving all children into the lowest smoke exposure groups as much as 25% of moderate and severe infections would be eliminated. Extrapolation from studies of both ARI and environmental tobacco smoke also indicates indirectly the potential effect of indoor smoke from biofuels. Some environmental tobacco smoke studies have reported a dose-response relation between the number of cigarettes smoked in the home and respiratory symptoms in children. In sum, biofuel smoke is likely to be a factor in ARI, but its importance in relation to other risk factors is difficult to establish. It may be that prevention of acute respiratory infections could be best realized by initially addressing other risk factors or by addressing smoke solely in the context of broad based programs for several risk factors.