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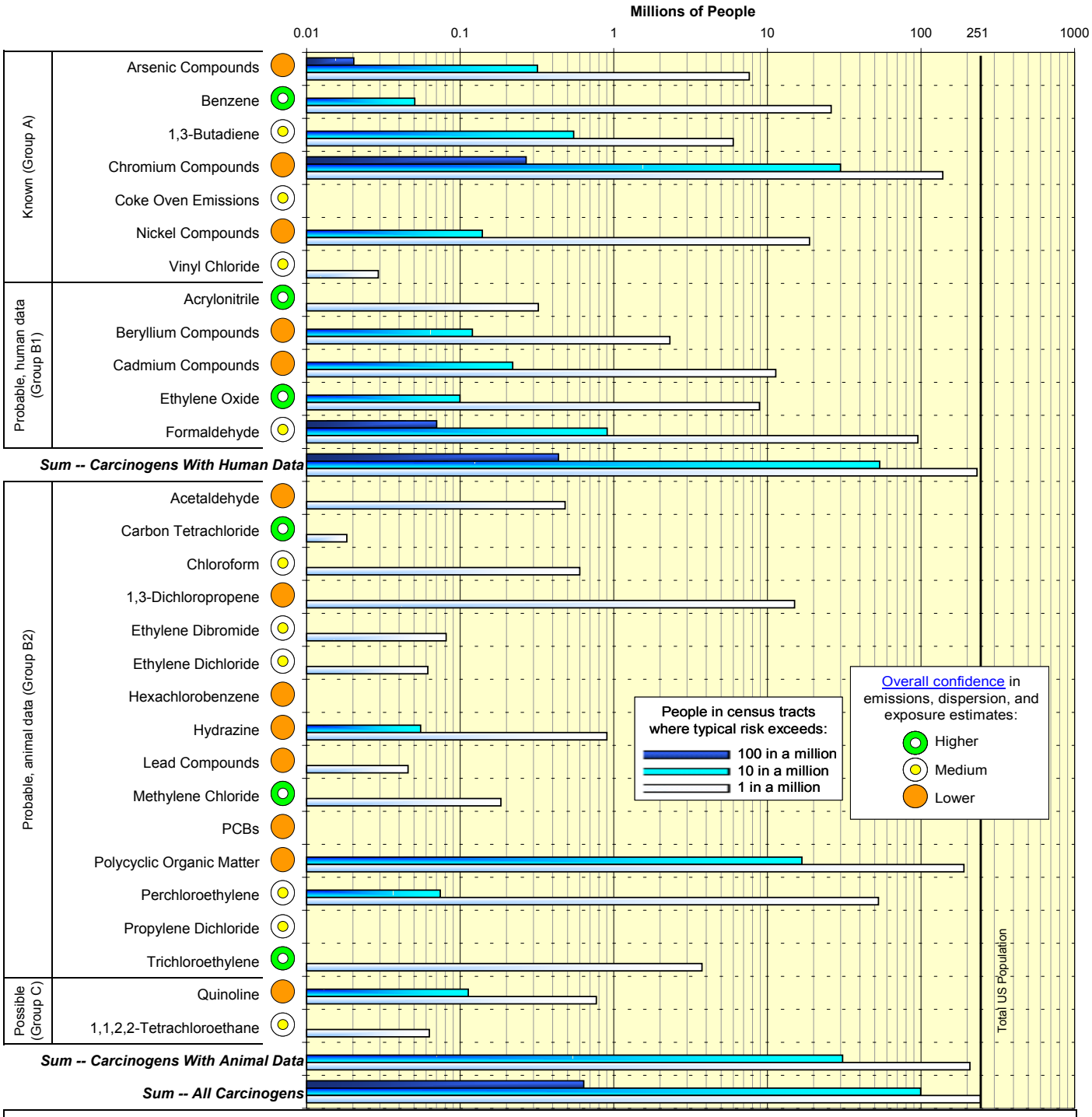
1996 Risk Characterization

Population whose 1996 exposure* exceeded set cancer risk levels based on area and other sources.



Results are based on inhalation exposure to outdoor sources only. Although these results assume continuous exposure to 1996 levels of air toxics over a lifetime, current and planned control programs are expected to substantially reduce these exposures and associated cancer risk for some pollutants. See additional information on the following page.

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EPA strongly cautions that these modeling results should not be used to draw conclusions about local exposure concentrations or risk. The results are most meaningful when viewed at the State or national level; for smaller areas, the modeling becomes less certain. In addition, these results represent conditions in 1996 rather than current conditions and only include exposures from outdoor sources of air toxics. Because of these limitations, and others described below, EPA recommends that the results be used only for their intended purposes.

- The information presented on this chart represents *risk estimates* that are surrounded by substantial uncertainties from a variety of sources. These risk estimates should not be confused with *measured risks*, such as analyses of the frequency of automobile crashes, which are much more certain.

- The risk estimates are based on 1996 emissions of air toxics. Significant emission reductions have occurred since 1996 and more are expected in the future. EPA estimated lifetime exposures by assuming that 1996 conditions would continue for 70 years. Thus, emission reductions were not accounted for.

- This assessment includes only 32 pollutants from the full list of 188 air toxics included in the Clean Air Act, plus diesel particulate matter. Although EPA believes that these 33 are among the most likely to present important health risks, it is not possible to be certain that every important pollutant has been included.

- The methods used to estimate emissions and the assumptions used in dispersion and exposure modeling may introduce significant uncertainties into the risk estimates. For more details, please see Limitations in the 1996 National-Scale Air Toxics Assessment.

- The risk estimates are limited to inhalation. EPA did not consider oral exposures. In some cases, people may receive substantial additional oral exposures to substances such as mercury and PCBs that bioaccumulate in foods.

- The risk estimates do not include indoor emission sources because appropriate data are not yet available. In some cases, people may receive substantial additional inhalation exposures to common indoor air pollutants such as formaldehyde and perchloroethylene.

- All risk estimates are based on exposure estimates for the median individual within each census tract, which EPA considers to be a "typical" exposure. Some individuals may have substantially higher or lower exposures based on where they spend their time. The model is not designed to quantify these individual extremes.

- EPA has based risk calculations on upper-bound unit risk estimates for each substance. These risk estimates represent a plausible upper limit of lifetime cancer risk to a person with a typical exposure. These risk estimates are conservative, but not worst-case. Please see Table 1 in Health Effects Information Used In Cancer and Noncancer Risk Assessment (36K PDF) for more information.

- EPA has assumed that risks associated with different carcinogenic substances are additive in the absence of evidence showing otherwise. The true combined risk may be either greater than or less than additive.

- EPA has assigned an overall confidence level for each pollutant based on consideration of the combined uncertainties from emissions estimation, ambient concentration modeling, and exposure modeling.