

US EPA ARCHIVE DOCUMENT

Exposure Disparities within the Indoor Environment: Understanding Critical Pathways and Implications for Policy Responses

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Strengthening Environmental Justice and Decision Making: A Symposium on the Science of
Disproportionate Environmental Health Impacts

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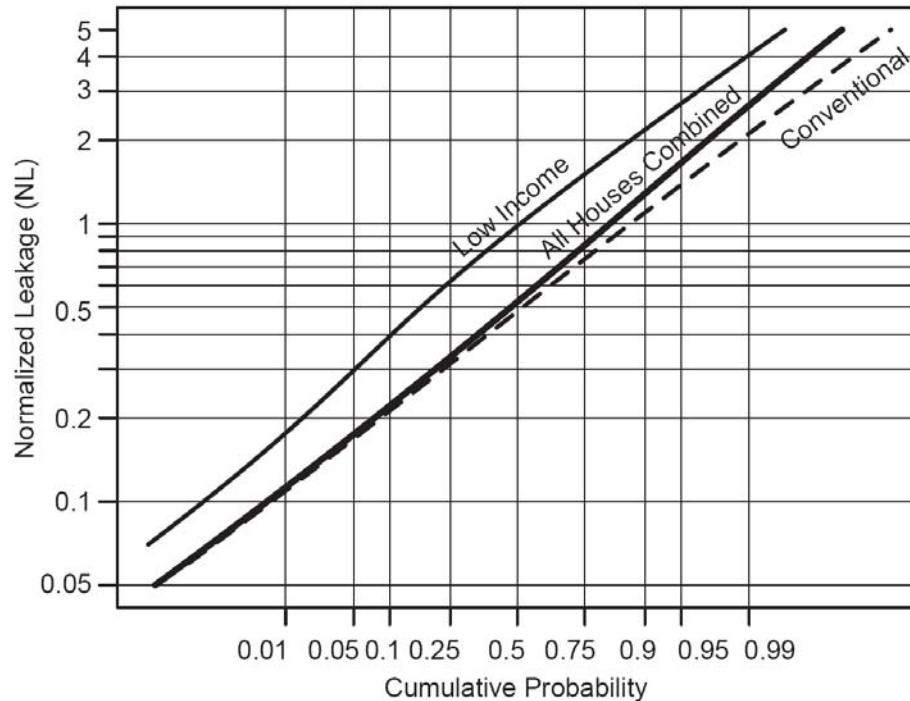
Washington, DC

Determinants of Indoor Environmental Quality and Exposure

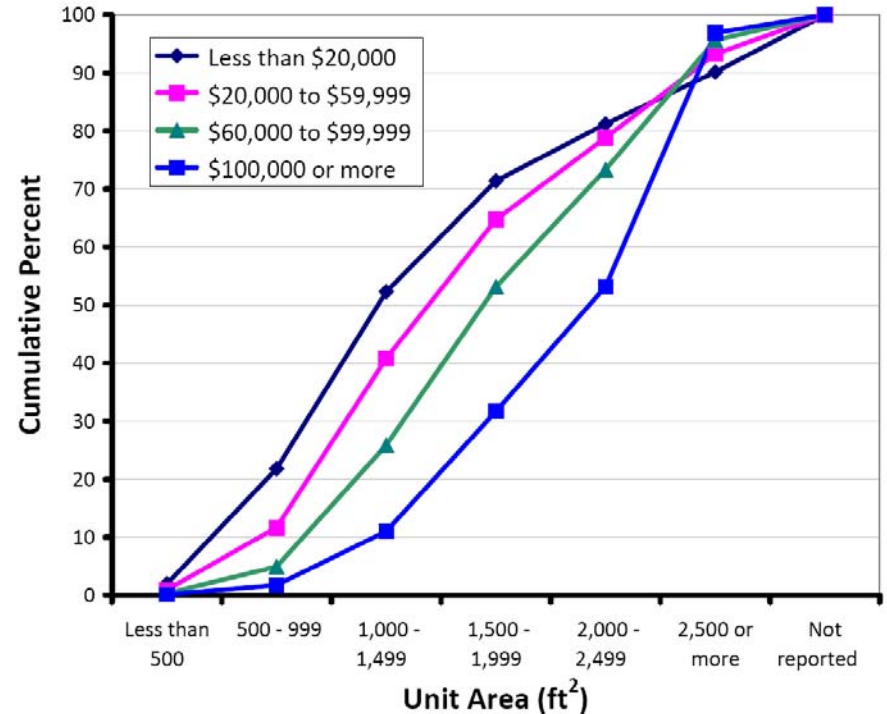
Sources	Structure	Behavior
<p>Indoor Sources</p> <ul style="list-style-type: none">• Cooking appliances• Tobacco smoke• Cleaning products• Air fresheners• Personal care products• Furnishings• Pesticides• Pollutant reservoirs• Water sources	<p>Physical Structure</p> <ul style="list-style-type: none">• Size/design of structure• Age• Size of living space• Single family vs. multifamily• Leakage and/or air exchange• Heating systems• Mechanical ventilation	<p>Source use patterns</p> <ul style="list-style-type: none">• Cooking appliance usage• Cooking practices• Smoking behavior• Consumer product usage• Personal care product usage
<p>Outdoor Sources</p> <ul style="list-style-type: none">• Traffic• Industrial Activity• Residential Activity• Contaminated soil	 A green icon of a house with a chimney, a front door, and two windows, enclosed in a rounded square frame.	<p>Activity Patterns</p> <ul style="list-style-type: none">• Time spent at home• Interaction with sources• Influence on air exchange

Examples of Determinant Variability Associated with SES

Leakage /Air Exchange



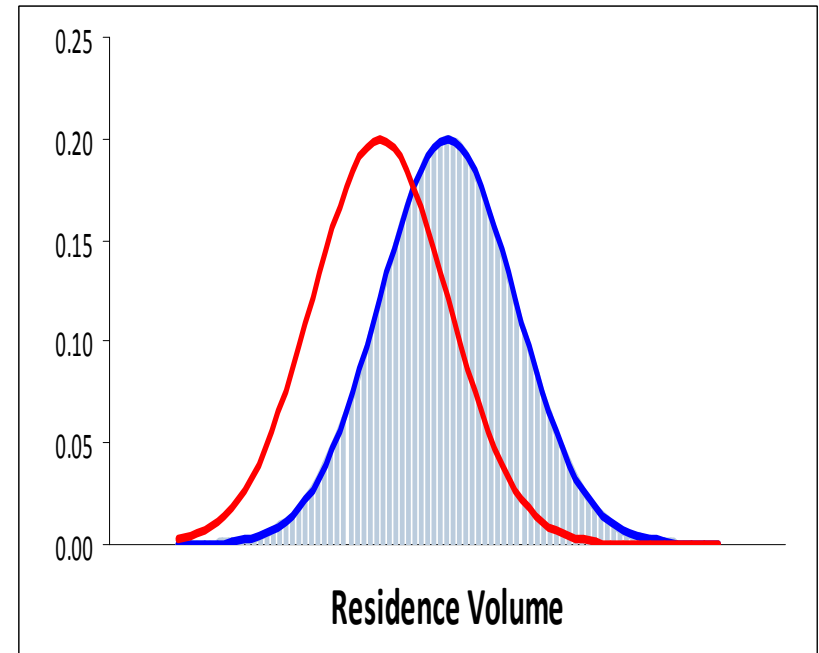
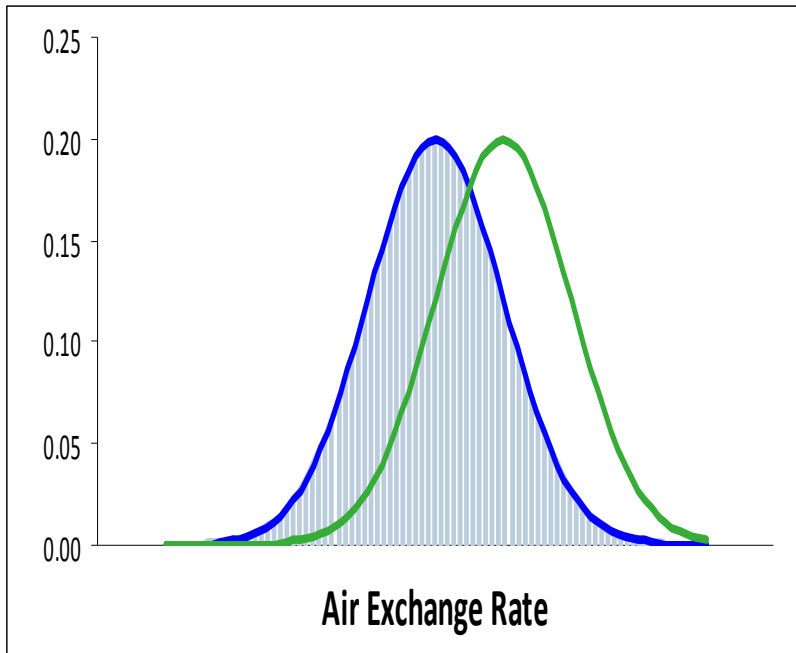
Residence Volume



Implications

- Smaller volumes will increase concentrations
- Leakier homes will decrease concentrations

Examples of Determinant Variability Associated with SES



$$C_{in} = \frac{S}{(a+k) \cdot V}$$

What is the resulting distribution???