

# GEHS 7500

## Air Sampling & Analysis

### Sampling Strategy & Data Interpretation

Roy J. Rando, ScD, CIH  
Professor  
GEHS



*Additional references:*

- Leidel, Busch and Lynch: **NIOSH Occupational Exposure Sampling Strategy Manual**. DHEW No. 77-173. 1977.
- Mulhausen and Damiano: **A Strategy for Assessing and Managing Occupational Exposures**, 2<sup>nd</sup> ed., AIHA Press, 1998
- Ignacio and Bullock: **A Strategy for Assessing and Managing Occupational Exposures**, 3<sup>rd</sup> ed., AIHA Press, 2006.

# Primary Elements of a Sampling Strategy

- How to sample?
- Who, when, where to sample?
- How long to sample?
- How many samples to take?

*sampling strategy must be linked to sampling objective*

## Components of Exposure Monitoring Strategies for Compliance Testing and Epidemiologic Research

	<b>Epidemiologic Research</b>	<b>Compliance Testing</b>
<b>Workers to be sampled</b>	Randomly selected from all members of <b>SEG</b> (similar exposure group)	Most highly exposed
<b>Agents to be monitored</b>	Agent of interest and potential confounders	Regulated agents
<b>Sampling methods employed</b>	Personal and/or area sampling with standard or specialized techniques	Personal sampling with standard (consensus or statutory) techniques
<b>Statistics of interest</b>	Arithmetic mean of exposure of SEGs	Confidence interval of individual sample results or probability of exceeding OEL for SEG
<b>Number of samples</b>	Based on desired precision in estimating arithmetic mean of log-normal distribution	Based on desired confidence in estimating excursions above OEL