

## Distinguishing Three Similar Measures of Risk

**Relative Risk (RR):** measure of association showing the risk of disease or death due to exposure *relative* to that for unexposed persons

$$RR = \frac{\text{rate of disease or death among **exposed** persons}}{\text{rate of disease or death among **unexposed** persons}}$$

**Attributable risk (AR) :** *increment* in disease or death due to cause *among the exposed* that can be attributed to the exposure

$$AR = \frac{\text{rate among **exposed** — rate among **unexposed**}}{\text{rate among **exposed**}} * 100\%$$

**Population Attributable Risk (PAR):** percentage of disease or death *in the entire population* that is attributable to the exposure. [Requires knowledge of the prevalence of the exposure in the population.]

$$PAR = \frac{\text{Prevalence} * (RR - 1)}{\text{Prevalence} * (RR - 1) + 1} * 100\%$$

Note that this is really  $\frac{\text{numerator}}{\text{numerator} + 1} * 100\%$