



**25**  
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## SÉMINAIRE

# Relative Risk (RR), Odds Ratio (OR) and Hazard Ratio (HR).

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Odds ratio (OR) is a statistic commonly encountered in professional or scientific medical literature. Most readers perceive it as relative risk (RR), although most of them do not know why that would be true. But since such perception is mostly correct, there is nothing (or almost nothing) wrong with that. It is nevertheless useful to be reminded now and then what is the relation between the relative risk and the odds ratio, and when by equating the two statistics we are sometimes forcing OR to be something it is not. Another statistic which is often also perceived as a relative risk is the hazard ratio (HR). We encounter it, for example, when we fit the Cox model to survival data. Under proportional hazards it is probably "natural" to think in the following way: if the probability of death in one group is at every time point  $k$ -times as high as the probability of death in another group, then the relative risk must be  $k$ , regardless of where in time we are. Well, we shall see if this is true