**First Simulation:**  
Imagine a person with a certain disease, and we propose a treatment to cure this disease. We want to determine whether the treatment is effective. Using the Kaplan-Meier simulation, we can create survival curves for patients receiving the treatment and those not receiving it. For this simulation, we created our own data as an example. The data were generated using an exponential distribution, with a mean of 5 years for the "Treatment" curve and 4.5 years for the "Control" curve. The probability of a censored event is 0.6 for the "Treatment" group and 0.5 for the "Control" group. These parameters in our example help to highlight the difference between the two curves, illustrating a situation where the treatment is effective.Une image contenant texte, ligne, diagramme, Tracé

Description générée automatiquement

In this case, we observe that the treatment appears to be effective, indeed, at each point in time, the "Treatment" curve is above the "Control" curve, indicating that the treatment is effective.

**Second Simulation:**  
Now, imagine we have a group of different diseases, and we want to determine which disease has the highest mortality rate and how the death rate evolves over time for each one. The Kaplan-Meier method allows us to analyse this within a population. For this simulation, we used data from medical research. The data represent the number of deaths occurring in 5-year intervals for each disease. The resulting plot is shown below: Une image contenant ligne, capture d’écran, Tracé, pente

Description générée automatiquementWe observe that Lung and Bronchus appear to be the most fatal diseases, while Breast and Thyroid show similar behaviour over time. This can be helpful, for instance, when a person has multiple diseases at the same time. Priorities can be established, and treatments can be adjusted accordingly. For example, if I have prostate cancer and I’m older, it might, in some cases, be wiser to opt for no treatment. Kaplan-Meier analyse can assist in making such decisions.

Sources:

For simulation2:

[Cancer Treatment & Survivorship Facts & Figures 2022-2024](https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/cancer-treatment-and-survivorship-facts-and-figures/2022-cancer-treatment-and-survivorship-fandf-acs.pdf)