

## Solution to Exercise 3: Survival analysis

### Key points:

- In this simplified example, there was no censoring, people either had the event or they didn't
- Survival analysis requires two variables, the time when the event occurred or the endpoint of observation, and whether there was an event or not

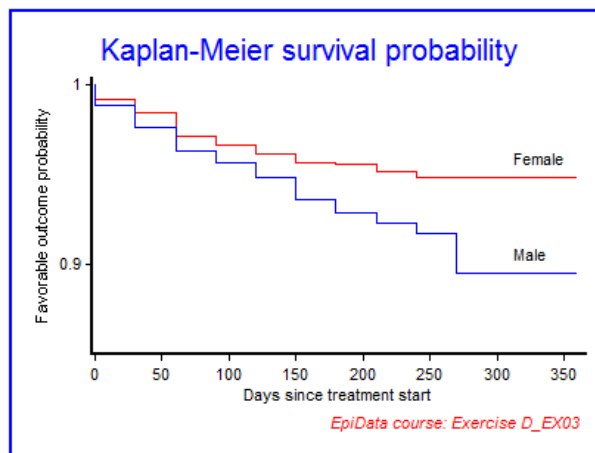
### Tasks

*The purpose of the exercise is to demonstrate quantitatively the probability of remaining without an event.*

*We use to this end a real dataset from a tuberculosis program, although we have removed any identifier and most variables, and retained to simplify your work only records of patients who have an exact date of treatment start and an exact date of treatment end. The dataset is provided as a supplementary file `d_ex03.rec`.*

- 1) *Define a binomial outcome, where “favorable” is cured or treatment completed and all other outcomes are “unfavorable”*
- 2) *Do the lifetable analysis only for new sputum smear-positive cases and show the survival probability for females and males in the same graph*

The graphic output produced by the program `D_EX03.PGM`:



The program `D_EX03.PGM` to produce the above graphic output:

- \* Exercise D\_EX03
- \* Survival Analysis with EpiData Analysis

```
cls
close
logclose
```

```

read "d_ex03.rec"

define advout #
advout=1
if outcome<=2 then advout=0
label advout "Adverse treatment outcome"
labelvalue advout /0="Favorable outcome"
labelvalue advout /1="Adverse outcome"

define case #
case=0
if sm00>0 and sm00<9 then case=1
label case "Microscopy-defined case"
labelvalue case /0="Non-case"
labelvalue case /1="Smear-pos case"

cls
select sex<>9
select case=1
select category=1
lifetable advout startext outext \
    /i=b30 /by=sex /adj \
    /nocl \
    /ymin=0.85 \
    /ymax=1 \
    /t \
*    /bw \
    /ti="Kaplan-Meier survival probability" \
    /fn="EpiData course: Exercise D_EX03" \
    /xtext="Days since treatment start" \
    /ytext="Favorable outcome probability" \
    /text="335,90,Female,0" \
    /text="335,155,Male,0"
select

*****
* Clean up
erasepng /all /noconfirm

```