

Exercises for contingency tables.

Exercise 1

A group of researchers wanted to predict the death from ventilator associated pneumonia in patients admitted to an intensive care unit. The authors measures the blood concentration of proANP on day 0 (D0) and day 4 (D4) after diagnosed ventilator associated pneumonia. They also recorded the age and gender of the patients. They used this data to predict non-survivors. In the study-group 71 patients were enrolled of which 26 died.

The percent of males and females distributed between survivors and non-survivors are shown below:

Gender (%)	survivors (n = 45)	non-survivors (n = 26)	Total (n = 71)
Male	66.7	46.2	59.2
Female	33.3	53.8	40.8
Total	100	100	100

- Use the χ^2 -test to test for association between gender and survival. Is there a significant association?
- Is the χ^2 -test valid in this case?
- What is the odds ratio of survival for genders?
- What is the 95% confidence interval of the odds ratio?
- Is the odds ratio in agreement with the χ^2 -test and does it provide the same information.

Exercise 2

I et forsøg viste det sig at nogle af patienterne groede en tredje arm. Forskerne er interesserede i at undersøge om der er forskel på antallet af patienter med bivirkninger i de to behandlingsgrupper.

Tabel 1. Mindre bivirkninger ved eksperimentel cancer behandling.

	Treatment A	Treatment B
2 arms	5	9
3 arms	5	1

- Kan forskerne bruge Chi-kvadrat testen?
- Hvilken test bør de bruge?
- Er der en signifikant forskel på antallet af patienter med bivirkninger i de to behandlingsgrupper?
- Hvad er odds ratio mellem de to behandlingsgrupper for at gro en tredje arm?
- Hvad er konfidensintervallet for odds ratioen?
- Kan odds ratioen vise en statistisk signifikant forskel mellem de to behandlinger?