

# Excercises with Pivot table in Excel

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Based on lecture by Hege Line Løwer,  
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- Make a copy of excel file with original data and save it with different name i.e. Rawdata\_test.xls
  - (in case you would like to repeat the exercise after the course 😊 and it is always good to have original data “safe”)
- Open excel sheet with dataset
- Create a new sheet for each step of the exercise
  - (you can create a new pivot table in each sheet, for that you have to open sheet with “rawdata” and repeat all steps to create Pivottable)
- If there is anything you do not understand, ask for help!
- Some of the assignments are build on each other, and you will get errors if you skip some of the tasks
- We will go through each exercise together on the screen
- Those who are confident with Excel and Pivot can work faster
- This is modified data from the Norwegian surveillance system for surgical site infections – NOIS

## Explanation of variables and background variables

- Procedure: Type of operation (here are all hip replacements)
- Indate: hospitalisation date
- Oupdate: Operation date
- Outdate: discharge date
- Fupdate: Follow-up date, last contact with the patient about the infection status
- Hospital

## Explanation of variables – risk variables

- Sex: F-female, M-male
- Age: age in years
- Contrank (rank of wound contamination): 1 (clean wounds) to 4 (dirty/infected wounds)
- ASA (American Society of Anaesthesiologists): 1 (healthy patient) to 5 (patient in a very bad condition)
- Opduration: “knife” time in minutes
- NNISrisk: calculated from ASA, duration of operation (75 percentile), and purity (wound contamination)
- Antibioticprof: prophylactics with antibiotics given according to guidelines yes/no
- Elective: yes/no
- Endoscopic: Endo-/laparoscopic surgery yes/no

## Explanation of variables – outcome variables

- Infectiondate: date of occurrence of infection
- Infectiontype: type of infection

## Basic exercises

1. How many patients there are in data set?
  - a. Create Pivot table that shows how many patients there are in every hospital by gender (tip: ID must be changed from Sum to Count)
  - b. Make a diagram that shows this in a good way
  - c. Change the position of females and males in the table (tip: use “move”). See how this changes the colours in the diagram
  - d. Insert diagram titles and axis labels and data labels (tip: “Setup” menu)
  - e. Test different diagram types and layout, and what works best to present these data.
  - f. Give a name for this sheet where this table and diagram is (i.e. “Sex and Hospital” and “Diagr Sex and Hospital”)

## Basic exercises

### 2. Which type of infection patients have?

- a. Show type of infection and ASA score (which shows how sick the patient is) in a Pivot table
- b. Make a diagram showing this information (i.e. column diagram with percent distribution)
- c. Remove those who do not have the infection or have unknown infection status (in pivot table use infectiontype and choose defined infection types), check if there are any changes in the diagram

NB! Excel 2007 – it will make the “funnel” icon where the data are modified

- a. Insert diagram title and axis labels (tip: “Setup” menu)
- b. Name the Excel sheet i.e. “Infection and ASA”

## Basic exercises

3. Create a new column in the Rawdata with “Year” by date of operation “Opdate”
  - Create Pivottable that shows the number of infections per year
  - Create a chart that shows the type of infection per year (experiment with different chart types, titles, background, legend, data labels, gridlines)
4. Create new column in the rawdata and use the “MID” to create age groups based on Age.
  - Take the first number in the age to show the age group (i.e. 79 years age would fall into age group 7) be careful with those over 100 years old!
  - Create pivot table that shows number of infections by age.



## Basic exercises

5. What is the Incidence of infections?
  - a. use STATISTI.xls and see exercise 1 for denominator and exercise 2 for nominator
  - b. write it into a blank sheet and round off to one decimal  
  
(tip: for rounding: mark the cells with numbers to be rounded → right click → format cell → numbers → choose *number of decimals* i.e. 1 → ok)
  - c. Find the upper and lower confidence intervals in STATISTI.xls (round off to one decimal)

6. Create Pivottable that shows operation date and infection type
  - a. Group infection type by Deep (Deep and Organ/space) and NoInfection (Unknown and no infection), and superficial
  - b. Give the group name
  - c. Display subtotals of the new groups (so that you can see the total for each group)
  - d. Group Update to show only years
  
7. Calculate followup days after surgery (Fupdate-Opdate) by inserting a new column in the spreadsheet of Rawdata
  - display results in a Pivot diagram
  
8. Find out how many days the patients were followed up after surgery on average by hospital

## Advanced exercises

9. Create a formula in the spreadsheet that converts the type of infection to infection=1 and no infection/unknown=0. Name the column “Infection” (Tips: use “If” “And” “Or”)
  - a. Calculate the incidence rate and confidence intervals by using the “Formulas” and “Calculated field”. See also the formulas that are used in Statisti.xls. (Tips: you need to create a “counting variable” that is numerical). Format result.

How to calculate confidence intervals (95%) in Excel:

I= number of infections

P= number of patients

A (proportion) = number of infections / number of patients

S (standard error)=  $\text{SQRT}((A*(1-A))/P)$

Upper CI= $A+(1,96*S)$

Lower CI= $A-(1,96*S)$

## Advanced exercises

10. Create pivot table and diagram that shows NNIS risk points and incidence of infections.  
Can you see a connection?