Tables, graphs, and diagrams

Tables, graphs and diagrams….

- organise
- summarise
- display

...data from outbreaks, surveillance and studies

Uses of tables, graphs and diagrams

- Effective presentation
  - to the professionals
  - to the public
- Easy interpretation
  - Visual examination
  - Analysis

Paper vs. screen

Paper

- Time unlimited
- Repetition
- Details
- White, grey and black

Screen

- Time < 1 min
- No repetition
- Less details
- Colours possible

Tables, graphs, and diagrams

- Self-explanatory
- Simple!
- Title
  - **what, who, where, when**
- Define abbreviations and symbols
- Note data exclusions
- Reference the source

Type of variables

Quantitative

- Discrete
  - **counts, dates, cases,...**
- Continous
  - **height, Hb, ….**

Type of variables

Qualitative

- Dichotomous
  - **sex, ill/not ill, ….**
- Nominal
  - **religion, nationality, eye colour,...**
- Ordinal
  - **social class, cancer stage, ….**

Tables

Types of commonly used tables

- One-variable tables
  - Frequency distribution
- Multivariable tables
  - Contingency tables
    - 2x2 tables

Tab 1. **Distribution of cases of salmonellosis (n=65) by age group. Hospital A, August 2010**

Age group (years)	Number	Percent
0 - 4	0	0.0
5 - 14	1	1.5
15 - 44	47	72.4
45 - 64	6	9.2
65 +	10	15.4
Unknown	1	1.5
Total	65	100.0

Table 2. Gonorrhoea by age-group and sex, 2010

Age (years)	Male	Female	Total
<19	3	7	10
20-29	26	22	48
30-39	57	12	69
40-49	23	8	31
50-59	12	0	12
60+	4	0	4
Total	125	49	174

National Institute of Public Health, Norway

Tab. IV Gastrointestinal illness and fish consumption among customers at ”X ”, 2014

	Cases	Controls	Total	OR (CI95%)
Ate fish	34	20	54	13 (5.3-33.0)
Did not eat fish	8	62	70	Ref
Total	42	82	124	

In tables...

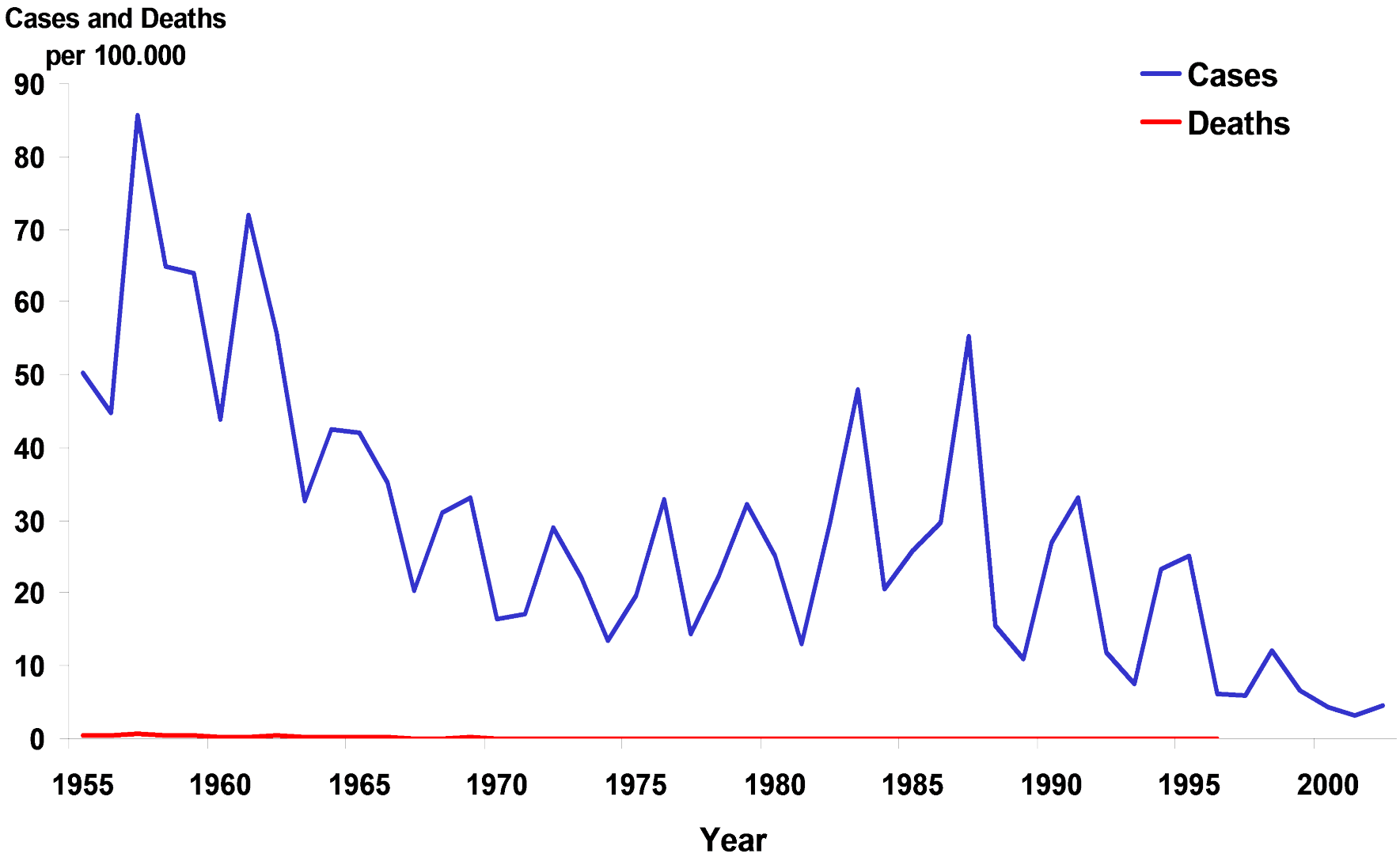
- Labels for rows and columns
- Totals for rows and columns, usually
- Units of measurements
- Max five variables
- Horizontal lines OK, vertical not

Graphs & Diagrams

Types of commonly used graphs

- Line graph
  - Arithmetic scale line graph
  - Semi-logarithmic scale line graph
- Histogram
  - Epidemic curve

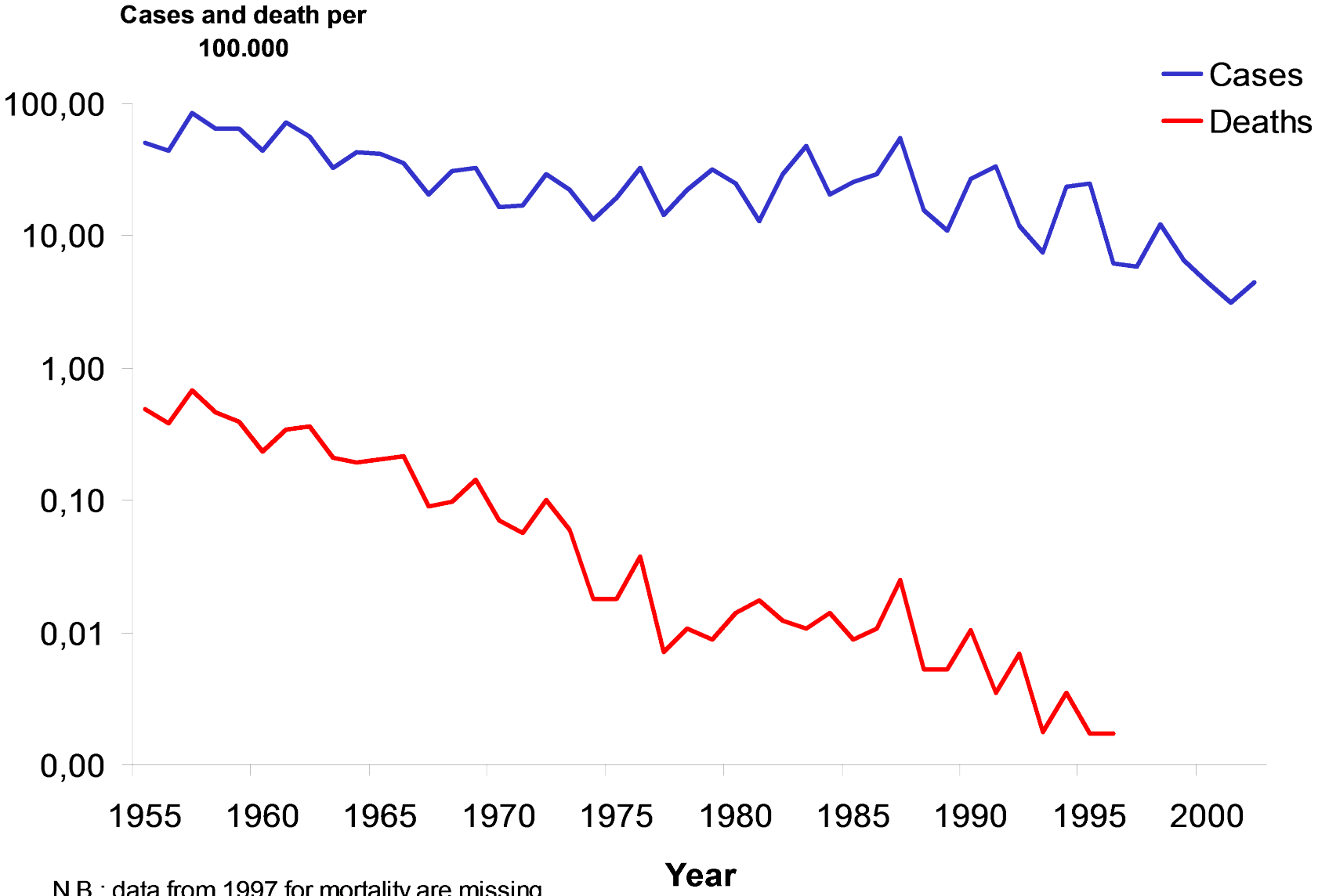
The arithmetic-scale line graph 1



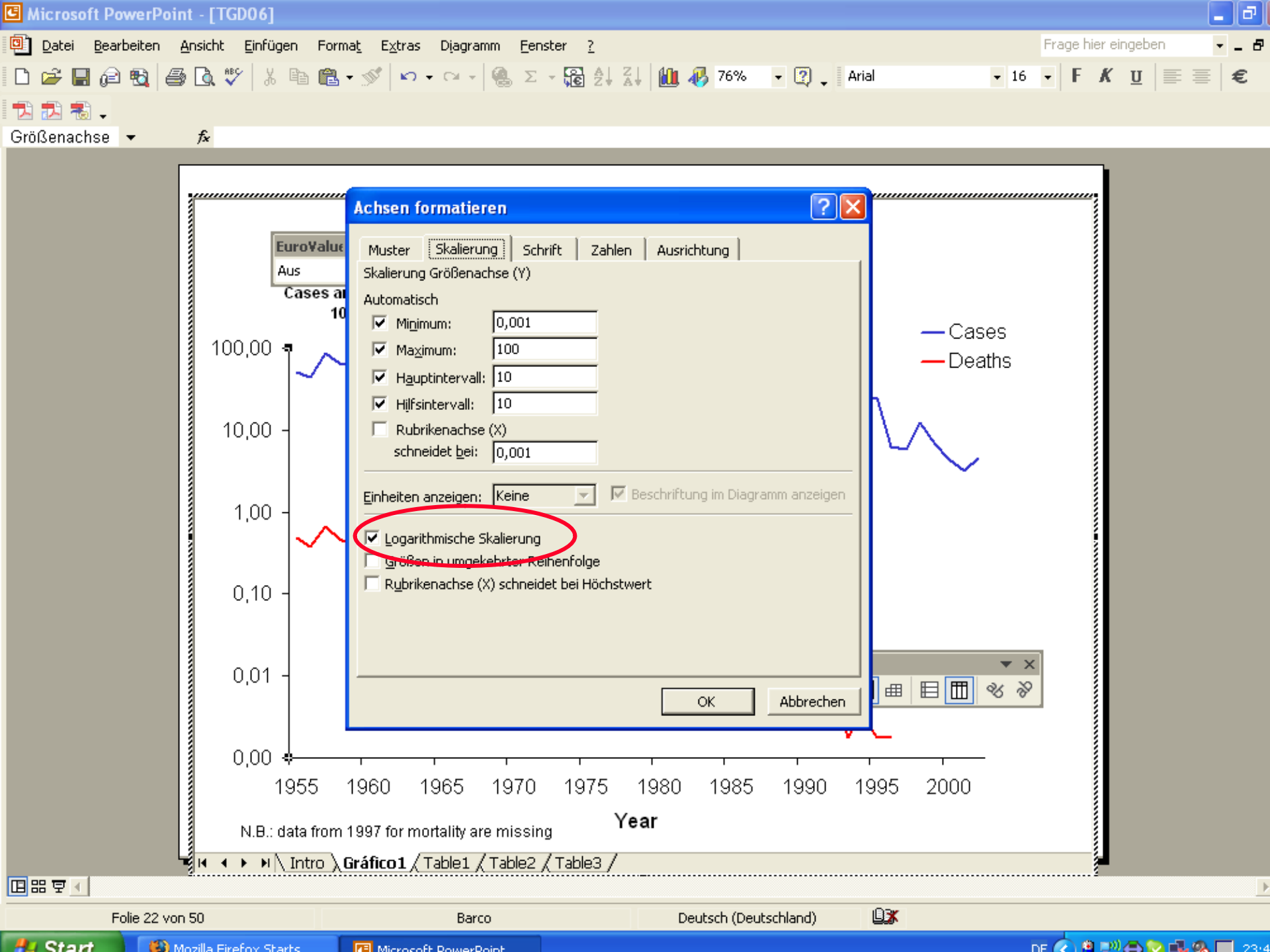
The arithmetic-scale line graph 2

- For time series
- Show actual changes in magnitude
- X-axis = time
- Y-axis = incidence (or number) of cases
  - Start at 0
  - clearly marked

The semilogarithmic-scale line graph 1



N.B.: data from 1997 for mortality are missing


Microsoft PowerPoint - [TGD06]
Datei Bearbeiten Ansicht Einfügen Format Extras Diagramm Fenster ?
Frage hier eingeben
Größenachse
Achsen formatieren
Muster Skalierung Schrift Zahlen Ausrichtung
Skalierung Größenachse (Y)
Automatisch
Minimum: 0,001
Maximum: 100
Hauptintervall: 10
Hilfsintervall: 10
Rubrikenachse (X) schneidet bei: 0,001
Einheiten anzeigen: Keine
Beschriftung im Diagramm anzeigen
Logarithmische Skalierung
Größen in umgekehrter Reihenfolge
Rubrikenachse (X) schneidet bei Höchstwert
OK
Abbrechen
EuroValue
Aus
Cases
Deaths
100,00
10,00
1,00
0,10
0,01
0,00
1955 1960 1965 1970 1975 1980 1985 1990 1995 2000
Year
N.B.: data from 1997 for mortality are missing
Intro Gráfico1 Table1 Table2 Table3
Folie 22 von 50
Barco
Deutsch (Deutschland)
Start
Mozilla Firefox Starts
Microsoft PowerPoint

In graphs...

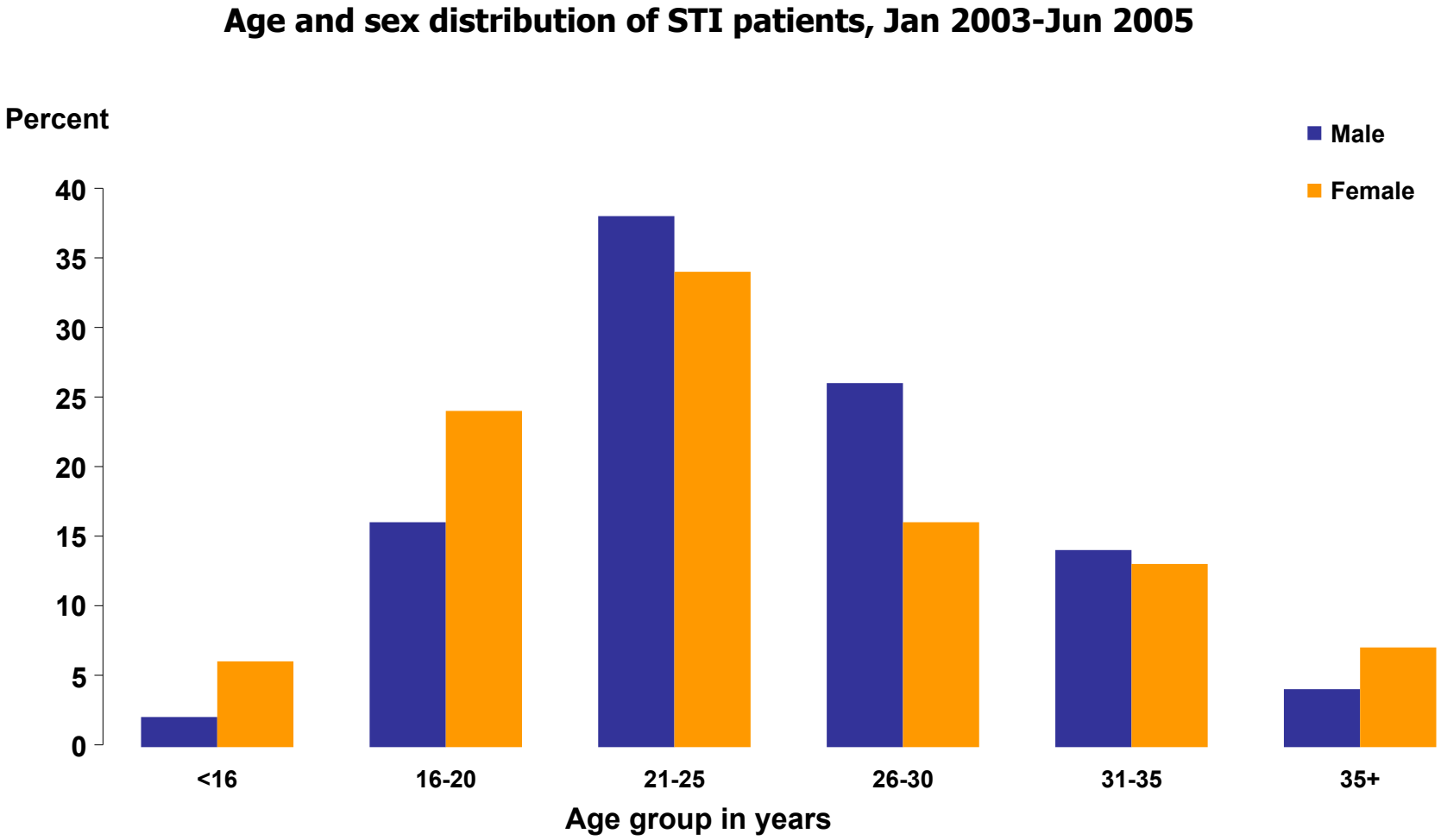
- Labels for axes, scales and legends
- Legends or keys if >1 variable
- Scale divison, appropriate scale
- Units of measurements in title
- No grid, no numbers
- No 3D

Types of commonly used charts

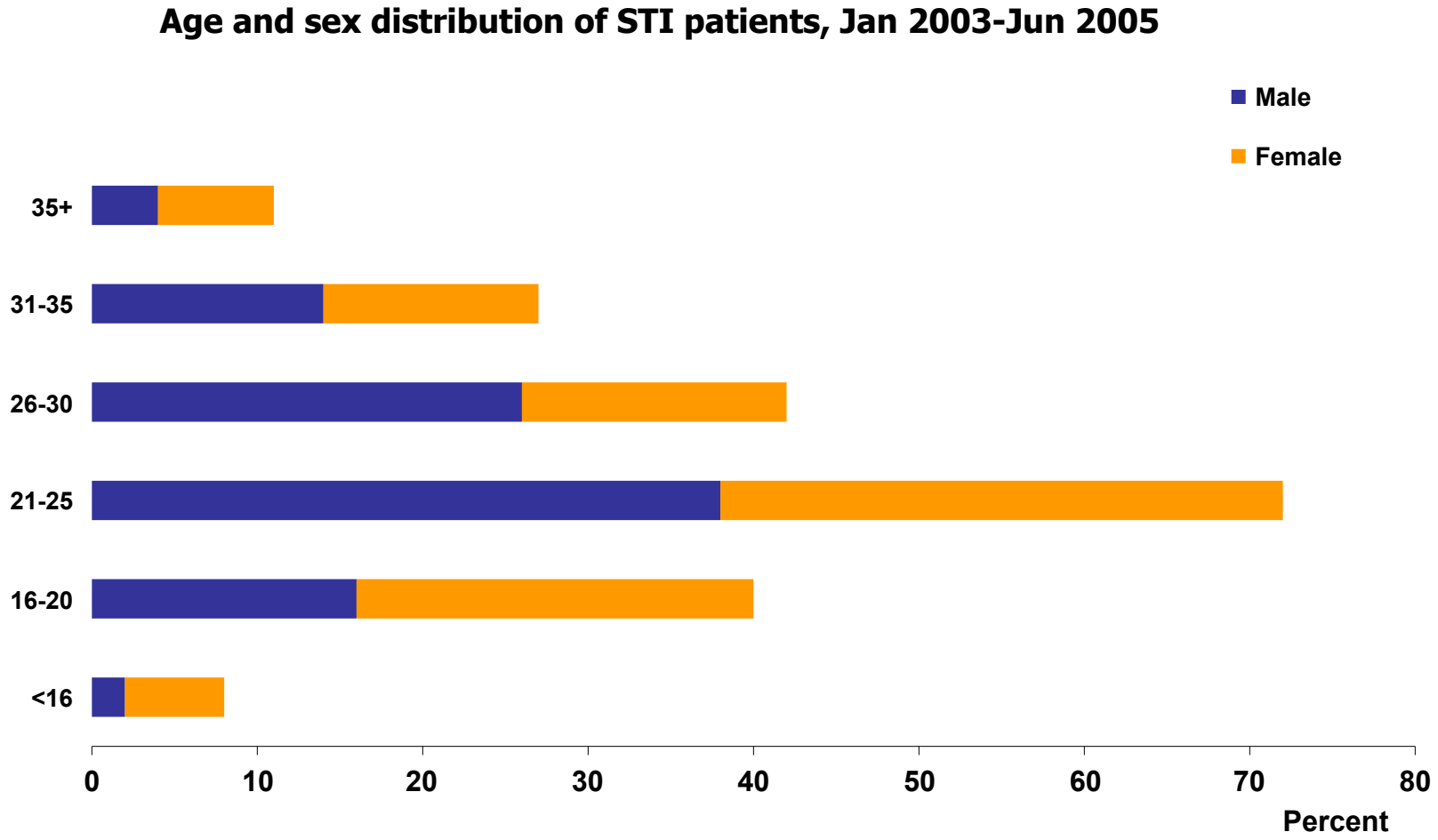
- Charts based on length
  - Bar charts

    (horizontal, vertical, grouped, stacked)
- Charts based on proportion
  - Component bar chart
  - Pie chart

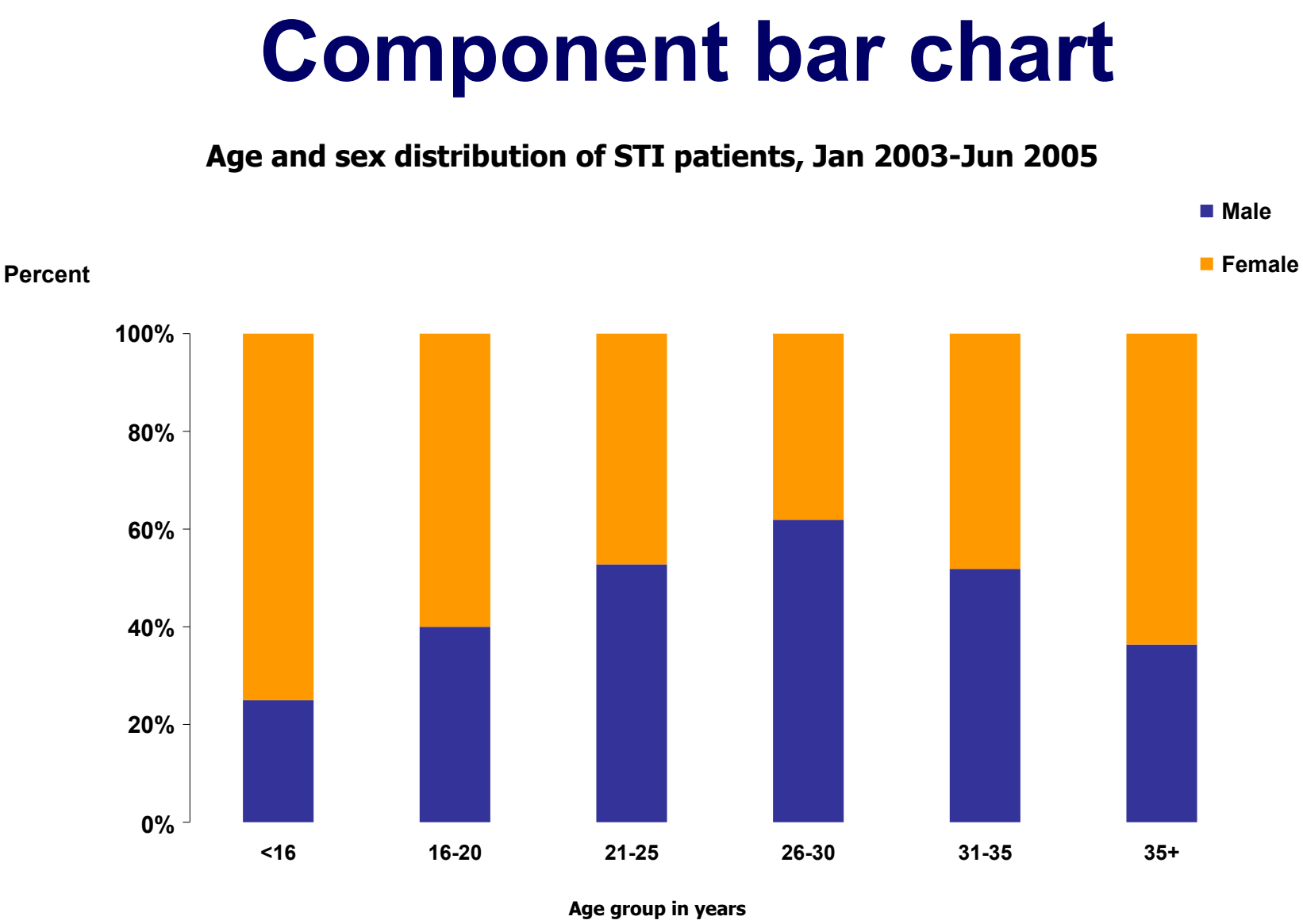
Grouped bar chart



Stacked bar chart



Component bar chart

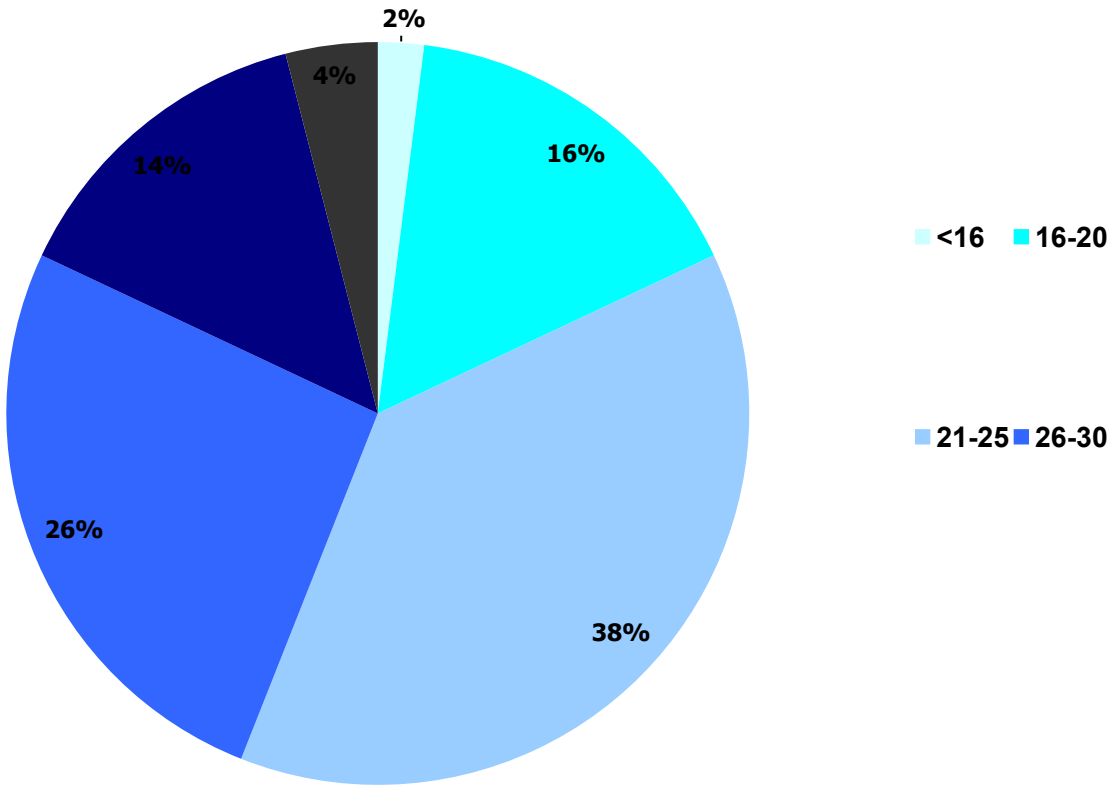


Bar charts

- Order
  - Natural
  - Decreasing or increasing
- Vertical or horizontal
- Same width of bars
- Length = frequency
- Space between bars and groups, but not within groups
- Tables are often better

Pie chart

Age distribution of male STI patients, Jan 2003-Jun 2005



The area dot (or dot density) map

Figure 2. Cases of meningococcal disease in Dublin 2006 by **area** of residence.

1 dot = 1 case

The area map

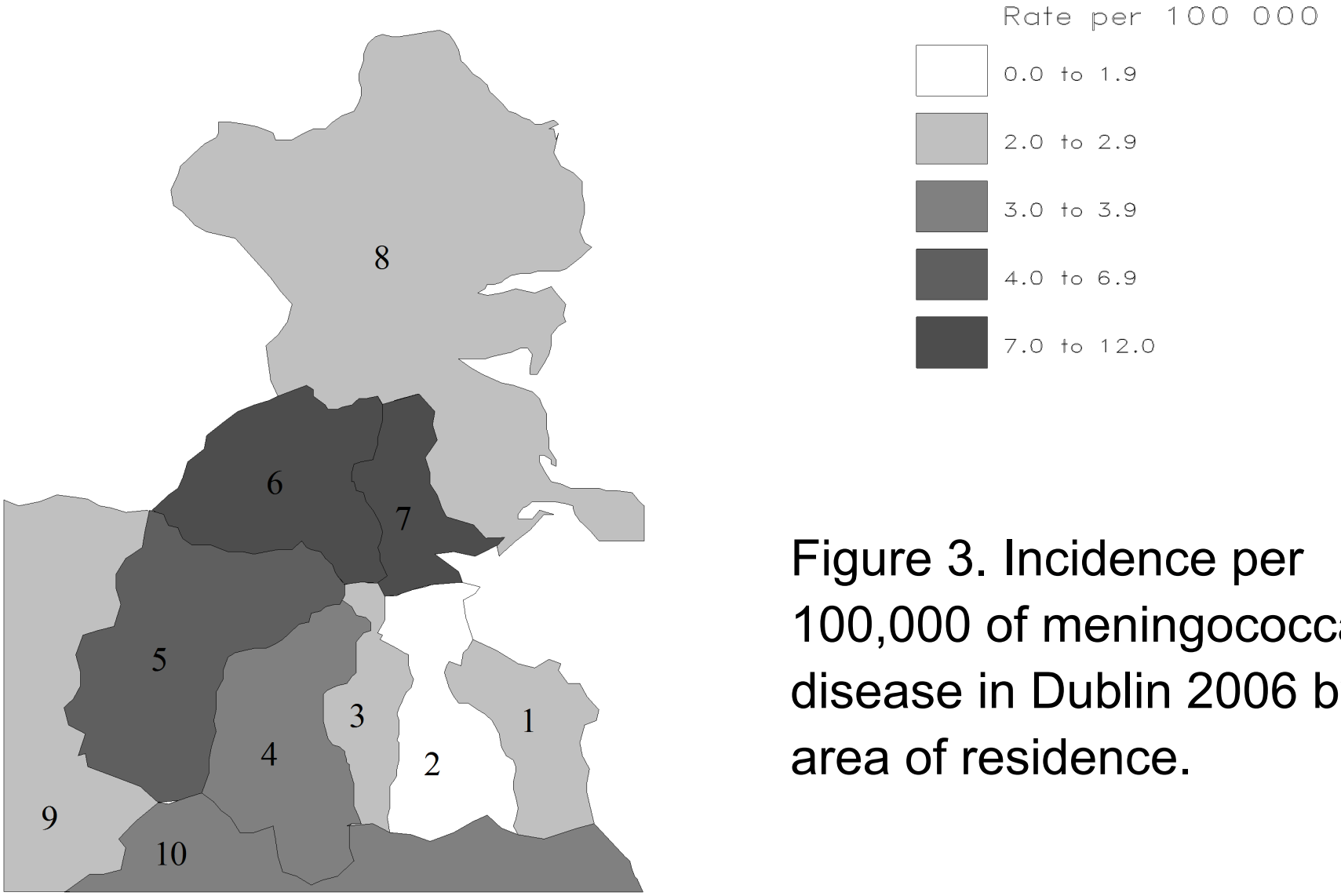


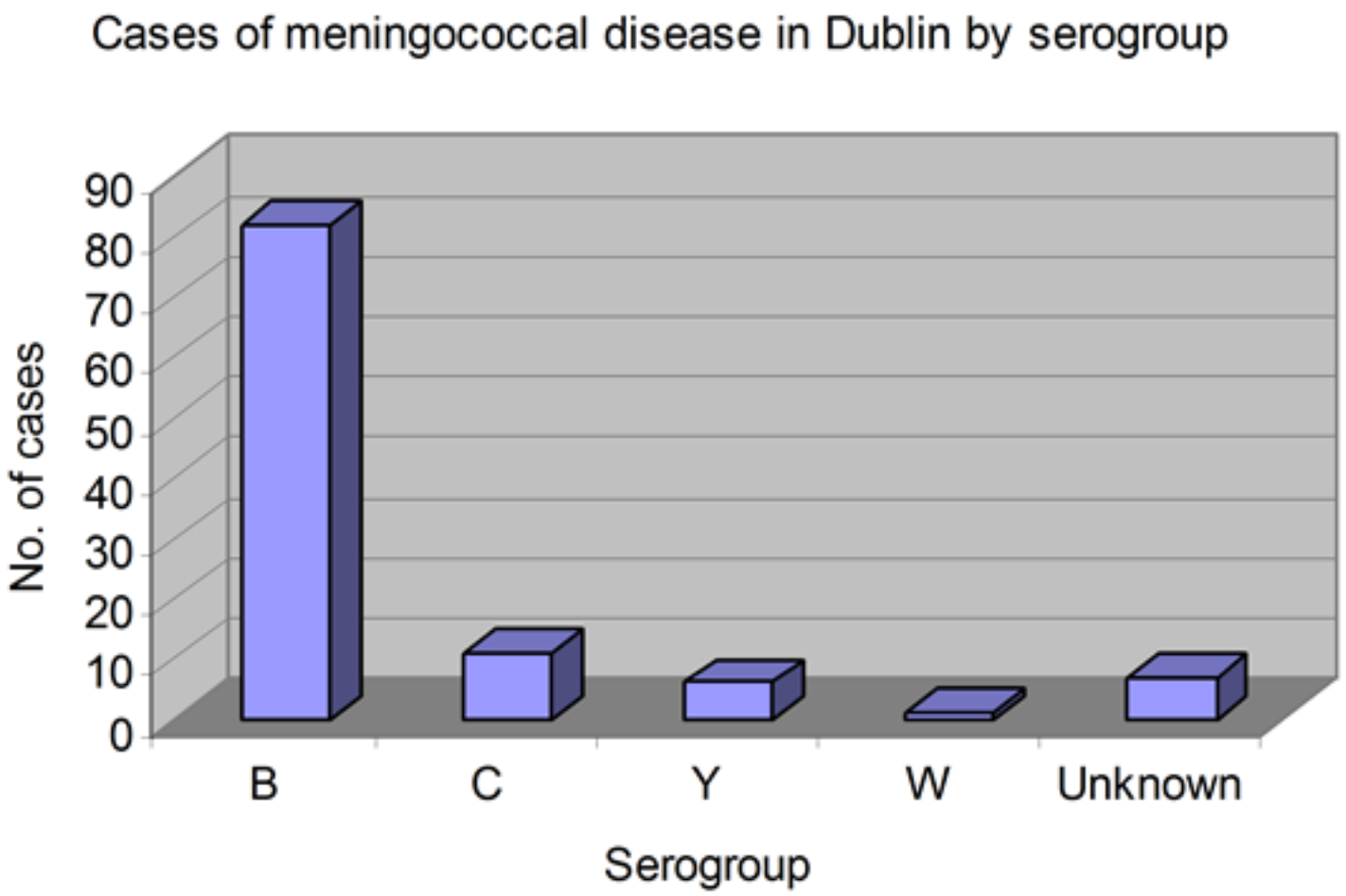
Figure 3. Incidence per 100,000 of meningococcal disease in Dublin 2006 by area of residence.

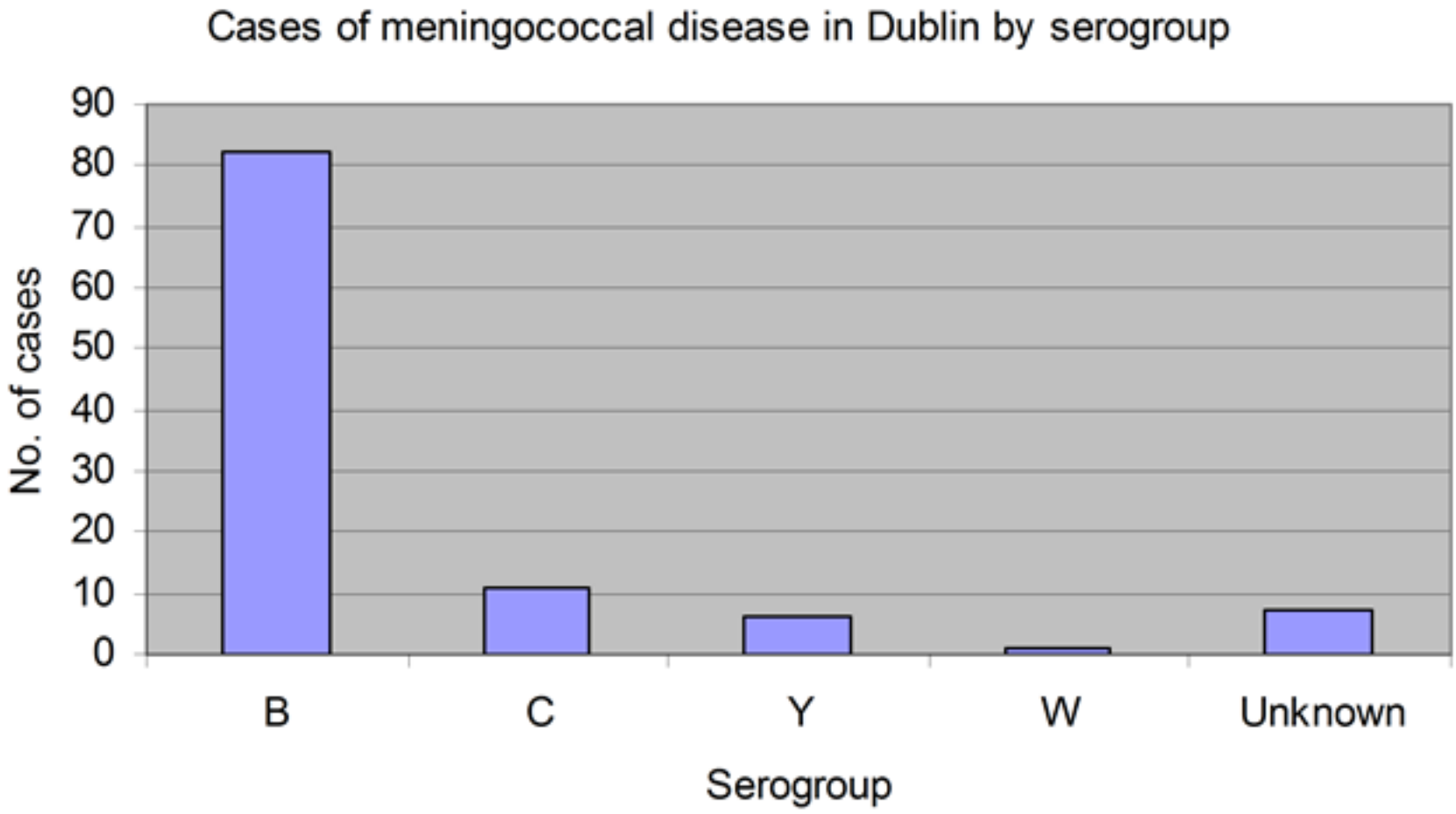
Think data-ink

Every bit of ink should have a reason

Designing graphics

- **Show the data**
- Use ink for the data
- Remove unnecessary ink
- Remove gimmicks
- No 3D
- Careful with colours


Cases of meningococcal disease in Dublin by serogroup
No. of cases
90
80
70
60
50
40
30
20
10
0
B
C
Y
W
Unknown
Serogroup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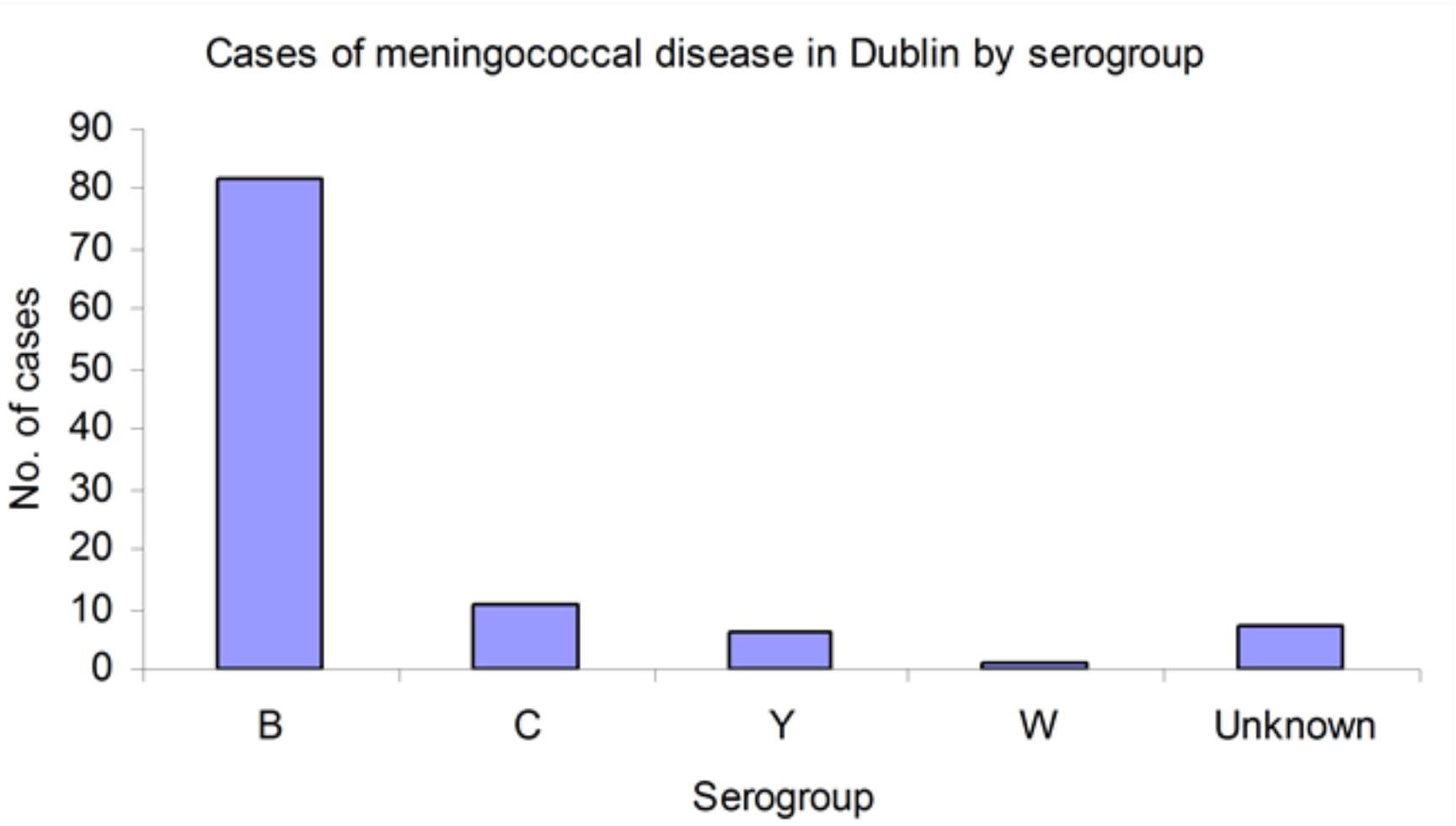
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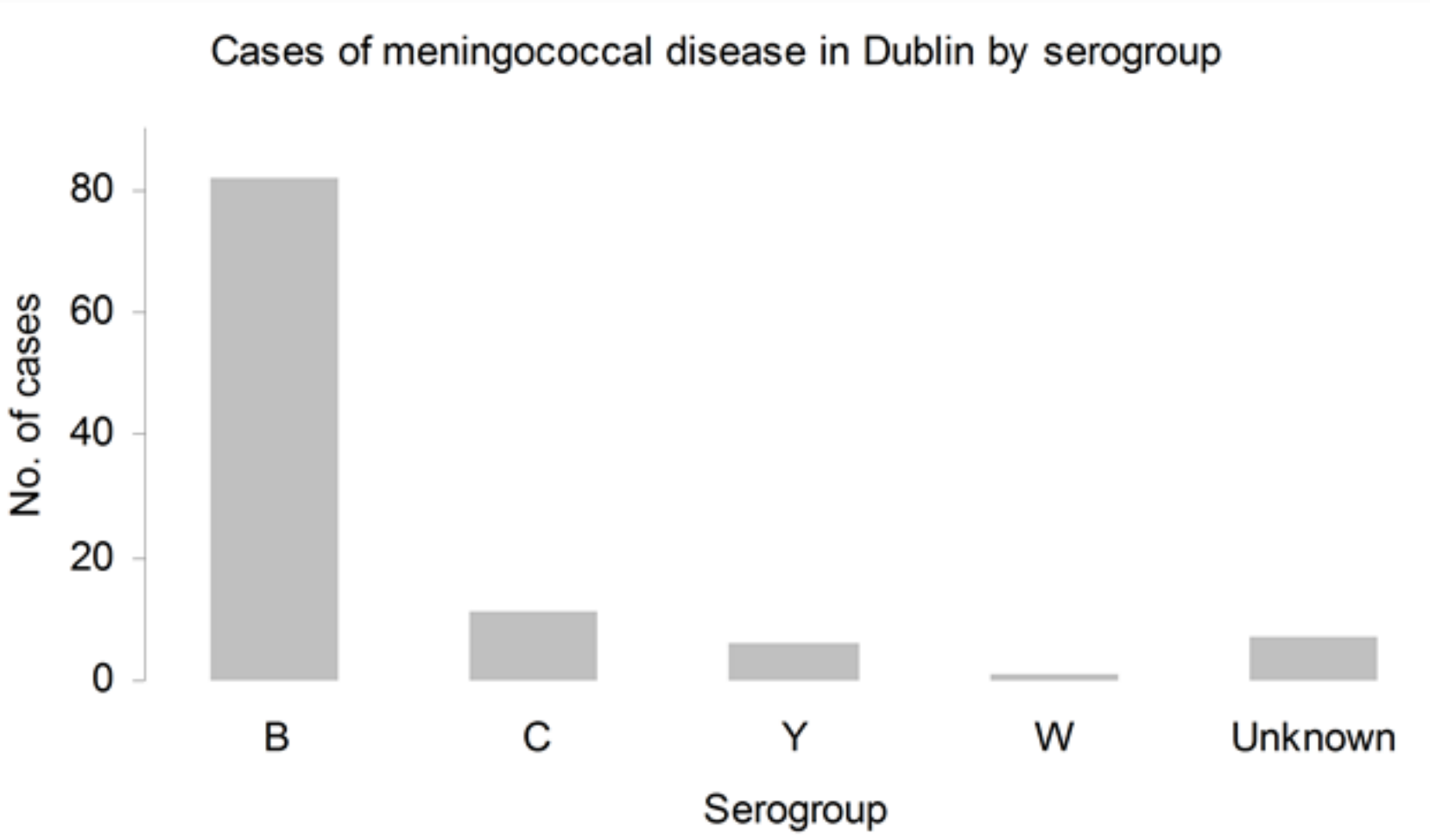
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Summary

- Use graphics to explore and present data
- Think of difference between paper and screen
- Think of your message and choose the graph type accordingly
- Save your ink!