

Key principles for presenting data



How to use this document

Facts and figures can be powerful tools to convey messages, but only if they are concise and easy to understand. If they are unclear and confusing, they may create uncertainty, and trust in the messenger may decrease as a result.

Use the document for spokesperson training, and refer to it whenever you communicate numbers to the public.



How was this document developed?

This document is part of a WHO series of supporting documents concerning events that could erode confidence in vaccination. Such events can be related to vaccine safety, adverse events following immunization, changes in the vaccination programme, negative public debate, outbreaks or pandemics.

All documents were developed based on scientific evidence, laboratory research and fieldwork within psychology, social and behavioural science and communication and lessons learnt in countries. For an introduction to the theoretical background and evidence, refer to the WHO publication *Vaccination and trust*, available here: www.euro.who.int/vaccinetrust.

The supporting documents are intended for use by national

- ministries of health
- centers for disease control
- immunization programmes
- regulatory authority institutions.



**World Health
Organization**

REGIONAL OFFICE FOR
Europe

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Facts and figures can be powerful tools to convey messages. Use this advice to make data speak a language that is easy to understand.

The following principles for the use of data have been developed based on psychological research and laboratory findings

Consider your target group's literacy and numeracy

1 2 3

Example:

- ✓ Clear and straightforward data can be effective in conveying a complicated message with simple numbers.
- ✗ Incomplete and complicated data can create uncertainty, which may lead to distrust.

Use natural frequencies

Frequencies are easier to understand than probabilities or percentages

1 / 100

Example:

- ✓ 1 out of 100 can develop a fever following MMR vaccination.
- ✗ 1% can develop a fever following MMR vaccination.

Use explicit numbers

Using numbers rather than verbal abstractions leads to a more accurate perception of risks

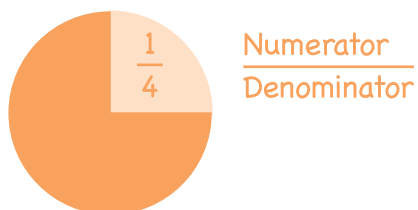
1 out of 1000

Example:

- ✓ 100 out of 100,000 can develop a fever following MMR vaccination.
- ✗ Fever following MMR vaccination is **common**.
- ✓ 1 out of 100,000 can develop meningitis following MMR vaccination.
- ✗ Meningitis/encephalitis after MMR vaccination is **rare**.

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Use the same denominator when you compare risks



Example:

- ✓ **1000 out of 100,000** can develop fever and **1 out of 100,000** can develop meningitis following MMR vaccination.
- ✗ **1 out of 100** can develop a fever and **1 out of 100,000** can develop meningitis following MMR vaccination.

Use absolute risk, not relative risk

1 case
per 100

Example:

How to explain that with a new vaccine, 5 out of 100 children may develop a fever, while the number for the previous vaccine was 4 out of 100 children:

- ✓ With the new vaccine, it is expected that there will be **1 additional** case of fever per 100 children compared to the previous vaccine.
- ✗ With the new vaccine, fever reactions will increase by **25%**.

Use illustrations to help improve understanding



Illustrations can improve the understanding of risk and increase accessibility and understanding of information when they are related to and presented together with text.

Tip: iconarray.com and other free online pages allow creating easy to understand icon array figures such as displayed above. Icon arrays use a matrix of icons (usually 100 or 1000 icons) to represent an at-risk population, simultaneously displaying both the number of expected events and the number of expected non-events. Hosted by the University of Michigan, USA.

More information about the use of data

The advice in this document was developed based on the papers outlined below. Refer to these papers for more detailed information about presenting data to the public.

- Measles and rubella elimination: communicating the importance of vaccination: ECDC, Dr. Cornelia Betsch, 2014 (<http://ecdc.europa.eu/en/publications/Publications/Measles-rubella-elimination-communicating-importance-vaccination.pdf>).
- Reducing the influence of anecdotal reasoning on people's health care decisions: is a picture worth a thousand statistics?: Fagerlin, Wang & Ubel, 2005 V (<http://www.ncbi.nlm.nih.gov/pubmed/16061891>).
- Helping Doctors and Patients Make Sense of Health Statistics: Gigerenzer et al, 2008 (http://library.mpib-berlin.mpg.de/ft/gg/GG_Helping_2008.pdf).
- Presenting quantitative information about decision outcomes: a risk communication primer for patient decision aid developers: Lyndal et al, (2013). BMC Medical Informatics and Decision Making (Suppl 2):S7. DOI: 10.1186/1472-6947-13-S2-S7.