Talking about absolute and relative risk

“Contraceptive pills double the risk of blood clots”, “New wonder drug reduces heart attack risk by 50%”, “Violent crimes are at new high” ... We’ve all seen headlines like these, but how should we react? The answer depends on context, specifically on how many people are affected and what our individual risks are. Changing the ‘framing’ of the risk gives us a different perspective on that risk. Knowing the relative and absolute changes tells us how big the risk is and how it might affect us. This resource is intended to help you explain the difference between absolute and relative risks and what they mean in a given context.

Absolute risk is the actual probability of an event occurring. When comparing groups, there are two absolute risks to communicate:

1. Absolute risk in the non-exposed group (or ‘control’ group or ‘reference’ group) – also called baseline risk.
2. Absolute risk in the exposed group (or ‘experimental’ group)

Relative risks indicate how much larger or smaller one number is relative to another, but they do not provide any information about the real likelihood of an event occurring.

They result from dividing the absolute risk in the exposed group by the absolute risk in the unexposed group.

Relative risks are not enough to guide decisions since they don’t give any information about the size of the risk.
Take the story of contraceptive pills and the risk of blood clots. In 1995, headlines scared thousands of women around the world when they said that contraceptive pills double the risk of blood clots. But ‘double’ is a relative risk. We need to ask "double what?"

**Probability of blood clots if NOT taking the contraceptive pill:**

1 out of 7000 women per year

This is the absolute risk in the non-exposed group

**Probability of blood clots if YES taking the contraceptive pill:**

2 out of 7000 women per year

This is the absolute risk in the exposed group

Cases went from 1 to 2 out of 7000 women so indeed doubled (the relative risk) but the absolute risk remains small.

**Key takeaways:**

- Knowing the relative and absolute changes tells us how big the risk is and how it might affect us.
- The media generally prefers to talk about relative risks without mentioning the absolute risks because it allows them to use bigger numbers and attract more attention.
- Words like halves, doubles, more, less, increases, and decreases are likely talking about relative changes. Try to figure out the absolute value as well to better understand how big the risk actually is.