

# How to read an original scientific publication

1st WECAN academy Frankfurt

7th July 2019

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# Expectation management- this workshop

- will focus on publication of clinical studies as most relevant to this audience
- will give you the opportunity to get started reading original scientific literature
- will provide you with a structured approach to find the relevant information in a publication that is easy to use and easy to teach
- will highlight relevant aspects of clinical trials in oncology to be aware of

## **BUT**

Reading papers is a skill that requires continuous effort and practice, so you will not be proficient after this session.

# Why advocates should care about Science

- Reading original scientific literature is the fastest and most reliable way to find out what is going on in your field
- Medical progress depends on progress in Science
- The way Science is conducted is not a law of Nature but based on common principles of understanding- which can change and affect outcomes for patients
- one can only influence what one understands
- it is impossible to provide accurate healthcare information to patients without an accurate understanding of the underlying Science

## YOUR RESPONSIBILITY

**Medical Information  
you share has to be  
up-to-date and  
accurate.**

And therefore needs to  
be

- Referenced
- Dated.

# Scientific thinking is the basis for evidence-based advocacy

# The essence of modern Science.

Falsification- or the art of nit-picking.

# Verification versus Falsification.

## The difference between being right and not being wrong.

Modern Science assumes that we always miss a part of the total truth- there is always something we don't know.

This means that we can never really prove we're right about- or VERIFY- our claims.

We can only prove we are not wrong by checking for all potential mistakes- and once we've shown endless ways of not being wrong, people will generally accept we're (kind of) right. FOR NOW.

So reading papers is about looking for potential mistakes that could mean that the authors' interpretation is wrong.

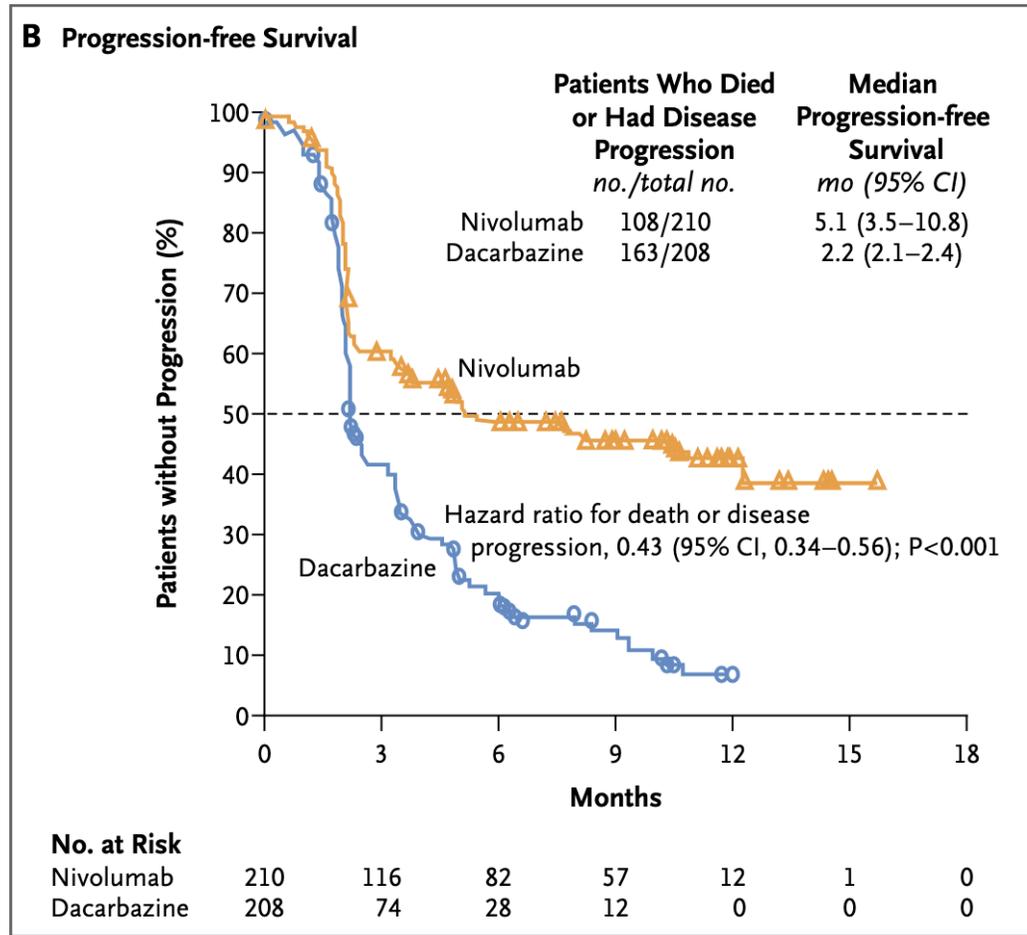
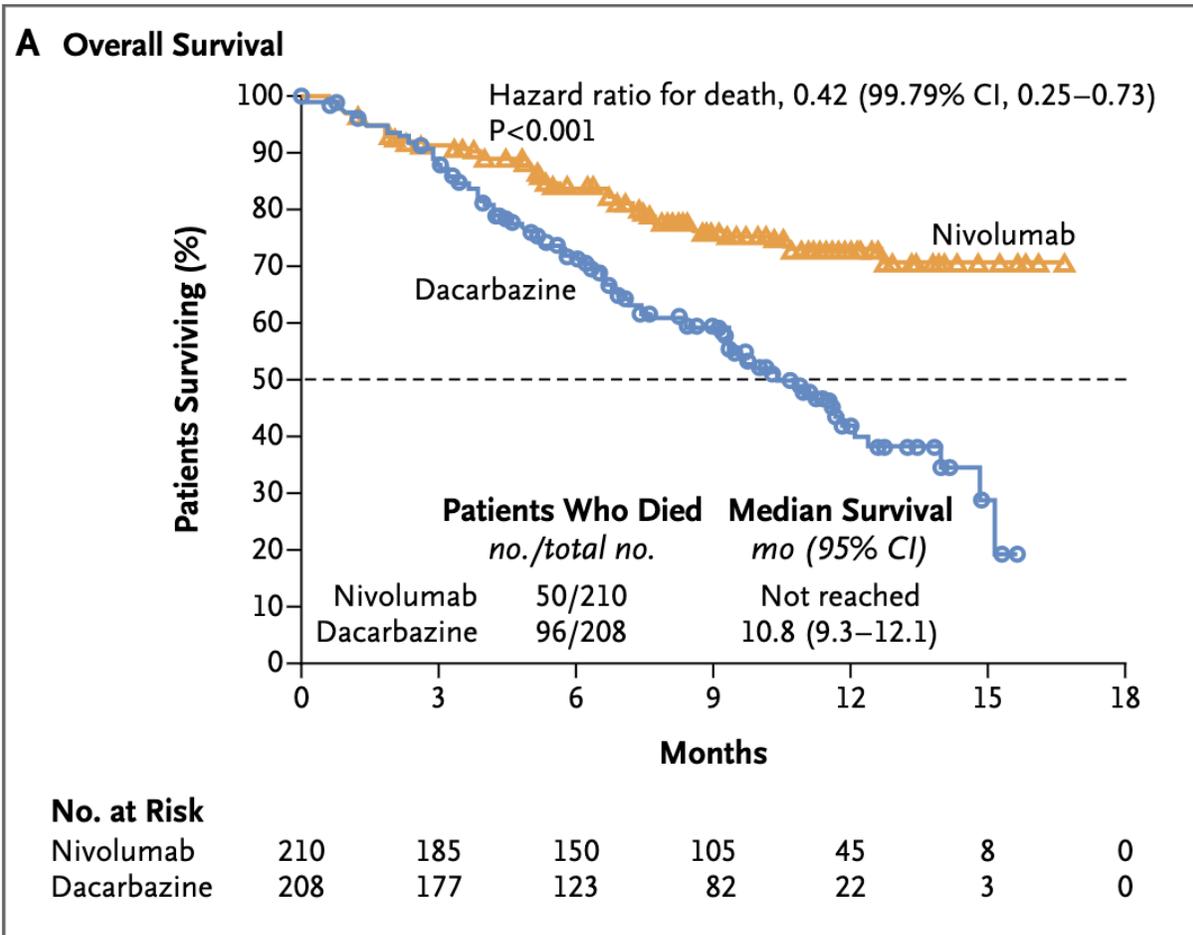
# The good news

'Science isn't about authority, or white coats, it's about following a method'

Ben Goldacre in the 'Bad Science' column in The Guardian <https://www.theguardian.com/science/series/badscience>

'Don't trust statistics you haven't  
faked yourself'

Why the devil is in the detail and having a best friend statistician is worth a lot.



#### Figure 1. Survival End Points.

Panel A shows the Kaplan–Meier curves for overall survival. The median follow-up for overall survival was 8.9 months in the nivolumab group and 6.8 months in the dacarbazine group. Panel B shows the Kaplan–Meier curves for progression-free survival.

#### Source

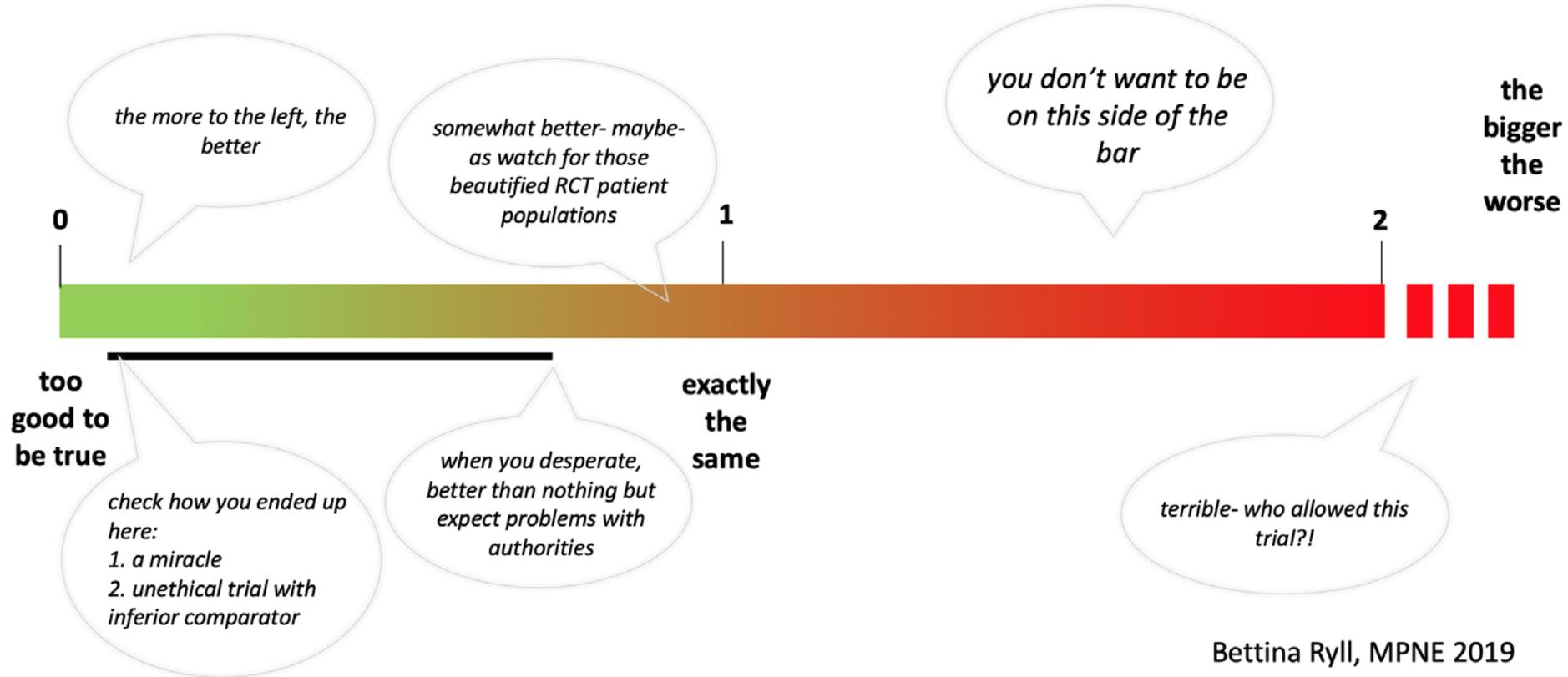
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$$\text{Hazard ratio} = \frac{\text{hazard in exposed group}}{\text{hazard in unexposed group}}$$

# Hazard Ratios

*commented*

$$\text{Hazard ratio} = \frac{\text{hazard in exposed group}}{\text{hazard in unexposed group}}$$



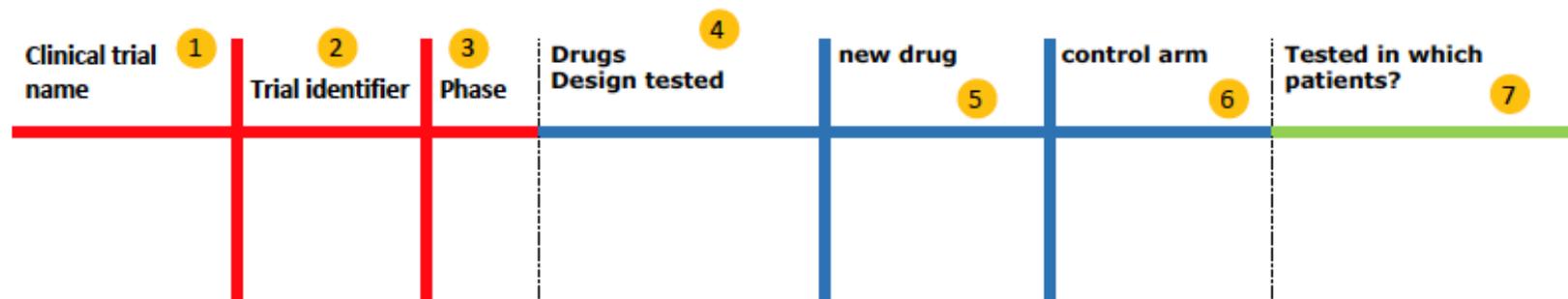
# Hands-on session

# The anatomy of a scientific paper

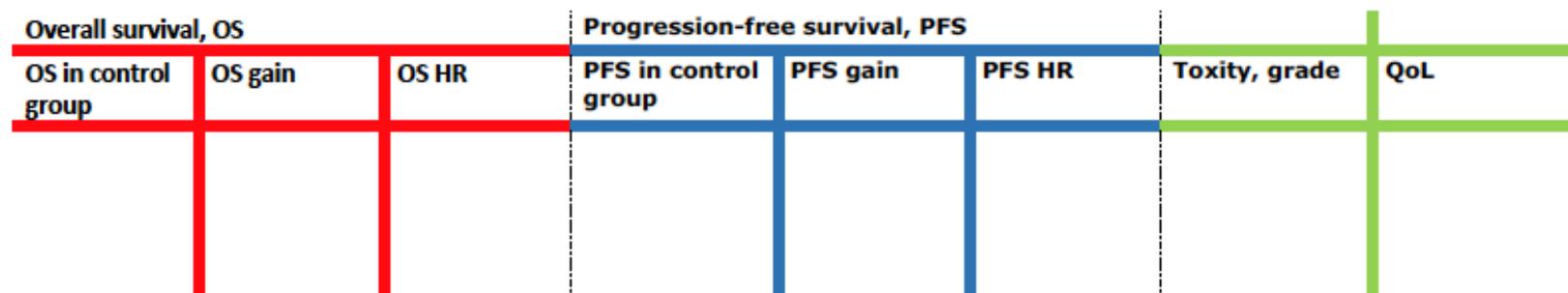
- Abstract
- Introduction
- Materials and Methods
- **Results**
- Discussion
- Conclusion

*Note- the Journal prescribes the order of the sections, so Materials and Methods are often at the end, and some have a combined Discussion/ Conclusion.*

## THE READ-A-STUDY QUICK SHEET



8  
Primary End point:



B. Ryll for WECAN Academy 2019, modified after original ESMO MCBS tool

# Discussion of the publications