CONVERTING OR TO RD FOR DECISION MAKING

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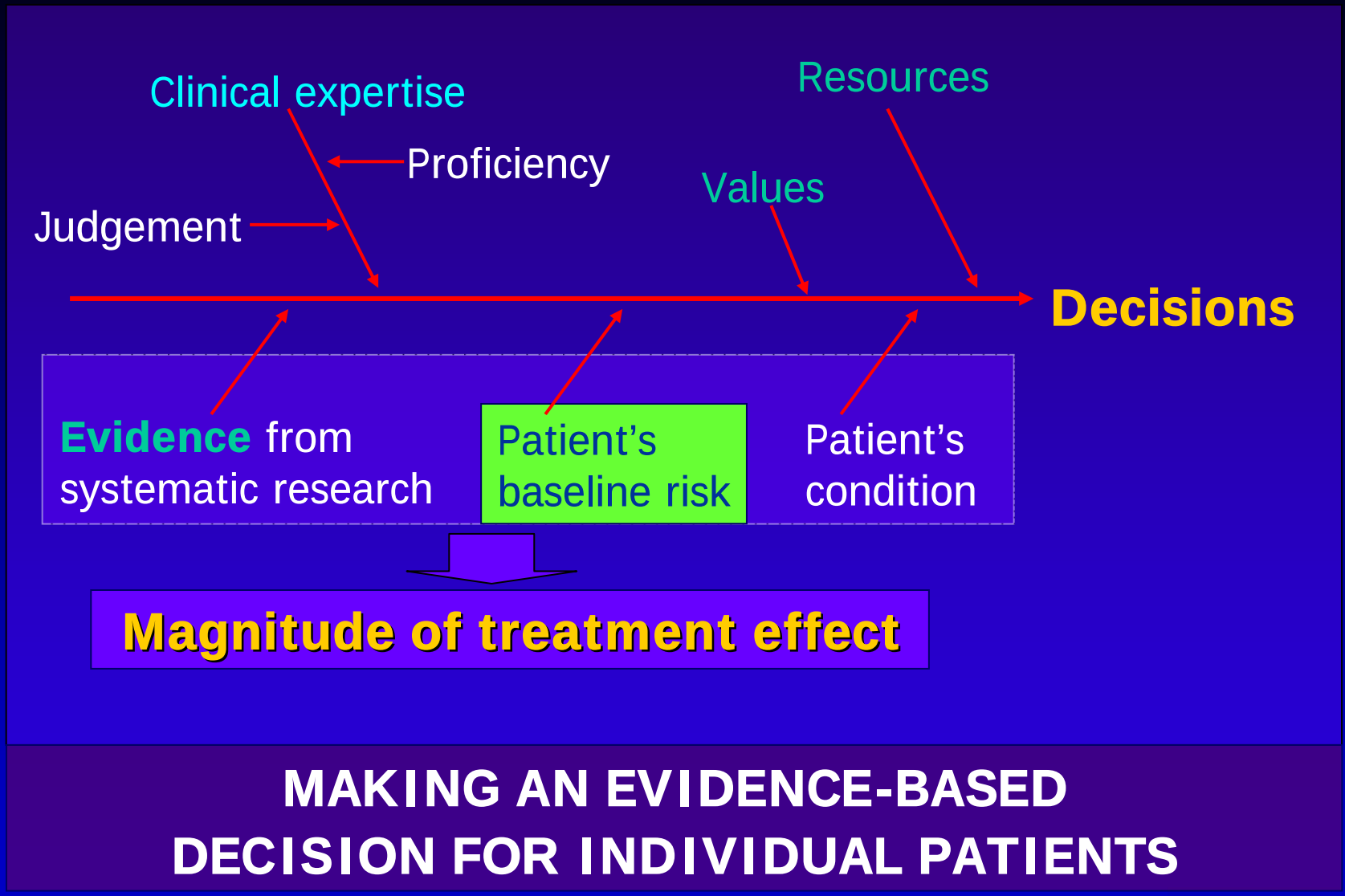


MAKING AN EVIDENCE-BASED DECISION FOR INDIVIDUAL PATIENTS

MAGNITUDE OF EFFECT

Absolute effect measures

- Risk Difference (RD)
- Number Needed to Treat (NNT)

Relative effect measures

- Relative Risk (RR)
- Relative Risk Reduction (RRR)
- Odds Ratio (OR)

THE RELATIVE EFFECT

In addition to some appealing statistical properties, the relative effect, in particular the OR, tends to be constant across populations and in different situations.

Thus, most meta-analyses use the homogeneous OR to combine different studies.

ANTIHYPERTENSIVE DRUGS AND STROKE

Collins R, et al. Blood pressure, stroke, and coronary heart disease. Part 2, short term reduction in blood pressure: overview of randomized drug trials in their epidemiological context. Lancet 1990; 335: 827-38.

OR=0.58

95% CI: 0.50-0.67

RR=OR=0.58

RRR=1-RR=42%

ANTIHYPERTENSIVE DRUGS AND STROKE
RELATIVE VS ABSOLUTE EFFECT

RR=OR=0.6, RRR=1-RR=40%

Population 1

Mortality due to stroke	**1.0%**
Reduced to	**0.6%**
Deaths avoided in 1000 persons treated	**4**

Population 2

Mortality due to stroke	**10%**
Reduced to	**6%**
Deaths avoided in 1000 persons treated	**40**

THE ABSOLUTE EFFECT

The absolute effect is more intuitive and useful in clinical application.

If the relative effect is constant, the absolute effect will vary across populations!

In the case of antihypertensive drugs and stroke:

The OR remains similar for different patients but the absolute effect varies according to the risk of cardiovascular disease in your own patients in the absence of treatment!

CONVERTING OR TO RD: A FORMULA

$$RD = \frac{OR \times P_C}{1 - P_C + OR \times P_C} - P_C$$

OR is the combined OR of a meta-analysis

P_C is the frequency of outcome events if there is no treatment in your patients

CONVERTING OR TO RD: A EXAMPLE

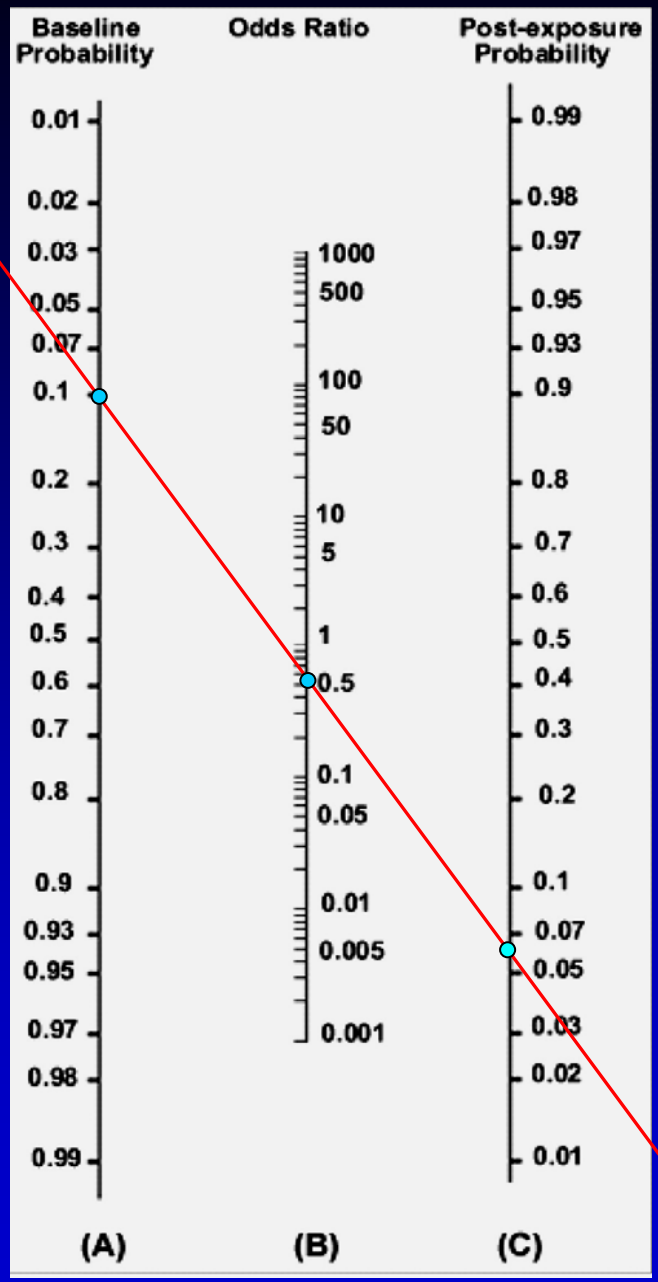
If OR=0.60 and P_c=0.10

$$RD = \frac{0.6 \times 0.1}{1 - 0.1 + 0.6 \times 0.1} - 0.1$$

RD = -0.0375

NNT= 1/0.0375=27

CONVERTING OR-RD: A MONOGRAM



A=0.1

B=0.60

C=0.6

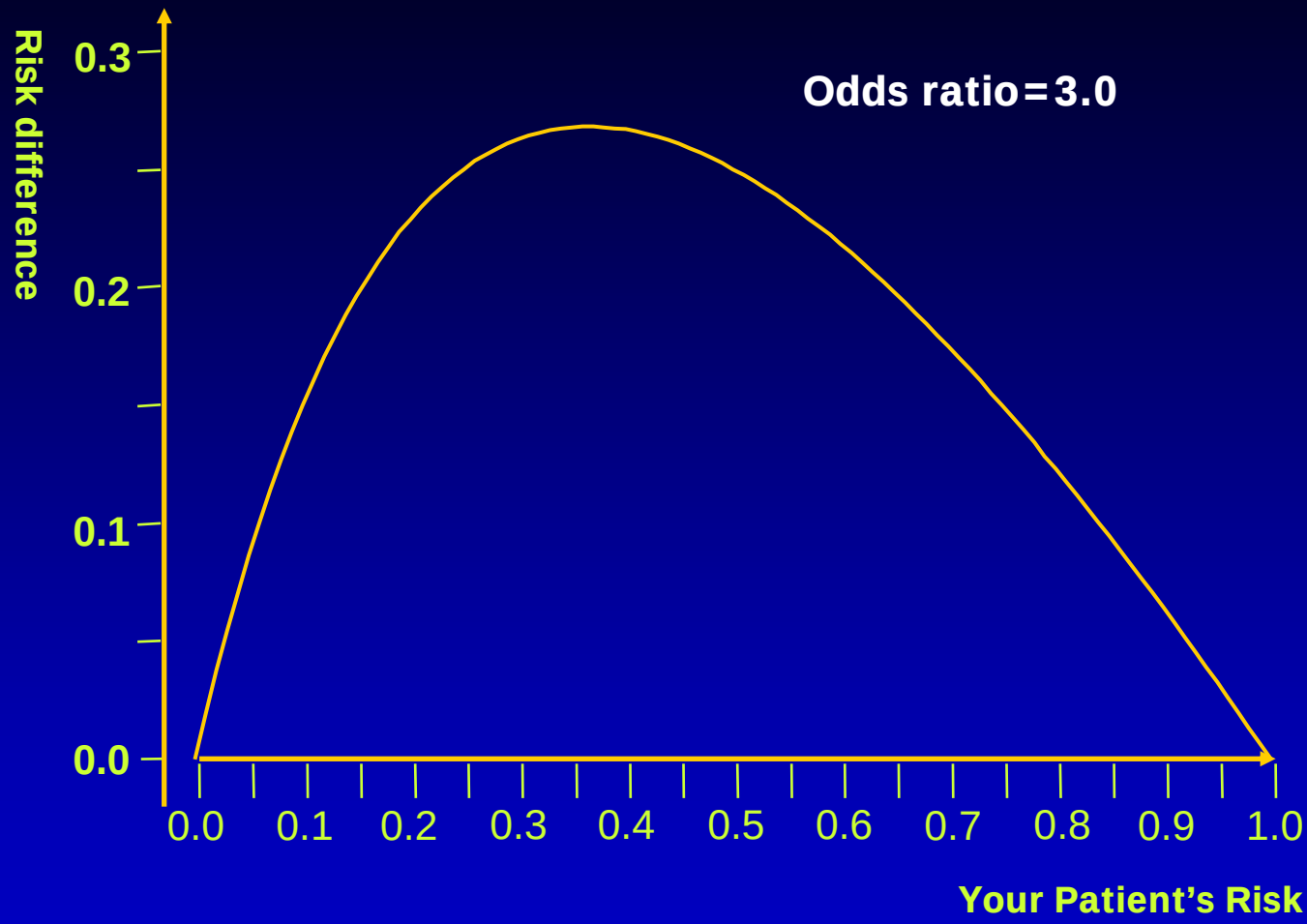
RD=C-A=-0.04

NNT=0.25

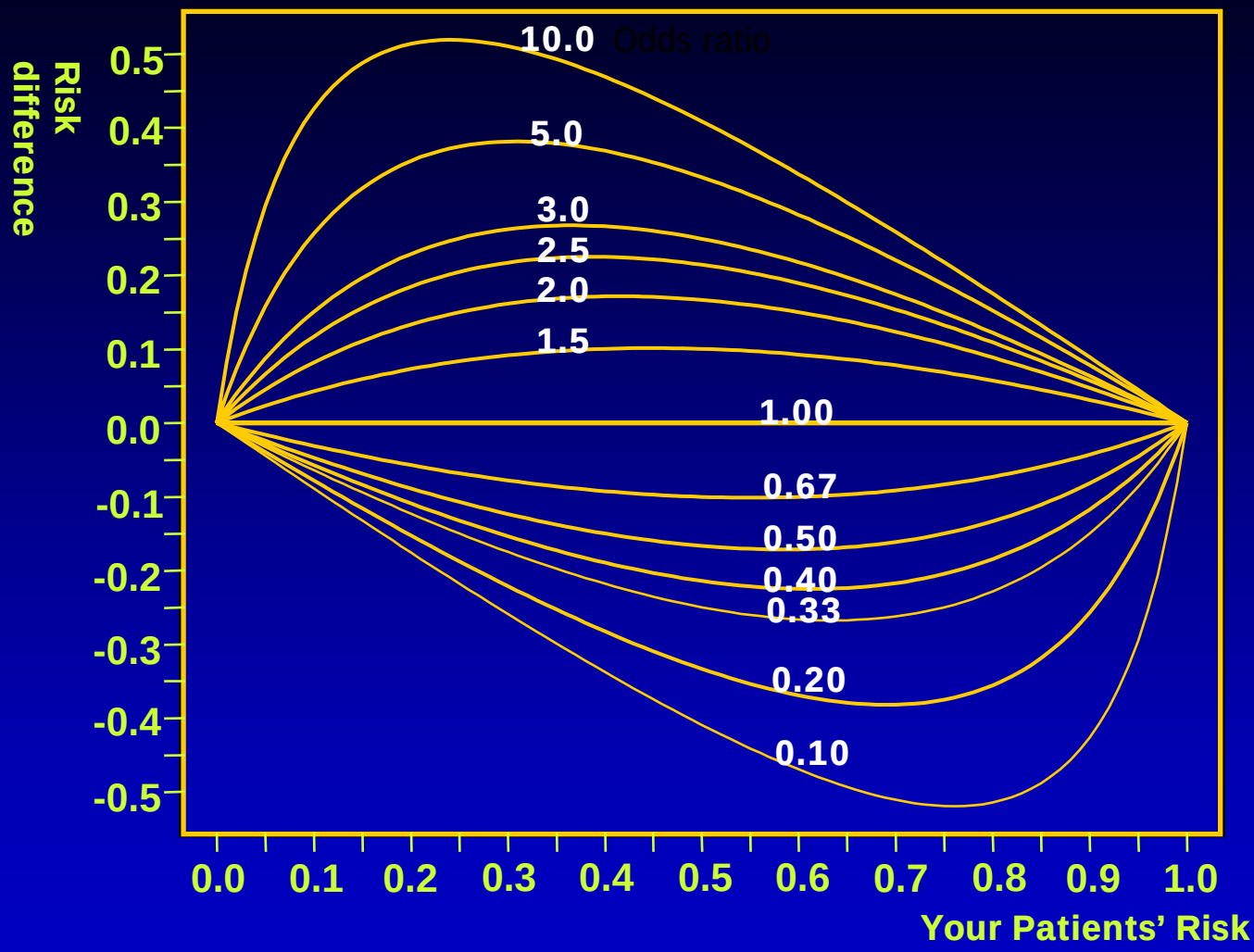
- **It is the average benefit in your own patients.**
- **What patients would benefit most in theory?**
- **What patients would benefit most in reality?**
- How do your patient's benefit compare with others'?
- How would the benefit change as patient's risk change?
- **What is your patient's largest possible benefit?**
- **What is your patient's smallest possible benefit?**

CONVERTING OR TO RD

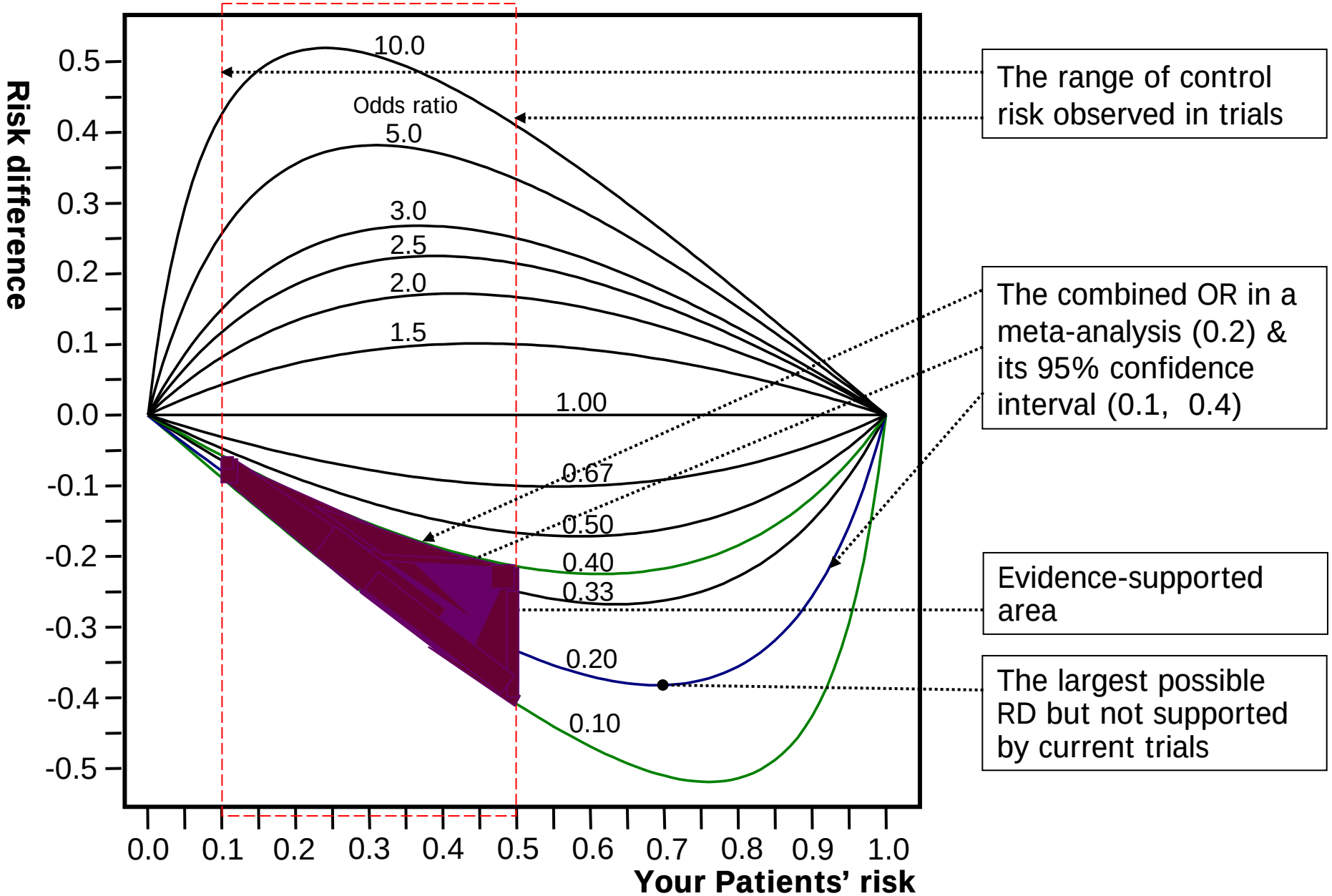
1. Formula
2. Monogram
3. OR-RD Conversion Chart



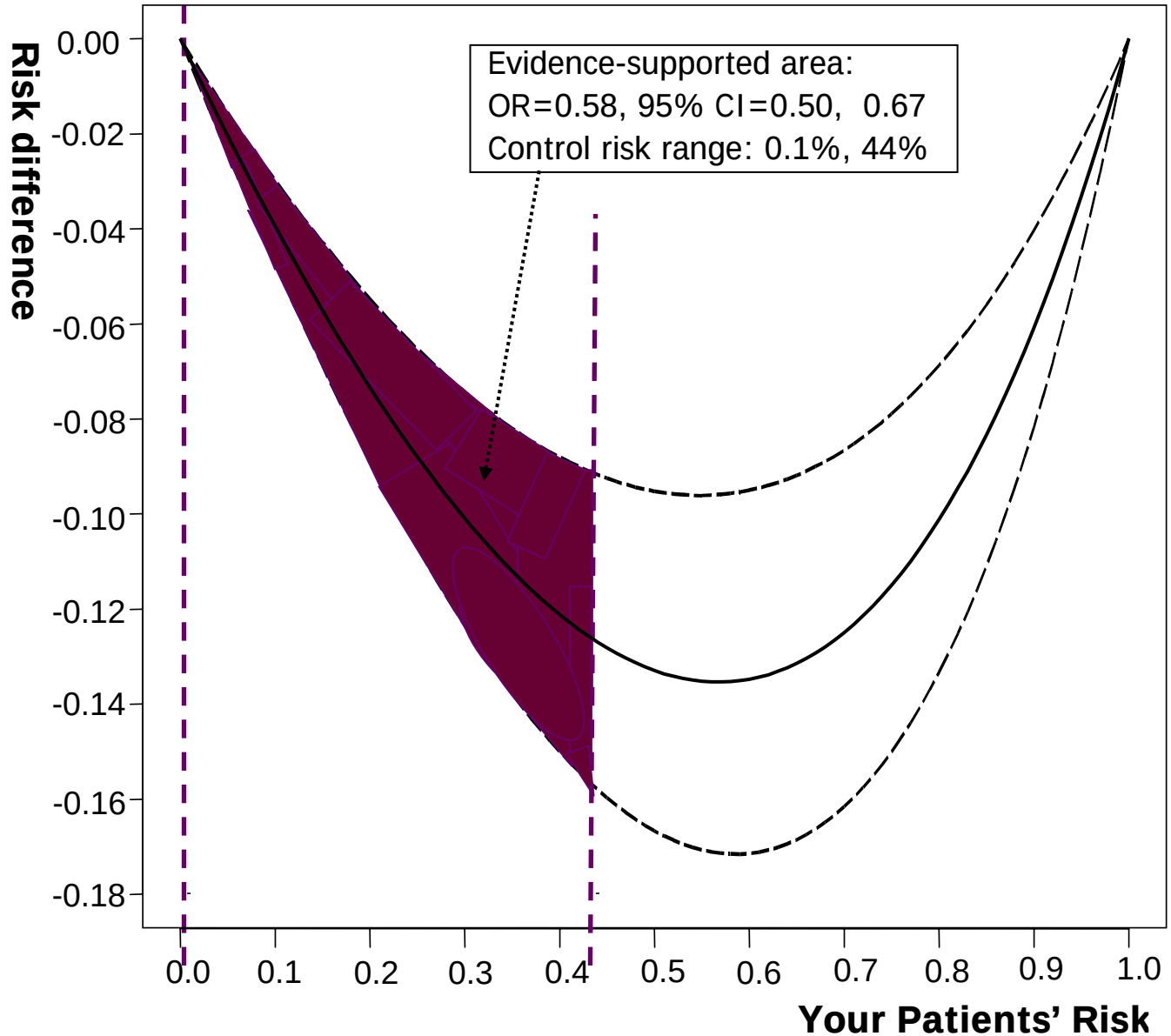
Risk Difference by Patient's Risk



A General OR-RD Conversion Chart



OR-RD Conversion Chart: Define the Evidence-Supported Area



OR-RD Conversion Chart:

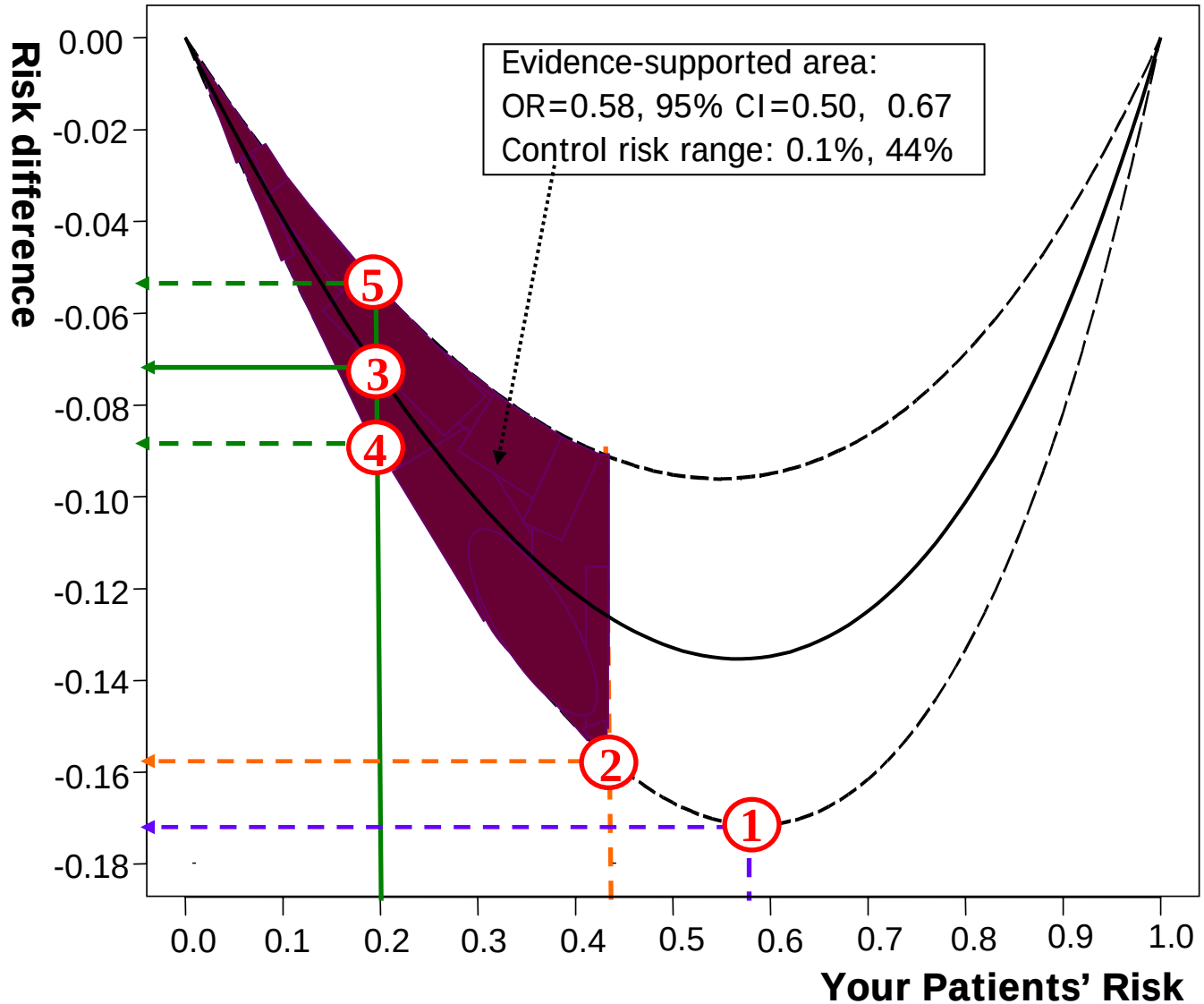
Antihypertensive Drugs for Prevention of Stroke

(Data from Collins et al, Lancet 1990;335:827-38)

THE OR-RD CHART CAN HELP WITH FOLLOWING QUESTIONS

① What patients would benefit most in theory?
② What patients would benefit most in reality?
③ What is the average benefit in your patient?
④ What is your patient's largest possible benefit?
⑤ What is your patient's smallest possible benefit?

- How do your patient's benefit compare with others'?
- How would the benefit change with patient's risk?



OR-RD Conversion Chart:
Antihypertensive Drugs for Prevention of Stroke
Put Your Patients in the Context
(Data from Collins et al, Lancet 1990;335:827-38)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