

Patients and doctors: communicating statistics in an emotional situation

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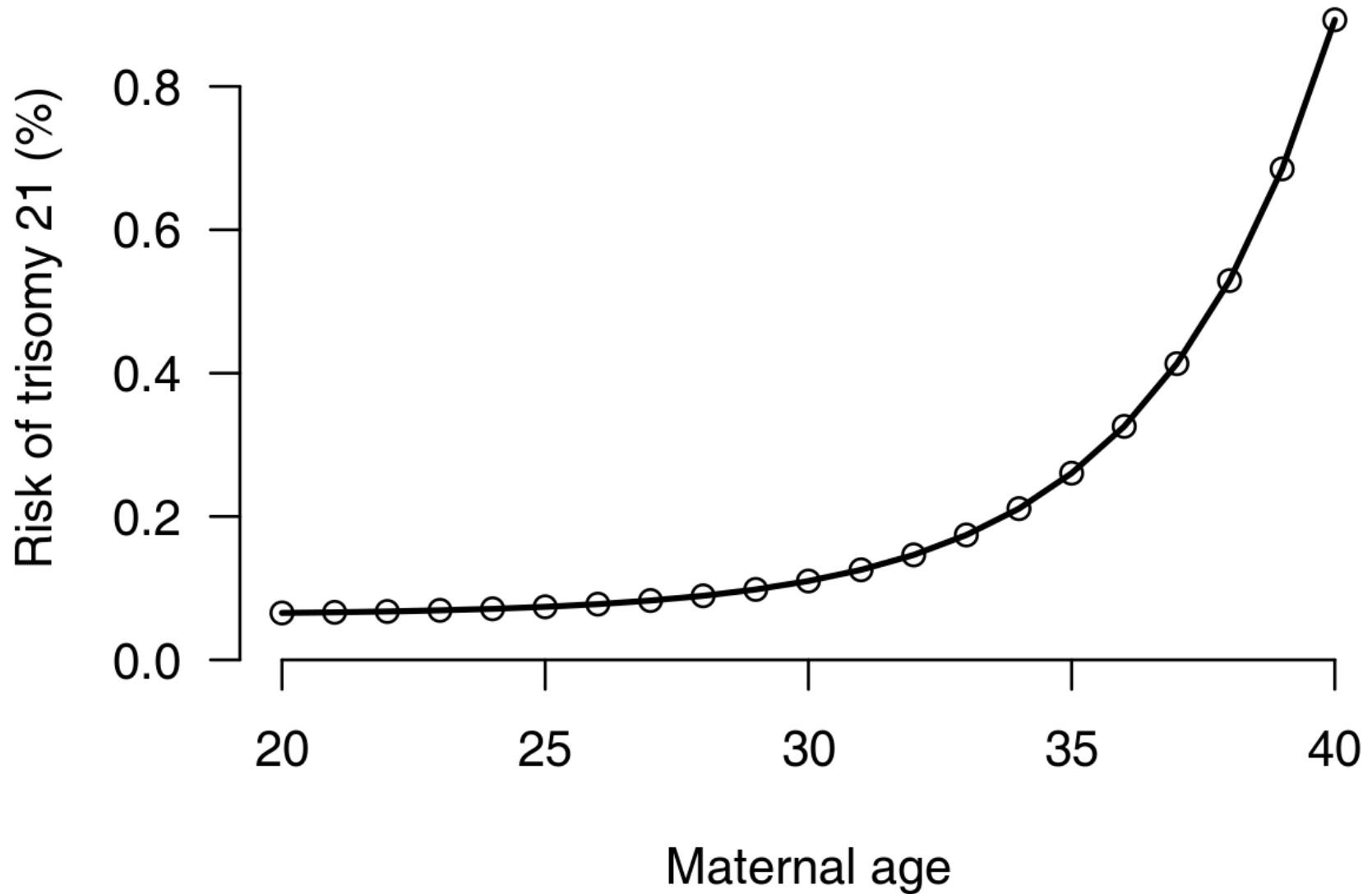
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Case study 1

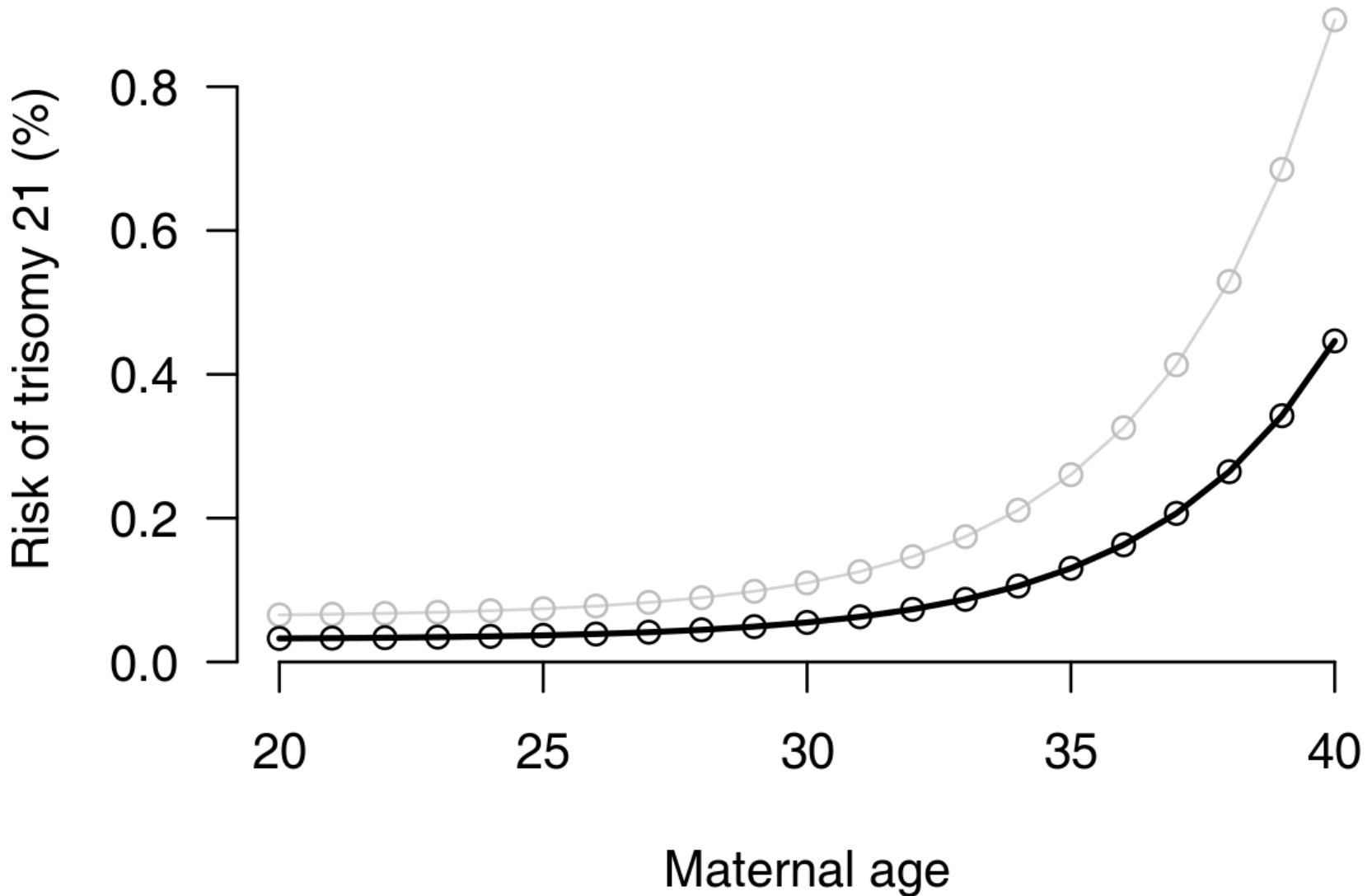
Should I do an amniocentesis ?

Risk of trisomy 21

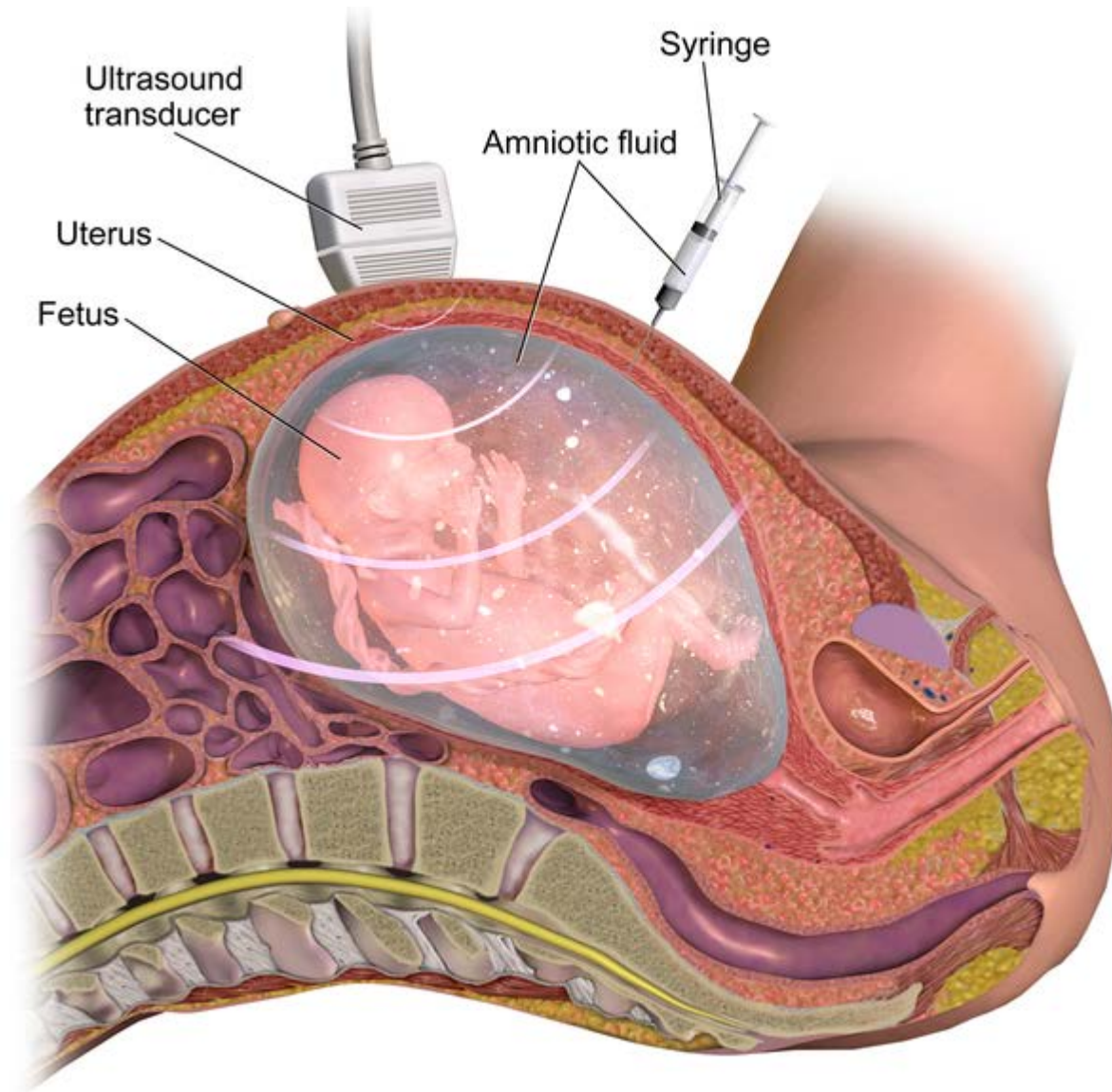
Risk of trisomy 21 according to age of mother



Risk of trisomy 21 according to age of mother and additional information (blood, ultrasound)



Amniocentesis

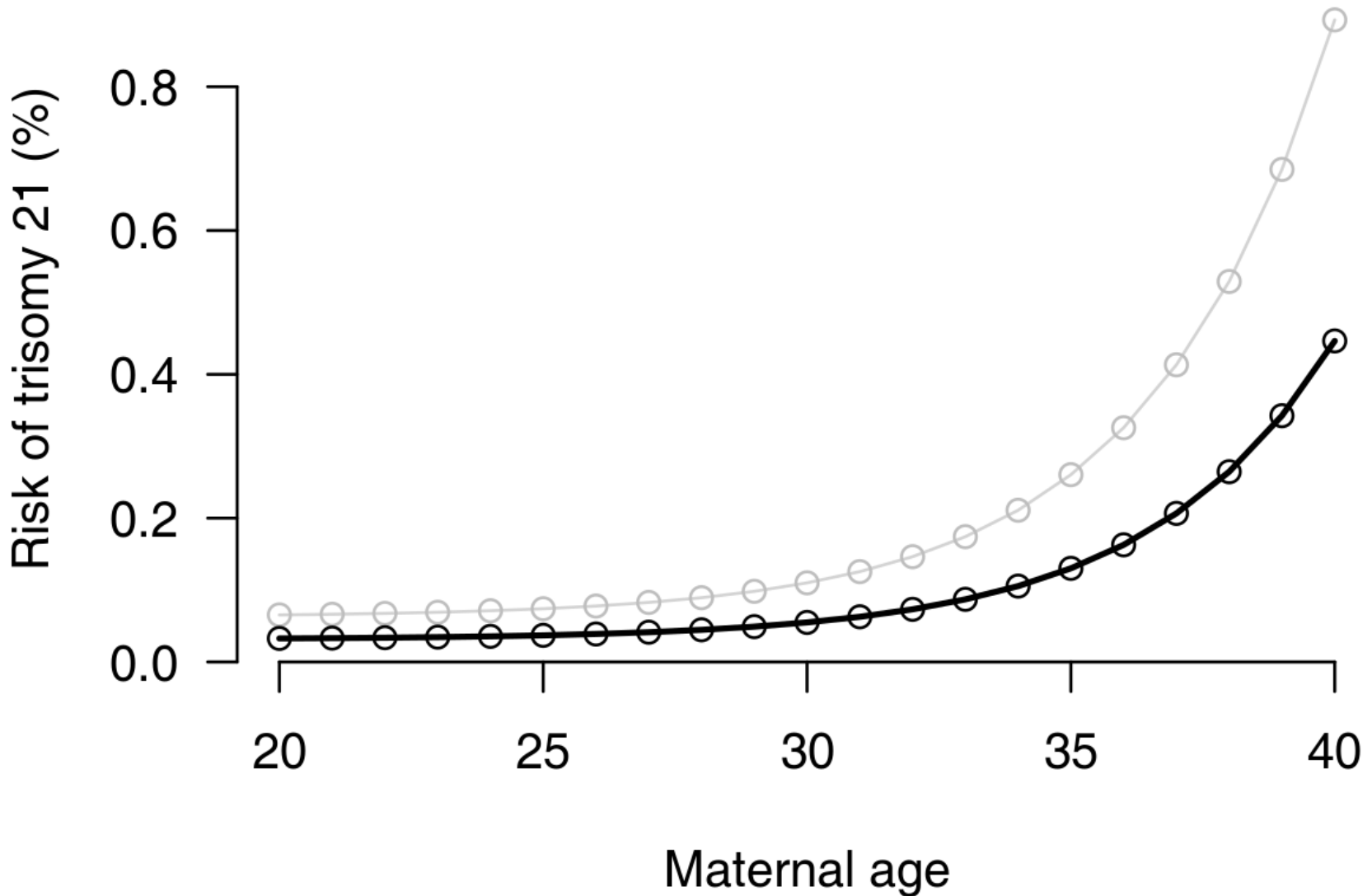


« *A miscarriage is thought to occur in **0.2 to 0.3 percent** of amniocentesis procedures. This translates to a risk of miscarriage in between **1 in 300 and 1 in 500 pregnancies.** »*

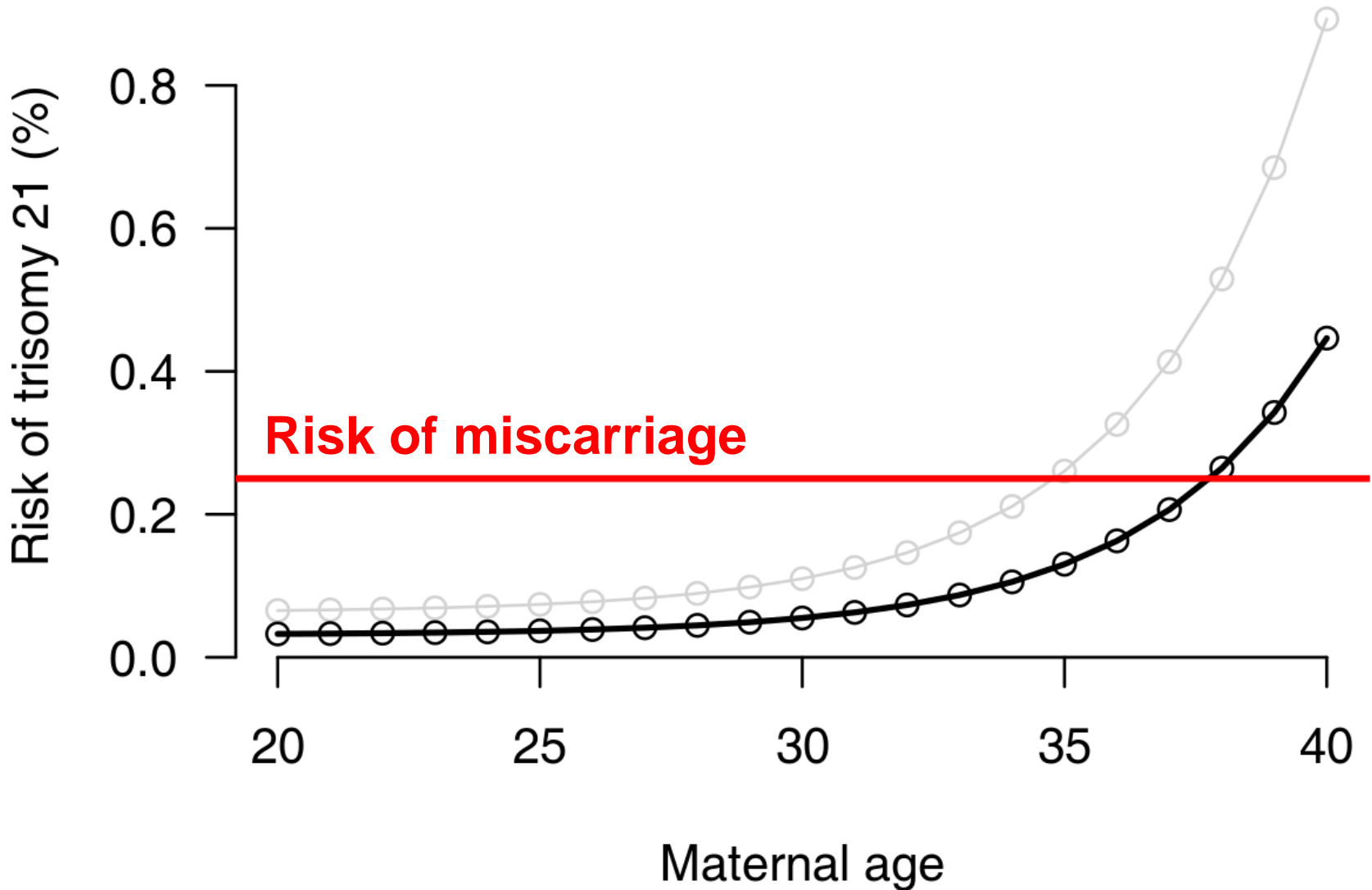
*– Krissi Danielsson
Miscarriage Risk After Amniocentesis*

How to choose between
the risk of trisomy 21
and the risk of a miscarriage ?

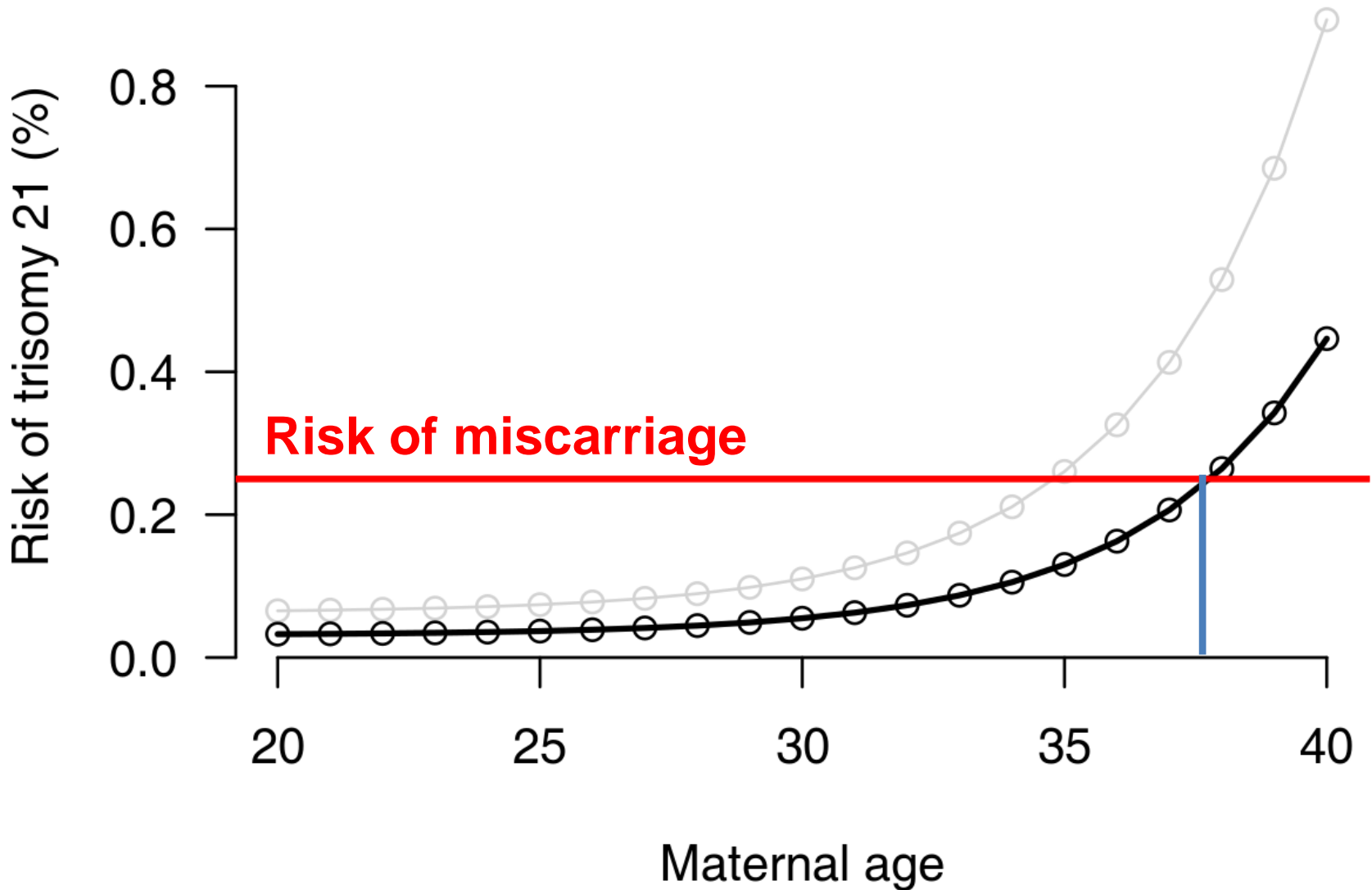
Risk of trisomy 21 according to age of mother and additional information (blood, ultrasound)



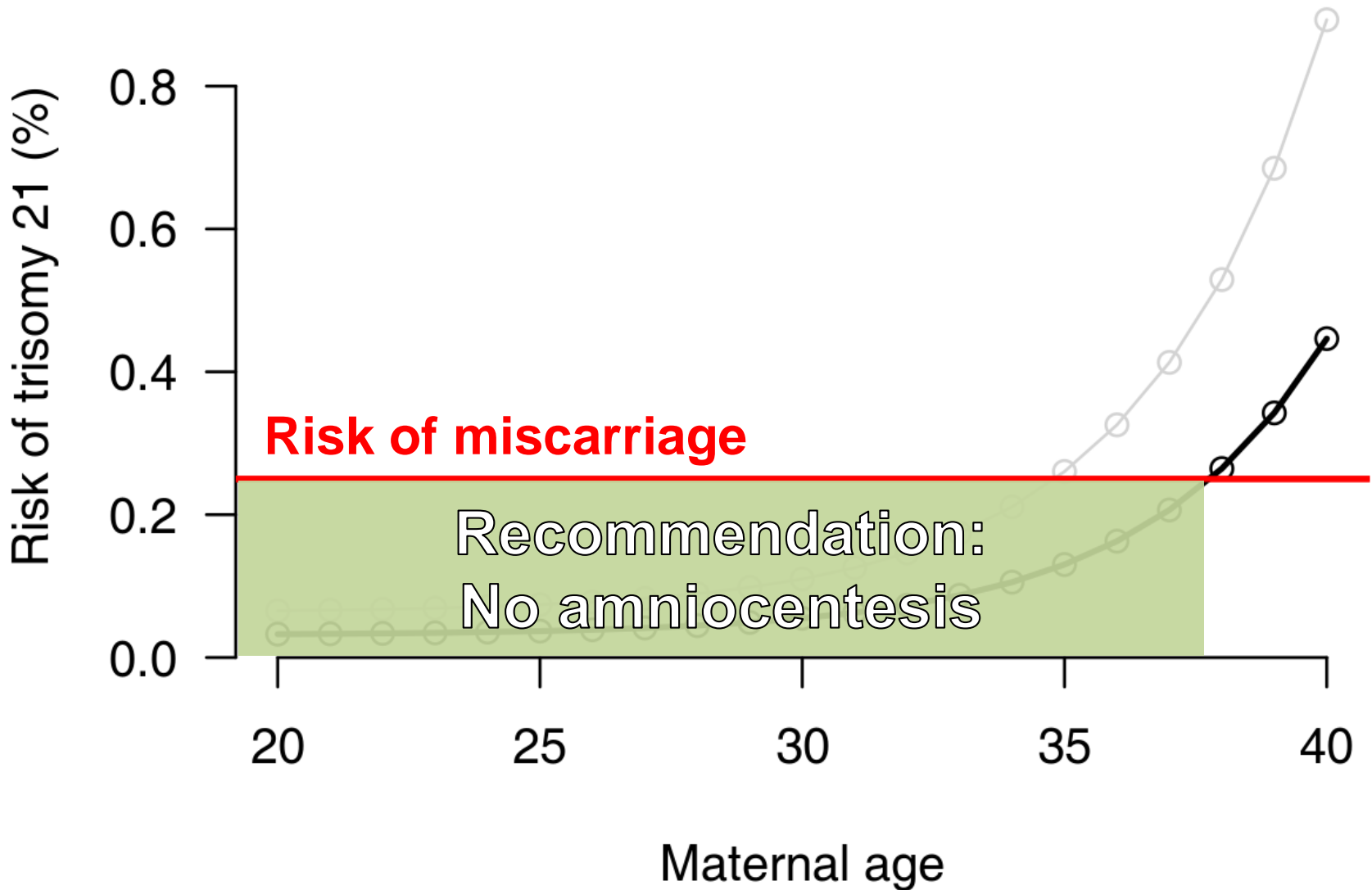
Risk of trisomy 21 according to age of mother and additional information (blood, ultrasound)



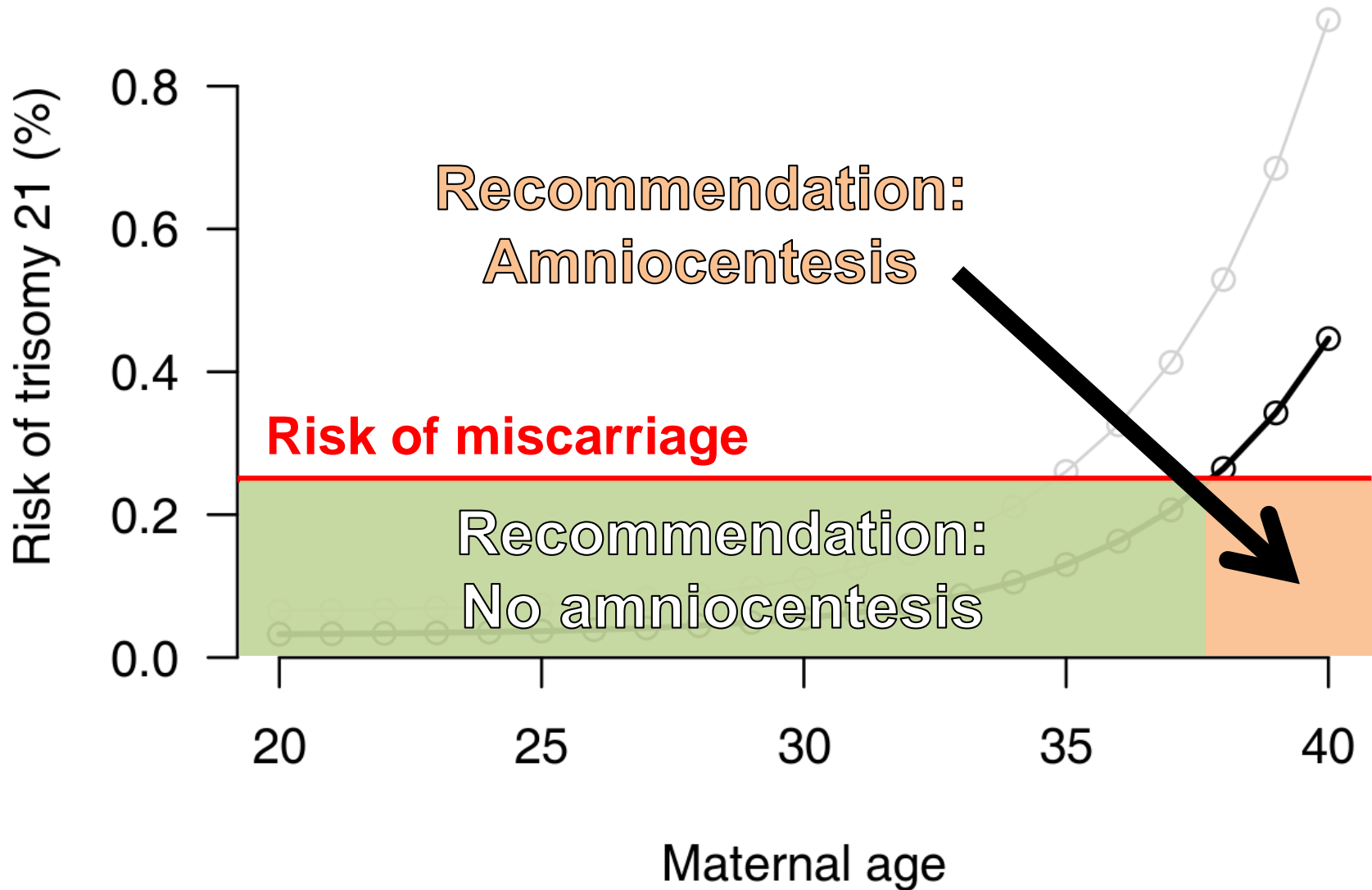
Risk of trisomy 21 according to age of mother and additional information (blood, ultrasound)



Risk of trisomy 21 according to age of mother and additional information (blood, ultrasound)



Risk of trisomy 21 according to age of mother and additional information (blood, ultrasound)



« If the probability of a trisomy 21 is above the probability of a miscarriage, then you should do an amniocentesis. »

- ✓ The physician presented all the available risk information
- ✗ He directly compared two probabilities, without considering the consequence of each event

Case study 2
Should I do
this chemotherapy treatment ?

*« If you follow this chemotherapy treatment, you will reduce the probability of a relapse by **30%**. »*

– An anonymous oncologist

✘ No baseline (or absolute risk) is provided
[despite repeated requests]

✘ No indication about the probability of side effects are provided

.

Why do they do this ?

Why do they do this ?

- They do not know the real answer
- They do not understand probabilities/statistics
- They want to simplify their patient's choice
- They want to force their patient to choose a given option

They do not know the real answer

They do not understand probabilities

They want to simplify
their patient's choice

They want to force their patient
to choose a given option

Why do they do this ?

- They do not know the real answer
- They do not understand probabilities/statistics
- They want to simplify their patient's choice
- They want to force their patient to choose a given option

**What can we learn from
these two examples ?**

The statistics are only an excuse:
they are not really used to help
making a choice, but only to make
the emotional choice look rational

What shall we do ?

Conclusions

**This type of issue will become
more and more prevalent**

"Personalized medicine"

Teach more statistics

or

Teach statistics differently ?

Numeracy, Graphicacy

Percentages vs natural frequencies

30%-50% of patients

VS

3-5 people out of 10

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**In practice:
improve the communication
of statistical information as
early as possible**

Thank you!