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Methods Projects

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Department for Evidence-based Medicine and Clinical Epidemiology

Danube-University Krems

Trusted evidence.

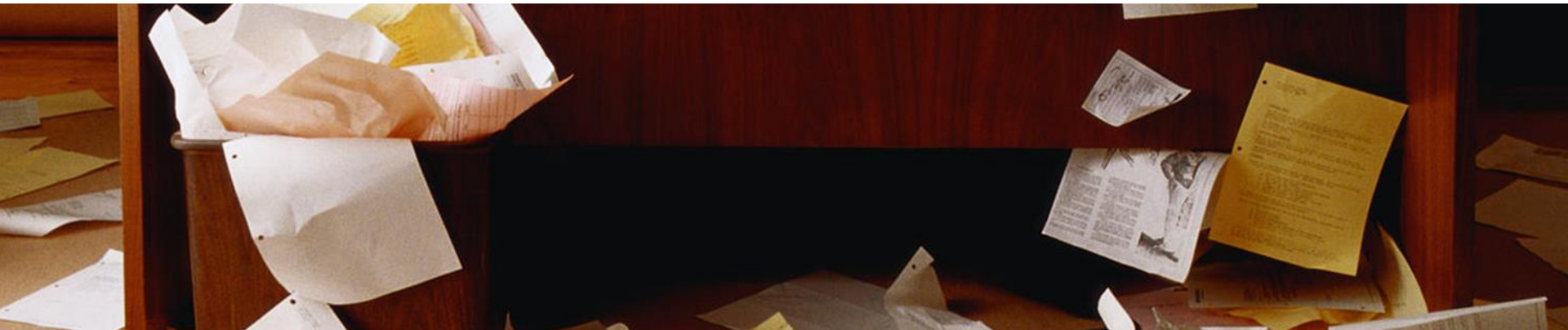
Informed decisions.

Better health.

This research is funded by Cochrane Austria

I have no actual or potential conflict of interest in relation to this presentation.

Information overload



Systematic Reviews

- High methodological standards
- Most reliable & valid support for health policy decision-making and guideline development
- Often do **not** meet **time-sensitive needs** of decision-makers

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Pragmatic alternative: Rapid Reviews

- Produced in **shorter time frame**
- **Simplify certain methodological aspects** of systematic reviews (diverse approaches)
- Potential trade-off = **uncertainty** about the correctness of results plays a **larger** role
- Lead to an **increased risk of making incorrect decisions or recommendations**

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2 methods projects

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Project 1: Aim

To determine the **level of risk** of getting an incorrect answer that guideline developers and health policy decision-makers are **willing to accept** in exchange for an evidence-synthesis that can be provided and used faster than a full systematic review.

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Methods

- **International Web-based survey*** in English, German, Spanish
- **Anonymous**
- Conducted between **April to July 2016**
- **Nonrandom purposive sample** of **decision-makers and guideline developers**

* LimeSurvey 2.0 (www.limesurvey.org)

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Answering the survey

- **3 scenarios** (clinical treatment, clinical prevention, public health)
- Participants had to **quantify the maximum risk of getting an incorrect answer** that they are willing to accept in exchange for a rapid synthesis for each of the three scenarios
- **Hypothetical Assumption:** SR provides 100% certainty would take 18 months to be completed. A rapid review could be finished within 3 months but carries a risk of providing an incorrect answer.

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Scenario	Medical field	Description
Scenario 1	**Clinical Treatment**	A new drug has the potential to heal a chronic infectious disease (prevalence 3%) for which no cure has been available to date. The drug is extremely expensive (US$ 84,000 per course of treatment, approximately US$ 50,000 per quality-adjusted life year gained), and it does not work for all genotypes of the infectious agent. Furthermore, it can lead to serious side effects in rare cases.
Scenario 2	**Public Health Intervention**	A new vaccination has the potential to prevent a particular type of cancer (incidence 9.9/100,000 per year), but no long-term studies showing the effectiveness are available to date. Preliminary data on the reduction of infection rates of the cancer-causing virus are promising. Interest groups are pushing heavily for health officials to recommend the vaccine and for insurance plans to cover the costs. The costs of a population-wide vaccination campaign would be substantial (US$ 43,600 per quality-adjusted life year gained).
Scenario 3	**Clinical Prevention**	A drug class has been widely prescribed for the primary and secondary prevention of cardiovascular disease. The number needed to treat to prevent one cardiovascular event is 71 (over 10 years at a cost of €35,000 per quality-adjusted life year gained). Several new drugs within this class have been approved recently. They are heavily marketed by the industry but, despite higher costs, whether they have any therapeutic benefit compared with that from older drugs remains unclear.

Sample (n= 334)

Type of evidence-user:

- Decision-maker: 147 (44%)
- GL-developer: 144 (43%)
- Other: 43 (13%)

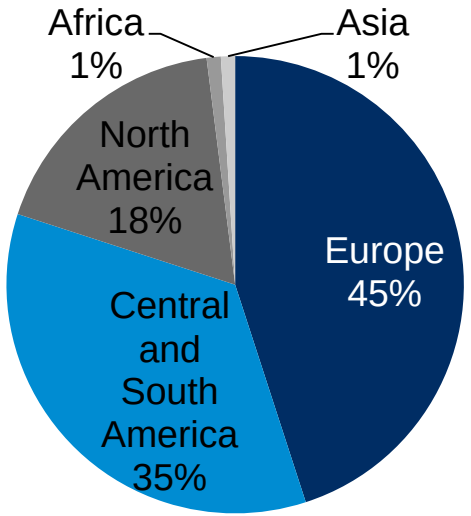
Sex:

52% female, 48% male

Age:

- < 30 years: 5%
- 31-40 years: 23%
- 41-50 years: 28%
- 51-60 years: 34%
- > 60 years: 10%

Residence by continent:



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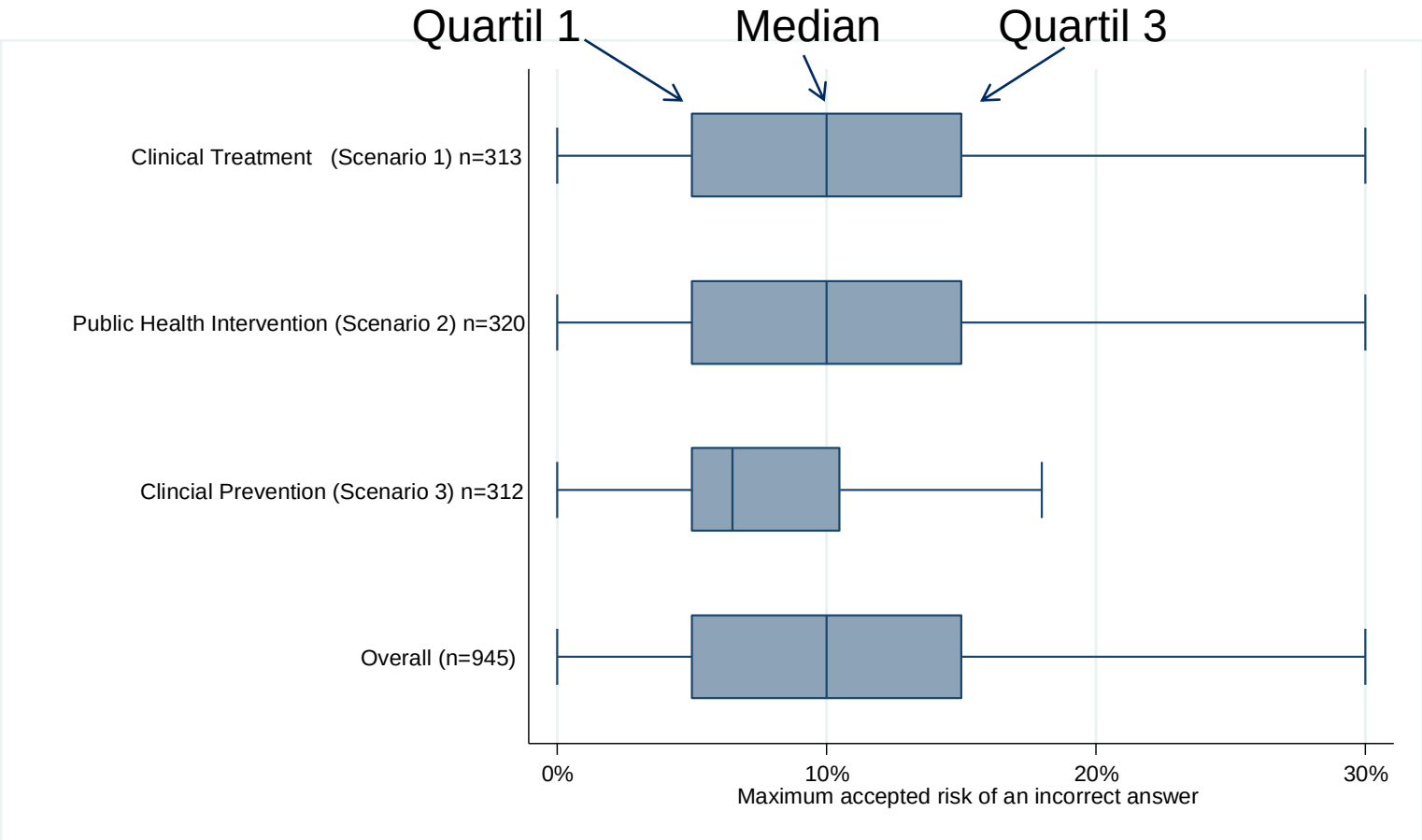
Results

Accepted risk of getting an incorrect answer for each clinical scenario; median



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Project 2: Aim

- Do bodies of evidence that are based on abbreviated literature searches lead to different conclusions about benefits and harms of interventions compared with bodies of evidence that are based on comprehensive, systematic literature searches?

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Methods

- **Non-inferiority** and **meta-epidemiologic** design
- Goldstandard = Cochrane reviews
- **Abbreviated Searches:** Original search strategy, but only for MEDLINE, Embase, ENCTRAL (alone or in combination) + Ref.

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Determing sample size

Non-inferiority margin	Required sample size
2%	516
3%	313
5%	139
7%	86
10%	60
12%	50
15%	30

All calculations are based on a significance level of 0.025 and a power of 0.9.

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Inclusion criteria

- Sufficient evidence to draw conclusion
- Summary-of-findings table
- Meta-analysis can be recalculated
- Search reported in enough detail to replicate
- Most recent literature search was run in 2012 or later
- Review focuses on clinical or public health topic
  - cardiovascular disease (e.g., myocardial infarction)
  - cerebrovascular disease (e.g., stroke)
  - osteoarthritis
  - chronic respiratory conditions (e.g., chronic obstructive pulmonary disease)
  - mental health

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Primary outcome

- If searches could not detect all studies, we will **revise the main summary of findings table** and **ask review authors** whether the missed evidence would **change conclusions** of their report.

- Determine the **proportion of discordant conclusions for each abbreviated search approach** & assess whether the lower limit of the confidence interval crosses the **non-inferiority margin**.

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Survey – authors indicate

1. The body of evidence based on an abbreviated search would lead to the **same conclusion** (concordant conclusion).

2. The body of evidence based on an abbreviated search would lead to a **different conclusion** (discordant conclusion).

- conclusion less definitive, but maintained the direction
- can no longer draw a conclusion
- changed the direction of the conclusion and less definitive
- changed the direction of the conclusion, and state the newly derived conclusion in absolute terms

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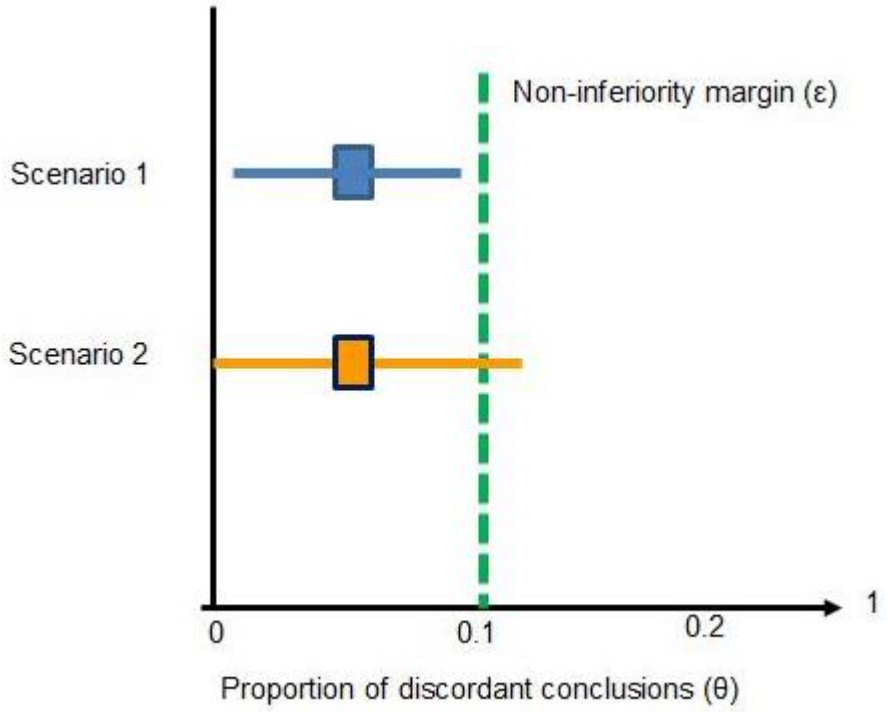
Two different possible results of a non-inferiority study comparing abbreviated searches with systematic searches



Secondary outcome

- Focus on the **primary outcome for efficacy and harm** of each included Cochrane report
- Only include **dichotomous** outcomes
- **Ratios of odds ratios** & random effects models
- Assessing **concordance of effect estimates**

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Discussion

- **Methods projects**
  - questions, remarks?

- **General:**
  - What are relevant topics for future research projects in the field of rapid reviews?
  - Opportunities and risks of rapid reviews?

Thank you!

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