



THE ECOSYSTEM  
OF EVIDENCE

Lessons learned in the pandemic  
era and future challenges

10<sup>th</sup> International Conference for EBHC Teachers and Developers  
10<sup>th</sup> Conference of the International Society for EBHC  
Taormina, 25<sup>th</sup> - 28<sup>th</sup> October 2023

#EBHC2023



# Increasing value of health research

by making evidence-based  
funding decision



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Western Norway  
University of Applied  
Sciences

# Research Waste: Massive and Growing

“Globally, over 85% of **\$200 billion** spent on health research is wasted”



- **Financial cost**

“Research waste is still a scandal, there is a long way to go”

Chalmers et al. (2014), Chalmers and Glasziou (2009), Glasziou and Chalmers (2018), [www.researchamerica.org](http://www.researchamerica.org)



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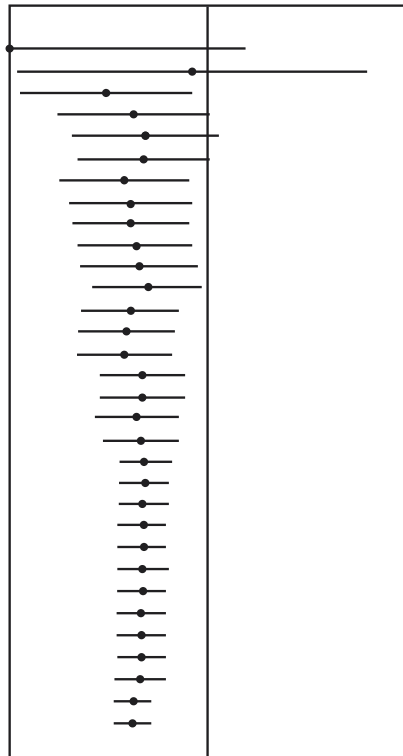
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GIMBE  
EVIDENCE FOR HEALTH

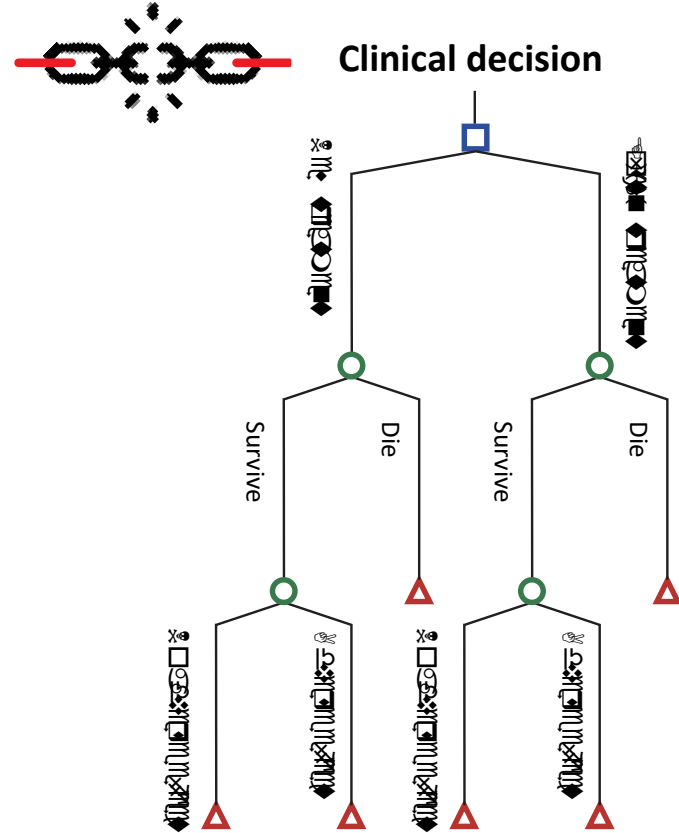
# Research Waste: Impact on Clinical Decision

Cumulative meta-analysis



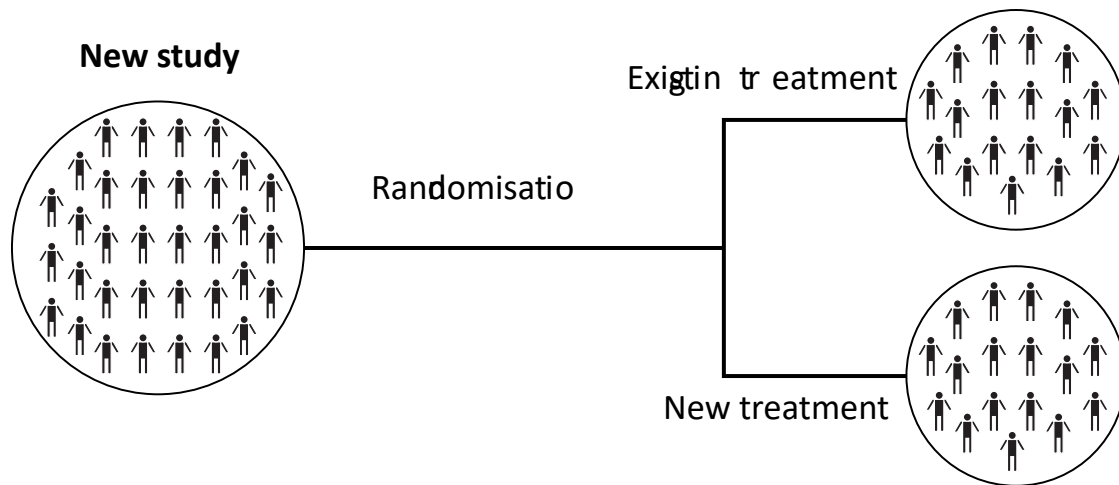
Favors new  
treatment

Favors existjn  
treatment



- Financial cost
- Best available evidence
- End-users' value

# Research Waste: Impact on Clinical Decision

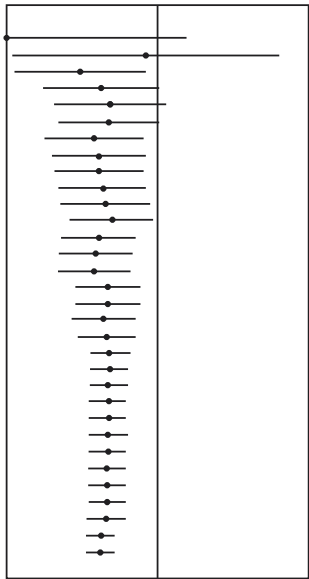


- **Financial cost**
- **Best available evidence**
- **End-users' value**
- **Ethical cost**

# Aim

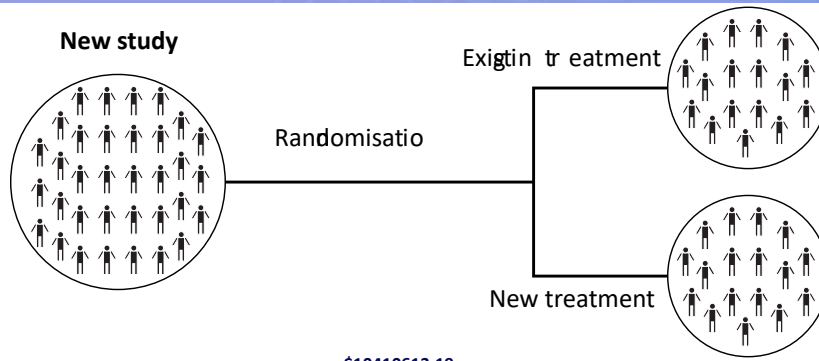
## 3. Financial cost

Cumulative meta-analysis



Favors new treatment

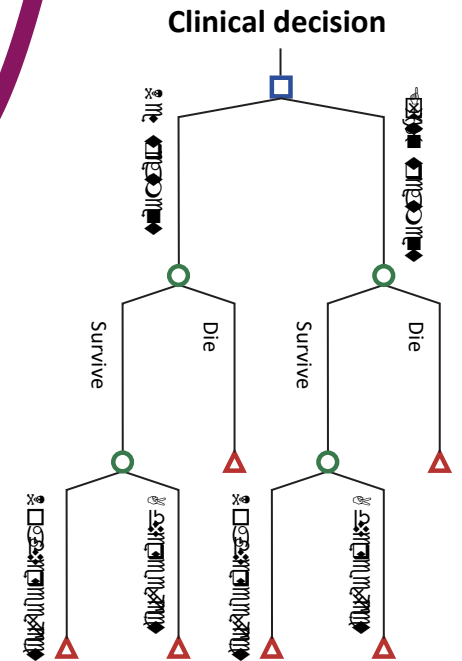
Favors existing treatment



## 4. Ethical cost

- \$10410613.19
- \$9138847.23
- \$9227563.11
- \$8373512.29
- \$8324817.22
- \$7285948.06
- \$6986726.31
- \$4543753.09
- \$2190823.34
- \$1073964.32
- \$632349.12
- \$492854.92
- \$190257.34
- \$81725.63
- \$34541.96
- \$9184.38
- \$1972.11
- (\$1501.05)
- (\$3699.62)
- \$6998.83
- \$7523.95
- \$7838.54
- \$9209.32
- (\$10928.82)
- (\$12873.12)
- \$19678.92
- \$23170.53
- \$26690.76
- \$30083.98
- \$37197.12
- (\$41716.09)
- (\$50198.33)

## 5. Research decision



## 2. End-users' value

## 1. Best available evidence

# Methods

## 1. Best available evidence

- Historical example
- Cumulative meta-analysis of RCTs by Lau et al. (1992)
- Streptokinase for acute myocardial infarction (AMI)

## 2. End-users' value

- Cost-effectiveness analysis by Midgette et al. (1994)
- Health maintenance organization perspective
- Value of information analysis

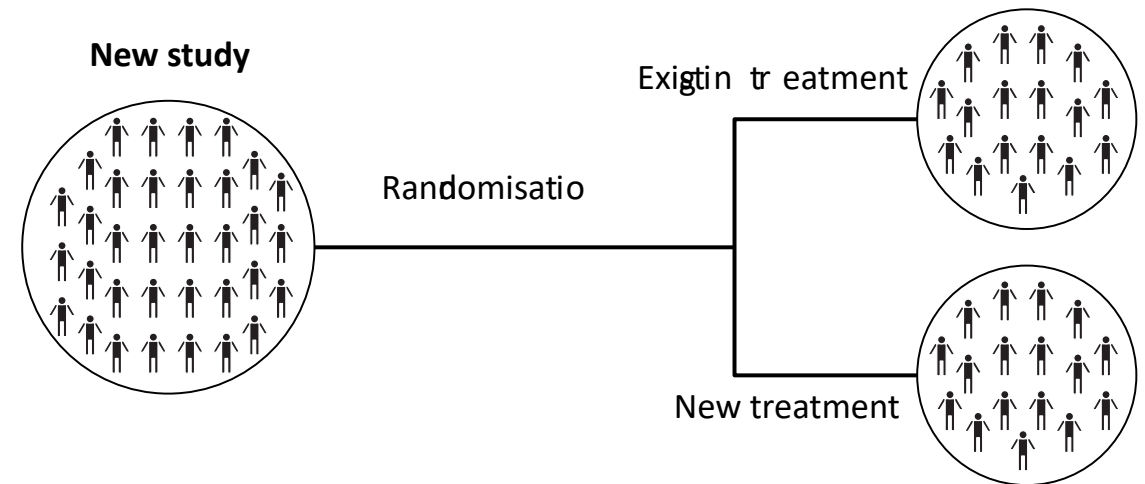
# Methods

## 3. Financial & 4. Ethical

**cost**

Belgian Healthcare  
Knowledge Centre budget tool

- Lost opportunity to benefit from new evidence
- Lost opportunity to receive best known treatment to date



# Results

## 1. Best available evidence

## 2. End-users' value

## 3. Financial & 4. Ethical cost

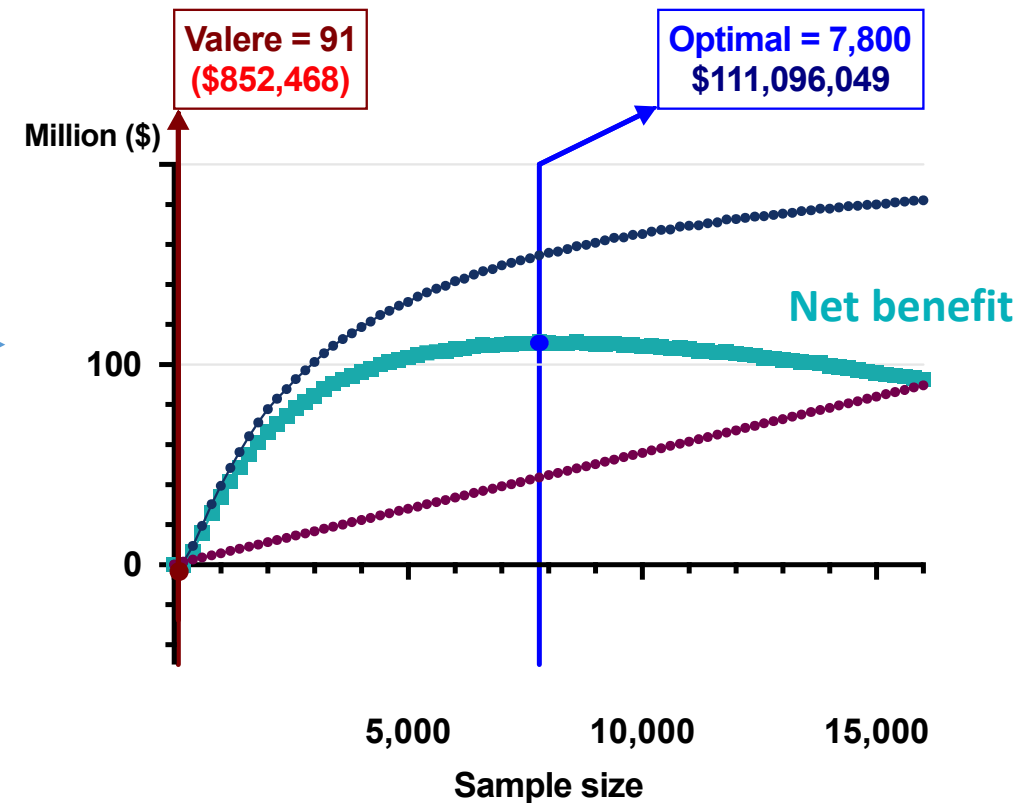
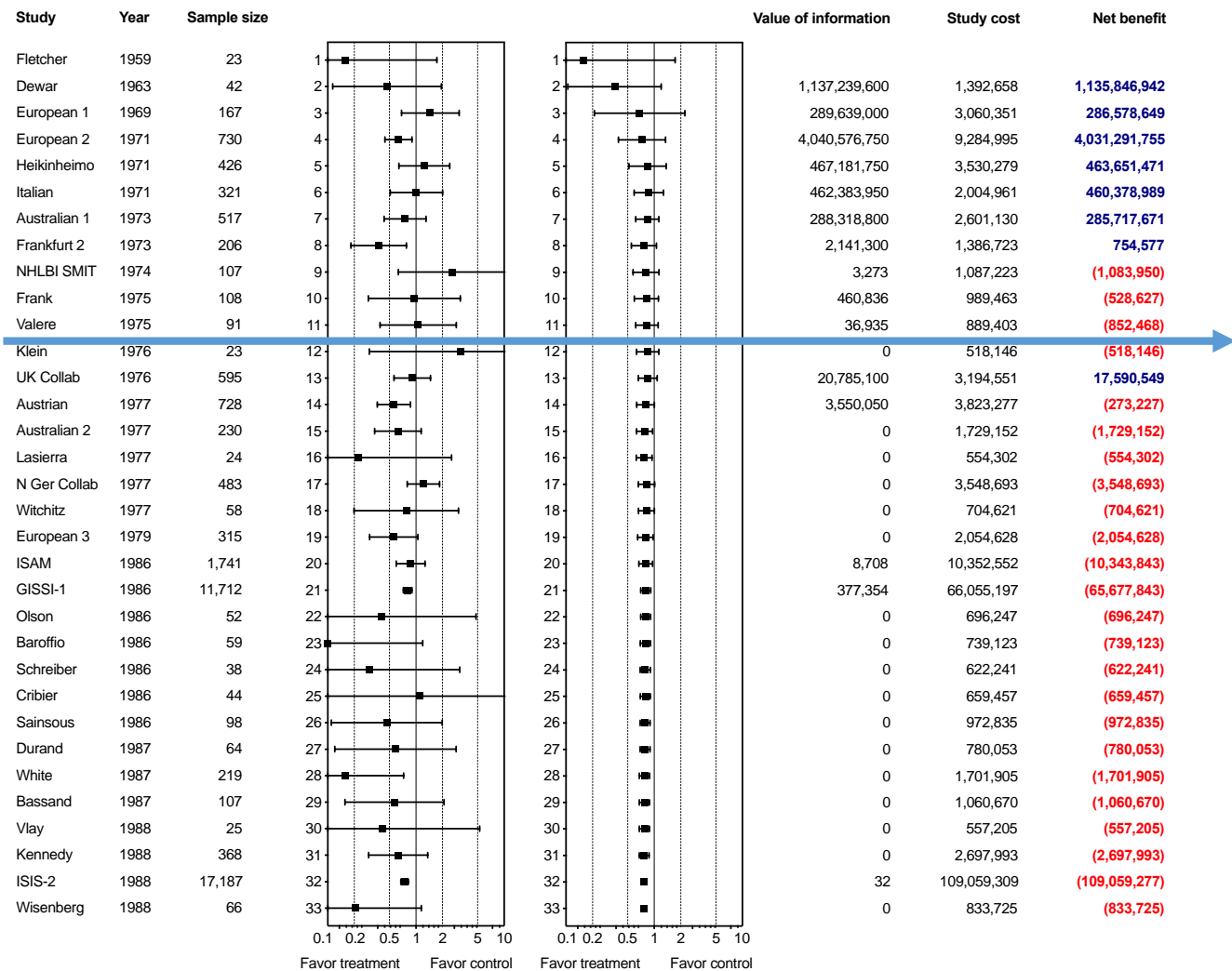
## 5. Valuable research decision

| Study        | Year | Sample size |   |   | Value of information | Study cost | Net benefit          |
|--------------|------|-------------|---|---|----------------------|------------|----------------------|
| Fletcher     | 1959 | 23          | 1 | 1 |                      |            |                      |
| Dewar        | 1963 | 42          | 2 | 2 | 1,137,239,600        | 1,392,658  | <b>1,135,846,942</b> |
| European 1   | 1969 | 167         | 3 | 3 | 289,639,000          | 3,060,351  | <b>286,578,649</b>   |
| European 2   | 1971 | 730         | 4 | 4 | 4,040,576,750        | 9,284,995  | <b>4,031,291,755</b> |
| Heikinheimo  | 1971 | 426         | 5 | 5 | 467,181,750          | 3,530,279  | <b>463,651,471</b>   |
| Italian      | 1971 | 321         | 6 | 6 | 462,383,950          | 2,004,961  | <b>460,378,989</b>   |
| Australian 1 | 1973 | 517         | 7 | 7 | 288,318,800          | 2,601,130  | <b>285,717,671</b>   |
| Frankfurt 2  | 1973 | 206         | 8 | 8 | 2,141,300            | 1,386,723  | <b>754,577</b>       |
| NHLBI SMIT   | 1974 | 107         | 9 | 9 | 3,273                | 1,087,223  | <b>(1,083,950)</b>   |





# Results



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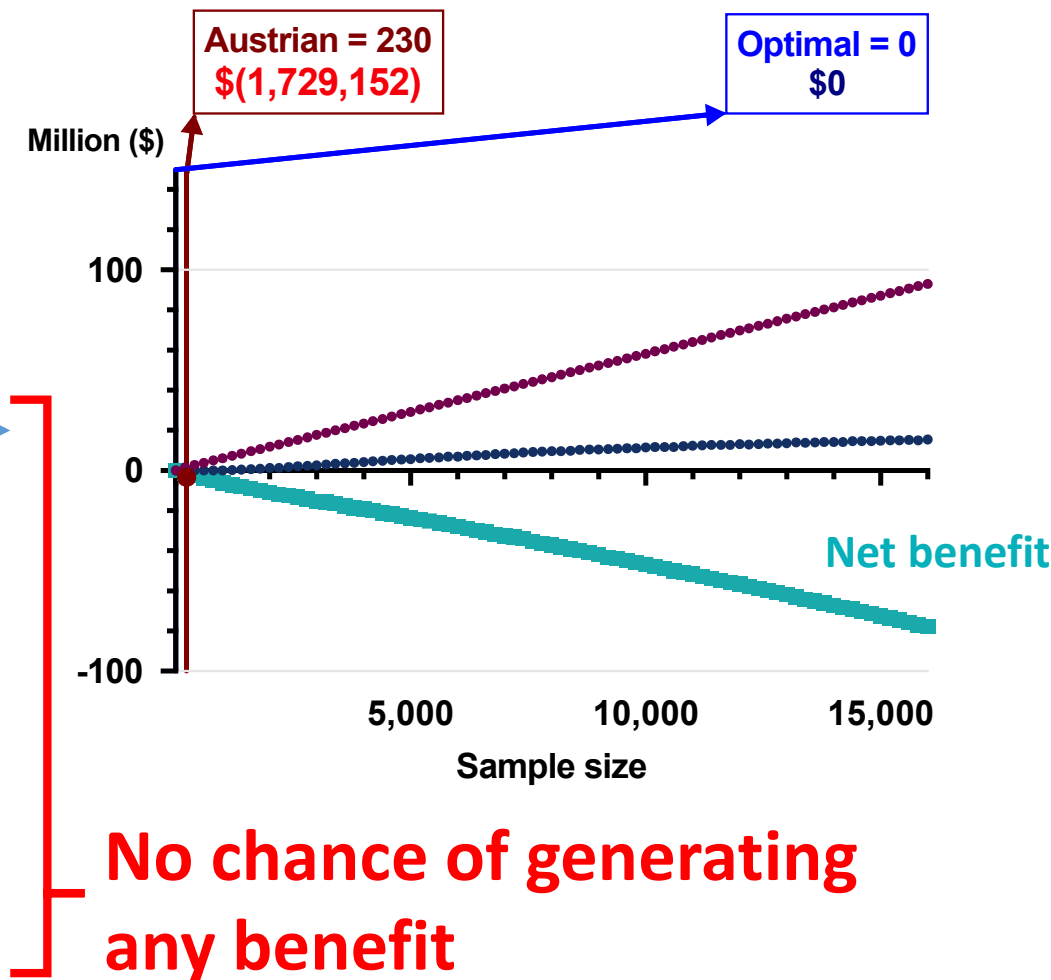
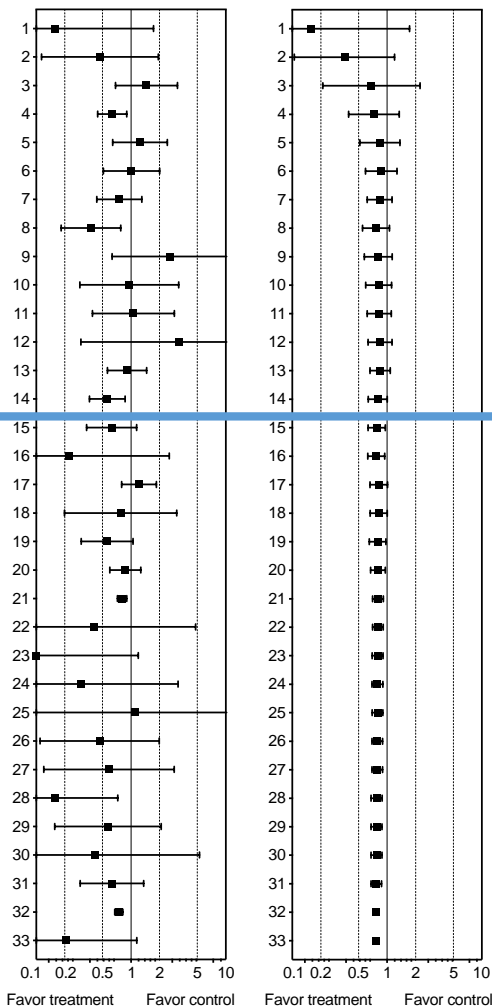
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GIMBE EVIDENCE FOR HEALTH

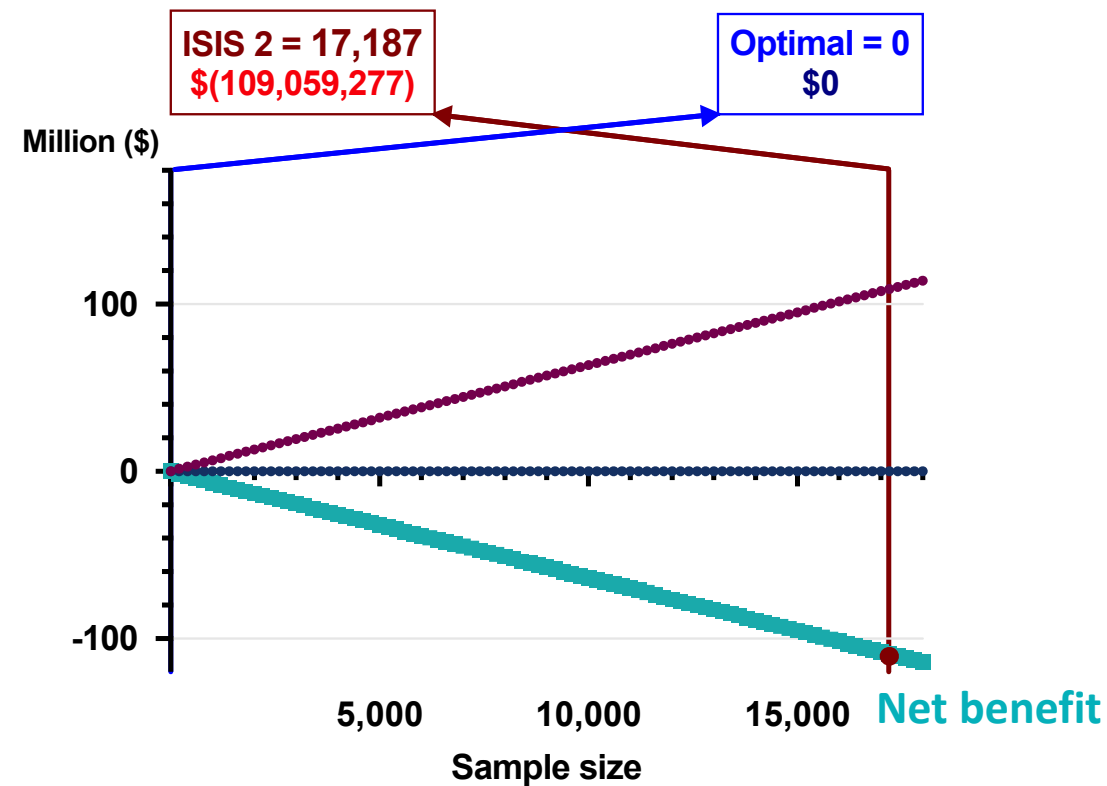
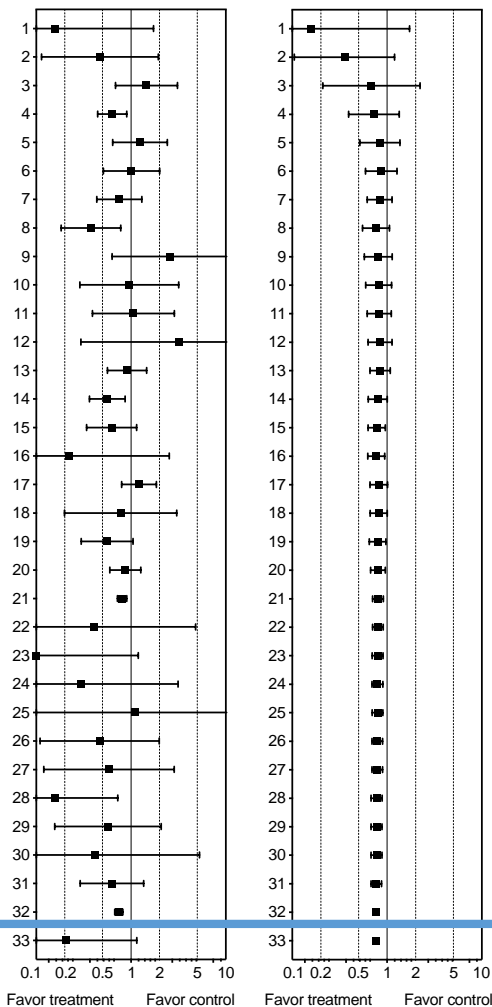
# Results

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| NHLBI SMIT   | 1974 | 107         | 3,273                | 1,087,223   | (1,083,950)   |
| Frank        | 1975 | 108         | 460,836              | 989,463     | (528,627)     |
| Valere       | 1975 | 91          | 36,935               | 889,403     | (852,468)     |
| Klein        | 1976 | 23          | 0                    | 518,146     | (518,146)     |
| UK Collab    | 1976 | 595         | 20,785,100           | 3,194,551   | 17,590,549    |
| Austrian     | 1977 | 728         | 3,550,050            | 3,823,277   | (273,227)     |
| Austrian 2   | 1977 | 230         | 0                    | 1,729,152   | (1,729,152)   |
| Lasierra     | 1977 | 24          | 0                    | 554,302     | (554,302)     |
| N Ger Collab | 1977 | 483         | 0                    | 3,548,693   | (3,548,693)   |
| Witchitz     | 1977 | 58          | 0                    | 704,621     | (704,621)     |
| European 3   | 1979 | 315         | 0                    | 2,054,628   | (2,054,628)   |
| ISAM         | 1986 | 1,741       | 8,708                | 10,352,552  | (10,343,843)  |
| GISSI-1      | 1986 | 11,712      | 377,354              | 66,055,197  | (65,677,843)  |
| Olson        | 1986 | 52          | 0                    | 696,247     | (696,247)     |
| Baroffio     | 1986 | 59          | 0                    | 739,123     | (739,123)     |
| Schreiber    | 1986 | 38          | 0                    | 622,241     | (622,241)     |
| Cribier      | 1986 | 44          | 0                    | 659,457     | (659,457)     |
| Sainsous     | 1986 | 98          | 0                    | 972,835     | (972,835)     |
| Durand       | 1987 | 64          | 0                    | 780,053     | (780,053)     |
| White        | 1987 | 219         | 0                    | 1,701,905   | (1,701,905)   |
| Bassand      | 1987 | 107         | 0                    | 1,060,670   | (1,060,670)   |
| Vlay         | 1988 | 25          | 0                    | 557,205     | (557,205)     |
| Kennedy      | 1988 | 368         | 0                    | 2,697,993   | (2,697,993)   |
| ISIS-2       | 1988 | 17,187      | 32                   | 109,059,309 | (109,059,277) |
| Wisenberg    | 1988 | 66          | 0                    | 833,725     | (833,725)     |



# Results

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| Australian 2 | 1977 | 230         | 0                    | 1,729,152   | (1,729,152)   |
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| ISIS-2       | 1988 | 17,187      | 32                   | 109,059,309 | (109,059,277) |
| Wisensberg   | 1988 | 66          | 0                    | 833,725     | (833,725)     |



3. Financial cost:  
28,363,249

4. Ethical cost:  
80,696,059



# Conclusions and limitations

- By making explicit funding decisions based on this method, we might be able to increase the value of health research.
- The limitations: technical difficulties (e.g., computation) and required inputs (e.g., cumulative meta-analysis and decision model).
- We piloted this method with a funder in Norway, who has decided to incorporate it into the prioritisation process for 2022.
- We plan to expand the application to other research decision

