

Redundant and dangerous health research - how can you support better research practice?



**The Evidence-Based
Research Network**



HØGSKOLEN
I BERGEN

BERGEN UNIVERSITY COLLEGE

SETTING THE STAGE

***The scientific process involves a systematic approach at each step to avoid bias
- but the awareness about current knowledge is not based upon a systematic /scientific approach***

Hans Lund

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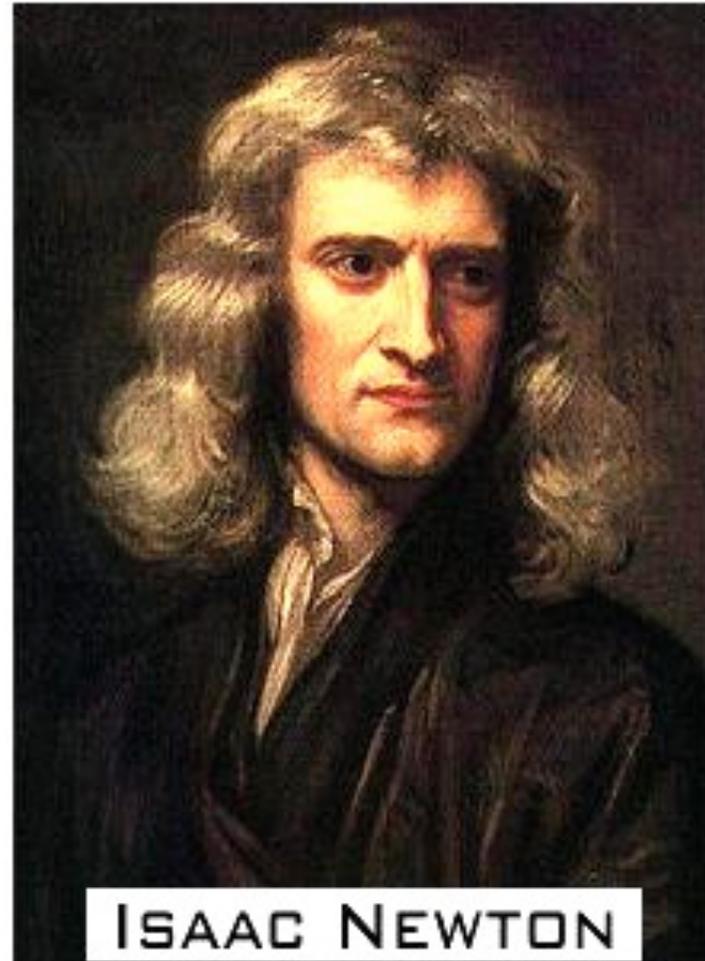
The Scientific Ideal



The scientific ideal

"If I have seen farther it is by standing on the shoulders of giants"

Letter to Robert Hooke,
15. February 1676.



1643 - 1727

The scientific ideal

“If, as is sometimes supposed, science consisted in nothing but the laborious accumulation of facts, it would soon come to a standstill, crushed, as it were, under its own weight.....”

The work which deserves, but I am afraid does not always receive, the most credit is that in which discovery and explanation go hand in hand, in which not only are new facts presented, but their relation to old ones is pointed out.”



Lord Rayleigh at the 54th meeting of the British Association for the Advancement of Science held in Montreal in 1884.

(Thanks to I. Chalmers, LV Hedges, H Cooper, 2002)

CONSORT

CONSORT is a
REPORTING GUIDELINE

– what should clinical researchers report in their scientific article about clinical studies?



Altman et al 2001

The scientific ideal

"The Helsinki Declaration states that biomedical research involving people should be based on a thorough knowledge of the scientific literature. That is, it is unethical to expose human subjects unnecessarily to the risks of research.

Ideally, the introduction should include a reference to a systematic review of previous similar trials or a note of the absence of such trials."



Altman et al 2001

The assumption

One would think:
*No paper has ever been
published without references
to earlier published scientific
results. What's the problem?*

The assumption

“Strictly speaking it seems hard to imagine any research not evidence-based. At least it seems impossible to imagine that articles published in journals with a high impact factor do not relates to earlier research”

Norwegian Accreditations Committee, in 2014 (nokut.no)

The Evidence



The evidence

Are we as researchers referring to all studies with no preferences, or not?



Two main issues ...

When formulating the Background of a study several studies show that authors of scientific papers:

1. **Only refer to a small fraction of earlier research** (*Robinson 2011, Sawin 2015, Clarke 1998, 2002, 2007, 2010, Sheth 2011*)
2. Choose their references based upon preferences and strategic considerations (*Greenberg 2009, Bastiaansen 2015, Thornley 2015, Perino 2014, Jannot 2013, Fiorentino 2011*)

In short:

Authors are not systematic in the way they use earlier research

The evidence

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THE NEW ENGLAND JOURNAL OF MEDICINE

July 23, 1992

CUMULATIVE META-ANALYSIS OF THERAPEUTIC TRIALS FOR MYOCARDIAL INFARCTION

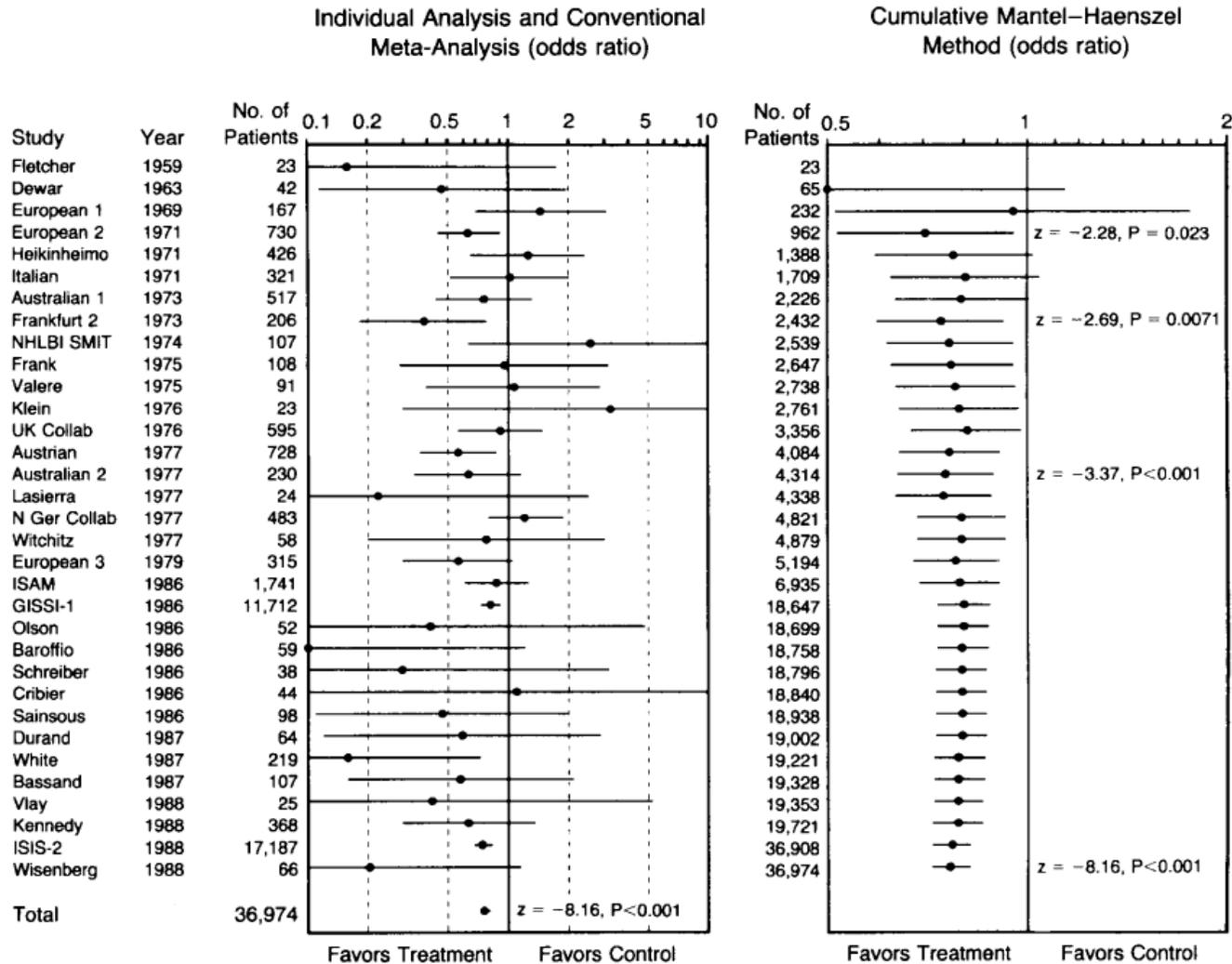
JOSEPH LAU, M.D., ELLIOTT M. ANTMAN, M.D., JEANETTE JIMENEZ-SILVA, M.D., BRUCE KUPELNICK, B.A.,
FREDERICK MOSTELLER, PH.D., AND THOMAS C. CHALMERS, M.D.

Abstract Background. The large volume of published randomized, controlled trials has led to a need for meta-analyses to track therapeutic advances. Performing a new trial, interval, 0.59 to 0.92) was achieved in 1973, after only eight trials involving 2432 patients had been completed. The results of the 25 subsequent trials, which enrolled an addi-

J Lau et al. New England Journal of Medicine, 1992

CUMULATIVE META-ANALYSIS

The evidence



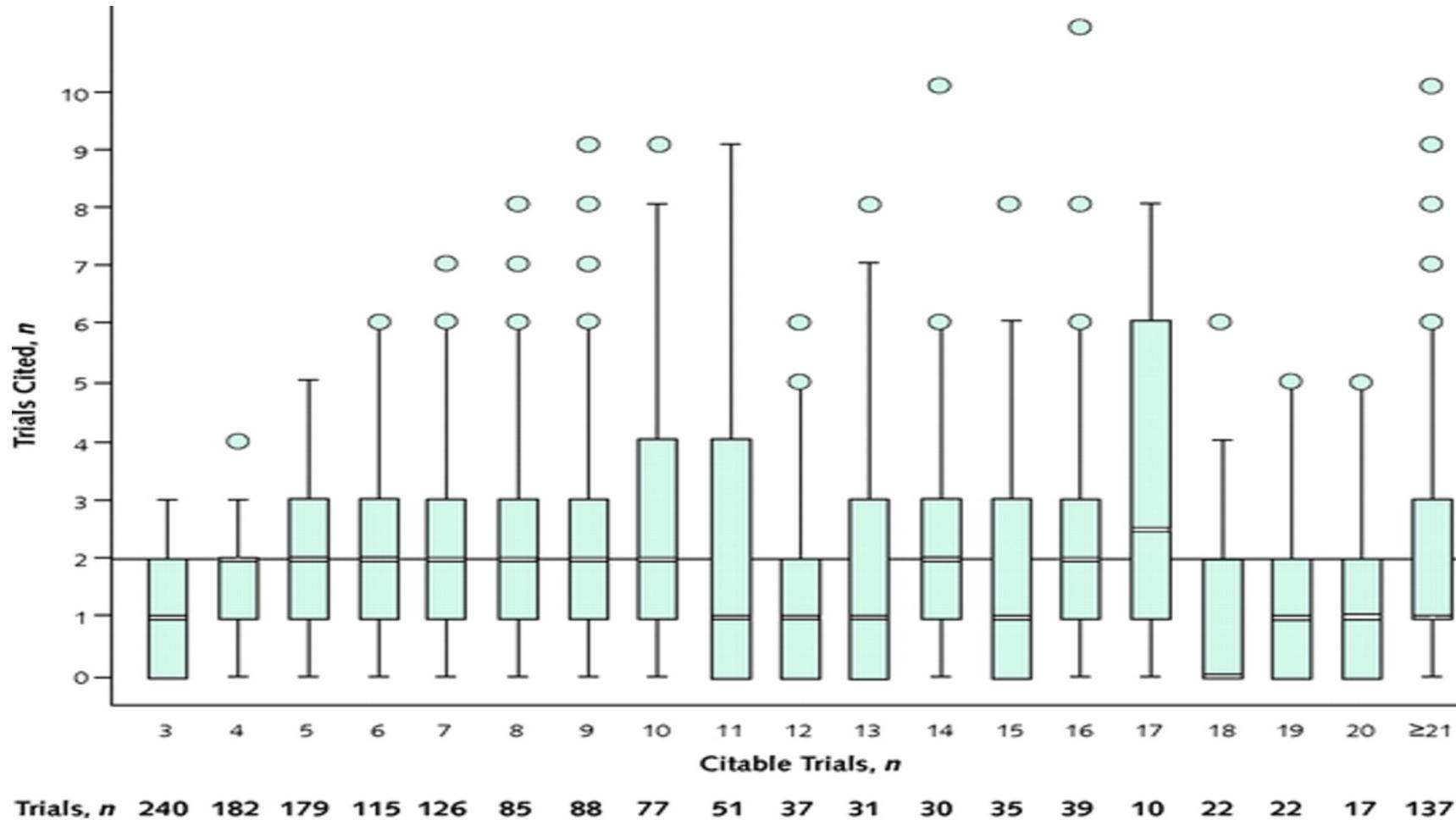
Intravenous Streptokinase for Acute Myocardial Infarction



After 1977:
More than 16,000 received unnecessary placebo!

Lau et al. 1992

The evidence



A Systematic Examination of the Citation of Prior Research in Reports of Randomized, Controlled Trials

Robinson et al. 2011

The evidence

TABLE I Overall Citation Rate for Each of the Four Groups Included in the Study

	Total No. of Studies Actually Cited	Total No. of Studies Available for Citation	Citation Rate
Internal fixation vs. arthroplasty	206	388	53%
Total hip arthroplasty vs. hemiarthroplasty	14	20	70%
Sliding hip screws vs. other forms of fixation	6	18	33%
Effect of surgical delay in hip fracture patients	36	125	29%
All studies	262	551	48%

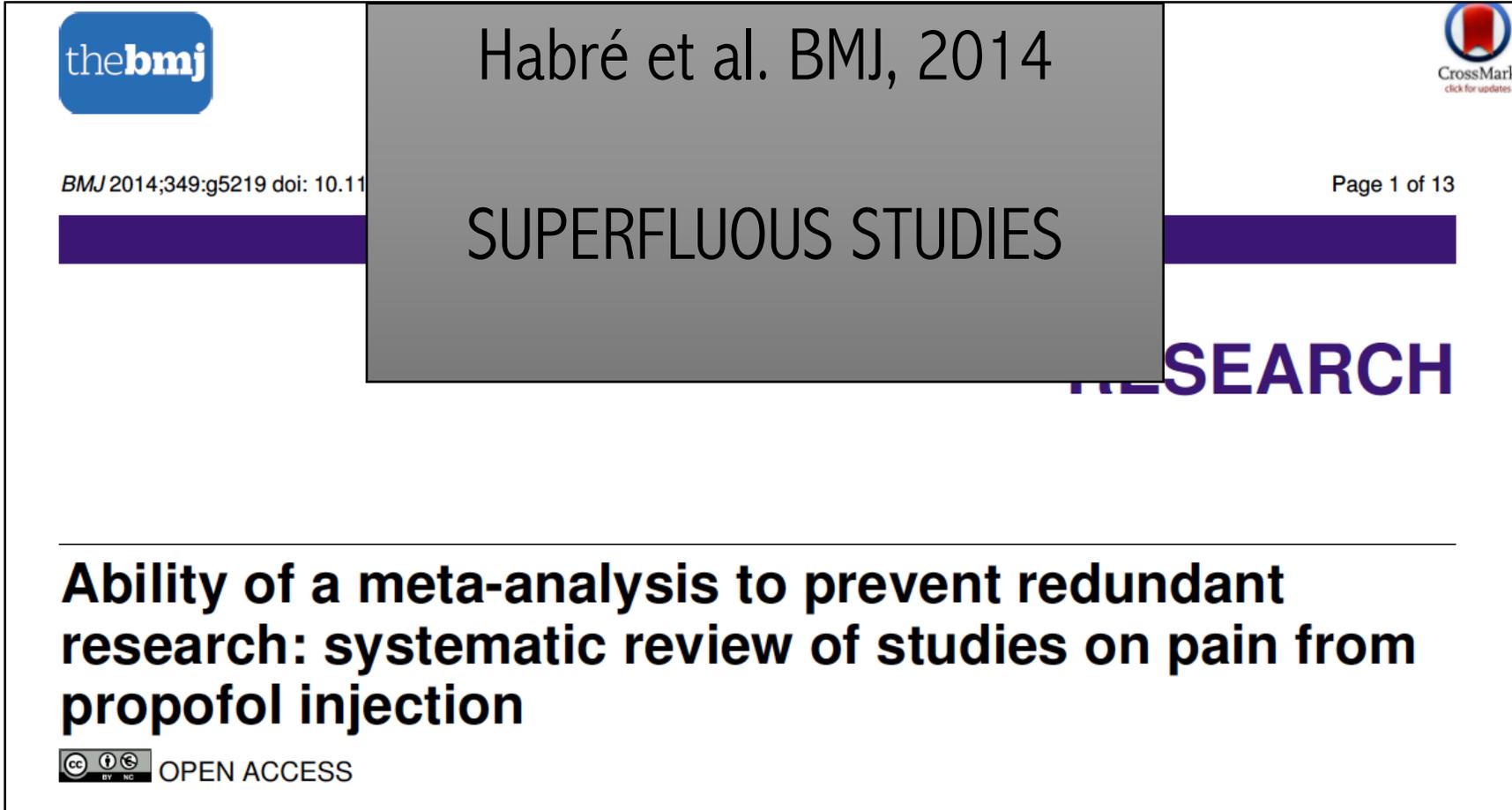
COPYRIGHT © 2011 BY THE JOURNAL OF BONE AND JOINT SURGERY, INCORPORATED

Poor Citation of Prior Evidence in Hip Fracture Trials

Ujash Sheth, BHSc, Nicole Simunovic, MSc, Paul Tornetta III, MD, Thomas A. Einhorn, MD,
and Mohit Bhandari, MD, PhD, FRCSC

*Investigation performed at the Center for Evidence-Based Orthopaedics, Division of Orthopaedic Surgery,
McMaster University, Hamilton, Ontario, Canada*

The evidence



The image shows a screenshot of a BMJ article page. A grey rectangular box is overlaid on the page, containing the text "Habré et al. BMJ, 2014" and "SUPERFLUOUS STUDIES". The page itself features the "thebmj" logo in the top left, the CrossMark logo in the top right, and the text "Page 1 of 13" on the right side. Below the logo, the text "BMJ 2014;349:g5219 doi: 10.11" is visible. A purple horizontal bar spans across the page, with the word "RESEARCH" partially visible below it. At the bottom of the page, the title "Ability of a meta-analysis to prevent redundant research: systematic review of studies on pain from propofol injection" is displayed in bold black text, followed by the "CC BY-NC" logo and the text "OPEN ACCESS".

thebmj

BMJ 2014;349:g5219 doi: 10.11

CrossMark
click for updates

Page 1 of 13

Habré et al. BMJ, 2014

SUPERFLUOUS STUDIES

RESEARCH

Ability of a meta-analysis to prevent redundant research: systematic review of studies on pain from propofol injection

 OPEN ACCESS

The evidence

