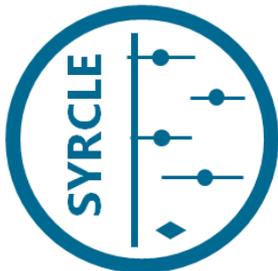


Systematic Reviews of animal studies equal the implementation of the 3Rs

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Radboudumc

What is a systematic review?

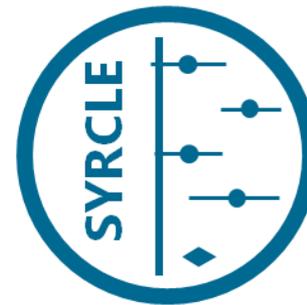
- **Systematic review (SR)**
 - literature review
 - focus on a single question
 - to identify, appraise, select and synthesize evidence

Systematic reviews of animal studies





**THE COCHRANE
COLLABORATION®**



Systematic
Review
Centre for
Laboratory animal
Experimentation



SYRCLE activities

- Workshops



- Coaching

- E-learning



- Execution

- Tools and guidelines

- www.syracle.nl



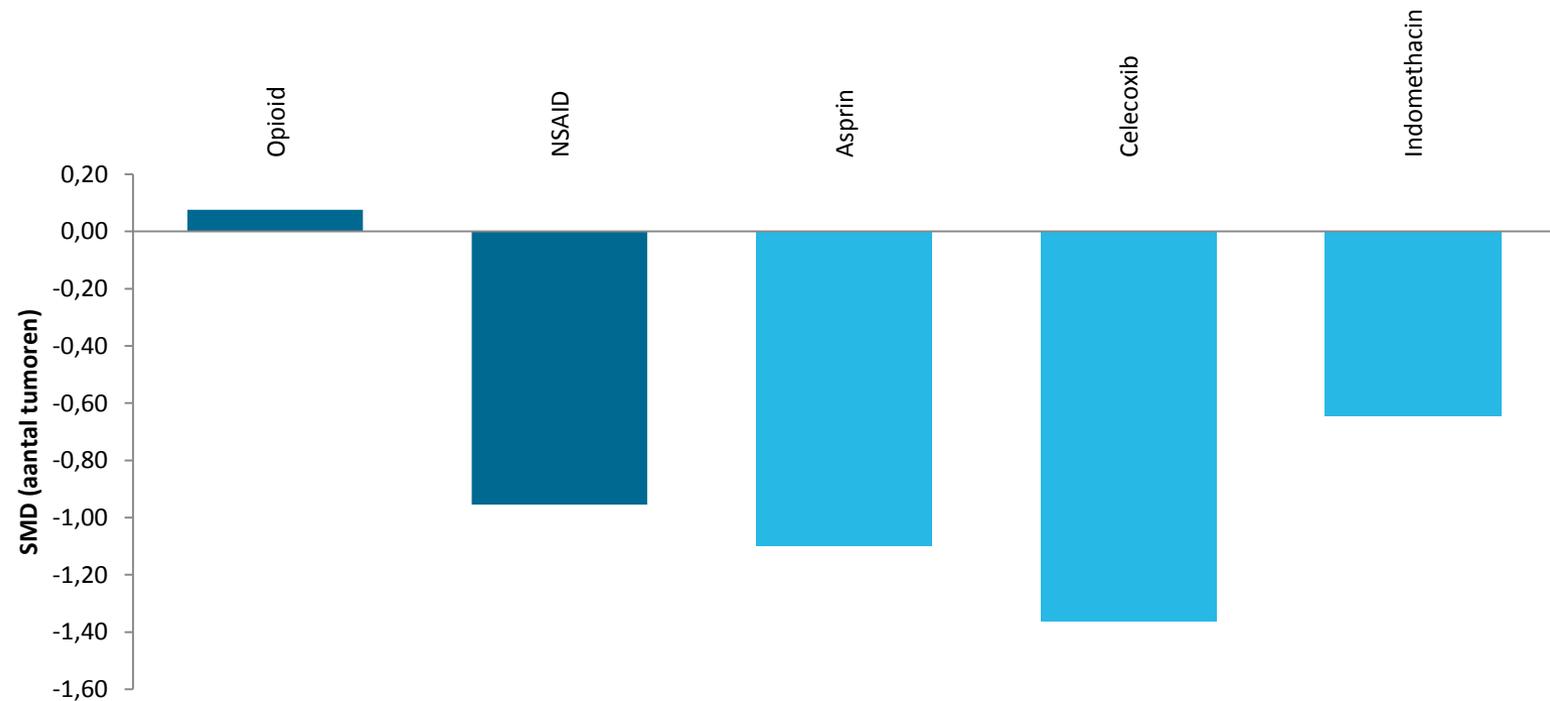
SRs lead to

- **A more evidence-based choice of animal models**
van Drongelen, Am J Physiol Heart Circ Physiol 2012
De Vries RB, Tissue Engineering Part B 2012
Sloff M, PloSOne 2014
Zeeff SB, Inflammatory Bowel Dis 2016
- **More translational transparency**
Hooijmans CR, PloSOne 2012
Vesterinen HM, Mult Scler 2010
Howells DW, Int J Stroke 2012
- **Implementation of the 3Rs - examples**

Replacement

- New information is derived from already published data, without doing new animal studies
- Dutch think-tank: SRs are an animal-free innovation

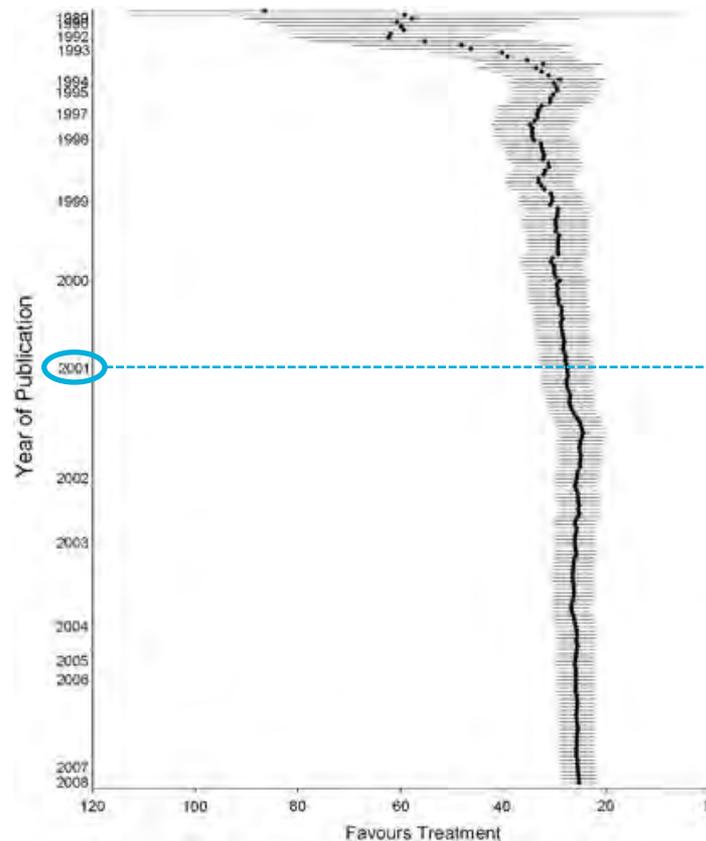
Analgesics and metastases



Reduction

- Knowledge gaps are made transparent
- Quality of reporting is made transparent
- Superfluous studies are made transparent
- Prevention of unnecessary duplication

Cumulative MA



1500

3388

Intestinal anastomosis models

- 350 publications
- 73304 animals used

- unnecessary repetition e.g. adverse effect of chemotherapy on healing

- 83 % no mention of sterility in surgery
- 91% no mention of postoperative analgesia

Refinement

Animal models of bone cancer pain

- Mechanical-evoked pain behaviours were most commonly reported
- However, **the largest differences in spontaneous pain behaviours**
- Spontaneous pain behaviour important outcome measure for clinical relevance and development of effective therapeutic targets
- Useful for severity assessment and ethical evaluation

All 3Rs – SRs make quality of publications transparent

- 2010 ARRIVE = Animal Research: Reporting In Vivo Experiments
- Guidelines adopted by 400 journals
- Baker 2014: No implementation yet!

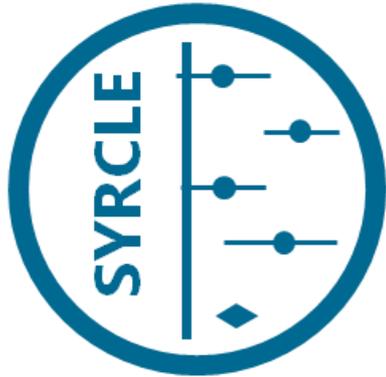
Best practice approach

- By doing SRs, you also implement the 3Rs and more

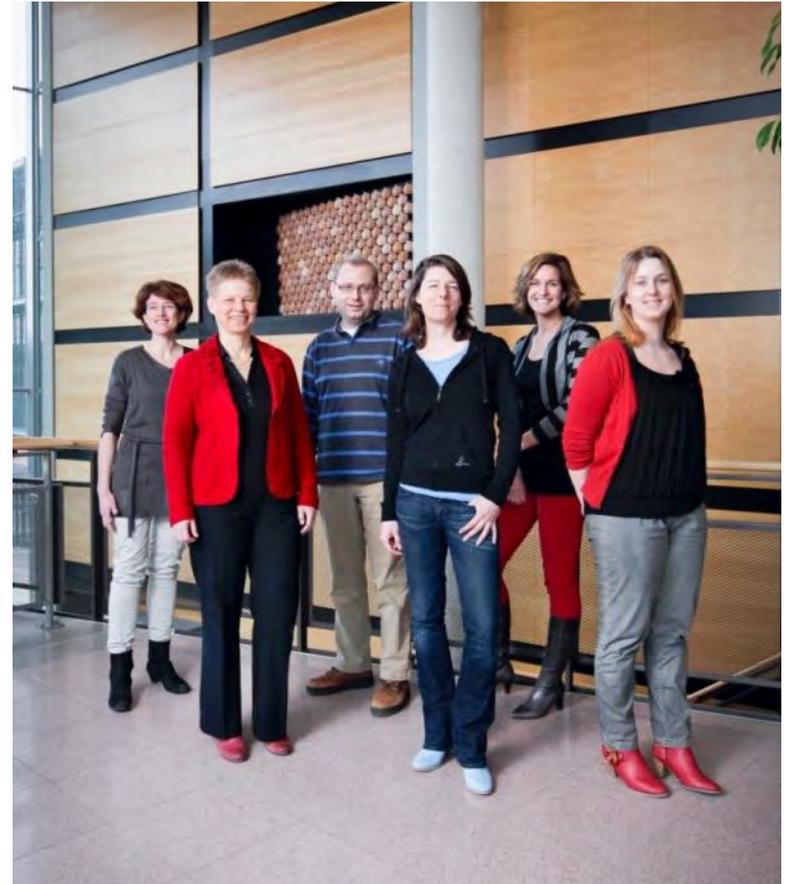
What is needed?

- Ethics committees should ask for (steps of) SRs, at least a comprehensive search:
 - Prevent unnecessary duplication
 - Provide evidence for choice of animal model
 - Substantiate research question
- Funding bodies should ask and fund SRs: what is the currently available knowledge and evidence?
- Editorial boards should enforce ARRIVE – BJP uses compulsory checklist

More information:



- Website www.syracle.nl
 - *Free newsletters*
 - *E-learning*
 - *Workshops*
 - *Coaching*
- Contact: Merel.Ritskes-Hoitinga@radboudumc.nl



Thank you!