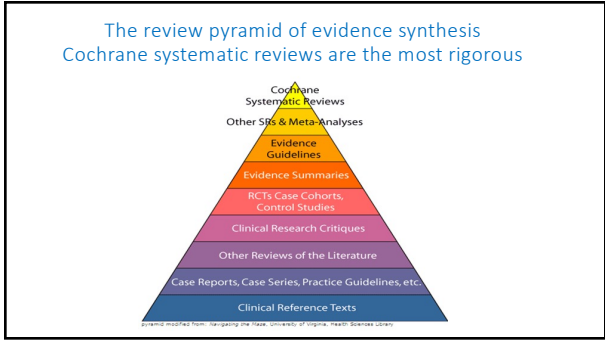


Why Systematic Reviews & Meta-analyses can be Misleading: What to do about it

Janet T Powell
Imperial College London

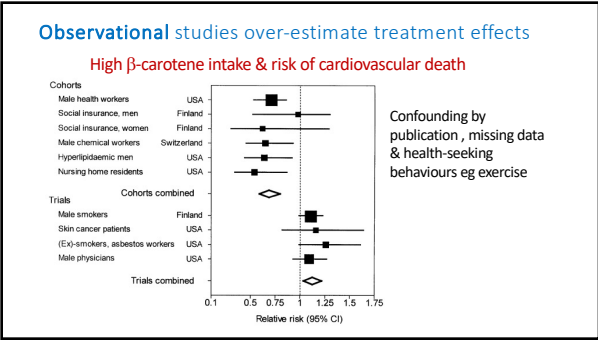
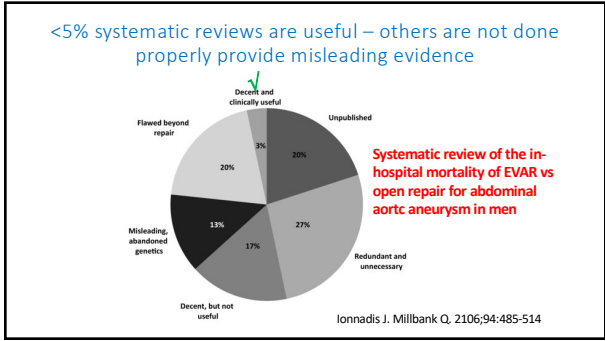
Disclosures: none



Cochrane reviews or systematic reviews of RCTs

- Rigorous framework
- Only includes adequately powered RCTs
- Quality assessment of included studies
- Risk of bias in included studies
- Tables of evidence
- Formal control of analyses & reporting language
- Edited by specialist Cochrane editors
- Open access, no publication charge, highly cited
- Regular updates recommended

Systematic reviews of small underpowered RCTs are usually misleading



**Operative mortality for ruptured AAA:
observational studies over-estimate the benefit of EVAR
& only use aggregated data**

Advantage for EVAR vs open repair for 30-day mortality
OR [95%CI]

Observational studies	0.45 [0.41-0.51]	significant publication bias
Registries	0.57 [0.53-0.60]	
Randomised trials	0.67 [0.48-0.92]	per protocol
RCTs individual data	0.88 [0.66-1.15]	confounding removed

Systematic Review by Kontopodis N et al EJVES 2020;59:399-410

**Garbage in =
garbage out**

- Keep to PRISMA guidelines
- Select a clinically important topic
- Plan carefully
- Strict quality scoring
- Adjust for confounders
- Sensitivity analyses



**Systematic reviews are too often misleading
overestimate treatment effects and can be clinically futile**



**Evidence is under threat unless we do them better and
consider the results more carefully**