Using NIDUS Research HUB for Developing Systematic Reviews and Meta Analyses

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Time	Section
02:36	**Why Systematic Review and Meta-Analysis?** • Funding agencies require systematic reviews as part of the rationale to fund randomized trials • Graduate students are often encouraged to complete a systematic review as part of their thesis
03:50	**Systematic Review Steps** • Assembling a team • Developing a protocol • Data collection • Data synthesis • Interpretation of the data • Update

04:21	**Assembling a Team**
	• Data search and review team
	• Content expert
	• Methods expert
	• Multiple institutions
	• Can use NIDUS Collaboration Communication Site
	  o Identifying collaborators or mentors working on similar projects to join a research project or grant
	  o Retrieving studies for meta-analyses or systematic reviews across clinical settings

08:19	**Importance of Developing a Good Question**
	• Defining the review question and developing criteria for including studies
	• Feasible, Interesting, Novel, Ethical, and Relevant (FINER)
	• Broad vs. Narrow Questions (advantages and disadvantages)
	• Components of well-constructed and answerable questions
	  o PICO (**p**atients or populations, **i**ntervention/exposure, **c**omparison group(s), **o**utcome)
	  ▪ Example paper

17:01	**Registering Systematic Review**
	• Systematic reviews should be registered at inception (at the protocol stage)
	  o Avoid unplanned duplication
	  o Avoid selective reporting of outcomes
	  o Reduce publication bias (many systematic reviews are not published)
	• Cochrane (international organization, produces and disseminates systematic reviews of health care interventions)
	• Prospero (international prospective register of systematic reviews)
	• Discovering Existing Systematic Reviews: NIDUS Delirium Bibliography

20:49	**Data Collection**
	• Sources of data
	  o Electronic (databases)
	  o Grey Literature
	  o Pre-print repositories
	  o References (and references of references) of primary sources
	  o Other unpublished sources known to experts in the field (seek by person communication)
	  o Raw data from published studies (seek by personal communication)

24:19	**Creating Search Terms: Working with an Information Specialist** • Plurals (hip fracture, hip fractures) • Abbreviations (mild cognitive impairment, MCI)

	• Synonyms (ramelteon, Rozerem) • Spelling variations (randomized, randomised) • Truncation (confus* for confused, confusion, etc)
26:05	**How do we find the experts in our field?** • Other unpublished sources known to experts in the field (seek by personal communication) • Raw data from published studies (seek by personal communication) • Can use NIDUS Delirium Bibliography and can export results to excel sheet
27:35	**Risk of Bias Assessment**
27:57	**Data synthesis** • Results of findings from systematic review • Meta-analysis (if appropriate)
28:10	**Advantages of Meta-Analyses** • Improve precision and assess strength of evidence o Many studies are too small to provide convincing evidence about an intervention o Is there an effect in a particular direction? • Obtain a single summary result quantitatively • Investigate heterogeneity from conflicting studies o To examine reasons for different results among studies
28:54	**When to do a meta-analysis** • When more than one study has estimated an effect • When the differences in the study characteristics are unlikely to substantially affect an outcome • When data are available
29:22	**When NOT to do a meta-analysis** • "Garbage in—garbage out" o Important to examine different treatments with different comparators separately (ex: melatonin vs. placebo, melatonin vs. ramelteon) o Decisions concerning what should and should not be combined require discussion and clinical judgement (not a statistical solution) o If a systematic review was not comprehensive, there may be publication bias (missed unpublished results) • Meta-analysis of studies that are at risk of bias may be seriously misleading o Meta-analysis will compound the errors and produce a "wrong result" that may be interpreted as having more credibility
31:42	**Interpretation of the data** •
31:39	**Update** • Updating the literature search prior to publication • Reasonable timeframe (anything published within 1 year, should be included) • Can use NIDUS Delirium Bibliography
32:51	**Completing Systematic Review and Meta-Analysis** • Requires planning ahead
35:43	**Questions and Answers**