**DEFINITIONS OF REVIEWS** (from the general to the specific)

**SYNTHESIS**

Synthesis, in this context, means the contextualization and integration of research findings of individual research studies within the larger body of knowledge on the topic. A synthesis must be reproducible and transparent in its methods, using quantitative and/or qualitative methods. It could take the form of a systematic review, follow the methods developed by the Cochrane Collaboration, result from a consensus conference or expert panel or synthesize qualitative or quantitative results. Realist syntheses, narrative syntheses, meta-analyses, meta-syntheses and practice guidelines are all forms of synthesis[1].

**NARRATIVE REVIEWS**

Qualitative summaries of evidence on a specific topic. Because this type of review often does not explicitly describe how the reviewers searched, selected, and appraised the studies included in the review, systematic reviews are increasingly preferred in biomedical journals.[2]

**SCOPING REVIEW**

One method amongst many that might be used to review literature. Scoping reviews share some similarities with systematic reviews but differ in several important ways. The question is more exploratory in nature as the aim is usually to examine the extent, range, and nature of research activity in a particular field without necessarily abstracting data or attempting to assess its quality. Scoping reviews produce a profile of the existing literature in a topic area, which may point to areas where a systematic review would be helpful or identify areas in the literature where gaps exist. The scoping process is iterative and is used to estimate the size of the literature in question, and the estimated costs of searching it. There is a greater need for a scoping review when the topic to be searched is interdisciplinary.[3, 4]

**STRUCTURED REVIEW**

A form of review that is structured in terms of defining explicit search, selection, data extraction, and appraisal criteria but done by primarily by one reviewer.[5, 6]

**SYSTEMATIC REVIEW**

Empirical evidence, that meets pre-defined eligibility criteria, collated to answer a specific research question. This entails using an explicit and systematic methodology that is chosen in order to minimize bias therefore providing findings that are reliable and in which conclusions and decisions can be made. The key characteristics of a systematic review include: (1) objectives that are clear with pre-defined eligibility criteria; (2) methodology that is explicit and can be reproduced; (3) a search of studies that is thorough and systematic that will identify all studies meeting the pre-defined eligibility criteria; (4) an assessment of the validity of the findings of the included studies (e.g. assess risk bias); and (5) a systematic presentation, and synthesis, of the characteristics and findings of the included studies. Many systematic reviews will also include meta-analyses.[5-7].

**COCHRANE REVIEW**

Cochrane Reviews are systematic reviews of research in healthcare and health policy that are published in the Cochrane Database of Systematic Reviews. There are three types of Cochrane Review: (1) Intervention reviews that assess the benefits and harms of interventions used in healthcare and health policy, (2) Diagnostic test accuracy reviews that assess how well a

diagnostic test performs in diagnosing and detecting a particular disease, and (3) Methodology reviews address issues relevant to how systematic reviews and clinical trials are conducted and reported. Cochrane Reviews base their findings on the results of trials which meet certain quality criteria, as the most reliable studies will provide the best evidence for making decisions about health care. Authors of Cochrane Reviews apply methods which reduce the impact of bias across different parts of the review process, including: (i) identification of relevant studies from a number of different sources (including unpublished sources); (ii) selection of studies for inclusion and evaluation of their strengths and limitations on the basis of clear, predefined criteria; (iii) systematic collection of data; and (iv) appropriate synthesis of data.[8, 9]

## QUALITATIVE (THEMATIC) SYNTHESIS

Any methodology whereby study findings are systematically interpreted through a series of expert judgements to represent the meaning of the collected work. In a qualitative synthesis, the findings of qualitative studies – and sometimes mixed-methods and quantitative research – are pooled. Judgement-based qualitative methodologies are used to draw conclusions regarding the collective meanings of this pool of research. [10]  Qualitative syntheses are reported using the Enhancing Transparency of Reporting the Synthesis of Qualitative (ENTREQ) research framework tong [11]and are registered with PROSPERO.

## REALIST REVIEW

A model of research synthesis designed to work with complex social interventions or programs, based on the emerging 'realist' approach to evaluation. It provides an explanatory analysis aimed at discerning what works for whom, in what circumstances, in what respects and how. The results of the review combine theoretical understanding and empirical evidence, and focus on explaining the relationship between the context in which the intervention is applied, the mechanisms by which it works and the outcomes which are produced. The aim is to enable decision-makers to reach a deeper understanding of the intervention and how it can be made to work most effectively. Pawson [12]

## UMBRELLA REVIEW OR REVIEW OF REVIEWS

Also known as Review of Reviews, Overviews, Meta-Reviews, and Overview of Reviews, this type of review summarizes systematic reviews rather than individual articles.  There are a number of methodological challenges in conducting such reviews arising mainly from duplication of articles in the pool of systematic reviews.  Cochrane Collaboration Overview of Reviews and the Joanna Briggs Institute Umbrella Reviews are two of the most common methodology guidelines for Umbrella Reviews and Review of Reviews. [13].

## META-ANALYSIS

A statistical method to summarize data across studies in order to generate pooled estimates of effects; often the final step when conducting a systematic review when there is a sufficiently high degree of homogeneity of effect across studies to make a pooled estimate meaningful.[14, 15] The most common is an aggregate meta-analysis; other methods are defined below.

a. BAYESIAN HIERARCHICAL META-ANALYSIS: A method that considers prior information to choose different distributions for the between-study standard deviation.[16]
b. META-REGRESSION: aims to investigate which study characteristics are associated with the effect estimates of interest. Similarly to usual regression, in meta-regression, the effect estimate is the outcome, and study characteristics are the independent variables.

c. NETWORK META ANALYSIS: A meta-analysis in which several treatments are compared using both direct comparisons (interventions compared directly to one another within the same study) and indirect comparisons across trials based on a common comparator.

d. INDIVIDUAL PARTICIPANT DATA META-ANALYSIS: Similar to meta-analysis, an IPDMA aims to collect line-by-line individual participant data rather than just estimated effects. An IPDMA allows one to investigate and reduce heterogeneity. Requires much more effort than an aggregate data meta-analysis