

### **Module 3 Handout - What are systematic reviews and why are they preferred in evidence-informed policy-making?**

A systematic review is defined as “a review of the evidence on a clearly formulated question that uses systematic and explicit methods to identify, select and critically appraise relevant primary research, and to extract and analyse data from the studies that are included in the review.” (NHS Centre for Reviews and Dissemination 2001).

Systematic reviews can be invaluable for evaluating available evidence in a methodical manner and providing a critical summary of strength and direction of evidence. They attempt to answer a specific question by systematically searching for, appraising, and synthesizing the results of all relevant studies.

Systematic reviews are preferred in evidence-informed policy-making (EIPM) because they not only provide a meticulous way of finding relevant, high quality studies, but also integrate the findings of these studies to give a clearer and more comprehensive picture of an issue than any single study can do (Gough et al 2013). Systematic reviews enable policy-makers to establish what is known from research, but also what is not known from research (ibid).

Evidence generated by a systematic review is much stronger than evidence generated from the traditional literature review since systematic review focus on ensuring a comprehensive review of all existing literature on the issue, and they also appraise the evidence.

Advantages of a systematic review include that they:

- Systematic reviews reduce the risk of bias in selecting studies and interpreting their results.
- They reduce the risk of being misled by the play of chance in identifying studies for inclusion, or the risk of focusing on a limited subset of relevant evidence.
- They provide a critical appraisal of the available evidence and place individual studies or subgroups of studies in the context of all the relevant evidence.
- They allow others to critically appraise the judgments made in study selection and the collection, analysis, and interpretation of the results.
- Resolve controversy between conflicting studies
- Identify gaps in current research

Limitations of a systematic review include that:

- The results may still be inconclusive
- There may be no evidence
- Existing evidence may be of poor quality

Given their comprehensiveness, systematic approach, and critical appraisal of evidence, systematic reviews are preferred in EIPM as opposed to single studies. **Policymakers are therefore encouraged to prioritise systematic reviews where they are available in informing policy decisions.**

Even then, it is important to note that systematic reviews are only as good as the evidence that they summarize. Like primary research, they are susceptible to bias and error, and it is important to appraise the methods before putting any trust in the results (see Chapter 5 on appraising systematic reviews).

Meta-analyses are often confused with systematic reviews. Meta-analysis (see Table 10) is a method of statistically combining results from several selected studies in order to develop a single conclusion that has greater statistical power. If the individual studies utilized randomized controlled trials (RCT), combining several selected RCT results would be the highest-level of evidence on the evidence hierarchy (see Figure 11), followed by systematic reviews, which analyze all available studies on a topic.