

## **Search strategy**

Medline and Embase bibliographic databases were searched to identify research papers on the use of horizon scanning, and the methods used for this purpose. The date range was between 2018-01-01 and 2018-07-04. The final search took place on 2018-07-04. Grey literature and bibliographies of the most relevant research papers supplemented this search.

The primary search terms used were: "horizon scan\*" OR "strategic foresight\*" OR "systematic early dialogue\*" OR "early warning and alert system\*". All literature, of which the title or abstract contained any of the keywords above, was flagged.

In the database searches, a single set of entry terms were applied:

('horizon scan\*':ab,ti OR 'strategic foresight\*':ab,ti OR 'systematic early dialogue\*':ab,ti OR (('early awareness' NEXT/2 'alert system\*'):ab,ti))

In Fields:

horizon scan\* in Abstract  
horizon scan\* in Title  
strategic foresight\* in Abstract  
strategic foresight\* in Title  
systematic early dialogue\* in Abstract  
systematic early dialogue\* in Title  
'early awareness' NEXT/2 'alert system\*' in Abstract  
'early awareness' NEXT/2 'alert system\*' in Title

## **Quality appraisal**

The appraisal was conducted at the screening stage as part of the inclusion/exclusion criteria. The questions regarding internal and external validity are indicated in Table 1.

To ensure that the quality appraisal and screening were being applied harmoniously, a third researcher appraised and screened the excluded literature according to the same criteria to ensure that all relevant papers were captured (resulting in one further publication being selected).

Table 1. Quality appraisal items and inclusion/exclusion criteria for screening

	<b>Internal validity</b>	<b>External validity</b>
<b>First round of appraisal and screening (108 excluded)</b>	(a) either a methodology for horizon scanning or strategic foresight, <i>or</i> a discussion, or experience provided, of horizon scanning.	(b) It was also essential for the abstracts to indicate a breadth of horizon scanning of the relevant field level <i>or</i> address a methodological aspect which may be generally applicable across different fields.
<b>Second round of appraisal and screening (58 excluded)</b>	(a) the horizon scan or foresight methodology was detailed, <i>and</i>	(b) the priority areas included relevant science and/or technology, <i>and</i>
		(c) a collaborative/international approach was used, <i>and</i>
		(d) the horizon scanning undertaken spanned a period of between 2 and 15 years.
		<i>Alternatively</i> , the paper was required to demonstrate methodological aspect(s) of foresight or horizon scanning of potentially general applicability.

Risk of bias was assessed in accordance with the BMJ guidelines and the Cochrane risk of bias tool. While bias was not typically found in these non-clinical qualitative studies, there were three exceptions:

- A form of publication bias was likely in which only horizon scanning undertaken in organisations with a strong background in publishing academic publications and transparency were discovered. It was not possible to correct for this.
- Omission bias may have occurred as the papers reported systematic methodological aspects of horizon scanning; some horizon scanning, however, may occur in an ad-hoc manner, e.g., a signal discovered by word-of-mouth.
- The competing interests of the authors were not considered beyond the standards of the source journals. This was because it was not thought highly relevant to the reporting of methodologies.