

EVIDENCE SEARCH

Process Guide

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1. Introduction to NICE Evidence Services
2. NICE Evidence Services are a suite of services that provide internet access to high quality, authoritative evidence-based information and best practice advice. The services cover health, social care and public health evidence. Evidence Services aim to help professionals make better and quicker evidence-based decisions and support their education and training.
3. The vision is that NICE Evidence Services will be the leading provider of trusted evidence-based information in health and social care and influence greater use of appropriate evidence-based information to deliver high quality care.
4. The Evidence Services:
* provide access to authoritative, selected, high quality evidence-based information from hundreds of trustworthy sources
* make it quicker and easier for health and social care professionals everywhere to access the best information available, to help them deliver high quality evidence-based services
* are reference, educational and research tools
* support individual health and social care professionals to broaden their knowledge and skills, and help them develop the competencies required to maintain their professional development throughout their working lives
* provide accessible services that recognise the demands of busy health and social care professionals
* can be accessed by anyone in the UK without charge or the need to register (apart from the Healthcare Databases Advanced Search [HDAS], which requires an OpenAthens password).
1. The Evidence Services comprise five services:
* [Evidence Search](http://www.evidence.nhs.uk/) provides free access to a unique index of selected and authoritative evidence-based information for health and social care professionals from hundreds of trustworthy sources. It is the first place to look for consolidated and synthesised high-quality evidence.
* [Journals and Databases](https://www.nice.org.uk/About/What-we-do/Evidence-Services/journals-and-databases), including [HDAS](https://hdas.nice.org.uk/). HDAS provides access to an extensive range of journals and bibliographic reference databases. Many of these are purchased by NICE on behalf of Health Education England, and some require an OpenAthens password for access. The service also provides relevant open access journal content. HDAS is the service to use if suitable information cannot be found in Evidence Search, if research papers rather than synthesised evidence are required, or if a more systematic search of the research is necessary.
* [Clinical Knowledge Summaries](http://cks.nice.org.uk/) (CKS) provide primary care practitioners with evidence-based guidance on over 330 of the most commonly occurring conditions presenting in primary care.
* [BNF](https://bnf.nice.org.uk/) provides free access to the British National Formulary (BNF) and the British National Formulary for Children (BNFC) across the UK (also available as apps). The site complements the medicines evidence in Evidence Search, which is one of the most comprehensive aggregated sources of medicines evidence and information in the UK.
* [Medicines awareness service](https://www.medicinesresources.nhs.uk/en/NICE-Profile/User-Registration-Details/) provides a quick overview of the latest evidence-based information relating to medicines and prescribing, to help busy health professionals stay up to date.

More information about each of these services is available on the [NICE website](https://www.nice.org.uk/about/what-we-do/evidence-services).

1. The focus of this manual is Evidence Search, because this service is created specifically by NICE, whereas the other services are commissioned and managed by NICE through contracts and agreements.
2. This manual describes what evidence is included in Evidence Search and how it is identified and added. The manual is aimed at people working for and with Evidence Search. It is supported by standard operating procedures (SOPs) for specific tasks. The manual may also be of interest to other organisations and stakeholders. The manual does not describe how to search Evidence Search. Further information on how to use the search engine can be found on the [NICE website](https://www.nice.org.uk/About/What-we-do/Evidence-Services/Evidence-Search).
3. Background to Evidence Search
4. [Evidence Search](http://www.evidence.nhs.uk/) provides free access to a unique index of selected and authoritative health and social care evidence-based information through a web-based portal. The service can be accessed anywhere that the internet is available and has been optimised for mobile devices.
5. Evidence Search provides easy access to high quality evidence-based information (referred to as ‘evidence’ in this manual). The evidence that has been included has been limited to information from trusted sources. The robust process for selecting these sources means that users from across the health and social care sectors can trust the evidence that they find and use it to make better decisions.
6. The service allows users to access in one place many different types of evidence from a comprehensive range of trusted sources. In the past, this evidence may have been hard to find, or users may have been required to search multiple web sites. As a single repository of health and social care evidence, Evidence Search reduces the number of different websites that users need to search.
7. Evidence Search is unique in that it combines evidence on health, drugs and technologies, public health, social care, and healthcare management and commissioning in one place. This supports the integrated care agenda and means that users can be confident in finding a comprehensive range of evidence when they use Evidence Search; for example, evidence on diagnosis and treatment alongside information on preventing or managing a condition.
8. Much of the evidence in Evidence Search is high quality ‘[**secondary evidence**](#_Secondary_evidence)’ that has consolidated or synthesised information from ‘[**primary evidence**](#_Primary_evidence)’. As a result, the service is ideal for users who want answers to questions without having to analyse or critically appraise the primary research themselves.
9. Where primary evidence (mostly journal articles) has been included, the evidence has been prioritised for inclusion according to agreed processes (see [section 5.3.1](#TypesIncluded531): ‘Types of evidence included’). In general, the criteria for selecting and prioritising primary evidence include currency, relevancy and quality. The inclusion of only a limited selection of primary evidence helps users manage ‘information overload’.
10. The focus on both secondary evidence and high-quality evidence means that Evidence Search might not contain evidence for every single health or social care question. Users who cannot find what they are looking for, or who are conducting a more thorough review of primary evidence, should use the [Journals and Databases](https://www.nice.org.uk/About/What-we-do/Evidence-Services/journals-and-databases) service.
11. Who is Evidence Search for?
12. Evidence Search is designed primarily for people working in health and social care who make decisions about care, treatment, interventions or the use of resources. This includes:
* commissioners
* health practitioners in primary and secondary care (doctors, nurses and allied health professionals)
* health and social care students
* librarians and knowledge managers
* managers, decision makers and policy makers
* pharmacists
* public health practitioners
* researchers
* social care practitioners.
1. Most of the evidence in Evidence Search is freely available. However, due to licensing agreements, the full text of some evidence in Evidence Search is available only to NHS employees and other authorised users. This evidence is referred to as ‘gated’ or ‘licensed’ and is accessible only to users who meet certain eligibility criteria.
2. Access to this ‘[**licensed content**](#_Licensed_content)’ requires eligible users to log in using an Identity Provider and Access Management Federation service (**[IdP&AMF](#_Identity_Provider_and)**) username and password. The IdP&AMF currently in use across the NICE Evidence Services is OpenAthens. For information on eligibility and details on evidence that is licensed and available through OpenAthens, please see the [NICE website](http://www.nice.org.uk/about/what-we-do/evidence-services/journals-and-databases/openathens/openathens-eligibility).
3. Although designed for health and social care workers, most evidence in Evidence Search can be accessed by service users, patients and the wider public, although some restrictions apply (see [paragraph 15](#Para15)).
4. Who is involved in Evidence Search?
5. This section outlines the people and groups that contribute to the selection, development and presentation of evidence in Evidence Search.
	1. Information, technical and research support
6. In-house teams provide a range of functions to support Evidence Search, including:
* identification and selection of evidence
* development of process and methods
* technical support and system development
* search configuration and presentation
* taxonomy and development of controlled vocabularies.
	1. Evidence sources
1. Evidence accessible through Evidence Search comes from a broad range of sources, known as ‘[**evidence sources**](#_Evidence_source)’. Evidence sources include, for example, the British National Formulary, the Cochrane Library, the Campbell Collaboration, Royal Colleges, SIGN, the Department of Health and Social Care, GOV.UK and specific journals or websites.
2. Some of this evidence is provided free of charge and some is procured.
3. Evidence and information in Evidence Search
4. Evidence is selected for inclusion in Evidence Search based on:
* the ‘[**evidence source**](#_Evidence_source)’
* the five areas of interest
* the type of evidence provided.

These are dealt with in turn in this section.

* 1. Evidence sources
1. New evidence sources are regularly selected for Evidence Search on an ongoing basis. The process for identifying and assessing a new evidence source is outlined in figure 1.
2. The evidence produced by these sources is added (‘[**ingested**](#_Ingestion)’) to Evidence Search either automatically or manually. The current list of sources can be found on the [NICE website](https://www.nice.org.uk/about/what-we-do/evidence-services/evidence-search/evidence-search-content).
3. This section describes how potential new evidence sources are identified and assessed, and how the existing list is reviewed.

**Figure 1 Identifying and assessing new evidence sources, and allocating evidence sources to either the automated or manual ingestion process**



Identifying new evidence sources

1. Potential new evidence sources are identified through a number of channels, for example:
* Internally from information and content specialists.
* Through feedback to Evidence Search that users need more evidence about a particular topic.
* Suggestions from the evidence sources themselves.
* Examination of the search logs and the search results that users did or did not click on. This information may indicate areas where users expect to find suitable evidence, but none is available in the search results that match their expectations.
1. Evidence sources do not need to have been formally ‘[**accredited**](#_NICE_accreditation)’ by the NICE Accreditation Programme before they are added as a source to Evidence Search. However, evidence will appear higher in search results if the source has been accredited (see the [NICE website](https://www.nice.org.uk/about/what-we-do/accreditation) for further details).

Selecting new evidence sources

1. A potential new evidence source is assessed to determine whether its evidence fits Evidence Search inclusion and exclusion criteria (see [section 5.3](#TypesofEvidence53): ‘Types of evidence available in Evidence Search’ and [Appendix A](#_Appendix_A:_Exclusion)). Potential new evidence sources are assessed by information specialists, with advice taken from subject experts such as an internal clinical adviser or a NICE Fellow or a NICE Scholar where appropriate. Details of this assessment are recorded on an internal database.
2. All suggestions received are checked to see if the evidence source is already included or has been previously assessed for inclusion. Evidence sources that have been previously assessed and rejected may be reconsidered if the situation that led to the original exclusion has changed.
3. The information specialist assessing the source makes a recommendation on whether to include or exclude the source. The recommendation is reviewed by the management team in NICE responsible for Evidence Search. They approve or reject the recommendation.

Assessing new evidence sources for automated ingestion

1. A technical assessment of the potential new evidence source is carried out to establish its suitability for automated ingestion. This includes an analysis of the website structure of the source, the volume of evidence it carries and the metadata associated with each item of evidence.
2. Automated ingestion is where new evidence is identified from an evidence source’s website through either a ‘[**web crawl**](#_Web_crawl)’ or a ‘[**web feed**](#_Web_feed)’ and records for this evidence are created in Evidence Search. Manual ingestion entails an information specialist regularly searching the website of evidence sources to identify new evidence and manually creating records for this evidence. For more details on automated and manual ingestion see [section 6.2](#AddingNewEvidence62): ‘Adding new evidence from automated and manual processes’.
3. The preferred approach is automated ingestion, because it is less resource intensive than manual ingestion. However, this may not always be possible; for example, automation may not be technically feasible, the metadata may not be good enough, or automation risks including too much evidence that is out of scope. In such instances, the evidence can be added manually. In some instances, a mixed approach may be taken due to the way that the evidence source’s website is set up: some sections of the source’s website may be ingested though automated ingestion and some sections manually ingested.
4. Evidence sources will be considered for manual ingestion if any of the following apply:
* The website carries fewer than 10 items of evidence relevant to Evidence Search.
* They are known to update their evidence infrequently.
* The website structure is technically difficult to crawl, such that multiple crawls need to be set up and less than 10 items of evidence are ingested per crawl.
* The website uses a specific web technology that makes it extremely difficult or impossible to crawl and index.
* The website does not function properly (for example, there are a substantial number of broken links) or is incomplete (for example, it is still under construction).

Reviewing existing evidence sources

1. Evidence sources can move from manual ingestion to automated ingestion and vice versa. For example, manually searched sources become candidates for automated ingestion if they increase the quantity of evidence available, or if their site has been restructured so that it can be crawled. Conversely, an evidence source on the automated ingestion list may no longer be suitable for automated ingestion following, for example, a change in its web interface. Such changes will be identified by the information specialist responsible for the evidence source through their monitoring of each source.
2. Proposals for changing the treatment of an evidence source are considered by NICE and assessed against the inclusion criteria for automated ingestion.
	1. The five areas of interest covered by Evidence Search
3. Evidence Search provides access to evidence across five areas of interest: clinical; drugs and technologies; commissioning and management; public health; and social care. These areas are not mutually exclusive. This is reflected in the overlap between the subjects listed for each area. For example, a clinical condition can appear in both the public health and clinical lists because the emphasis of the evidence is different in these two fields, with one area taking a population perspective and the other a patient one. Metadata tags are applied for these areas of interest to ensure that evidence for the appropriate area is retrieved by a search (see [section 6](#IdentifyingandAdding6): ‘Identifying and adding evidence to Evidence Search’ for details of how evidence is tagged).
4. Evidence Search aims to provide comprehensive coverage of areas covered by NICE guidance and quality standards. It also aims to cover topics commonly searched for by users of the service but that are not covered by NICE guidance. It mainly contains evidence that has been selected from publicly available websites. It also contains some carefully selected journal articles, including ‘[**randomised controlled trials**](#_Randomised_controlled_trial)’ (RCTs) and ‘[**systematic reviews**](#_Systematic_review)’.
5. This careful selection of evidence means that Evidence Search may not cover all health or social care conditions and presentations. This level of comprehensive coverage can be found through searching the [Journals and Databases](https://www.nice.org.uk/About/What-we-do/Evidence-Services/journals-and-databases) service of NICE Evidence Services.
6. The following sections provide lists of the range of subjects covered in each area of interest. However, it is important to note that this is an indication to help users to understand the scope of the evidence. The subject lists are not exhaustive, and neither are they a way of searching the evidence.

Clinical area of interest

1. For the purpose of this manual, the term ‘clinical’ covers the provision of clinical care (prevention, screening, assessment, care and treatment of individuals with potential or actual physical or mental ill health) in any setting.
2. Evidence Search encompasses the major branches of clinical medicine (shown in table 1 below), ensuring that common conditions and conditions that are important not to miss are covered. There are other conditions, particularly rare ones that are more comprehensively covered in the Journals and Databases service of NICE Evidence Services. If conditions with little coverage in Evidence Search are identified as important through user feedback, then they are considered for further development.

Drugs and technologies area of interest

1. Evidence Search covers drugs and technologies information relevant to the clinical medicine subjects are as follows:
* Allergies
* Anaesthetics
* Cancers
* Cardiovascular system disorders
* Child health
* Complementary and alternative therapies
* Critical care
* Diabetes
* Diagnostics
* Ear, nose and throat
* Emergency and urgent care
* Endocrine disorders
* Equality and diversity
* Evidence-based practice
* Fertility, pregnancy and childbirth
* Eyes and vision
* Gastrointestinal disorders
* Genetics
* Gynaecological disorders
* Haematological and immunological disorders
* Hepatic disorders
* Infections
* Later life
* Learning disabilities
* Medically unexplained symptoms
* Mental health and illness
* Metabolic disorders
* Musculoskeletal disorders
* Neonates and neonatal care
* Nervous system disorders
* Oral and dental health
* Palliative and end of life care
* Renal and urogenital disorders
* Respiratory disorders
* Sexual health
* Skin conditions
* Supportive care
* Surgery
1. Subject coverage includes information relevant to the commissioning, managing, prescribing, dispensing and administering of drugs.
2. Evidence Search also includes medicines-related current awareness evidence carefully selected by the UK Medicines Information (UKMi) network on a daily basis.
3. Prescribing information from the <https://bnf.nice.org.uk>, provided by NICE Evidence Services, is also available through Evidence Search.

Commissioning and management area of interest

1. Evidence Search includes content that is relevant to commissioners and managers in health and social care organisations. No single definition of commissioning and management activity is used by Evidence Search.
2. The scope of this area of interest has been formulated using information from the Department of Health and Social Care and key organisations working in the field of health and social care management and commissioning, such as The King’s Fund, the Health Foundation and the Institute for Healthcare Improvement. Subjects that are relevant to this area of interest are as follows:
* Commissioning
	+ Needs assessment
	+ Priority setting
	+ Procurement
* Estates and facilities
	+ Building services
	+ Estates management
	+ Health and safety
* Information and technology
	+ Information management
	+ Knowledge management
* Innovation
	+ Organisational change
	+ Research and development
	+ Technological innovation
* Patient and public involvement
	+ Co-production
	+ Patient choice
	+ Shared decision making
* Policy
	+ Finance and funding
	+ Governance
	+ Health service reform
	+ Leadership
* Quality improvement
	+ Change management
	+ Efficiency
	+ Patient centred care
	+ Productivity
* Workforce management
	+ Continuing professional development
	+ Medical education and training
	+ Workforce planning

Public health area of interest

1. The definition of public health used for Evidence Search is adopted from the [World Health Organization](http://www.euro.who.int/en/home):

“[Public health is] “the art and science of preventing disease, prolonging life and promoting health through the organized efforts of society”.”[[1]](#footnote-1)

1. Given that this definition is broad, two key documents are used to define the public health coverage in Evidence Search. These documents further describe the subjects covered in Evidence Search and ensure coverage of the public health functions of both Public Health England and local authorities. These two documents are:
* Healthy lives, healthy people: update and way forward[[2]](#footnote-2)
* Public health outcomes framework for England[[3]](#footnote-3), which encompasses the following domains:
	+ improving the wider determinants of health
	+ health improvement
	+ health protection
	+ healthcare, public health and preventing premature mortality.

Social care area of interest

1. Social care is defined by NICE as:

“all forms of personal care and other practical assistance for children, young people and adults who need extra support. This includes:

* *Children and young people who are at risk of, or who are already experiencing, social and emotional problems*
* *children, young people and adults with learning or physical disabilities or mental health problems*
* *people who misuse drugs or alcohol*
* *older people.”*[[4]](#footnote-4)
1. Evidence for inclusion in the social care collection is informed by a search of a subset of the SCIE Social Care Online collection and includes practice guidance, research and practice examples. The results are sifted for relevance and metadata, including the URL to the journal abstract, are added. This evidence is complemented with a web crawl of the GOV.UK site. Subject coverage for social care is as follows:
* Benefits and personal finance
* Criminal justice, law and rights
* Dignity in care
* Education, training and employment
* Equality and discrimination
* Families, children and young people
* Housing and environment
* Integration
* Isolation
* Living and life events
* Mental capacity
* Mental health
* Participation
* Partnerships
* Paying for services
* People, groups and communities
* Personalisation
* Physical and learning disabilities
* Safeguarding – adults and children
* Social care services
	1. Types of evidence available in Evidence Search
1. This section describes the types of evidence included in Evidence Search. It also describes how exclusion criteria may be applied.
2. Evidence Search allows access to high quality evidence from selected sources. It focuses on the highest quality and best available evidence, such as, but not limited to: guidance; systematic reviews; and RCTs. What constitutes ‘best available’ will differ between the areas of interest described in [section 5.2](#FiveAreas52): ‘The five areas of interest covered by Evidence Search’. This variability reflects, for example, the paucity of RCTs on public health and social care interventions.

Types of evidence included

1. Evidence is selected for inclusion in Evidence Search only if it fits the description for at least one of the specified evidence types (which are not mutually exclusive). A full list of evidence types and their descriptions can be found in [Appendix B](#_Appendix_B:_Definitions).
2. The evidence types are used as metadata tags for evidence in Evidence Search. This allows users to narrow their search results by using the Evidence Types filters presented in the search interface.
3. Evidence Search only includes a selection of systematic reviews, RCTs and other primary research, rather than trying to replicate a bibliographic database. Some systematic review and primary research evidence are automatically included via feeds from high quality sources such as the Cochrane Database of Systematic Reviews, Cochrane Central Register of Controlled Trials, the Campbell Collaboration, and the Medicines Awareness Service. Access to a wider range of evidence types is possible through the [Journals and Databases](https://www.nice.org.uk/About/What-we-do/Evidence-Services/journals-and-databases) service of NICE Evidence Services.
4. In addition, Evidence Search includes a selection of systematic reviews (including systematic reviews of qualitative evidence) that are selected by NICE’s information specialists. These are restricted to systematic reviews published by a journal that conforms to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (‘[**PRISMA**](#_PRISMA)’) standards (see the [PRISMA website](http://www.prisma-statement.org/Endorsement/PRISMAEndorsers.aspx) for a list of journals). If not published by one of these journals, a systematic review is selected for inclusion if the abstract reports the use of inclusion/exclusion criteria, confirms two or more sources have been searched, and incorporates a synthesis of included studies.
5. Finally, systematic reviews that are published in non-PRISMA journals, and RCTs and other primary study types, are included in Evidence Search if the article has been added through the automated ingestion of evidence from a selected evidence source (see [section 6.2.1](#AutomatedIngestion621): ‘Adding new evidence from automated ingestion’).

Types of evidence excluded

1. Exclusion criteria are applied at evidence source level. Evidence sources are excluded where:
* Accessing the evidence on the source’s website involves the user incurring a cost or registering and submitting personal information.
* The evidence source is sponsored by an entity with a ‘[**financial interest**](#_Financial_interest)’[[5]](#footnote-5), where the sponsorship is deemed likely to have affected the objectivity of the evidence.
1. In addition, certain types of evidence are routinely excluded from Evidence Search. See [Appendix A](#_Appendix_A:_Exclusion) for details of exclusion criteria for evidence sources and evidence types.
2. Identifying and adding evidence to Evidence Search
	1. Technical systems underpinning Evidence Search
3. New evidence is regularly identified and added to Evidence Search through two main routes – automated or manual ‘[**ingestion**](#_Ingestion)’.
4. Automated ingestion is where new evidence is identified from the website of an ‘[**evidence source**](#_Evidence_source)’ through either a ‘[**web crawl**](#_Web_crawl)’ or a ‘[**web feed**](#_Web_feed)’ and records for this evidence are created in Evidence Search. Manual ingestion entails an information specialist regularly searching the website of sources to identify new evidence and manually creating records for this evidence.

Automated ingestion

1. There are two processes for automated ingestion: a web feed or a web crawl. Wherever possible a web feed is used; however, feeds are available from only some evidence sources.
2. A web feed is a service provided by the website owner that provides information in a structured format, including ‘[**metadata**](#_Metadata)’ (see [section 6.1.3](#Metadata613): ‘Metadata and controlled vocabularies’). Establishing web feeds with evidence sources is preferred where possible because this approach allows the source greater control over the evidence and improves indexing of the evidence within Evidence Search.
3. Web crawls create a catalogue or index of the evidence according to a set of rules, so it can be searched for and redisplayed within Evidence Search.
4. Web crawls and web feeds are automated processes that rely on the structure of the source’s website. This means that on some occasions evidence may be added that is out of scope, or evidence might be assigned to an incorrect area of interest or evidence type.

Manual ingestion

1. Evidence can also be identified for inclusion in Evidence Search through a manual process. Information specialists identify evidence through regular searching of websites and bibliographic databases. The new evidence is then added to Evidence Search by creating records in the ‘[**resource management system**](#_Resource_management_system)’. A customised, advanced resource management system known as ‘[**ARMS**](#_ARMS)’ is used within NICE.

Metadata and controlled vocabularies

1. Evidence Search relies on metadata to index evidence and present search results, and to order them accurately. The term ‘metadata’ defines the pieces of information that are used to describe and present evidence and documents.
2. There are several key pieces of metadata that determine the indexing, presentation and ordering of evidence in Evidence Search. These are: title; publication or issued date; meta description; abstract or summary; keywords; and type of evidence.

Ranking of evidence in search results

1. The order in which search results are presented is primarily determined by the content of the evidence. However, a lot of weight is given to words that appear in evidence titles, and lesser degrees of weight are assigned to words in meta descriptions and keywords. Evidence ‘freshness’ (that is, when the evidence was published) is also taken into account.
2. Another important factor in the ranking of search results is the evidence type. Specific types of evidence are ‘boosted’ according to the following ranking where ‘NICE accredited’ evidence are given the greatest boost.
3. Accredited Guidance
4. Other Guidance
5. Policy and Strategy, Prescribing and Technical Information, Quality Indicators, Safety Alerts
6. Systematic Reviews, Economic Evaluations, Evidence Summaries, Health Technology Assessments, Horizon Scanning
7. Evidence Uncertainties, Primary Research, Ongoing Trials, Audit and Inspection Reports, Case Studies, Medicines Current Awareness, Implementation Support, Information for the Public, Patient Decision Aids
8. . This means that certain types of evidence are generally displayed higher up in the search results, and, in general, accredited evidence will appear higher than non-accredited evidence (when it is available and is relevant to the specific search).
	1. Adding new evidence from automated and manual processes
9. This section describes how evidence is added to Evidence Search. Evidence is identified and added through either an automated or a manual process.

Adding new evidence from automated ingestion

1. An outline of how the automated ingestion process is undertaken and adds value to new evidence is provided in figure 2 below and is described in more detail in the subsequent text.

**Figure 2 Automated ingestion of evidence**



#### Running web crawls and receiving web feeds

1. When an evidence source is first introduced, a web feed or web crawl strategy is agreed and configured by Evidence Search information specialists, in line with the inclusion and exclusion criteria in [section 5](#Section5EvidenceandInfo): ‘Evidence and information in Evidence Search’. A search analyst then develops an ingestion strategy to bring the required evidence into Evidence Search. In some instances, one evidence source may have multiple crawls or feeds; for example, where the structure of the website being crawled is complex or where several different evidence types are to be ingested.
2. The web crawl or web feed is repeated regularly to ensure automated addition of all new or updated evidence to Evidence Search, and to ensure that deleted evidence is removed. Web crawls are updated on a rolling basis, and web feeds are updated at a frequency agreed with each evidence source.

#### Ingesting available metadata and automated addition of specific metadata

1. All evidence sources that are suitable for automated ingestion provide some metadata with their evidence. The minimum dataset is the title, the evidence ‘[**URL**](#_URL)’ and the date. This metadata is ingested as part of the web feed or web crawl.
2. In exceptional circumstances, it may be possible to accept evidence sources that provide less information. Where appropriate, NICE works with evidence sources to improve the provision of this minimum dataset.
3. The metadata supplied with most web feeds and many web crawls is considerably richer and more detailed than the minimum dataset. For example, additional metadata available through a typical web feed includes keywords, abstracts, description and publisher. NICE also works with evidence sources to move from web-crawl-based to web-feed-based ingestion, because using a web feed improves the quality and positioning of their evidence in the search results.
4. In addition to metadata provided by the evidence sources, specific metadata is added as part of the automated ingestion process. This happens as part of the web feed or web crawl procedure. This routinely added metadata relates to the following areas: area of interest (see [section 5.2](#FiveAreas52): ‘The five areas of interest covered by Evidence Search’); evidence type (see [section 5.3](#TypesofEvidence53): ‘Types of evidence available in Evidence Search’); accreditation information; origin of the evidence (UK or not); evidence source’s name; and any reference to named medicines and devices. Evidence type and accreditation information are important additions, because they can influence where the evidence will appear in the search results. For example, guidance receives a bigger ‘type of evidence’ ranking boost than ‘[**RCTs**](#_Randomised_controlled_trial)’ and should therefore generally appear higher in search results (see [section 6.1.4](#Ranking614): ‘Ranking of evidence in search results’).
5. Once automated ingestion is complete, the new evidence is available in Evidence Search.

#### Adding metadata manually by importing evidence into ARMS

1. Some evidence ingested through the automated process may have inadequate basic metadata, such as poor titles, that cannot be improved during the ingestion process. These cases are assessed by NICE to determine whether additional metadata should be manually added to the evidence.
2. If additional metadata is required, an information specialist imports the evidence into the ARMS resource management system and reviews the metadata, amending where appropriate.
3. Where considerable manual addition of metadata is required, suggestions may be given to the evidence source on how to improve the quality of the original metadata.

Adding new evidence from manual ingestion

1. A large number of evidence sources produce evidence that is not suitable for automated ingestion (see [section 5.1.3](#AssessAutomated513): ‘Assessing new evidence sources for automated ingestion’, which outlines requirements for automated ingestion). This includes bibliographic databases of journal articles, from which only selected systematic reviews are included in Evidence Search. In this case, individual pieces of evidence are identified in a manual process to create a feed into Evidence Search.
2. This section describes how new evidence from manually searched bibliographic databases and evidence sources is ingested into Evidence Search. The list of evidence sources whose evidence is manually searched has developed over time and is available on the [NICE website](https://www.nice.org.uk/about/what-we-do/evidence-services/evidence-search/evidence-search-content).
3. The key steps to adding evidence from these manually searched bibliographic databases and evidence sources are outlined in figure 3 below, and details are given in the subsequent text.

**Figure 3 Adding evidence from manually searched evidence sources**



#### Manually searching for evidence

1. Information specialists regularly search bibliographic databases and monitor the websites of evidence sources. The frequency of website monitoring takes into account how often relevant material is likely to be published on the source’s website and the type of evidence available. Alerts are set up wherever possible so that the information specialist can be notified directly if new evidence is added by an evidence source.

#### Selecting new evidence

1. Information specialists use the functions available on the websites of evidence sources to identify evidence that meets the Evidence Search inclusion and exclusion criteria (see [section 5.3](#TypesofEvidence53): ‘Types of evidence available in Evidence Search’). Only evidence that meets these criteria is manually added to Evidence Search.
2. The manual search for new evidence from bibliographic databases (primarily PubMed) is limited to identifying selected systematic reviews (see [section 5.3.1](#TypesIncluded531): ‘Types of evidence included’) and information on management of medicines. The search for systematic reviews excludes evidence that is added to Evidence Search via the automated ingestion process; for example, systematic reviews from the Cochrane Database of Systematic Reviews are included via an automated ingestion process rather than individually selected by manual search.

#### Creating records for new evidence

1. When performing the manual search of bibliographic content, information specialists sift and select systematic reviews using titles and abstracts according to agreed criteria (see [section 5.3.1](#TypesIncluded531): ‘Types of evidence included’). This evidence is recorded in reference management software. A feed of these records is created from the reference management software and inputs directly into the search index of Evidence Search.
2. Evidence manually identified from other evidence sources (that is, not bibliographic databases) is recorded in the resource management system, ARMS. To create an ARMS record, metadata available from the evidence source must be inputted, such as the title, date and a URL. New metadata not available from the evidence source is also added. Additional metadata, such as abstract and publisher, is included where appropriate. A feed of these completed ARMS records is added to the search index of Evidence Search.
3. A set of SOPs is maintained that outline the steps and standards for adding and reviewing evidence for Evidence Search. These procedures ensure consistency across all information specialists working on the service. These are available on request.
4. Maintaining Evidence Search
5. Once an ‘[**evidence source**](#_Evidence_source)’ meets the inclusion criteria and the most appropriate ‘[**ingestion**](#_Ingestion)’ method is selected and set up, new and updated evidence will be added to Evidence Search. ‘[**Web crawls**](#_Web_crawl)’ are run continuously and ‘[**web feeds**](#_Web_feed)’ are updated according to the schedule agreed with the evidence source. The websites of manually searched evidence sources are searched to an agreed schedule. Newsletters, RSS feeds and alert services are used to notify information specialists of new evidence.
6. Evidence source websites that are crawled will occasionally change. Changes to the location or presentation of evidence will affect the web crawl that is used to ingest evidence into Evidence Search. Some alterations on the evidence source website may reduce the quality of the title or date metadata that is available. More fundamental changes to the website structure may mean that the web crawl no longer works.
7. Unexpected changes to evidence in Evidence Search that may be due to changes on an evidence source’s website are monitored by NICE in two main ways.
8. Firstly, a threshold system is used that warns NICE when the latest web crawl returns fewer items of evidence than have been ingested previously. Small changes are to be expected, so a warning is sent only if the reduction in evidence exceeds a specific threshold. The default threshold is a fall of 5% in the evidence ingested via the web crawl. If a threshold is triggered, further investigation as to the cause of the unexpected drop in evidence is performed before any change to the evidence in Evidence Search is permitted.
9. Secondly, evidence from evidence sources is monitored as it is presented in Evidence Search. This allows identification of unexpected, small changes to specific pieces of evidence, such as accredited evidence, that would not be picked up by the threshold system. It also allows identification of cumulative changes in sources that are maintained using both manual and automated ingestion methods.
10. Regular quality assurance checks of web crawls and of the evidence presented in Evidence Search highlight whether the ‘[**metadata**](#_Metadata)’ being used are sufficient or need improvement, and whether the scope of the web crawls can be expanded.
11. Changes on evidence sources’ websites that affect the evidence in Evidence Search result in changes to the web crawl configuration. This is how the majority of sources in Evidence Search are maintained.
12. For evidence added via the manual process, ‘[**ARMS**](#_ARMS)’ automatically highlights any broken links. The information specialist reviews the ARMS record, which is then updated or removed accordingly. However, evidence can be withdrawn at any time if it is deemed out of date or ineligible.
13. Continuous improvement
14. Evidence Search aims to provide sufficient breadth and depth of evidence to enable users to find relevant evidence. As this is an established service, light touch processes are in place to ensure the relevancy of the body of evidence available in Evidence Search.
15. Feedback from internal and external stakeholders, analysis of search results, and the analysis of search term usage help to develop the service. These may lead to new evidence sources being introduced, or new types of evidence being considered.
16. Updating the Process Guide
17. This process guide will be reviewed and updated three years after its publication. User feedback will be used to review the processes. Feedback can be sent to Evidence Search by emailing nice@nice.org.uk.
18. Equality statement
	1. Introduction
19. NICE is committed to eliminating unlawful discrimination and advancing equality of opportunity in relation to age, disability, gender reassignment, pregnancy and maternity, race, religion or belief, sex, and sexual orientation, and to fostering good relations between people who share these protected characteristics and those who do not. The organisation also aims to comply fully with its human rights obligations.
20. This overview describes how these commitments are met as they relate to Evidence Search and its associated employment and workplace policies and practices. More information about the NICE equality scheme can be found on the [NICE website](http://www.nice.org.uk/about/who-we-are/policies-and-procedures/nice-equality-scheme).
21. Evidence Search is one of a number of interlocking components in the NHS infrastructure that supports health and social care professionals in improving the quality of services and tackling health inequalities to improve health for protected and other disadvantaged groups. Examples include inequalities relating to socioeconomic status and inequities in access to healthcare and opportunities. The likely scale and nature of the effects of Evidence Search on equality should be seen in this context. It is at the very least a rapid and effective means of connecting health and social care professionals with the evidence and information they need.
22. Evidence Search cannot remedy existing deficiencies in the research and evidence base about inequalities in health, access to healthcare, and the availability of appropriate treatments in relation to groups with protected characteristics. However, Evidence Search can and should be used to influence future research priorities, research design, criteria for systematic review and concepts of good practice, so that information about the impact of interventions on aspects of equality can progressively fill current gaps in evidence.
23. In conclusion, within NHS systems for quality improvement, Evidence Search aims to contribute only positively to equality. The service does not intend or expect to present any problems or barriers to any community or group.
	1. Equality programme
24. The service provided by Evidence Search would be incomplete if it did not, as far as possible, meet the needs of health and social care professionals for evidence and information to help improve services and reduce health inequalities in relation to protected groups and socioeconomic status.
25. The principles of equality inform the production of Evidence Search to ensure that the processes, products and systems of accountability enable the service to maximise its positive impact on equality.
26. The equality programme is led and overseen by senior managers and covers the main areas of activity outlined below.

Evidence coverage and equality

1. Evidence within Evidence Search is categorised into subject areas (see [section 5.2](#FiveAreas52): ‘The five areas of interest covered by Evidence Search’). Key subject areas relevant to equality include:
* Child health
* Equality and discrimination
* Equality and diversity
* Health of black and minority ethnic groups
* Later life
* Learning disabilities
* Lesbian, gay, bisexual and transgender health
* Older people’s health
* People, groups and communities.
1. Organising the evidence in this way and mapping sources to each subject area enables the team responsible for Evidence Search to ensure that the full breadth of equality issues is covered. In addition, this process allows potential gaps in the evidence to be identified, so that new evidence sources can be identified where they exist.
2. Decisions have to be made about how additions to Evidence Search are prioritised. NICE will ensure that consideration of impact on equality is a factor in deciding on priorities for adding new types of evidence and new sources of information to the website.

Making Evidence Search accessible

1. NICE has tried to ensure that the Evidence Search website is usable and accessible to all. To uphold this aim, the site has been built and tested in line with recognised accessibility standards, guidelines and established best practice. It conforms to the World Wide Web Consortium (W3C) Web Accessibility Initiative Web Content Accessibility Guidelines (WCAG) 2.0, level AA. It will comply with WCAG 2.1, level AA for September 2020 and will comply with any subsequent legislative requirements.
2. Glossary

## ARMS

An advanced resource management system developed and maintained by NICE in house for managing evidence manually added to Evidence Search. See also: [Resource management system (RMS)](#_Resource_management_system).

## Cochrane Collaboration

An international, independent, not-for-profit organisation dedicated to making up-to-date, accurate information about the effects of healthcare readily available worldwide. The collaboration produces systematic reviews of healthcare interventions, known as Cochrane Reviews, which are published online in the Cochrane Library. Evidence from the Cochrane Library databases is used in different ways in Evidence Search.

## Evidence source

The owner or originator of evidence that is accessible through Evidence Search.

## Financial interest

A financial stake or involvement in an evidence source that could be perceived as influencing the content of the evidence.

NICE reserves the right to exclude evidence sources that are sponsored by an entity with a financial interest and that do not state this sponsorship in a clear and transparent way, or where there are concerns regarding editorial independence.

It is recognised that evidence sources may be developed with external funding and that this support may be in the form of financial contributions for the complete development of the content, or for parts of it. With this in mind, the involvement of commercial organisations is examined; for example, statements relating to how editorial independence is maintained, information about the sponsorship or grant arrangements that are in place, and how corporate membership is managed.

Sources of funding should be clearly stated. This can be shown in published annual accounts or through an explanation of how any sponsorship is handled. Ideally this information should be provided on the source’s website, or within specific items of evidence, otherwise it may be necessary to contact the evidence source itself.

NICE also recognises that there are circumstances when stakeholders involved with content development may have competing interests. Therefore, how declarations of financial interests are managed by the source is examined. Ideally, there should be an explicit declaration of interests policy, which describes the procedures that are followed and how interests are handled by the source. For example, individuals involved in developing evidence may be required to declare any competing interests through a regular process, such as an annual declaration as part of their employment, or before undertaking work on specific areas of evidence.

## Identity Provider and Access Management Federation service (IdP&AMF)

The IdP&AMF service provides secure authentication for UK healthcare professionals working in the NHS and other users who meet the eligibility criteria and are seeking access to online licenced information resources purchased for the NHS both nationally and locally. For example, point of care resources, bibliographic databases, e-journals and e-books.

## Information Standard

A certification scheme for health and social care information producers, supported by NHS England. It was set up to help the public identify trusted sources of health and social care information. The standard was awarded to an organisation, rather than to each individual piece of information. The standard has closed and certification will continue to be valid until 31 July 2019. Some certified organisations have indicated that they intend to establish a new patient information standard.

## Ingestion

The process by which pieces of evidence are added to Evidence Search. See also: [Web crawl](#_Web_crawl) and [Web feed](#_Web_feed).

## Licensed content

Content that has been purchased by the NHS in England at national, regional or local levels for its employees and other eligible users. It is owned by the provider and made available to eligible users under licence, using IdP&AMF authentication. See also: [Identity Provider and Access Management Federation service](#_Identity_Provider_and_1) (IdP&AMF)

## Metadata

Information that can be applied to evidence to help to describe it; for example, document title, publication date and keywords. The more extensive or detailed the metadata applied, the easier it is to appropriately index, sort and find the evidence within Evidence Search. This results in a better search experience for the user, because the most relevant evidence can be found, and irrelevant evidence can be excluded.

## NICE accreditation

A process that certifies the credibility, authority and competence of the steps used to produce guidance and advice. Accreditation provides recognition by NICE that processes used by an information provider or guidance producer meet the NICE accreditation criteria. Accreditation helps health and social care professionals identify the most robustly produced guidance available, enabling them to deliver high quality care. This programme is closed to new applications, but accredited organisations are encouraged to maintain and improve their processes via a new renewal process. Organisations that successful renew accreditation extend their period of certification.

## Primary evidence

Original data collected from study participants and usually published in a journal article. For example, a quantitative or qualitative research study that describes an intervention and its outcome on a specific population.

## PRISMA

Preferred Reporting Items for Systematic Reviews and Meta-Analyses – an evidence-based minimum set of items for reporting systematic reviews and meta-analyses. See also: [Systematic review](#_Systematic_review).

## Randomised controlled trial (RCT)

A comparative study in which participants are randomly allocated to intervention and control groups and followed up to examine differences in outcomes between the groups.

## Resource management system (RMS)

A system for managing the metadata records and taxonomies that relate to a particular piece of evidence. An RMS differs from a content management system in that it is not used to create and/or store those resources. The resources are instead links pointing to documents held elsewhere on the web.

The system is in effect a giant database that allows the creation of metadata records for each piece of evidence, by adding details such as title, author, publisher, publication date and subject keywords, as well as the URL of the resource. These records are stored in the database and can be sorted or filtered to produce different views of the records held (for example, showing all the records associated with one publisher). The records can be viewed, edited and deleted, as appropriate. See also: [ARMS](#_ARMS).

## Secondary evidence

A summary or synthesis of existing primary research relevant to a particular research question. For example, a systematic review and meta-analysis.

## Systematic review

Research that summarises the evidence on a clearly formulated question according to a predefined protocol, using systematic and explicit methods to identify, select and appraise relevant studies, and to extract, collate and report their findings.

## URL

Uniform Resource Locator – the address of a website on the world wide web.

## Web crawl

An automatic ingestion process by which evidence is pulled into Evidence Search. The Evidence Search web crawler goes to a website and follows links to pages identified and selected by NICE. The search engine then copies these pages. The copied pages are processed according to a set of rules so as to create an index of the website that can be easily and quickly searched. NICE seeks to engage with the evidence source wherever possible before crawling a site. See also: [Ingestion](#_Ingestion).

## Web feed

An automatic ingestion process by which evidence is pushed into Evidence Search. A file is prepared by the selected evidence source that contains the content of their website in a structured format. The file is sent to Evidence Search to ingest. Evidence Search processes the file according to a set of rules in order to build an index of the evidence to be included, so that it can be easily and quickly searched. See also: [Ingestion](#_Ingestion).

# Appendix A: Exclusion criteria for Evidence Search

Evidence from evidence sources is not included if:

* Accessing the evidence on the source website involves the user incurring a cost or registering and submitting personal information.
* The evidence source is sponsored by an entity with a ‘[**financial interest**](#_Financial_interest)’[[6]](#footnote-6), where the sponsorship is deemed likely to have affected the objectivity of the evidence.

Certain types of evidence are routinely excluded from Evidence Search. Evidence is excluded if it is:

* Predominantly written in a language other than English (although relevant English language ‘[**systematic reviews**](#_Systematic_review)’ that consider non-English studies would be included).
* A stand-alone set of raw statistics where no analysis or interpretation is provided, such as datasets or toolkits.
* A professional code of ethics.
* A statute.
* An exclusively personal opinion or experience (for example, blog posts).
* Patient information from organisations that have not been awarded the Department of Health ‘[**Information Standard**](#_Information_Standard)’. Local information with the Information Standard is also excluded.
* Temporary and therefore of short-term interest only, such as news stories or event information.
* Evidence that has been archived by the evidence source, apart from exceptional circumstances.

# Appendix B: Definitions of the types of information used in Evidence Search

|  |  |  |
| --- | --- | --- |
| **Level 1** | **Level 2** | **Definition** |
| Direction and guidance |   | Instructions on a course of action that must or should be taken. |
|   | Policies and strategies | Sets of principles, courses of action, frameworks, methods or plans to bring about a desired future, such as achievement of a goal or solution to a problem, and that are advocated formally at a national or international level. |
|   | Regulations | Principles, rules or directives made and maintained by an organisation and used to control, direct or manage an activity, organisation or system. |
|   | Guidelines and guidance | Systematically developed recommendations to guide decisions about health, public health or social care to improve individual and population health and wellbeing. Guidelines make recommendations about treatment and care, based on the best research available rather than opinion. |
|   | Quality indicators and standards | Concise sets of prioritised statements designed to drive measurable quality improvements within a particular area of health or care. |
|   | Prescribing and technical information | National and international directions to support the safe practice that is recommended. |
|   | Safety alerts | National or international issues that poses significant risk so that an urgent alert is issued requiring action to be done. |

| **Level 1** | **Level 2** | **Definition** |
| --- | --- | --- |
| Secondary evidence |  | Evidence that has been produced by reviewing and assessing primary evidence. |
|   | Systematic reviews | Research that summarises the evidence on a clearly formulated review question according to a predefined protocol using systematic and explicit methods to identify, select and appraise relevant studies, and to extract, collate and report their findings. Is reproducible. |
|   | Economic evaluations | Comparative analysis of alternative courses of action in terms of both their costs and their benefits. |
|   | Evidence summaries | Produced following a clear and transparent process in order to summarise the best available evidence on a topic. Do not meet the full requirements for a systematic review in that the inclusion criteria may be less comprehensive (for example, time period, type of evidence or exhaustivity of search/selection). May or may not include an evidence synthesis. |
|   | Health Technology Assessments | Independent research information about the effectiveness, costs and broader impact of healthcare treatments and tests for those who plan, provide or receive care.  |
|   | Horizon scanning and forecasting  | Outputs of horizon scanning activities that enable service providers and commissioners to anticipate and plan based on evolving developments. |
|   | Evidence uncertainties | An evidence uncertainty identifies patient, clinician or research questions that cannot currently be answered by reliable up to date systematic reviews - a 'known unknown'. |
| Primary research |  | Factual accounts of an original study or piece of research. |
| Ongoing trials & research  |  | Current research studies, including controlled clinical trials, randomised controlled trials and cohort studies that are recruiting, not recruiting, completed or stopped, as well as research protocols for systematic reviews. The records for this evidence type describe the research study itself, not the results of the study, and can be written for a professional or lay audience. |
| Practice-based information |   |   |
|   | Practice examples | Local, regional or national descriptions of service practice or service case studies. |
|   | Audit and inspection reports | The outcomes of national audits and equivalent initiatives. |
| Implementation support |   | Materials to help organisations implement change or new services. Can cover audit, costing, and information to support education and learning for practitioners. |
|   | Costing tools | Products that support the estimation of a change in costs resulting from a change or potential change in product or service provision. |
|   | Auditing tools | Tools (usually computerised) to capture data for audit projects to improve precision in the audit process, relieving pressure on resources within audit departments. Provide an automated mechanism for accurately processing survey forms.  |
|   | Implementation support models and guides | Requirements definitions, requirements assessments, or instructions to facilitate the delivery of an implementation (includes any format such as posters and books). |
|   | Assessment tools | A range of tools to measure at population and individual levels the extent and nature of the need of a particular target population in order to make a response to that need, and to assess individual or family unit need and aid communication and decision making between service users and health and social care professionals. |
|   | Learning materials | Evidence-based materials to support professionals with their learning. |
| Information for the public |   |   |
|   | Public information and decision aids | Publications aimed at a lay audience, including products designed to aid communication and decision making between patients and other service users, and health and social care professionals.  |

1. Acheson, 1988; World Health Organization [http://www.euro.who.int/en/health-topics/Health-systems/public-health-services/public-health-services](http://www.euro.who.int/en/health-topics/Health-systems/public-health-services/public-health-services%20) [accessed 18 June 2019]. [↑](#footnote-ref-1)
2. Department of Health (2011) [Healthy lives, healthy people: update and way forward](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_128120). [accessed 18 June 2019]. [↑](#footnote-ref-2)
3. Department of Health (2012) [A public health outcomes framework for England, 2016-2019.](https://www.gov.uk/government/publications/public-health-outcomes-framework-2016-to-2019) [accessed 18 June 2019]. [↑](#footnote-ref-3)
4. NICE (2014, updated 2018) [Developing NICE guidelines: the manual.](https://www.nice.org.uk/process/pmg20/chapter/glossary#social-care) [accessed 18 June 2019]. [↑](#footnote-ref-4)
5. NICE reserves the right to exclude evidence sources that are sponsored by an entity with a financial interest and that do not state this sponsorship in a clear and transparent way, or where there are concerns regarding editorial independence. Please see ‘[Financial Interest](#_Eyes_on_Evidence)’ in the glossary for further details on how the financial interest criteria are applied. [↑](#footnote-ref-5)
6. NICE reserves the right to exclude evidence sources that are sponsored by an entity with a financial interest and that do not state this sponsorship in a clear and transparent way, or where there are concerns regarding editorial independence. Please see ‘[Financial Interest](#_Eyes_on_Evidence)’ in the glossary for further details on how the financial interest criteria are applied. [↑](#footnote-ref-6)