

Information literacy and work

The Tables booklet from the Better Informed for Better Health and Better Care series



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For more background and context on Information Literacy, please refer to the **Background** booklet in this series.

For the links between information literacy competence and the Knowledge and Skills Framework, please refer to the **Tables** booklet in this series.

For explanations of unfamiliar terms, please refer to the **Glossary** booklet in this series.

For demonstrations of search tools and techniques referenced in the tables, please visit our information literacy courses at <http://www.infoskills.scot.nhs.uk>.

For further information and resources related to information literacy, please visit the information literacy portal at <http://www.infoliteracy.scot.nhs.uk/home.asp>

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Reflection

Before reading the information contained in the capabilities tables, you might like to think about how you apply the information literacy process in your own everyday activities.

Think about a time recently when you've needed information :

Did you begin with a question and were you aware of alternative **key terms** before trying to find the information?

What sources did you use and why did you choose them?

Are these sources reliable?

Did you get the information you needed?

How reliable/accurate was the information?

Did you learn anything new from the retrieved information?

Did you pass on the new information? How? Who did you share it with? Why?

How did you use the new information?

Information Literacy Capabilities Tables

The information contained in the tables represents illustrations of the sorts of skills, abilities and behaviours etc, learned and reinforced through information literacy. It is not intended as an exhaustive list of these but may assist the reader in assessing his/her progress.

Question			
An information literate person is aware of an information need, is able to articulate that need and has the ability to formulate a question addressing the need.			
Example learning outcomes Skills and abilities, Attitudes and emotions, Observable behaviours	Personal enabling factors	Benefits to health and healthcare	KSF Competency
<p>Skills and abilities</p> <p>Convert an information need into a question or statement.</p> <p>Determine the nature and extent of the information needed.</p> <p>For an interview or consultation :</p> <ul style="list-style-type: none"> develop 'open' and 'closed' questions ; develop directed and non-directed questions ; modify language to ensure clear communication ; allow sufficient time for interview/consultation. 	<p>Peers and others (eg colleagues, managers within organisation, family, friends) willing to support the individual in asking questions and defining information needs</p> <p>Confidence with information technology</p> <p>Previous experience in formulating questions and/or support to develop this ability</p> <p>Where appropriate, a good vocabulary and/or access to a thesaurus</p> <p>In interview/consultation, the ability to empathise with 'the other' and to use appropriate language.</p> <p>Tools and techniques to support question definition eg., PICO</p>	<p>Articulating an information need and being able to form relevant questions improves communication.</p> <p>Improved communication between patient/carer and healthcare professional, between healthcare professionals, between teams and individuals leads to improved service delivery in every field.</p> <p>Helps maintain openness to evolving technologies and treatments by encouraging and supporting best practice.</p>	<p>IK2 : 3a, 21 IK3 : 1a, 2c, 3a HWB1 : 2b HWB2 : 3d HWB5 : 3b HWB6 : 2c, 3b, 4a, 4d HWB7 : 3b</p>

<p>For non-interpersonal situations :</p> <ul style="list-style-type: none"> understand what a 'key' term is ; identify the 'key' terms in a question or statement ; find one or more words which mean the same as the 'key' terms ; draw up a table listing 'key' terms and alternative words ; plan search using identified key terms and synonyms. <p>Attitudes and emotions</p> <p>Regards this as an additional opportunity for independent self-directed learning</p> <p>Self-confidence in asking questions.</p> <p>Confidence that the 'problem' can be resolved by forming it into an answerable question.</p> <p>Accepts responsibility for the task.</p> <p>Aware of and respect for the fact that asking questions is an essential part of day-to-day work, personal development and making the most of personal health and wellbeing.</p>	<p>Awareness of the right to ask questions</p> <p>Openness of mind about what the answer might look like</p>		
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<p>Respects the right of all partners in healthcare – staff, patients and carers – to ask questions and to receive answers.</p> <p>Observable behaviours Defines and articulates the need for information.</p> <p>Seeks support and/or advice from peer groups (eg colleagues, family and friends), supervisor etc.</p> <p>Discusses information need to help focus on question formulation.</p> <p>Redefines or alters the developed questions to achieve a more accurate focus.</p> <p>Accurately identifies key terms.</p> <p>Generates listing of alternative terms</p> <p>Explores alternative information sources to increase familiarity with the topic.</p>			
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Source An information literate person is aware of the ways information is organised and distributed and is able to identify and access a variety of types and formats of potential sources of information			
Example learning outcomes Skills and abilities, Attitudes and emotions, Observable behaviours	Personal enabling factors	Benefits to health and healthcare	KSF Competency
<p>Skills and abilities Identify the sources most likely to be useful when related to the search question.</p> <p>Appreciate why some information sources may be more helpful than others in the context of a particular information need. For example, a quick work-related question may be most efficiently answered by a work-colleague or where supporting evidence for a recommendation or decision is needed, it may be more appropriate to identify written reports and other documents.</p> <p>Attitudes and emotions Acknowledges that people are a rich source of information that often cannot be found in other, more formal resources.</p> <p>Aware that people may be able to provide information about their feelings, personal experience, views/perceptions as well as facts.</p> <p>Aware that information intermediaries such as librarians and information specialists may be</p>	<p>Previous experience in identifying relevant search sources</p> <p>Ready access to valid and reliable information sources in a variety of formats.</p> <p>Where appropriate, ready access to information related tools and technology, including staff.</p> <p>A realistic understanding of own condition/situation.</p> <p>Accessible and accredited Plain English and other sources of patient information leaflets</p> <p>Flexibility of approach – impossible to be aware of ALL possible sources.</p> <p>Have an idea of the extent of information needed including knowing what is (or should be) available.</p>	<p>Identifying the correct source (including people) for the answers to questions reduces search time and increases the probability of identifying needed information.</p>	<p>IK2 : 2b, 3b IK3 : 1b, 2c, 3b HWB1 : 2b HWB2 : 3d HWB5 : 3b HWB6 : 2c, 3b HWB6 : 4a, 4d HWB7 : 3b</p>

<p>needed.</p> <p>Aware that more than one source may be useful in a search.</p> <p>Understands the extent of the information resources available to support a search.</p> <p>Aware of the structure and organisation of the selected information sources.</p> <p>Appreciates the strengths, weaknesses and unique characteristics of a variety of information resources.</p> <p>Confidence in exploring and identifying possible information sources.</p> <p>Observable behaviours</p> <p>Consults peer-groups (eg colleagues, family, friends) and/or supervisor for information and advice on appropriate information sources</p> <p>Identifies resource(s) most likely to be helpful when related to a specific search question and context</p> <p>Carries out preliminary exploration of several information sources to pinpoint the most appropriate for the question in hand.</p>			
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Find An information literate person seeks information from a variety of sources. When the source is not a person, appropriate, filters, limits and other refining tools and techniques are used to extract needed information			
Example learning outcomes Skills and abilities, Attitudes and emotions, Observable behaviours	Personal enabling factors	Benefits to health and healthcare	KSF Competency
<p>Skills and abilities Select and apply appropriate methods and/or tools for finding information, including :</p> <ul style="list-style-type: none"> active listening, responding and consultation/interview skills required for extracting personal information ; techniques for extracting statistical information ; research methodologies including questionnaire, interview, laboratory investigation. <p>For online searching :</p> <ul style="list-style-type: none"> define keywords, synonym definition etc ; select suitable vocabulary and choose terms ; understand structure of sources and translate this into appropriate formulation of search statement 	<p>Ability to identify and retrieve information from appropriate sources.</p> <p>Ability to identify and apply source-related filters and limits.</p> <p>Where required, understanding of Boolean logic (applications of AND, OR and NOT operators).</p> <p>Where required, ability to apply Boolean techniques to search.</p> <p>Previous search experience.</p> <p>Ability to analyse results from initial efforts at retrieval and determine whether an additional source needs to be searched</p> <p>Defining realistic timelines for search activity.</p> <p>Where appropriate, access to properly organised information</p>	<p>Identification of developments in treatments and/or care management.</p> <p>Improved population health through the engagement and empowerment of individuals to access and identify relevant materials.</p> <p>Supports the development of accessible health promotion resources through the identification of areas of information need where resources may be sparse.</p>	<p>IK2 : 2b, 3c IK3 : 1d, 2c, 3c HWB1 : 2b HWB2 : 3d HWB5 : 3b HWB6 : 2c, 3b, 4a, 4d HWB7 : 3b</p>

<p>using appropriate syntax and operators ;</p> <p>apply limits or filters as required.</p> <p>Construct and implement search strategy.</p> <p>Understand and apply the different approaches required to extract information from structured and unstructured information sources</p> <p>Attitudes and emotions</p> <p>Persistence in searching for required information and knowing when to stop the search.</p> <p>Confidence that search has been as comprehensive as required by the information need.</p> <p>Appreciation that different levels of sensitivity or comprehensiveness of information retrieval will be appropriate for different information needs.</p> <p>Observable behaviours</p> <p>Applying filtering and other techniques and tools.</p> <p>Demonstrates an understanding of the organisation or structure of information sources by applying refining techniques to focus results.</p> <p>Identifies and applies appropriate retrieval techniques to the sources relevant to the</p>	<p>resources (indexes in books, file lists, catalogued library resources, meta-data headed internet pages/sites)</p> <p>Where appropriate ready access to information tools and technologies.</p> <p>Removal of unnecessary firewall restrictions to enable access to required information and websites.</p>		
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question. Gathers an appropriate amount of focussed information from relevant sources.			
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Evaluate An information literate person assesses the value and reliability of retrieved information			
Example learning outcomes Skills and abilities, Attitudes and emotions, Observable behaviours	Personal enabling factors	Benefits to health and healthcare	KSF Competency
<p>Skills and abilities Understand the qualities of 'good' information generally, including : reliability, validity, accuracy, authority, timeliness, potential sources of bias.</p> <p>Assess retrieved information for these qualities.</p> <p>Assess the quantity and quality of retrieved information and determine whether the original information need has been met.</p> <p>Accept or reject retrieved items on the basis of a quality check.</p> <p>Understand why information should be evaluated before it is re-used.</p> <p>Attitudes and emotions Satisfaction with progress in identifying appropriate information/ dissatisfied with poor quality or inadequate information.</p> <p>Confidence in ability to define quality criteria appropriate for different questions and, to apply these criteria effectively.</p>	<p>Access to well-organised, effectively structured information resources.</p> <p>Access to bank of information resources pre-evaluated against defined criteria.</p> <p>Access to records of previously retrieved information relating to the current question.</p>	<p>Quality assurance of treatments or information selected.</p>	<p>IK2 : 2c, 3d, 3e IK3 : 1e, 3c HWB1 : 2b HWB2 : 3e HWB5 : 3b HWB6 : 2c, 3b, 4e HWB7 : 3b</p>

<p>Confidence to consider repeating earlier steps in cycle with new or refined questions, retrieval tools, methods, and sources if retrieved information is unsatisfactory</p> <p>Appreciation that information retrieval is an ongoing and organic process rather than a single discrete exercise.</p> <p>Appreciation and value the fact that interpretation of quality differs depending on the purpose for which information is required, the sources used (eg people as opposed to published information), the audience involved, and the context in which it is to be used.</p> <p>Acknowledgement of own values and beliefs and awareness of how this affects interpretation and use of information.</p> <p>Awareness of own personal sources of bias in evaluating information.</p> <p>Recognition that information is often affected by and impacts on values and beliefs.</p> <p>Observable behaviours Compares retrieved information with information need to assess extent to which this has been met.</p> <p>Determines the quality, credibility and accuracy of retrieved information</p>			
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<p>Applies critical appraisal techniques to retrieved information. Selects relevant, evaluated information from a range of sources</p>			
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Combine An information literate person adds valid retrieved information to the existing internal (own learning and experience) or external (eg. file system, database or other shared information pool) knowledge base			
Example learning outcomes Skills and abilities, Attitudes and emotions, Observable behaviours	Personal enabling factors	Benefits to health and healthcare	KSF Competency
Skills and abilities Collate, organise and present retrieved information in a way that addresses the original information need. Cite information sources appropriately, in required bibliographic format. Manage own systems for organising and retrieving information resources – eg reference management systems. Compare and analyse information retrieved from different sources ; integrate new information with existing published or personal knowledge base. Identify relationships, common themes and contradictions across sources. Synthesise these different elements of information to create new knowledge, understanding and new questions. Appreciate that retrieved information requires	Knowledge of Intellectual Property, Copyright, Data Protection and Freedom of Information legislation. Understanding of plagiarism Knowledge of standards for citing references Application of ethical standards when re-using information.	Proven methods and techniques are enhanced or further developed.	IK2 : 2d, 3f, 3g HWB2 : 3e HWB5 : 3d HWB6 : 4f HWB7 : 3d

<p>thought and blending with the existing knowledge base before you can claim it as your own.</p> <p>Broad understanding of copyright and plagiarism.</p> <p>Understand the need to acknowledge other authors through citations of their work.</p> <p>Attitudes and emotions Understands that the knowledge base in any topic area is constantly growing and changing and that interpretations change over time.</p> <p>Appreciates value of combining published information with personal knowledge and experience in shared decision-making.</p> <p>Aware of ethical issues involved in re-using information.</p> <p>Comprehend that copy-and-paste and highlighting retrieved information demonstrates skill only in finding information rather than information literacy.</p> <p>Observable behaviours Stores retrieved information in an organised way for access and re-used in the future. Interprets information and prepares a written overview when required.</p> <p>Summarises key ideas and understandings in</p>			
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own words and diagrams			
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Share An information literate person recognises the importance and benefits of information-sharing and routinely communicates newly identified information to others			
Example learning outcomes Skills and abilities, Attitudes and emotions, Observable behaviours	Personal enabling factors	Benefits to health and healthcare	KSF Competency
<p>Skills and abilities</p> <p>Select and apply communication methods, tools and formats to support the purpose of the communication and the needs of the intended audience.</p> <p>Use a range of appropriate applications which support sharing of information and knowledge, eg SharePoint, Wikis, Blogs, Shared Space, social networking tools, discussion forums.</p> <p>Apply active listening and responding skills to share information effectively with other people</p> <p>Use communities and networks of practice to share personal and published information.</p> <p>Validate understanding and interpretation of information through discussion with others.</p> <p>Participate in face-to-face and online discussion to share information, views and experience.</p>	<p>Access to paper-based information-sharing tools such as files.</p> <p>Ready access to information technology and electronic networks.</p> <p>Training in information-sharing applications.</p> <p>Working as a team member and being involved in planning and decision-making.</p> <p>Verbal and written communication skills.</p>	<p>Access to paper-based information-sharing tools such as files.</p> <p>Ready access to information technology and electronic networks.</p> <p>Training in information-sharing applications.</p> <p>Working as a team member and being involved in planning and decision-making.</p> <p>Verbal and written communication skills.</p>	<p>IK2 : 2e, 3h HWB2 : 3e HWB5 : 3d HWB6 : 4g HWB7 : 3d</p>

<p>Seek out expert opinion through face-to-face meeting, online discussion and other means.</p> <p>Attitudes and emotions Aware that sharing personal knowledge and experience and newly retrieved information improves performance of work-group and the wider organisation.</p> <p>Appreciates that sharing information encourages similar sharing behaviour in others.</p> <p>Appreciates the benefit to the organisation and to individuals of sharing new information.</p> <p>Appreciates that retrieved information may be applicable in other contexts or work areas.</p> <p>Acknowledges that networking (electronic and person to person) supports information sharing</p> <p>Values role of information sharing in making clinical and managerial decisions and in shared patient-professional decisions.</p> <p>Realises that different communication methods, formats and styles are appropriate for different purpose and audiences.</p> <p>Understands why and how information sharing improves work performance.</p> <p>Confidence in the value of sharing one's own information</p>			
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<p>Appreciates the value of a participatory approach to decision-making</p> <p>Observable behaviours Presents information in a way that demonstrates knowledge gained.</p> <p>Shares summarised information with networks and communities.</p> <p>Tailors information to meet the needs of different audiences using appropriate media</p>			
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Apply An information literate person applies information effectively in day to day work, personal development and improving personal health and well-being			
Example learning outcomes Skills and abilities, Attitudes and emotions, Observable behaviours	Personal enabling factors	Benefits to health and healthcare	KSF Competency
<p>Skills and abilities</p> <p>Use information for decision-making and problem-solving.</p> <p>Apply information effectively to specific purposes in day to day work, personal development and improving personal health and wellbeing.</p> <p>Identify and apply systems for monitoring application of information to practice and impact on defined clinical or managerial outcomes.</p> <p>Identify and address barriers and facilitators to applying information to practice at organisational and individual level.</p> <p>Apply transformational change principles to define and implement plans for translation of information into practice.</p> <p>Apply motivational, cognitive and other techniques to influence behaviour of self and others in applying information to practice.</p>	<p>Reasoning skills</p> <p>Personal reflection skills</p> <p>Negotiating and influencing skills</p> <p>Techniques of "Managing for improvement" – eg Lean Methodologies, Rapid Improvement Cycle.</p> <p>Knowledge of motivational and cognitive-behavioural techniques.</p> <p>Consistent focus on the practical purpose underlying the original question and implementation of the information literacy cycle</p> <p>Commitment to and support for continuing professional/personal development</p> <p>Commitment to and support for lifelong learning and self-</p>	<p>The most appropriate, current methods or treatments available are utilised.</p> <p>Contributes towards improvements in patient safety through the application of research findings, recommendations and guidelines.</p> <p>Supports the delivery of the right care to the right patient at the right time, making the best use of available resources.</p>	<p>IK3 : 1f HWB1 : 2d HWB2 : 3f HWB5 : 3d HWB7 : 3d</p>

<p>Use some of the tools available for keeping up-to-date.</p> <p>Attitudes and emotions Focuses on application of information throughout the process of retrieval, sharing and evaluating.</p> <p>Appreciates that information resources can be used to practical benefit in health and healthcare.</p> <p>Reflects on application of retrieved information to practice and on new questions that arise as information impacts upon practice.</p> <p>Observable behaviours Makes decisions based on retrieved evaluated information.</p> <p>Continuously reflects on extent to which actions are aligned with available information and formulates new questions on this basis Applies critical thinking in work activities.</p> <p>Applies reflective practice to current 'round' of information literacy cycle :</p> <p style="padding-left: 40px;">identifies areas of success as well as areas for improvement ;</p> <p style="padding-left: 40px;">evaluates how well each stage of the information process was carried out ;</p>	<p>improvement</p>		
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Information literacy and work

Tables

<p>evaluates how well the information process as a whole was managed ;</p> <p>positively and constructively assesses the work of self and others in relation to information use.</p>			
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Information Literacy and occupational standards and competencies

The following tables briefly illustrate the links between the named standards and the information literacy cycle.

Information literacy and Modernising Medical Careers

http://www.mmc.scot.nhs.uk/documents/medical_students/Final_Foundation_Education_programme.pdf

Evidence-based decision making and patient safety	
Information literacy links	Relevant MMC core competencies
<p>Information literacy supports evidence based practice by providing and enhancing the skills and abilities required to locate, assess, learn from, share and apply research findings.</p> <p>Information literacy facilitates the interpretation of evidence in the context of patient need and professional experience.</p> <p>The section Information Literacy in Action demonstrates the application of information literacy in a clinical context [page ?]</p>	3. History taking (principles of diagnosis and clinical reasoning)
	4. History taking (therapeutics and safe prescribing)
	5. History taking (principles of medical data and information management)
	12. Infection control
	27. Acute care (identification and response to acutely abnormal physiology)
	28. Acute care (delivery of a fluid challenge)

	29. Acute care (reassessment of ill patients after initiation of treatment)
	31. Acute care (secondary survey to establish differential diagnosis)
	34. Acute care (common analgesic drugs)
	35. Acute care (managing patients following self harm)
	36. Acute care (acute confusional state of psychosis)
	37. Acute care (safe continuing care of patients)

Patient-professional relationships	
Information literacy links	Relevant MMC core competencies
<p>Information literacy improves communication between patient and professional and supports shared decision-making and patient self-management.</p> <p>The section Information Literacy in Action demonstrates the application of information literacy in a clinical context [page ?]</p>	1. History taking (ensuring patients concerns, expectations and understanding)
	2. History taking (conduct of examination)
	7. Maintaining good quality care, promoting patient safety (patient as the central focus of care)
	11. Maintaining good quality care, promoting patient safety (needs of patients who have been subject to medical harm/errors)
	20. Relationships with patients (appropriate communication skills)
	26. Acute care (assessment of the acutely ill/collapsed patient)
	38. Acute care (interventions according to patients wishes, disease severity)
	40. Acute care [do not attempt resuscitation (DNAR) orders/directives]

Lifelong learning

Information literacy links	Relevant MMC core competencies
<p>Through the application of information literacy, the individual learns how to learn and experiences many different types of learning. In doing so, s/he further develops her/his problem solving, critical thinking, communication and information skills.</p> <p>The section Information Literacy in Action demonstrates the application of information literacy in an educational context [page ?]</p>	13. Health promotion and public health
	14. Medical ethics (principles of medical ethics)
	15. Medical ethics (appropriate procedures for valid consent)
	16. Medical ethics (legal framework for medical practice)
	17. Learning (learning opportunities)
	18. Learning (organisation rules, guidelines, evidence base of clinical practice)
	19. Learning (audit)
	22. Working with colleagues (patients at the interface of different specialties, primary care, imaging and laboratory specialties)
	23. Teaching and training (principles of educational method)

	30. Acute care (appropriate requests for senior/more experienced help)
Service improvement	
Information literacy links	Relevant MMC core competencies
<p>Information literacy enables service improvement by encouraging the proper organisation, use, sharing and application of information assets.</p> <p>Information literacy supports service improvement through asking questions about service quality and identifying, analysing and sharing information as a basis for implementing change.</p> <p>The section Information Literacy in Action demonstrates the application of information literacy in a service improvement context [page ?]</p>	6. Appropriate time management and decision making
	8. Maintaining good quality care, promoting patient safety (patient safety as a priority in clinical practice)
	9. Maintaining good quality care, promoting patient safety (good team working for patient safety)
	10. Maintaining good quality care, promoting patient safety (principles of quality and safety improvement)
	21. Working with colleagues (effective teamwork skills)
	24. Professional behaviour and probity (professionalism)
	25. Professional behaviour and probity (maintenance of own personal health)
	41. Acute care (management of common investigations)

Information literacy and Nursing and Midwifery Council Standards of proficiency for entry to the register<http://www.nmc-uk.org/aFrameDisplay.aspx?DocumentID=328>

Based on the best available evidence, apply knowledge and an appropriate repertoire of skills indicative of safe nursing practice	
Information literacy links	NMC outcomes
<p>Information literacy enables the identification, retrieval, assessment and application of supporting research evidence for nursing practice. It also enables the information literate nurse to identify and use tools and sources which will help maintain professional current awareness.</p>	Access and discuss research and other evidence in nursing and related disciplines
	Identify examples of the use of evidence in planned nursing interventions
	Ensure that current research findings and other evidence are incorporated in practice
	Identify relevant changes in practice or new information and disseminate it to colleagues
	Contribute to the application of a range of interventions which support and optimise the health and well-being of patients and clients
	Identify and respond to patients and clients' continuing learning and care needs
	Engage with, and evaluate, the evidence base that underpins safe nursing practice.

Formulate and document a plan of nursing care, where possible in partnership with patients, clients their carers and family and friends within a framework of informed consent	
Information literacy links	NMC outcomes
<p>Information literacy enables the nurse to combine information from multiple sources – human and published material - to create a management plan which reflects best evidence and patient needs.</p> <p>Information literacy enables the nurse to compare the patient's condition and needs and, the proposed management plan with current best practice in the specific area of the condition.</p>	Identify care needs based on the assessment of a patient or client
	Participate in the negotiation and agreement of the care plan with the patient or client and with their carer, family or friends, as appropriate.
	Inform patients and clients about intended nursing actions, respecting their right to participate in decisions about their care.
	Establish priorities for care based on individual or group needs
	Develop and document a care plan to achieve optimal health, habilitation, and rehabilitation based on assessment and current nursing knowledge
	Identify expected outcomes, including a time frame for achievement and/or review in consultation with patients, clients, their carers and family and friends and with members of the health and social care team.

Evaluate and document the outcomes of nursing and other interventions	
Information literacy links	NMC outcomes
<p>Information literacy supports the use of information in auditing and monitoring the application of evidence-based interventions and in capturing and presenting the information retrieved for use by others.</p> <p>Information literacy incorporates reflective learning, critical thinking and analytical abilities.</p> <p>All of these need to be applied by the nurse in achieving the needed outcomes.</p>	Awareness of the need to assess regularly a patient's or client's response to nursing interventions
	Provide evaluative commentary and information on nursing care based on personal observations and actions
	Documentation of the outcomes of nursing interventions
	Collaborate with patients and clients and, when appropriate, additional carers to review and monitor the progress of individuals or groups towards planned outcomes
	Analyse and revise expected outcomes, nursing interventions and priorities in accordance with changes in the individual's condition, needs or circumstances.

Information literacy and Flying Start

<http://www.flyingstart.scot.nhs.uk/Home.htm>

This is just one example of mapping to a set of competences associated with a particular educational programme

Information literacy links	Flying start competencies
<p>This is the share stage of the information literacy cycle.</p> <p>The individual retrieving the information distributes it amongst his/her team so that every member may make use of it.</p> <p>Information literacy also facilitates patient-professional communication and information sharing.</p>	Communication
<p>This is the apply stage of the cycle where what has been learned is transformed from theory into practical application.</p>	Clinical Skills
<p>This is the share and apply stages of the cycle where team members share what they know with one another so that practice is common among the team.</p>	Teamwork
<p>This is the apply phase of the cycle where best practice has been identified and shared with the team and is now applied to everyday practice.</p>	Safe practice
<p>The whole of the information literacy cycle is applied in order to identify, assess and use best practice evidence.</p>	Research for practice

<p>This is the apply phase of the cycle where best practice has been identified and shared with the team and is now applied to everyday practice.</p> <p>The ethical application of information literacy aims to enable equity of access to, and sharing of, information.</p>	Equality and diversity
<p>This is the apply phase of the cycle where best practice has been identified and shared with the team and is now applied to everyday practice.</p>	Policy
<p>This is one of the processes and one of the results of becoming information literate</p>	Reflective Practice
<p>Becoming information literate supports professional development by enabling the individual to maintain his/her current awareness through the use of such tools as alerting services.</p>	Professional development

Information literacy and European Parliament key competences for lifelong learning

Recommendation of the European Parliament and of the Council, of 18 December 2006, on key competences for lifelong learning [Official Journal L 394 of 30.12.2006].

Key competences for lifelong learning

Key competences for lifelong learning are a combination of knowledge, skills and attitudes appropriate to the context. They are particularly necessary for personal fulfilment and development, social inclusion, active citizenship and employment.

Key competences are essential in a knowledge society and guarantee more flexibility in the labour force, allowing it to adapt more quickly to constant changes in an increasingly interconnected world.

They are also a major factor in innovation, productivity and competitiveness, and they contribute to the motivation and satisfaction of workers and the quality of work.

Information literacy links	Lifelong learning competences
This is the information literacy cycle stage of sharing. The individual shares what s/he knows with others.	Communication in the mother tongue which is the ability to express and interpret concepts, thoughts, feelings, facts and opinions in both oral and written form (listening, speaking, reading and writing), and to interact linguistically in an appropriate and creative way in a full range of societal and cultural contexts.
Information literacy underpins and is supported by investigation and strengthens problem solving, critical thinking, informed reasoning and personal reflection abilities.	Mathematical competence and basic competences in science and technology. Mathematical competence is the ability to develop and apply mathematical thinking in order to solve a range of problems in everyday situations, with the emphasis being placed on process, activity and knowledge. Basic competences in science and technology refer to the mastery, use and application of knowledge and methodologies which explain the natural world. These involve an understanding of the changes caused by human activity and the responsibility of each individual as a citizen.
This is one of the skills underpinning information literacy and is generally a pre-requisite to becoming information literate.	Digital competence involves the confident and critical use of information society technology (IST) and thus basic skills in information and communication technology (ICT).

<p>This is one of the key outcomes of becoming information literate – gaining the confidence, skills and abilities to be able to undertake self-directed learning.</p>	<p>Learning to learn is related to learning, the ability to pursue and organise one's own learning, either individually or in groups, in accordance with one's own needs, and awareness of methods and opportunities.</p>
<p>Information literacy supports the individual in learning about the society in which s/he lives by enabling the retrieval of related government and other information.</p>	<p>Social and civic competences. Social competence refers to personal, interpersonal and intercultural competence and all forms of behaviour that equip individuals to participate in an effective and constructive way in social and working life. It is linked to personal and social well-being. An understanding of codes of conduct and customs in the different environments in which individuals operate is essential. Civic competence and particularly knowledge of social and political concepts and structures (democracy, justice, equality, citizenship and civil rights) equips individuals to engage in active and democratic participation.</p>
<p>Information literacy supports innovation and creativity by encouraging the individual to challenge current practice and accepted opinion.</p>	<p>Sense of initiative and entrepreneurship is the ability to turn ideas into action. It involves creativity, innovation and risk-taking, as well as the ability to plan and manage projects in order to achieve objectives. The individual is aware of the context of their work and is able to seize opportunities which arise. It is the foundation for acquiring more specific skills and knowledge needed by those establishing or contributing to social or commercial activity. This should include awareness of ethical values and promote good governance;</p>
<p>Information literacy encourages investigation and leads to the individual being exposed to information in a wide variety of formats.</p>	<p>Cultural awareness and expression which involves appreciation of the importance of the creative expression of ideas, experiences and emotions in a range of media (music, performing arts, literature, and the visual arts).</p>
<p>These key competences are all interdependent, and the emphasis in each case is on critical thinking, creativity, initiative, problem solving, risk assessment, decision taking, and constructive management of feelings.</p>	

Information literacy and Health Informatics

http://www.skillsforhealth.org.uk/tools/view_framework.php?id=120

Information literacy focus	Health Informatics competence
<p>Every HI competency requires the application of the entire information literacy cycle as they each require an awareness of current practice in the field as well as existing policy and legislation.</p> <p>Individual competencies have a particular emphasis on individual stages of the information literacy cycle and these are shown below.</p>	
<p>This competency requires the application of every stage of the information literacy cycle. It requires that information managers are able to identify, evaluate and develop preventative and corrective responses to existing information risks.</p>	<p>HI1 Manage risks to information</p>
<p>Every stage of the information literacy process is applied in complying with this competency. HI2 requires the identification of organisational needs for new information and of sources of that information. The new information is retrieved and stored for easy access and re-use by others. The main focus here is on the share and apply elements of the information literacy cycle.</p>	<p>HI2 Develop models for processing new data and information</p>
<p>The first three stages of the information literacy cycle are most supportive for this competency. HI3 requires the formulation of a question relating to the type of information required, the identification of the source(s) of that information and the retrieval of the information (find).</p>	<p>HI3 Identify and specify data and information requirements</p>
<p>The find, evaluate and combine stages of the information literacy cycle are most relevant to this competency. HI4 requires the collection, validation and collation of information.</p>	<p>HI4 Collect and validate data and information</p>

<p>This competency requires the evaluation of information followed by its combination and organisation, before it is shared in an appropriate way with the intended audience.</p>	<p>HI5 Analyse data and information and present outputs of analysis</p>
<p>This competency is concerned with internal environmental scanning and requires the application mainly of the combine, evaluate, share, and apply steps of the information literacy cycle to enable recommendations for improving information management.</p>	<p>HI6 Monitor, evaluate and improve the management of data and information</p>
<p>This competency is concerned with supporting auditors and colleagues in the conduct of an information audit. The source, find, share, evaluate, combine, apply stages of the information literacy cycle are most relevant to these activities.</p>	<p>HI7 Comply with an external audit of data and information</p>
<p>This competency requires searching for evidence (question, source, find) to support code assignment and accurately extract correct (evaluate, combine) clinical data from health records. The information is to be supplied to a healthcare professional (share) and the appropriate codes assigned to the identified clinical data (apply)</p>	<p>HI8 Produce coded clinical data</p>
<p>This competency requires pre-audit interviews (source, find), and analysis of the associated questionnaires (evaluate). This is followed by the audit to identify the coding and supporting processes for the coding function (combine), analysis of the audit findings (evaluate). The final activity is to report the findings, conclusions and recommendations (share) of the audit.</p>	<p>HI9 Prepare, conduct and report the results of a clinical coding audit</p>
<p>This competency requires the application of the entire information literacy cycle. It involves capturing information (question, source, find, evaluate), organising and publishing information (combine, share) intended to improve service delivery (apply)</p>	<p>HI10 Capture, organise and disseminate information and knowledge</p>

<p>This competency is concerned with the critical appraisal of health related information and requires the application of the evaluation stage of the information literacy cycle.</p>	<p>HI11 Appraise information and knowledge resources</p>
<p>This competency focuses on the share stage of the information literacy cycle, requiring the promotion and facilitation of use of information across boundaries of discipline, geography and sector.</p>	<p>HI12 Promote and facilitate the use of information and knowledge</p>
<p>This competency requires the application of the question, source, find, and evaluate stages of the information literacy cycle.</p>	<p>HI13 Identify the needs of clinicians, patients and the public for communication, information and knowledge systems</p>
<p>This competency focuses on the share stage of the information literacy cycle.</p>	<p>HI14 Develop a specification for communication, information and knowledge systems to meet the needs of clinicians, patients and the public</p>
<p>This competency focuses on the share stage of the information literacy cycle.</p>	<p>HI15 Facilitate, and clinically validate, the development of communication, information and knowledge systems to meet the needs of an agreed specification</p>
<p>This competency requires the application of the evaluation, share and apply stages of the information literacy cycle. It involves clinical validation (evaluation) of the implementation (apply) and improvement of communication, information and knowledge systems (share).</p>	<p>HI16 Facilitate, and clinically validate, the implementation, evaluation and improvement of communication, information and knowledge systems to meet the needs of clinicians, patients and the public</p>

<p>This competency requires the application of the entire information literacy cycle, being one methodology for conducting information search, retrieval, sharing and application.</p>	<p>HI18 Search for clinical information and evidence according to an accepted methodology</p>
<p>This competency is concerned with the critical appraisal of clinical information and evidence and requires the application of the evaluation stage of the information literacy cycle.</p>	<p>HI19 Critically appraise clinical information and evidence</p>
<p>This competency requires the application of the whole of the information literacy cycle to identify new, relevant information (question, source, find, evaluate), to add that information to what is already known (combine), to produce the guideline (share) and to alter practice in line with the guideline (apply).</p>	<p>HI20 Develop evidence-based clinical guidelines</p>
<p>This competency is concerned with sourcing, finding and sharing information, with attention to policy and legal requirements for its ethical use and re-use (combine, apply).</p>	<p>HI88 Enable individuals to access and use information</p>

Information literacy and information ethics

In order to use information in the ways described by the information literacy model presented in this document, users should be aware of and comply with the requirements of information-related legislation ie., Data Protection, Copyright, Freedom of Information (Scotland) Act, The Environmental Information (Scotland) Regulations.

Data Protection	The Data Protection Act relates to personal, identifiable information such as patient or personnel records and is intended to protect the subject of the information and to limit unauthorised access to this information. The full text of the Act is available at URL http://www.opsi.gov.uk/acts/acts1998/ukpga_19980029_en_1
Copyright	Copyright legislation is intended to protect the rights of both creators and users of literary, dramatic, musical or artistic works. While the economic and moral rights of creators are preserved because they earn their living by writing and publishing, the fair dealing provisions of the legislation grant certain rights to the users of these works. Detailed information on Copyright in the UK is available from the UK Copyright Service at URL http://copyrightservice.co.uk/copyright/p01_uk_copyright_law
Freedom of information	The Freedom of Information (Scotland) Act gives the right to anyone - from anywhere in the world - to see any kind of recorded information from a Scottish public authority, however old the information may be. The NHS is included in the Act as a public authority. Full text of the Act is available at URL http://www.opsi.gov.uk/legislation/scotland/acts2002/asp_20020013_en_1
The Environmental Information (Scotland) Regulations	The Regulations apply to Scottish public authorities – again including the NHS – and require them to make environmental information available proactively, give advice and assistance to any person making a request for environmental information and make environmental information available to any person who requests it as quickly as possible. “Environmental information” includes : information on the state of the elements of the environment ; releases of substances into the environment which might affect the state of the environment ; the state of human health and safety, conditions of human life, the food chain, cultural sites and built structures, which are, or are likely to be affected by the state of the elements of the environment and the interaction between them. (The Scottish Government, 2005). Full text of the Regulations is available at URL http://www.hms.o.gov.uk/legislation/scotland/ssi2004/20040520.htm

In addition, an ethical information user :

is aware of, and endeavours to comply with, legal requirements relating to the creation, disposal, access, copying and use of information regardless of format ;

recognises and respects the intellectual property of others and, where such property is re-used, ensures its public acknowledgement ;

protects the privacy and confidentiality rights of employers, staff, patients, clients, partners and other users, with respect to information sought or received or materials consulted ;

protects personal information gained under privilege and contained in records in their custody ;

does not use without permission, any confidential information acquired during the course of their work for personal advantage or for the advantage of a co-worker or a third person ;

observes any restrictions on access to information in their care or the care of NHS Scotland, imposed by legislation, administrative or executive decision ;

ensures, without discrimination or preferential treatment, access by anyone entitled to consult the information in their care ;

maintains and enhances professional knowledge and expertise and encourages the professional development of colleagues ;

respects, and seeks when necessary, the professional opinions of colleagues in their areas of competence ;

avoids situations in which personal interests might be, or be seen to be, in conflict with the interests of colleagues, patients of the NHS, or the organisation itself ;

distinguishes in actions and statements between personal viewpoints and those of NHS Scotland ;

Information literacy and work
does not disclose nor
without their consent.

enable others to disclose, personal information which would identify individuals as subjects of case files

Tables