



PART 1

General topics

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SECTION 1

Dietetic practice

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Key points

- In the UK dietitians must be graduates of an approved programme of education and registered with the Health and Care Professions Council.
- The British Dietetic Association is a professional association that aims to inform, protect, represent and support its members.
- Dietitians are autonomous practitioners who work within an ethical framework of conduct.
- The nutrition and dietetic process is central to dietetic practice.
- Dietetics is an evidence based profession with research and outcome evaluation at its core.
- Dietitians engage in continuing professional development throughout their careers to ensure that their practice is robust, efficacious and innovative.

Dietetics is a well respected and established profession, albeit a relatively new profession. The first UK dietitian, Ruth Pybus, a nursing sister, was appointed in 1924 at the Royal Infirmary in Edinburgh. She initially sought to demonstrate that a dietetic outpatient clinic could significantly reduce the number of admissions and therefore benefit the hospital. She was successful; after a 6-month trial, her appointment as a dietitian was confirmed. The development of other dietetic departments quickly followed, especially in London, and in 1928 the first non-nursing dietitians were appointed. From these early days dietetics has been a science based profession and in the 1980s became the first of the allied health professions (AHPs) to become a graduate profession.

In 1936 the British Dietetic Association (BDA) was founded as the professional association for registered dietitians in Great Britain and Northern Ireland. The BDA aims to inform, protect, represent, and support its members.

Dietetics is both an art and a science that requires the application of safe and evidence based practice, reflective practice and systematic clinical reasoning. A dietitian needs to combine these skills with knowledge and experience, together with intuition, insight and understanding of the individual (or specific) circumstance in order to maintain and improve practice. Following several public enquiries at the end of the last century it was recognised that there needed to be greater priority given to non-clinical aspects of care, such as skills in communicating with colleagues and service users, management, develop-

ment of teamwork, shared learning across professional boundaries, audit, reflective practice and leadership. Subsequent legislative changes were implemented with the establishment of the Health and Care Professions Council (HCPC).

Dietetics as a profession

An occupation or trade becomes a profession ‘*through the development of formal qualifications based upon education, apprenticeship, and examinations, the emergence of regulatory bodies with powers to admit and discipline members, and some degree of monopoly rights on the knowledge base*’ (Bullock & Trombley, 1999, p. 689). A degree of responsibility and expectation comes with being a professional. A member of any profession, including dietetics, must, within their practice, agree to be governed by a code of ethics, uphold high standards of performance and competence, behave with integrity and morality, and be altruistic in the promotion of the public good (Cruess *et al.*, 2004). Furthermore, these commitments form the basis of an understanding, or social contract, that results in professions, and their members, being accountable to service users and to society.

Professional regulation

To practise as a dietitian, and to use the title of dietitian, it is mandatory to have completed an approved

programme of education and be registered with the HCPC. The HCPC was set up in 2001 to protect the health and wellbeing of people using the services of the health professionals registered with them. It aims to:

- Maintain and publish a public register of properly qualified members of the professions.
- Approve and uphold high standards of education and training and continuing good practice.
- Investigate complaints and take appropriate action.
- Work in partnership with the public and other groups, including professional bodies.

To remain on the HCPC register, dietitians must continue to meet the standards that are set for the profession. The professional standards are:

- Good character of health professionals.
- Health.
- Proficiency (dietetics).
- Conduct performance and ethics.
- Continuing professional development (CPD).
- Education and training.

The HCPC use these standards to determine if a registrant is fit to practise. If the HCPC finds that there are concerns about a dietitian's ability to practise safely and effectively, and therefore fitness to practise is impaired, it has the legal right to take action. This may mean that the registrant is not allowed to practise or that they are limited in what they are allowed to do. The HCPC can legally take appropriate action to enforce this (HCPC, 2010).

The British Dietetic Association as a professional body

The distinction between a regulatory body (HCPC) and a professional body (BDA) is often misunderstood. It is important that dietitians are fully aware of the differences from the beginning of professional training. Much like the HCPC, the BDA is committed to protecting the public and service users. However, the two organisations achieve this in very different ways (Table 1.1.1). The HCPC has the ultimate sanction to prevent a dietitian from practising if, following investigation, they are deemed to be unsafe or untrustworthy. However, the BDA provides guidance, advice, learning and networking opportunities, and professional indemnity insurance cover, all with the aim of supporting the development of safe and effective practitioners. This ultimately helps protect the public and service users. The BDA also provides a trade union function and supports members throughout their working life on issues such as pay and conditions, equal opportunities, maternity rights and health and safety.

Autonomy

Autonomy can be defined as the right of self governance and as independent practitioners, who practice autonomously, dietitians are personally accountable for their

Table 1.1.1 Remit of the Health and Care Professions Council (regulatory body) and the British Dietetic Association (professional body)

Health and Care Professions Council	British Dietetic Association
Protect the public and service users	Protect the public and service users
Set professional standards of practice	Membership support
Approve education programmes that train and educate graduates to meet these standards	Advance the science and practice of dietetics
Register graduates of these programmes	Promote education and training in the science and practice of dietetics
Ensure registrants meet professional standards	Regulate the relationship between dietitians and their employer through the trade union
Sanction registrants who do not meet these standards	Provide professional indemnity insurance

practice (BDA, 2008a). This means they are answerable for their actions and omissions, regardless of advice or directions from another health professional. Dietitians have a duty of care for their service users and clients who are entitled to receive safe and competent care or service.

The HCPC states that as autonomous and accountable professionals, dietitians, '*... need to make informed and reasonable decisions about their practice. This might include getting advice and support from education providers, employers, professional bodies, colleagues and other people to make sure that you protect the wellbeing of service users at all times.*' (Health and Care Professions Council, 2008).

It is important that dietitians are aware of the boundaries of their autonomy, which will never be limitless but will always be confined to their scope of practice. As with all health professionals, dietitians must never practise in isolation. Up to date knowledge skills and experience are the cornerstone of safe and effective practice, and as such dietitians should always have access to a support network of leaning, development and peer review. In the National Health Service (NHS) setting, the system for learning and development is usually already established via internal processes, e.g. supervision, appraisal, local training programmes, library services and journal clubs. Outside of the NHS these processes are not automatically in place and it is essential that every healthcare professional actively establishes a network of support and learning to match their scope of practice, e.g. freelance practice (see Chapter 4.1).

Scope of practice

Identifying individual scope of practice is not easy as the boundaries will be different for each practitioner and will

Table 1.1.2 Factors that define dietetic scope of practice

Factor	Example
Occupational role	Clinician, researcher, educator, writer, consultant
Sector	Private practice, industry, higher education, commercial
Environment	Acute, community, GP practice, industry, media
Client group	Children, elderly, people with learning difficulties, public, supermarket
Speciality	Diabetes, public health, obesity, product development
Approaches	Behavioural therapy, group education, anthropometry, cook and eat session
Types of cases for referral elsewhere	Other dietitians or other healthcare professionals, social services

evolve over time (BDA, 2009a). The description of a dietitian's scope of practice is often broad and may describe some or all of the factors shown in Table 1.1.2.

A much more specific scope of practice is described in relation to specific service users. When presented with a service user, the dietitian should undertake a personal risk assessment as part of the overall assessment, asking key questions before proceeding. These questions include:

- Is the service user safe?
- Am I safe?
- Can I justify the decision I have made during the assessment (e.g. has the research, evidence, standards and guidance been considered)?
- Can I identify the most appropriate approach for the service user group?
- Do I have the correct balance of skills, knowledge and experience to be competent in my chosen approach?

Extended scope of practice

The extended roles dietetic practitioner undertake are those outside their core and specialist roles. They are usually (but not exclusively) roles traditionally carried out by other health professionals either as a core duty or role extension. Additional skills and knowledge are acquired through formal training. The extended role practitioner must advance dietetic practice and contribute to improving outcomes. Examples of extended roles include:

- Replacing gastrostomy tubes in the community.
- Inserting peripheral midlines for intravenous feeding.
- Advising on appropriate exercise regimens.

Whatever role a dietitian commits to, extended or otherwise, they must constantly be aware of their individual scope of practice, and practice within this.

Ethics and conduct

Conduct is the manner in which a person behaves, especially in a particular place or situation, while ethics are moral principles that govern a person's or group's behaviour. However, it is essential to put these definitions into context for them to have any meaning. In professional practice, professional ethical conduct is paramount. Outside of their professional role, dietitians have the right to behave how they choose, within the limits of the law, and this will be limited only by personal ethical boundaries. In professional practice, it is the professional codes of conduct that provide the framework for, and the benchmark by which, ethical conduct will be measured.

A major function of a code of conduct is to enable professionals to make informed choices when faced with an ethical dilemma. For the dietetic workforce the key guidance is laid out in the HCPC Standards of Conduct, Performance and Ethics (2008) and Guidance on Conduct and Ethics for Students (2009). These standards are written in broad terms so as to apply to all registrants as far as possible, and are designed not to be overly prescriptive, thereby undermining professional judgement and stifling progress and innovation.

The BDA Code of Professional Conduct (2008a) builds on the generic standards of the HCPC, with more dietetic specific guidance. They apply to the whole dietetic workforce from unregulated students and support workers to qualified dietitians. In practice, however, there will be numerous occasions where, despite guidance, there is no right or wrong answer to everyday dilemmas in practice. The HCPC (2008, p. 5) states that in such situations *'If you make informed, reasonable and professional judgements about your practice, with the best interests of your service users as your prime concern, and you can justify your decisions if you are asked to, it is very unlikely that you will not meet our standards.'*

Through HCPC mandated continuing professional development, a dietitian can ensure they have the technical knowledge, with the right skills and competencies, to be able to function in their role. As an autonomous professional, it is equally important to be an ethically competent practitioner to ensure trust between the professional and user. In addition, this trust is not confined to the individual practitioner but to the profession itself. Interpretation of ethical competence allows the distinction between skill and expertise or technical competence, and professionalism (Friedman, 2007). Friedman describes the acquisition of ethical competence in five stages as shown in Figure 1.1.1.

Model and Process for Nutrition and Dietetic Practice

The primary purpose of the practice of dietetics is to optimise the nutritional health of the service users, be they an individual, group or community, or population. By optimising the nutritional health of the service users the dietitian expects to positively influence health outcomes. In the practice of dietetics it is common for the dietitian to seek to influence or change other aspects of

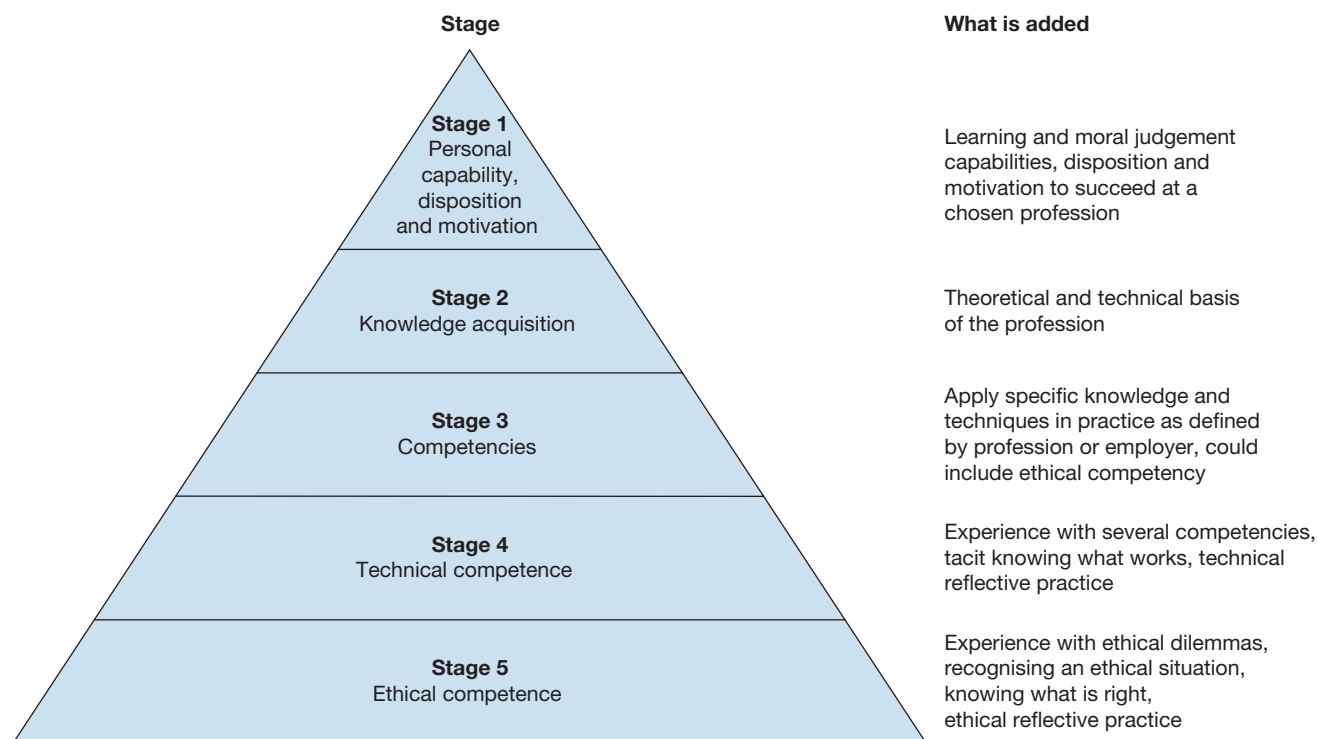


Figure 1.1.1 Stages in the acquisition of ethical competence (adapted from Friedman, 2007)

care or treatment, e.g. medication or the psychological wellbeing of the service user. However, the primary purpose of the dietitian is to identify and take action to improve the nutritional status of the service user and to improve those symptoms that are amenable to dietetic intervention.

Any single consultation or professional activity is incredibly complex and involves a number of different and varied strands of knowledge from biological and social sciences to food and medicine, alongside communication and clinical decision making skills and attributes such as empathy and respect. These are applied within professional and legal frameworks and boundaries and within organisational and social norms and standards. Most of this thought process is invisible to other professionals and often to the user as it takes place rapidly within the dietitian. The model of dietetic practice (MDP) seeks to make this explicit and visible. The BDA's Model and Process for Nutrition and Dietetic Practice (2012) is shown in Figure 1.1.2.

The model for dietetic practice brings together all of these aspects in a single framework that describes dietetic practice whether with individuals, groups or communities. The purpose of the MDP and the nutrition and dietetic process (NDP), which is the key aspect within it, is to help the profession provide safe, effective and consistent services and evidence of this.

Nutrition and dietetic process

At the centre of the NDP is the relationship between the service user and the dietitian. This relationship is key and

influences how all the other aspects of the process function. The service user is at the centre of all professional practice and is most often the most important decision maker in any situation. User (person or patient) centred care has been demonstrated to lead to improved outcomes and to improved satisfaction with care (Robinson *et al.*, 2008). There are many and varied definitions, but the Institute of Medicine (2001) definition, '*Providing care that is respectful of, and responsive to individual patient preferences, needs and values and ensuring that patient values guide all clinical decisions*' encompasses all the concepts.

This definition ensures that the dietitian recognises that the service user's values and preferences will influence how the dietetic intervention is received and therefore how the intervention is delivered. This could be as simple as the level of information and choice the service user requests within the consultation or as complex as decisions about which aspects of the possible dietetic intervention plan to participate in or how to receive the service. The NDP developed by the BDA (2012) is shown in Figure 1.1.3.

This core relationship is at the centre of the NDP and is surrounded by other factors that will influence how the dietitian delivers the intervention and how the service user receives it. The inner rings describe what the dietitian, as a professional, brings to the relationship. This includes:

- Ethical frameworks such as the HCPC Code of Conduct, Performance and Ethics and the BDA Code of Professional Practice.

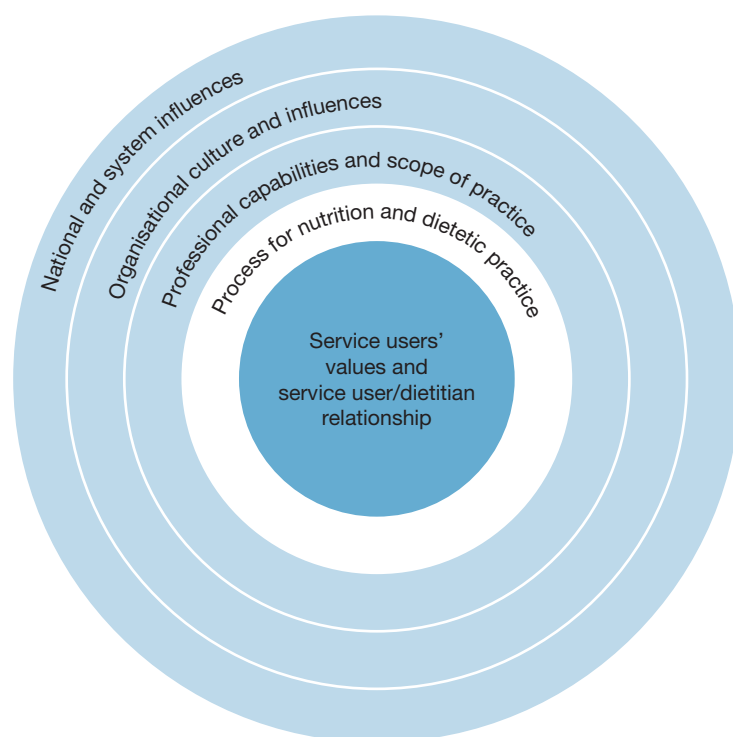


Figure 1.1.2 Model of Nutrition and Dietetic Practice
[source: The British Dietetic Association 2013. Reproduced with permission of the British Dietetic Association (www.bda.uk.com)]

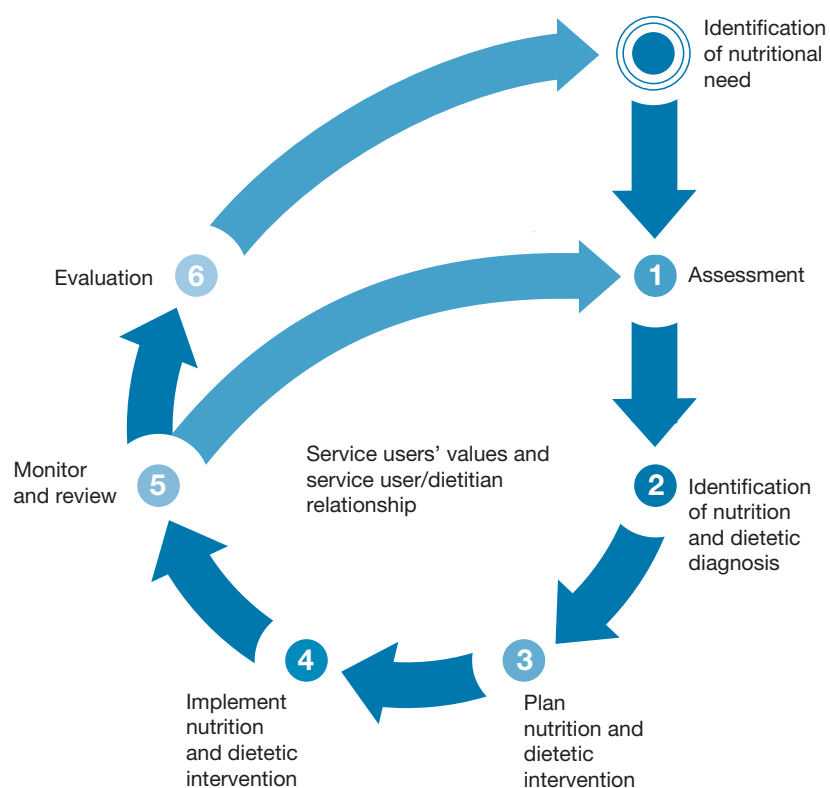


Figure 1.1.3 Nutrition and Dietetic Process
[source: The British Dietetic Association 2013. Reproduced with permission of the British Dietetic Association (www.bda.uk.com)]

- Dietitian's scope of practice and professional capabilities.
- Evidence base for professional practice and the dietitian's continuing professional development.

This is surrounded by the organisational, social and environmental influences on practice. An organisation providing health services will require the dietitian to practise within their governance systems that are designed to provide safe and effective practice. There will be health needs and economic analysis, which will determine what services are required to meet the health needs of the local population and where the care is provided, and these can influence how the dietetic service is delivered.

The BDA Model and Process for Nutrition and Dietetic Practice (2012) provides the framework for a nutritional or dietetic intervention and describes the actions of the dietitian, together with the knowledge skills and critical thinking that a dietitian brings to all interventions. The dietitian places decision making skills and the service user's needs at the centre of the intervention. This process supports the implementation of a standard quality of care that is then personalised to the service user. By using the process, the dietitian moves from experience based practice to evidence based practice, explicitly applying the science and social science evidence base to critical decision making; essentially they are influenced by the service users preferences, need and values (Lacey & Pritchett, 2003). The BDA nutrition and dietetic process consists of five steps (Table 1.1.3):

1. Assessment.
2. Nutrition and dietetic diagnosis.
3. Formulation and planning of the intervention.
4. Implementation of the intervention.
5. Monitoring and evaluation.

Dietetic diagnosis

As previously stated, a dietitian is an autonomous professional and therefore responsible for their actions. One of the ways in which a dietitian demonstrates this autonomy is the identification of a nutritional and dietetic diagnosis. The diagnosis step may be considered the most important step in the NDP but it is often the step that is missed. In making a diagnosis the dietitian uses critical reasoning skills to evaluate the assessment information and to make judgements as to the risks to the service user(s) of taking action, or not. The dietitian will prioritise the nutritional issues identified and make a judgement as to whether taking action on these issues will make a difference to the health and outcomes for the service user.

In developing the diagnosis, the dietitian identifies the relevant aspects of the assessment and clearly states the nutritional problems that they and the service user have prioritised and the nutritional issues the dietitian can influence, and by doing so, the impact the nutritional and dietetic intervention will have on the service user's health. The benefits from making a nutritional and dietetic diagnosis include:

- Sharing with others involved with the service user the nutritional issue(s) that the dietitian and service user have prioritised.
- Identifying the specific nutritional issue(s) that the dietitian can influence.
- Identifying the indicators in the assessment process that will form the basis of monitoring and evaluation.
- Demonstrating the thoroughness of the assessment process and clearly communicating this to other professionals.

The diagnostic statement should clearly record for all service providers the problem, its cause (aetiology) and why the dietitian considers that it is a problem (symptoms). This statement also forms the basis of the monitoring and evaluation step as the dietitian will also have identified the most important indicators from their description of the symptoms.

Recording and information management

Another fundamental aspect of professionalism is the accurate recording of the nutrition and dietetic process. The HCPC (2007) Standards of Proficiency require dietitians to be able to maintain records appropriately. The information in records, including dietetic records, is used for many different purposes. Most importantly, it provides a permanent account of the dietetic process, especially the intervention, and a means of communication between all professionals and others involved, including the service user.

Information contained within records is also used for a number of other purposes, including demonstrating the overall effectiveness of the dietetic service and, possibly, organisation, quality monitoring and service improvement, research and public health purposes. While the increasing use of electronic health records will require more systematic record keeping, there is evidence that using a systematic format in any record, paper or electronic, improves the quality of care and service user outcomes (Mann & Williams, 2003). It is therefore important that the information in professional records is recorded accurately, systematically and consistently.

Quality improvement

Quality (Donabedian, 1980) has many dimensions. In the health service, patients, the public and carers expect safe, effective and consistent high quality care and treatment (NHS Scotland, 2003). For the individual dietitian this is a requirement of registration with the HCPC. Quality improvement involves a series of activities undertaken to reduce the gap between current practice and desired practice.

As a result of the need to account for its management and clinical efficiency, effectiveness and value for money, the NHS developed the concept of clinical governance. Clinical governance is defined as, *'the system through which NHS organisations are accountable for continuously improving the quality of their services and safe-*

Table 1.1.3 Definitions of the steps in the Model and Process for Nutrition and Dietetic Practice

Step	Definition
Assessment	<p>A systematic process of collecting and interpreting information to make decisions about the nature and cause of nutrition-related health issues in an individual, a group or a population</p> <p>Its purpose is to obtain adequate and relevant information to identify nutrition related problems and to inform the development and monitoring of the intervention</p> <p>It is initiated by the identification of need, e.g. screening, referral by a health professional, self referral, high level public health data, epidemiological data or other similar process</p>
Identification of nutritional and dietetic diagnosis	<p>Identification of nutritional problems that impact on the physical, mental and/or social wellbeing where the dietitian is responsible for action</p> <p><i>Individual</i></p> <p>It requires therapeutic or educational action as determined by the dietitian and service user</p> <p>Based on scientific evaluation of physical and psychological signs, symptoms, dietary and medical history, procedures and test results and the priorities of the service user</p> <p><i>Groups</i></p> <p>In a therapeutic group there will be a diagnosis for the individuals in the group (as individuals). In a public health group the diagnosis step will be the same as for the population</p> <p><i>Populations</i></p> <p>Within a public health needs assessment framework the nutritional diagnosis is defined as assessing a nutritional health priority for action. It involves choosing (for action) the nutritional health conditions and determinant factors with the most significant size, impact and severity</p> <p>At all levels it includes the identification and categorisation of the occurrence, risk or potential for the development of a nutritional problem that the dietitian will be responsible for treating independently or of leading the strategy to manage</p>
Plan intervention	<p>A set of activities and associated resources that are used to address the identified nutritional and dietetic diagnosis designed with the intent of changing nutrition related behaviours, risk factors, environmental factors or aspect of physical or psychological health or nutritional status of the individual, group or population. All interventions are planned with the communities, service users and carers who are the recipients of the intervention. This client centred approach is a key element in developing a realistic plan that has a high probability of positively influencing the outcome. This will usually involve describing:</p> <ul style="list-style-type: none"> • Overall measurable and specific outcomes • Intermediate goals, which will achieve the outcomes, determined by the diagnosis statement and assessment information • Plan designed to meet the goals and outcomes – interventions, provision of food, provision of nutritional support, education package, counselling, coordination of care, social marketing campaigns, food availability, food shopping and cooking skills • Roles and responsibilities of individuals, professionals and organisations in delivering the plan
Implementation	<p>The action phase of the nutrition and dietetic process. Dietitians may carry out the intervention, delegate or coordinate to another health or social care professional; patient, client or carer; voluntary organisation or member of the nutrition and dietetic team</p>
Monitoring	<p>The review and measurement of the client, group or population's nutritional status at planned intervals with regard to the nutritional diagnosis, intervention plan, goals and outcomes. It includes monitoring the implementation processes of the plan</p>
Evaluation	<p>The systematic comparison of current findings against previous status, intervention goals and outcomes or a reference standard, and usually takes place at the end of the process</p>

guarding high standards of care, by creating an environment in which clinical excellence will flourish' (Sally & Donaldson, 1998, p. 61). The principles of clinical governance are embedded within the organisation and encompass:

- Clinical audit.
- Evidence based practice.
- Information governance (including record keeping).
- Patient and public involvement.
- Patient safety.
- Revalidation and performance.
- Risk management and medicolegal issues.

Latterly, the term clinical effectiveness was developed as a response to demands to provide evidence of effectiveness. Health professionals have developed measures to report on the quality of clinical services and assess the effectiveness of medical interventions. These include:

- Clinical or medical audit.
- Outcome measures.
- Evidence based practice.
- Guidelines.

Clinical audit is carried out locally and nationally, and provides a method for systematically evaluating, reflecting

upon and reviewing practice against evidence based standards.

Dietetic outcome measurement

The provision of safe, effective and good quality care, or intervention, is fundamental to dietetic practice and is a HCPC registration requirement. A dietitian needs to know that an intervention is evidence based and effective, i.e. that it achieves the predicted outcome and makes effective use of the available resources. To demonstrate this, the dietitian needs to be able to systematically and consistently identify and predict what the desired outcome of their intervention will be, the timescale involved and to what extent this has been achieved from the viewpoint of both the dietitian and the recipient.

Outcome measurement should use SMART principles (systematic, measurable, achievable, realistic and timely). Much of the information needed will already have been collected and is readily available. Putting the patient at the centre of care is a central feature of health policy across the UK, so measuring the patient experience has to be a key component of outcome measurement. The BDA (2011a) outcomes model is a useful starting point for measuring dietetic outcomes, i.e. capturing the unique contribution of the dietitian.

Measurement of outcomes can take place at the individual, service, multidisciplinary team, organisational or national level. Measuring healthcare outcomes is a developing field and no single methodology is universally applicable to all situations. Patient reported outcome measures (PROMs) are a national, validated and mandated approach to collecting outcome information from the patient's perspective for a small number of elective surgical procedures. This approach is being expanded to cover more situations. The use and development of validated outcome measures is an emerging methodology; however, no single outcome measure will capture every dimension of care. The BDA (2011a) outcomes model provides an introduction and steps for developing dietetic outcome models.

Evidence based practice

Evidence based practice has been defined as, '*... the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients*' (Sacket *et al.*, 1996). While evidence based practice was developed in clinical practice, it can be applied to any dietetic discipline or setting and is an essential part of professional practice. The International Confederation of Dietetic Associations (2010) defines evidence based dietetics practice as being, '*... about asking questions, systematically finding research evidence, and assessing the validity, applicability and importance of that evidence. This evidence-based information is then combined with the dietitian's expertise and judgement and the client's or community's unique values and circumstances to guide decision-making in dietetics.*'

Evidence based practice is not a 'one off' activity but must be continuous throughout a dietitian's professional career. It is an essential part of being a professional and an essential element in the nutrition and dietetic process. Evidence based practice can be broken down into five key stages which are:

- Formulating the question.
- Finding the evidence.
- Critical appraisal.
- Using and acting on evidence.
- Evaluation and reflection.

At the end of this process it should be possible to identify areas within practice that require evidence; this should be the stimulus to conduct research to fill this gap. Measuring outcomes and audit are essential elements of evidence based practice.

Formulating the question

The first step in evidence based practice is recognising that there is a need for new information. This may be recognised from practice, reading or research. Recognition of need for new information must be converted into an answerable question. This can be broken into four stages that are collectively known as the PICO principle (Glasziou *et al.*, 2003).

The PICO principle

PICO is an acronym that stands for:

- Patients, or population, to which the question applies.
- Intervention being considered in relation to these patients/population.
- Comparison(s) to be made between those receiving the intervention and another group who do not receive the intervention.
- Outcome(s) to be used to establish the size of any effect caused by the intervention.

It is a framework that helps to focus the literature search by clarifying the question, identifying the information needed to be able to answer the question, translating the question into searchable terms and helping to develop and refine the search approach. In research this will be the research question or hypothesis.

Finding the evidence

Choosing the right evidence is of fundamental importance; therefore, it is essential to use PICO to identify search terms, search for evidence systematically and critically appraise the evidence.

Literature searching

A literature search is a systematic approach to retrieving information, i.e. a detailed and organised stepwise search for all the material available on a topic. Choosing the right evidence is of fundamental importance to answering the research question. There are several literature databases available and each has different criteria for the inclusion

Table 1.1.4 Levels of evidence [from Evidence Based Nursing Practice Hierarchy of Evidence (2008)]

Level	Description	Example
1	Strong evidence from at least one systematic review of well designed randomised controlled trials (RCTs)	Meta analyses The Cochrane Collaboration publications
2	Evidence from at least one properly designed RCT of appropriate size	Articles published in peer reviewed journals
3	Evidence from well designed trials without randomisation, e.g. cohort, time series or matched case controlled studies	Articles published in peer reviewed journals
4	Evidence from well designed non-experimental studies from more than one centre or research group	Articles published in peer reviewed journals
5	Opinions from respected authorities, based on clinical evidence, descriptive studies or reports from committees	NICE guidelines Evidence based local procedures and care pathways
6	Views of colleagues/peers	Members of the multidisciplinary team

of articles. The databases include PubMed (MedLine), CINAHL and Web of Science. NHS Evidence, managed by The National Institute for Health and Care Excellence (NICE), provides access to selected quality health and social care evidence and best practice.

Levels of evidence

There are different systems in use to grade evidence, but they all reflect the methodological rigour of studies. A study assigned as level 1 (or A) evidence (a systematic review or meta analysis that has been conducted using Cochrane Library methodology) is considered the most rigorous and least susceptible to bias. A study deemed to be level 4 evidence is considered the least rigorous and more susceptible to bias (Table 1.1.4). Level 1 evidence is limited for dietetic practice due to the ethical constraints of performing the studies.

When searching for evidence it is necessary to identify the best available evidence, which may include evidence from qualitative, observational studies or professional consensus (expert) opinion. Qualitative methods can help to provide answers to the kinds of questions that are not easily answerable by experimental methods (Swift & Tischler, 2010).

Critical appraisal

Each year thousands of articles are published in peer reviewed journals; however, many will not be well written, report robust studies or be relevant to practice. Therefore, it is essential to evaluate the rigour of an article and whether or not it is relevant to practice by critically appraising it. Critical appraisal is the systematic approach to the evaluation and interpretation of a publication in terms of its validity, results and relevance to an individual's practice or further research. It is essential that the approach is systematic so that the entire article is assessed; strengths and weaknesses of the study design, as well as biases within the study design or writing, need to be identified if effective change is to be made to practice. Critical appraisal will also enhance skills in understanding the research and audit process, while being an important CPD activity. The principle of critical appraisal should be used when evaluating any publication.

How to critically appraise an article

There are many examples available of how to do critical analysis; however, with experience, specific study design tools should be used. Recognised tools are available from NHS Solutions for Public Health (www.sph.nhs.uk) or the Scottish Intercollegiate Guidelines Network (SIGN) (www.sign.ac.uk). A generic framework for critical appraisal is shown in Appendix A1.

Using and acting on evidence

Research and evidence is of limited use if it is not translated into effective clinical practice. Dissemination and utilisation of evidence in decision making in healthcare is the key to the provision of quality care. Clinical experience, based on personal observation, reflection and judgement, is also needed to translate scientific results into treatment of an individual service user. After appraising the evidence and deciding that it is sound, it is essential to put it into context. Evidence must be combined with a dietitian's own expertise, experience and knowledge within their own setting before changes are implemented. The benefits and risks of implementing change must be weighed against the benefits and risks of not using alternative approaches. The decision to implement change should be made in collaboration with other members of the team or department, or patient. Involving all stakeholders will ensure that changes are implemented.

Evaluation and reflection

Evidence based practice is a continuing activity, and evaluation and reflection are a fundamental part of practice. This enables dietitians to identify gaps in their knowledge, areas that require further research and continuously to question practise. Any changes must be evaluated by either audit or service evaluation using appropriate outcome measures. To evaluate the effect of change it is essential that baseline information is collected.

Once a sufficient body of evidence is available, practice recommendations, guidelines and their associated standards can be generated. Clinical guidelines are recommendations on the appropriate treatment and care of patients

with specific diseases and conditions. Guidelines can be generated at an international level, e.g. The World Health Organization, or nationally by organisations such as NICE or SIGN in the UK, or by other clinical specialist organisations and professional bodies, e.g. BDA, Royal College of Physicians, and associated clinical working groups, e.g. Intercollegiate Stroke Working Group. Some, such as those developed by NICE, also consider cost effectiveness. Guidelines can also be produced at a regional or local level. Evidence can be used to improve the quality and outcomes of care by informing structural changes at national and regional levels, such as Managed Clinical Networks in Scotland and the Regional Cancer Networks.

Practice based evidence in nutrition (PEN) (www.pennutrition.com/bda) is a dynamic knowledge translation subscription service that is based on knowledge pathways providing evidence based answers for food, nutrition and dietetic practice questions. The content is developed by systematically reviewing the evidence base.

Routine activities that aid practitioners include keeping a portfolio and reading and evaluating new evidence. A portfolio is vital evidence of CPD and should be used to reflect and evaluate practice and the effect of any change. Simple electronic tools are available to provide information on new evidence. These include:

- *Application software (Apps)* – these include EBM toolkits from publishers, e.g. BMJ books, journals, searchable databases, e.g. PubMed, and critical appraisal tools.
- *Electronic table of contents (eTOC)* from appropriate journals – current contents pages are sent to subscribers (this is usually a free service).
- *Alerts, updates and newsletters* from professional bodies and organisations, e.g. Bandolier and Centre for Reviews and Dissemination (CRD) York.

Most of these services are available as email alerts or Really Simple Syndication (RSS) Feeds; once set up they are automatic.

Research, audit and service evaluation

The skills required to conduct research can also be applied to conduct audit and service evaluation. However, research is used to generate new evidence whilst audit and service evaluation evaluate care. It is important to remember that a survey conducted in clinical care cannot be called an audit unless the results are compared with a standard; standards are generated by research. An important distinction between research, audit and service evaluation is that research requires ethical approval from the appropriate research ethics committee while audit and service evaluation do not. Within the NHS they all require review and approval by the appropriate department, i.e. research and development or clinical governance. Table 1.1.5 gives a brief summary of the key differences between the categories of studies. If the categorisation of the study is unclear, it is important to consult the appropriate department or committee before commencement.

Research can be defined as the, ‘*original investigation undertaken in order to gain knowledge and understanding*’ (Research Assessment Exercise, 2001). It underpins evidence practice and is a vital component of a dietitian’s professional role. The HCPC (2008) requires that dietitians must be able to conduct research and audit and that they continue to use and develop research skills throughout their careers. The essential nature of research and audit as part of professional practice is embedded within both the BDA’s Code of Professional Practice (BDA, 2008a) and the Curriculum Framework for the Pre-registration Education and Training for Pre-registration Dietitians (BDA, 2008b). The BDA (2009b) defines four stages of research involvement and details the skills required at each stage. On qualification all dietitians should have the necessary skills to understand, interpret and apply research. If dietitians maintain and build upon these basic skills, some will eventually lead research and supervise others (Whelan, 2007).

The research process

Research consists of three phases: planning, conducting research and disseminating the results (Hickson, 2008), as shown in Table 1.1.6. The phases may overlap, e.g. dissemination may be planned during the planning stage or an application for funding may require a dissemination plan.

Research governance and ethics

Research governance encompasses regulations, standards and principles of good research practice, therefore ensuring that research is conducted to high ethical and scientific standards. It applies to everyone involved in the research process, including researchers at all levels, employers and support staff. In a clinical setting this will include care providers. Every organisation that conducts research or in which research is conducted should have a research governance framework or guide to good research practice, e.g. Department of Health (2005) Research Governance Framework for Health and Social Care; Medical Research Council (2000) Good Research Practice. Such frameworks and guides protect everyone involved in research, including the researcher. The framework or guide should include:

- Principles of good research, including the research culture.
- Responsibilities and accountability of researchers at all levels, institutions and carers if applicable.
- Processes including approval.
- Finance.
- Ethics.
- Gathering, handling and storing data.
- Result reporting.
- Monitoring procedures.

Ethical approval from an appropriate committee is essential for any research involving humans, clinical data, human organs or tissues; it is a legal requirement in the NHS. Informed consent and confidentiality are central to ethical research. The review process will vary depending

Table 1.1.5 The differences between research, audit and service evaluation (source: NHS National Patient Safety Agency 2008. Reproduced with permission)

Research	Clinical audit	Service evaluation
Attempts to derive new knowledge; studies may aim to generate hypotheses or to test them	Designed and conducted to produce information to inform delivery of best care	Designed and conducted solely to define and judge current care
Quantitative research – designed to test a hypothesis	Designed to answer the question: 'Does this service reach a predetermined standard?'	Designed to answer: 'What standard does this service achieve?'
Qualitative research – identifies/explores themes following established methodology		
Addresses clearly defined questions, aims and objectives	Measures against a standard	Measures current service without reference to a standard
Quantitative research – may involve evaluation or comparing interventions, particularly new ones	Involves an intervention in use ONLY (the choice of treatment is that of the clinician and patient according to guidance, professional standards and/or patient preference)	Involves an intervention in use ONLY (the choice of treatment is that of the clinician and patient according to guidance, professional standards and/or patient preference)
Qualitative research – usually involves studying how interventions and relationships are experienced		
Usually involves collecting data that are additional to those for routine care, but may include data collected routinely. May involve treatments, samples or investigations additional to routine care	Usually involves analysis of existing data, but may include administration of a simple interview or questionnaire	Usually involves analysis of existing data, but may include administration of a simple interview or questionnaire
Quantitative research – study design may involve allocating patients to an intervention group	No allocation to intervention groups; the healthcare professional and patient have chosen intervention before clinical audit	No allocation to intervention groups; the healthcare professional and patient have chosen intervention before service evaluation
Qualitative research uses a clearly defined sampling framework underpinned by conceptual or theoretical justifications		
May involve randomisation	No randomisation	No randomisation

Table 1.1.6 The research process

Phase	Step
Plan research	Develop a research question Use the literature to research the background Choose an appropriate methodology Write a research proposal Formulate aims and objectives If necessary, obtain funding Obtain ethical and institutional approval
Conduct research	Prepare for data collection and management Recruitment and consent participants Collate and analyse data
Dissemination of results	Develop dissemination plan Present findings at a scientific conference Write and submit a manuscript for a peer reviewed journal

on the organisation. Within the NHS the National Research Ethics Service offers a central and consistent service, including the Integrated Research Application System (IRAS) (www.myresearchproject.org.uk). This is a single system of applying for permissions and approvals for health and social care and community research in the UK without unnecessary duplication. Each university will have its own system for ethical approval.

How to do research

This section gives a brief overview of research; more detailed information can be found in Hickson (2008). Further resources are listed at the end of the chapter.

Planning research

The first step in research is developing the question and the PICO principle can be used to generate a concise question. The aims and objectives of the research should relate directly to the research question; the methodology will be determined by the aims and objectives; and when disseminating the results of the research, the discussion and conclusion of a paper or abstract should relate to the question and aims and objectives. The research question may arise from clinical practice or from the literature. A research question will lead to a hypothesis.

Table 1.1.7 Research methodologies

Descriptive	Cross sectional survey Qualitative, e.g. grounded theory, discourse analysis, ethnography, narrative research and phenomenology	
Empirical	Experimental	Randomised parallel groups Randomised cross over
	Observational	Cohort Cross sectional Case control

The research question plays a crucial role in reviewing the literature for the project. The literature review may stem from the aims and objectives or serve to formulate the aims and objectives. The research aim is usually a broad statement outlining the goal and objectives are more detailed statements of how the aim will be achieved. Each objective should be simple, straightforward and achievable. Well thought out objectives suggest a methodology and thus help determine the methodology.

The actual method is how the study will be carried out and includes details such as where the research will take place, who will be involved, how the participants will be recruited, the actual data collection and how the data will be analysed. It is quite acceptable to include both quantitative and qualitative methodologies in a study, but often such a study will be divided into two stages with one stage informing the other. Table 1.1.7 gives an overview of research methodologies.

It is essential to write a research protocol when planning the project and include details of the study rationale, aims and objectives, methods with specific measurable outcomes, statistical analysis, dissemination plans and timeline. The protocol can be used when applying for governance and ethical approval, and funding and will form the basis of the eventual dissemination. When using questionnaires, or other instruments to measure variables, it is important to consider the population for which they are validated and how the results obtained from them will be analysed. If results require statistical analysis, it is sensible to consult a statistician at this stage so that any necessary modifications can be made to the planned data collection.

Conducting research

This stage of the research process is usually constrained by time and money. A Gantt chart detailing delivery dates and deadlines is a useful organisational tool. Difficulties obtaining ethical approval or with recruitment of research staff and participants often delay projects, so sufficient time should be built in at the planning stage to avoid missing deadlines later. Communication is the key to keeping the research process on track, e.g. if recruitment

is slower than anticipated, it is helpful to let funders know before deadlines are missed; funding bodies often have a wealth of research experience and can be a source of help and advice if necessary. Meticulous record keeping will also help the research process to run smoothly. Data collection sheets that are easy to complete will be less likely to contain errors. Data collection methods should be piloted and necessary changes made. Research logs or diaries can act as a cross check to reference dates and times that certain activities took place. Keeping a research diary may be a requirement of an organisation.

Data analysis will probably involve transferring data into a software analysis program and particular care should be taken at this stage to avoid introducing errors. If possible, double data entry should be used where two people enter quantitative data on separate spreadsheets and compare them for differences. Qualitative data often need to be transcribed. This time consuming task can be delegated to professional transcribers, although this step can be a valuable part of the process of becoming familiar with the data.

Dissemination

It is essential that dietitians disseminate all the evidence generated, including research, audit and service evaluation. There are vehicles for every type and size of study; small and negative studies are valuable as they add to the evidence base and may inform others of potential difficulties. Dissemination can occur internally, within the department or institution, or externally at conferences and in peer reviewed journals. Conferences are the best way to disseminate small studies and initial findings. The most important way to disseminate work is as a manuscript published in a peer reviewed journal. Guidance on how to write a conference abstract or a manuscript for publication can be found at www.bda.uk.com/conference/research. Publication guidelines, e.g. CONSORT (Consolidated Standards of Reporting Trials) have been produced in order to improve the quality of research reporting and are available from the Equator Network (www.equator.org.uk).

Continuing professional development

Professional practice develops over time and individual professionals must strive, and expect, to develop and improve their practice so that services and the outcomes for their service users improve. This process is known as continuing professional development (CPD). Continuing professional development is an active process by which every day and more formal experiences are critically reflected upon to identify learning points which are then recorded in a useful format. The BDA (2008c) defines CPD as, '... a systematic on-going process which allows individuals to maintain, update and enhance their knowledge and expertise in order to ensure that they are able to carry out work safely and effectively.'

A dietitian has a responsibility to meet the HCPC Standards for CPD (2011). The HCPC states that, '... CPD is the way health professionals continue to learn and

develop throughout their careers so they keep their skills and knowledge up to date and are able to work safely, legally and effectively. Dietitians, like other HCPC registrants, are required to reregister every two years and each profession is audited. A random sample of dietitians is required to submit their CPD portfolios for audit. It is not a review of the standard of the CPD activities themselves, but of how the individual meets the HCPC standards for CPD. Registrants must demonstrate a variety of CPD activities and how the activities were used to improve their practice. Further guidance on this process is available both from the BDA and the HCPC.

Continuing professional development activities

An individual's CPD should reflect a wide range of learning activities and be relevant to their current or developing scope of practice. CPD activities may be self directed, work based, professional activities or formal/educational activities. Further examples of CPD are shown in Table 1.1.8. Dietitians working within the NHS may be required to link to the NHS Knowledge and Skills Framework (Department of Health, 2004; NHS Employers, 2010). However, as an individual practitioner, a dietitian should organise and undertake CPD for their own development.

Reflective practice

Reflective practice has been defined as, '*... the capacity to reflect on action so as to engage in a process of continuous learning*' (Schon, 1991) and is essential to the development of professional practice in dietetics. The purpose of reflection is to enable a practitioner to use experience to develop practice through a systematic process of analysing experience to learn from it. Reflective practice is the method by which dietitians make sense of practice by analysing a situation or experience, knowledge and skills used, and their reaction to the experience, and by exploring learning, which can be applied in the

future. During the process further learning needs are often identified. This reflection on practice is also one method by which a professional may identify new theories of practice and so integrate the technical science basis and the practice and art of dietetics.

Reflection is a skill that requires development and practice. It requires the individual to be open to their feelings and to what they can learn from the experience. There are a number of models that provide a structured process to aid the process of reflection and building a portfolio (Gibbs, 1988; Rolfe *et al.*, 2001).

Practice supervision

A dietitian should also seek practice supervision throughout their professional training and career. Supervision is the process of professional learning and support involving a range of activities. It enables individuals to develop knowledge and competence, assume responsibility for their own practice and enhance service user protection, quality and safety of care (BDA, 2011b). The supervision process can directly influence CPD, providing a structured process of professional support that facilitates life long learning and personal development, and highlights training needs. Practice supervision is integral to delivering a quality service and should be included within working practices where work based scenarios are explored, reflection upon practice takes place and evidence of CPD is gathered. This process of supervision will start as a student in practice education and continue throughout working life. Examining performance, identifying strengths and weaknesses and seeking to improve are key attributes of a professional.

Preceptorship

Professionals in the first year of practice, particularly within the NHS, should work within a structured development programme called preceptorship. The aim of preceptorship is to enhance the competence and confidence

Table 1.1.8 Examples of continuing professional development (CPD) activities

Workbased learning	Professional activity	Formal / educational	Self directed learning
Learning by doing	Involvement in a professional body	Courses	Reading journals/articles
Case studies	Membership of a specialist interest group	Further education	Reviewing books or articles
Reflective practice	Lecturing or teaching	Research	Keeping a file of progress
Clinical audit	Mentoring	Attending conferences or seminars	
Discussions with colleagues	Being an examiner or tutor	Writing articles or papers	
Gaining, and learning from, experience	Organising journal clubs or other specialist groups	Distance learning	
Work shadowing	Membership of other professional bodies or groups	Planning or running a course	
Secondments	Presenting at conferences		
Job rotation	Supervising research		
Journal club	Being promoted		
In-service training			
Supervising staff or students			
Analysing significant events			
Project work or project management			

of newly registered practitioners as autonomous professionals (Department of Health, 2010). During this time, the new practitioner, supported by a preceptor, will develop their skills, behaviour and attitude to become a more confident practitioner. It is likely to be a structured programme with a mix of theory and guided reflection with a preceptor. Further guidance is available from a number of different sources including the BDA (2011b).

Recording continuing professional development

Dietitians have a responsibility to maintain an accurate, continuous and up to date record or portfolio of CPD activities (HCPC, 2009). The BDA provides tools to support the development of a portfolio and proformas to record CPD, based on the framework for reflective practice of Rolfe *et al.* (2001) which uses the following questions:

- What?
- So what?
- Now what?

These enable the dietitian to describe the CPD activity, explain what is learnt and reflect on the benefits to the service user alongside the use of new skills, as well as investigating any areas for development or improvement.

Conclusion

Dietetics has a proud tradition of upholding safe, effective, evidence based nutritional expertise, and this is fundamentally a result of the professionals who work within the discipline. The profession's commitment to constantly be innovative, whilst striving for the highest standards of technical and ethical competence, have seen it evolve into the internationally respected profession it is today.

Further reading

- Greenhalgh T. (2010) *How to Read a Paper: The Basics of Evidence-Based Medicine*. Oxford: Wiley Blackwell.
- Hickson M. (2008) *Research Handbook for Health Care Professionals*. Oxford: Wiley Blackwell.

Internet resources

- British Dietetic Association www.bda.uk.com
- BDA guidance on writing an abstract www.bda.uk.com/conference/research
- Centre for Evidence Based Medicine www.cebm.net/
- Centre for Reviews and Dissemination (CRD) York www.york.ac.uk/inst/crd/
- EQUATOR Enhancing the Quality Of health Research www.equator-network.org
- Evidence Based Nursing Practice www.ebnp.co.uk/The%20Hierarchy%20of%20Evidence.htm
- Healthcare Improvement Scotland www.healthcareimprovement.scotland.org/welcome_to_healthcare_improvem.aspx
- Healthcare Quality Improvement Partnership (HQIP) www.hqip.org.uk/
- Health & Care Professions Council www.hcpc-uk.org

- NHS Evidence www.evidence.nhs.uk/
- Eyes on evidence www.evidence.nhs.uk/about-us/eyes-on-evidence
- NHS Scotland Clinical Governance www.clinicalgovernance.scot.nhs.uk/
- National Institute for Health and Care Excellence (NICE) www.nice.org.uk
- NICE Guidance and Scotland www.healthcareimprovement.scotland.org/programmes/nice_guidance_and_scotland.aspx
- National Research Ethics Service www.myresearchproject.org.uk
- Practice-based Evidence in Nutrition (PEN) www.pennutrition.com/bda
- Scottish Intercollegiate Guidelines Network www.sign.ac.uk
- Solutions for Public Health – Critical Appraisal Skills Programme www.sph.nhs.uk/what-we-do/public-health-workforce/resources/critical-appraisals-skills-programme
- Trip Database – Clinical Search Engine www.tripdatabase.com/

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- NB: BDA documents can be accessed by members via the member's page. Non-members should contact the BDA directly.
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