Professional Practice in Paramedic, Emergency and Urgent Care
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Edited by

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Editor

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Val is a registered nurse and an Academic Group Leader for Adult Nursing in the Faculty of Health Sciences at Staffordshire University. Her previous role at Staffordshire University was a Principal Lecturer for Acute and Emergency Care which included paramedic education. Val started her career in Emergency Nursing and took up a variety of roles including Emergency Nurse Practitioner and Clinical Educator and in 2004 she moved into Higher Education to begin her teaching career at Staffordshire University. Val has an MSc in Professional Education, a BSc (Hons) in Nursing Studies and has recently commenced a PhD at Staffordshire University. Val has also worked for the West Midlands NHS Strategic Health Authority and Skills for Health to undertake several projects for the non-medical staff working in emergency and urgent care. This included roles, skills and competences against the national career framework and educational development needs. She is currently leading on a project to work towards developing a regional mentor framework for the West Midlands region in collaboration with the regional ambulance service and other universities who provide paramedic education in the West Midlands.

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Jacqui is a Senior Lecturer in Emergency Care at the Faculty of Health Sciences at Staffordshire University. Prior to joining the University, she has held a wide variety of clinical, managerial and teaching roles and is experienced in teaching different disciplines including postgraduate and undergraduate nurses, doctors and paramedics. In her current role, she works mainly with aspiring paramedics as the Award Leader for the Foundation Degree in Paramedic Science. Jacqui also leads on an Assessment and Management of Minor Injuries Module and a Risk, Decision Making and Uncertainty Module; as well as teaching on a wide variety of undergraduate and postgraduate awards. She continues to work in clinical practice within the Emergency Department and has commenced working towards her Professional Doctorate.
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Lorna has many years of experience as an emergency nurse and was appointed one of the UK’s first consultant nurses in 2001. Prior to this, she held a number of clinical teaching roles and is very experienced in teaching different disciplines including postgraduate and undergraduate nurses, doctors and paramedics. She has also been an active researcher. In her present role of Senior Lecturer in Emergency and Urgent Care at the University of Central Lancashire, she works mainly with aspiring paramedics but also contributes to a number of post-registration specialist courses for nurses working in emergency care. She holds a Master of Nursing degree from the University of Glasgow (1996) and was awarded a Postgraduate Certificate in Higher Education Research and Practice from the University of Salford (2007), with distinction. She is a registered nurse teacher with the Nursing and Midwifery Council and also a Fellow of the Higher Education Academy.

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Kay is a Principal Lecturer in Community Based Care at the Faculty of Health Sciences at Staffordshire University. She is a registered nurse teacher with the Nursing and Midwifery Council and currently leads on a variety of community-based care educational programmes and has a particular interest in practice nursing, image of nursing, and leadership. Her current doctoral thesis concerns the exploration of young people’s perceptions of nursing and the influences that have helped shape their views. Kay also works part time as a contraception and sexual health nurse within Royal Wolverhampton Hospitals Trust.

Louise Perkinton, MSc, BSc (Hons) Nursing Sciences, RN, DipAdEd, Registered Nurse Teacher, FHEA
Louise works as a Senior Lecturer at Derby University and is the programme leader on the pre-registration nursing degree and leads and teaches on evidence based practice module within this curriculum. She has been a nurse teacher for 20 years, working across a range of pre- and post-registration programmes in three Universities. Her teaching interests lie in research, critical care nursing and interprofessional education. Prior to moving into education, she was a ward sister in medical high dependency/coronary care. She holds a Master’s degree in healthcare policy and organisation and she is a Fellow of the Higher Education Academy.
Health policy changes from 1997 set out to modernise the NHS through the delivery and continuous improvements of high-quality healthcare services that was designed around the patients. As a result, demand-driven, high-profile services such as emergency and urgent care, saw the implementation of national standards to reduce waiting times and improve access to emergency and urgency care services. This led to dramatic changes in new ways of working, role redesign and changes in skill mix to redesign service delivery. Like the NHS, ambulance services in England are also playing an increasingly wide role in the NHS in response to national policy changes.

Traditionally, ambulance services have been designed around delivering resuscitation, trauma care and cardiac care to patients who are critically ill. Eighty percent of training to front-line ambulance clinicians has been focused on this. Today, 90% of patients do not fit into this category. Ambulance services have changed their traditional approach and are now more embedded in urgent care as a whole to provide a mobile healthcare service for the NHS. Added to this is an increase in public expectations, advanced medical and information technology, an ageing population and chronic conditions has put even greater pressure and demand on emergency and urgent care services. This has been a positive move towards roles of nurses and paramedics, perhaps politically driven but also out of the desire to enhance patient care, improve access, reduce unnecessary attendance to emergency departments, provide care closer to home and unlock and utilise nursing and paramedical potential.

The current provision of emergency and urgent care services, roles and responsibilities of nurses and paramedics are continuously evolving and increasing in the UK. Patients are now accessing and seeking care at the point of delivery. As a result, the front-line practitioners have to consider options for referral and the use of alternative care pathways. Paramedics and nurses working in this sector need to be educated and trained to deal with the mixed case they see both at the pre-registration education and continuing professional development. They must have the underpinning knowledge and skills which will enable the correct clinical decisions to be made, which are demonstrably in the patients’ best interest. This can only be achieved in a clinically safe, professional and lawful manner (Nursing and Midwifery Council 2008; Health & Care Professions Council 2012).

This book is intended to provide the underpinning theoretical knowledge of the issues that you encounter on a daily basis when working in the pre-hospital, emergency and urgent care environment. This will
hopefully enable you to develop a comprehensive theoretical understanding of the issues underpinning professional practice which is fundamental to everyday clinical practice. The chapters will provide clinical exemplars, discussion points and critical thinking points throughout. This is intended for you to reflect on your own experiences in order for you to link and apply the theory to your own area of practice. Illustrations given will also demonstrate how the theory is applied in practice to increase your understanding of the concepts explored in this book.

The first three chapters are focused on patient assessment which includes history taking, consultation and communication skills and clinical decision making. These three chapters are inextricably linked and cannot be viewed as separate subjects. Therefore, all three chapters should be read in conjunction with each other in order for you to gain a comprehensive theoretical understanding that will enable to justify your decision making when assessing and managing patient care.

For the remaining chapters, it is inevitable that the subject areas discussed and explored in this book are integrated with each other and therefore there will be some overlap in each individual chapter. Wherever possible, these have been cross-referenced to chapters where it is discussed more in detail.

As the book title suggests, it is intended for paramedics and nurses working in pre-hospital, emergency and urgent care. Chapters 3, 6 and 7 predominately focus on paramedic practice; however, the principles of professional practice are transferable and therefore can be applied to all areas of healthcare practice.

Paramedics and paramedic practice is an emerging profession and therefore the literature predominately relates to the clinical aspects of practice with very little relating to the professional aspect of practice. Therefore, the literature used throughout this book has been drawn from other disciplines, predominately nursing. It is important to understand that regardless of this, the theoretical knowledge and skills are transferable and will apply to all healthcare practitioners.

It is hoped that this book will enable you to develop a broader and deeper knowledge base of the theoretical issues that underpin professional practice and how this is applied to everyday clinical practice. I hope you enjoy reading this book as much as I have enjoyed writing and editing this book.

Val Nixon

References

Acknowledgements

I would like to say a huge thank you to all of the contributory authors for their valuable time and expertise in writing their chapters.

I also wish to say a big thank you to my colleagues, clinical mentors, nurses, paramedics and paramedic students who have taken the time to offer support, guidance and reviewing of chapters – your constructive comments and views have been extremely valuable.

A very huge thank you to my daughter, Natalie, who has been very patient and understanding over the many months I have spent writing this book. Thank you, my angel.

Val Nixon
History Taking

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Introduction

History taking is the critical first step in detecting the aetiology of a patient’s problem using a systematic approach. Historically, history taking has been the domain of the medical practitioner whilst other professions focused on assessment skills related to particular body systems, or on assessing activities of daily living (ADL) such as communication, eating and drinking, washing and dressing. In recent years, professional boundaries between different healthcare professionals have begun to blur in response to healthcare reform. Subsequently, history taking skills are becoming increasingly important to non-medical healthcare professionals (Kaufman, 2008) and arguably the most important aspect of patient assessment (Crumbie, 2006). History taking should be clear and all elements should be conducted in the same way with the same purpose; to inform patient care, provide clear communication to other professions and prevent repetition and omission of relevant data. This chapter will therefore focus on the history, taking process using the medical model to structure this process. A brief introduction of why history taking is important will be offered followed by tools and mnemonics that you can use to support and guide your questioning techniques when obtaining information. There will be reference to the importance of communication skills needed when taking a patient’s history; however, due to the complexity of this subject area, this has been explored fully in Chapter 2.

Obtaining the information

History taking is a process whereby the patient or others familiar with the patient report relevant complaints (subjective data) referred to as symptoms. Symptoms and clinical signs are ascertained by direct examination (objective data) by the healthcare professional. History taking is like
playing detective; searching for clues, collecting information without bias, yet staying on track to solve the puzzle (Clarke, 1999). Essential and active listening skills are required and this is described by Duffy (1999) as the most fundamental communication skill and is central to obtaining a history. An accurate history can provide 80% or more of the information required for diagnosis (Epstein et al., 2008; Bickley and Szilagyi, 2009). The clinical examination and/or diagnostic testing should only confirm or disprove this diagnosis.

Medical histories vary in their depth and focus from case to case and according to their purpose. The medical history has a traditional format (see Box 1.1) which is considered the ‘gold standard’ (Bickley and Szilagyi, 2009). This provides a systematic approach, yet will generally require a flexible attitude and questioning techniques as opposed to a rigid interrogation or a checklist of questions.

**Box 1.1  Traditional medical history**

<table>
<thead>
<tr>
<th>Date and time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifying data</td>
</tr>
<tr>
<td>Presenting complaint</td>
</tr>
<tr>
<td>History of presenting complaint</td>
</tr>
<tr>
<td>Past medical history</td>
</tr>
<tr>
<td>Previous illness and surgery</td>
</tr>
<tr>
<td>Drug history</td>
</tr>
<tr>
<td>Allergies</td>
</tr>
<tr>
<td>Family history</td>
</tr>
<tr>
<td>Social history</td>
</tr>
<tr>
<td>Mental health history</td>
</tr>
<tr>
<td>Review of systems</td>
</tr>
</tbody>
</table>

There will be circumstances where a comprehensive history is required such as:

- Where reaching the diagnosis is difficult or complex
- Where the patient has a range of different health problems
- When the patient is a new patient in the hospital/GP setting
- Baseline for future assessments

Otherwise, there will be circumstances where the history should be more selective which is described as a focused history (Rushforth, 2009). Selected questions are directed towards the presenting problem or need may be more appropriate such as:

- Emergency situations where it is necessary to undertake a primary survey
- Minor illness or information where the information can focus directly to the patients’ problem
- General mental health assessment

Irrespective of which approach is used, the history-taking process allows patients to present their account of the problem and provides essential information for the healthcare professional. It provides the opportunity for the patient to tell their story with an unfolding of symptoms, problems and feelings. It is important to recognise that patients tell their stories in different and usually unstructured ways which may lead to necessary information being omitted. It is, therefore, imperative for the practitioner to use effective communication skills within a systematic framework (see Chapter 2). This will prevent information being overlooked that is essential for diagnostic accuracy. There are several systematic frameworks to support the history-taking process. AMPLE (see Box 1.2) is advantageous for situations where depth and focus of the history are based on the case at hand. It is quick and easy to use especially in an emergency situation. A disadvantage of this framework is the lack of enough detail and structure to enable generation of a patient’s condition, especially when asking events leading up to the emergency. Subsequently, the potential to miss out relevant questions is possible.

**Box 1.2  AMPLE survey**

- Allergies
- Medication/drug history
- Past medical history
- Last meal or oral intake
- Events leading up to the emergency

**Identifying the data**

Start the history-taking process by identifying the age, sex, occupation and marital status of the patient. This will become important through other sections of this process. This source of information is generally obtained from the patient, but can also be obtained from a family member, friend or from a written source. Where appropriate, it is important to identify and record the source of information, as the accuracy of information obtained may be questionable. The patient’s mood, memory, trust and clinical condition may affect the reliability of information given and these factors must also be identified and recorded.
The presenting complaint

Normally, the presenting complaint (PC) may only consist of two signs and symptoms; for example, ‘chest pain’, ‘ankle injury’ and ‘feeling unwell’ are initially reported and recorded. A range of differential diagnosis will be considered at this point of the history taking process. It is important to gather further information to eliminate some of the differential diagnosis and consider causes as to why the patient has sought medical assistance (Gregory and Murcell, 2010).

History of presenting complaint

This section of the process is the main component of history taking. A detailed and thorough investigation into the current illness is performed to provide a complete, clear and chronological account for the PC(s) prompting the patient to seek care. This usually comprises two sequential (but overlapping) stages:

- The patient’s account of the symptoms
- Specific, detailed questions by the health professional undertaking the history

To obtain the patient’s account of symptoms, the use of open-ended questions is required. This is to avoid a yes or no answer so that the patient can expand on their story. For example, ‘tell me more about your chest pain’ encourages the patient to tell the practitioner more. In contrast, closed questions such as ‘is the chest pain severe?’ can be answered in a ‘yes’ or ‘no,’ which is useful for seeking specific answers that are required to gain a deeper understanding of the patient’s problem (Kaufman, 2008).

It is important to listen to patients as they tell you their story as generally they are telling you their diagnosis. Listening should be an active process and patients should be given every opportunity to talk freely at the start of the consultation with minimal interruption (Marsh, 1999). A common mistake is for the health professional to intervene too early, and research has shown the importance of listening to patients’ opening statements without interruption (Gask and Usherwood, 2002). Once a patient has been interrupted, they rarely introduce new issues (Gask and Usherwood, 2002) and vital information may never come to light (Kaufman, 2008). If uninterrupted, most patients will tell you their problem in 1–2 minutes (Snadden et al., 2005). It is a matter of judgement when to start interrupting and asking open questions, but as a general rule, think twice before interrupting a patient in full flow as this may not be what is concerning the patient the most. A combination of art, experience and patience determines when and how to interrupt a patient in full flow and every attempt to use the patient’s own words is essential. Remember the most important facts given by the patient as these may need further clarification.
Once the patient has given their account of the signs and symptoms of the presenting problem, closed questions may be used to focus on gathering information that is relevant to the history of the presenting complaint (HPC). A chronological account of the symptoms and associated symptoms should be explored in a systematic manner, and include onset of the problem, the setting in which it has developed, its manifestations and any therapeutic interventions used to relieve symptoms (Bickley and Szilagyi, 2009). The use of a mnemonic can provide a systematic approach so that a single event or system can be explored more fully and consequently encourage patients to expand and describe their symptoms. One mnemonic is the OPQRST (Morton, 1993). This mnemonic is mostly used in describing pain but can also be used as a symptom analysis (see Box 1.3). Other mnemonics which can be used are illustrated in Boxes 1.4 and 1.5.

<table>
<thead>
<tr>
<th>Box 1.3</th>
<th>OPQRST mnemonic</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>onset</td>
</tr>
<tr>
<td>P</td>
<td>provocative/palliative</td>
</tr>
<tr>
<td>Q</td>
<td>quality</td>
</tr>
<tr>
<td>R</td>
<td>region/radiation</td>
</tr>
<tr>
<td>S</td>
<td>severity</td>
</tr>
<tr>
<td>T</td>
<td>temporal/timing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Box 1.4</th>
<th>TROCARSS mnemonic</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>timing</td>
</tr>
<tr>
<td>R</td>
<td>rapidity</td>
</tr>
<tr>
<td>O</td>
<td>occurrence</td>
</tr>
<tr>
<td>C</td>
<td>characteristics</td>
</tr>
<tr>
<td>A</td>
<td>associations</td>
</tr>
<tr>
<td>R</td>
<td>relief</td>
</tr>
<tr>
<td>S</td>
<td>site</td>
</tr>
<tr>
<td>S</td>
<td>spread</td>
</tr>
<tr>
<td>S</td>
<td>severity</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Box 1.5</th>
<th>SOCRATES mnemonic</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>site</td>
</tr>
<tr>
<td>O</td>
<td>onset</td>
</tr>
<tr>
<td>C</td>
<td>character . . . sharp, dull</td>
</tr>
<tr>
<td>R</td>
<td>radiation</td>
</tr>
<tr>
<td>A</td>
<td>alleviating factors</td>
</tr>
<tr>
<td>T</td>
<td>timing</td>
</tr>
<tr>
<td>E</td>
<td>exacerbating factors</td>
</tr>
<tr>
<td>S</td>
<td>severity 1–10</td>
</tr>
</tbody>
</table>
Onset

It is important to determine when the symptom/pain started as this is a key factor to determine whether it is acute, chronic, urgent or non-urgent. Establishing the speed of onset to determine the rate of development (seconds, minutes, hours etc.) is useful too. Start with open-ended questions such as ‘what were you doing when this started?’ or ‘do you have a history of this problem?’ or ‘when did you last feel well?’ It is important not to ask leading questions that may elicit the wrong response. For example, ‘did it start yesterday?’ or ‘were you active at the time?’

Provocative/palliative

Questions relating to what provoked the symptom/pain; and any medication either prescribed over the counter or herbal/homeopathic or other alternatives that made the symptom/pain better or worse should be considered. Factors such as movement, lying down, sitting up, on rest, on exertion and breathing should also be considered as this is important towards confirming or disproving differential diagnosis. For example, a patient complaining of left-sided chest pain lasting for several minutes that developed following an exertion or emotional stress (provocative factors) and/or relieved by rest or Glyceryl Trinitrate (palliative) may be indicative of unstable angina, whereas persistent chest pain that may not have provocative factors and is unresponsive to palliative measures may be indicative of unstable angina or myocardial infarction.

Quality

Patients will use a variety of words to describe their symptoms; and prompting the patients to define this symptom is particularly useful in arriving at a diagnosis (Crumbie, 2006). For example, crushing chest pain is almost diagnostic of myocardial infarction. Throbbing, burning, hot, heavy, stabbing, sharp, shooting, tender are various other descriptions patients may use to describe their discomfort.

Region/radiation

Discovering where the symptom/pain is being experienced is fundamental as it often gives clues to the aetiology. This may be a vague description by the patient as the patient may describe the region more broadly, for example, ‘pain in my stomach’. As there are several structures within the abdominal cavity, it would be difficult to identify the exact nature of the problem. It is, therefore, useful to ask the patient to point to the exact
location where possible to eliminate a range of causes associated with abdominal pain/discomfort. For example, appendix pain may start in the central abdomen and then localise to the right lower quadrant (Welsby, 2002). Any radiation of the symptom/pain should also be noted. A patient may present with abdominal pain, when on further exploration may also radiate into the back which is suggestive of aortic aneurysm. Without asking the relevant questions to explore radiation, the true extent of the problem may never be discovered (Crumbie, 2006).

**Severity**

This refers to the severity of the symptom/pain has on the patient. Asking patients to compare it with previous common type presentations such as toothache, earache, menstrual cramp is of some benefit, but the use of a pain scale would offer a robust method of diagnosing or measuring the patients’ pain intensity. The most commonly used scales are visual, verbal and numerical or some combination of all three forms. The practitioner must decide whether a score given is realistic within their experience – for instance, a pain score of 10 for a stubbed toe is likely to be exaggerated. The scales may also be used for assessing pain/symptom now, compared to the time of onset, or pain on movement. It may also be used to reassess pain after the administration of analgesia to assess the efficacy of their treatment. There are alternative assessment tools which can be used if a patient is unable to vocalise a score. One such method is the use of Wong–Baker FACES Pain Rating Scale (Wong and Baker, 1988). This uses cartoon faces with different expressions to assess and it is commonly used with children. Patients are often descriptive with their symptom/pain and reflect how it is affecting them rather than describing it as the health professional would interpret the problem. It is useful to record direct quotations from the patient such as ‘Feels like a stabbing knife’ and ‘It’s like being crushed’.

**Timing**

Patients can often overestimate the duration of the pain/symptom, so determining the timing is an important factor in several illness/injury processes (Crumbie, 2006). It is important to ask the patient how long the condition/pain has been going on and how it has changed since onset (better, worse, different symptoms); if no longer a problem/discomfort, when did it end, how long has it lasted or lasts for, the timing in the day, the pattern of the symptom, its consistency or if it is intermittent. This is also important as symptoms can change suddenly from chronic to acute; acute to life-threatening; urgent to non-urgent.
Mechanism of injury

For patients presenting with injuries, a different approach for obtaining an HPC is required. An injury is a mechanical process that can cause damage to the skin, muscles, organs and bones. Therefore, it is important to establish the mechanism of injury (MOI) to determine the extent and severity of the injury and also to anticipate any immediate or potential problems the injury may provoke. The general rule of thumb is to ask when, how, where, what, who and why. These are referred to as Kipling’s six honest men, trusty questions, and we will get to the facts in every situation (Purcell, 2010). Box 1.6 illustrates some key questions using this framework.

**Box 1.6  Mechanism of injury**

<table>
<thead>
<tr>
<th>When did this happen?</th>
<th>Signs and symptoms occur at different times following injuries which will indicate the severity of the injury</th>
</tr>
</thead>
<tbody>
<tr>
<td>How did it happen?</td>
<td>Relate to mechanical factors – speed, direction, height, duration and any other element</td>
</tr>
<tr>
<td>What caused the injury?</td>
<td>Knife (type and length), broken glass, crushed by machinery?</td>
</tr>
<tr>
<td>Where did it happen?</td>
<td>Have they fallen on grass or concrete? Fallen down 2 steps or 16 steps?</td>
</tr>
<tr>
<td>Why did this happen?</td>
<td>Has the patient fallen? Do they remember falling? Ask why they fell, if unknown, consider medical reasons</td>
</tr>
<tr>
<td>Who caused the injury?</td>
<td>Human, animal, insect bite wound? Consider non-accidental injury, domestic violence</td>
</tr>
</tbody>
</table>

Data from Purcell (2010).

Red flags

It is vital to check for the presence or absence of red flags. Red flags are clinical features that indicate a serious condition is present and may require urgent attention. For example, when assessing patients with acute or chronic low back pain, check for the presence or absence of the red flags such as saddle anaesthesia and/or bladder dysfunction that is suggestive of cauda equina syndrome. Central crushing chest pain is a major clinical feature of a myocardial infarction but for some patients such as the elderly, people with diabetes and women, there may be a little or no chest pain.
Past medical history

Previous illnesses and surgery

Once the patient has given an account of the presenting illness/injury, a general medical history should be established (Purcell, 2010). The past medical history (PMH) can often be a significant factor to understand the presenting illness of the patient as they are often related. It is important to establish whether the patient has any known medical problems such as diabetes, asthma, chronic obstructive pulmonary disease (COPD) or coronary heart disease (CHD). Open-ended questions, for example ‘do you have any medical problems?’, can be too generalised as patients can often consider this as insignificant and omit this information. It may be more appropriate to ask closed questions, for example ‘do you have asthma, diabetes?’.

Another helpful mnemonic is JAM THREADS (see Box 1.7), which will identify common medical conditions, but further questions may be required.

Box 1.7 Mnemonic for obtaining past medical illnesses

- **J** jaundice
- **A** anaemia and other haematological conditions
- **M** myocardial infarction
- **T** tuberculosis
- **H** hypertension and heart disease
- **R** rheumatic fever
- **E** epilepsy
- **A** asthma and COPD
- **D** diabetes
- **S** stroke

Other key areas to explore are previous hospital admissions including when and why; previous surgery; recent history of foreign travel, including immunisations taken before travelling; childhood immunisations and other immunisations such as tetanus and influenza. In relation to the presenting illness, exploring risk factors are essential. For example, if a patient presents with chest pain, ask specifically about previous episodes of angina, myocardial infarction or hypertension. According to Marsh (1999), exploring the components of the PMH takes the most skill, as an awareness of the likely differential diagnosis is needed and more importantly, this is paramount for safety in treatment regimens as contraindicated treatments must be avoided.
Drug history

A list of current prescribed medications with doses is a minimum requirement. A detailed drug history (DH) is vital as it may give an indication of disease processes that the patient was either unaware of and/or fail to disclose this information. Patients can often perceive to have no medical conditions if it is controlled effectively with medication; for example, thyroxine suggestive of hypothyroidism, salbutamol suggestive of asthma, metformin suggestive of type 2 diabetes.

The patient’s current medication may also be the cause of their symptoms as a result of the withdrawal of therapy, e.g. sudden withdrawal of benzodiazepines will induce seizures and adverse drug reaction (ADR) causing unwanted effects from drugs. There is a vast amount of drugs now in use, and the effect of this has led to an increase of ADRs which account for 5% of hospital admissions (Greenstein, 2004). The majority of ADRs are common, harmless and of no clinical importance. In contrast, less common adverse reactions are potentially harmful, which can be fatal. Rawlins and Thompson (1991) proposed two types of ADRs and classify these as type A and type B.

Type A ADRs are common and are due to the normal pharmacological reactions of the drug. They are dose dependant and predictable and together they cause unwanted effects after a normal or higher than normal dose (Bennett and Brown, 2003) They are readily reversible on reducing dose or withdrawing treatment. Table 1.1 provides some well-known examples of type A reactions. Conversely, type B ADRs are pharmacologically unexpected, unpredictable and not dose dependant (Greenstein, 2004). They are less common and only occur in susceptible individuals. Examples of type B ADRs include anaphylaxis with penicillin and agranulocytosis with chlorpromazine. Type B ADRs have a low incidence, but when they do occur, they tend to be more serious. Patients at increased risk from drug interactions include the elderly and those with impaired renal or liver function (Joint Formulary Committee, 2012). Furthermore, the severity of the reaction will vary from one patient to another.

Once established, a DH is important to ascertain whether or not they are, in fact, taking them and how long they have taken medication. Studies have revealed that only about a third of general practice patients take medication as prescribed (Welsby, 2002). Patients do not like to admit they have not taken their medication, and the exploration of this must be sensitively undertaken in an attempt to not appear judgemental. Reviewing the medication with the patient, taking into account the dates they were prescribed, the dosages, frequency and route will give a good indication of compliance. Using statements such as ‘do you ever forget to take your tablets?’ or ‘do you have difficulty taking your tablets?’ or ‘when was the last time you took your medication?’ may give clues to whether the patient has taken their medication. Nevertheless, Marsh (1999) states that even when approached sensitively, few patients admit to poor concordance. Some
### Table 1.1 Examples of common type A ADRs and their pharmacological basis

<table>
<thead>
<tr>
<th>Drug(s)</th>
<th>ADR</th>
<th>Pharmacological cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antibiotics</td>
<td>Diarrhoea, <em>Clostridium difficile</em> colitis, thrush</td>
<td>Disruption of normal intestinal/mucosal flora</td>
</tr>
<tr>
<td>Calcium channel blockers</td>
<td>Headache, peripheral oedema, flushing, palpations, heart block</td>
<td>Peripheral vasodilation</td>
</tr>
<tr>
<td></td>
<td>(diltiazem and verapamil only)</td>
<td>Blocking of cardiac conduction system</td>
</tr>
<tr>
<td>Digoxin</td>
<td>Arrhythmias, heart block</td>
<td>Slowing of atrioventricular (AV) conduction</td>
</tr>
<tr>
<td>Immunosuppressant</td>
<td>Susceptibility to infection, increased risk of cancers</td>
<td>Depression of immune system</td>
</tr>
<tr>
<td>Levodopa</td>
<td>Hypomania, psychosis, nausea, vomiting</td>
<td>Action on many cerebral dopaminergic neurones</td>
</tr>
<tr>
<td>Loop diuretics</td>
<td>Hypokalaemia, hypernatraemia, hypomagnesaemia, increased calcium</td>
<td>Diuretic activity (on renal tubules), with ‘unbalancing’ of iron</td>
</tr>
<tr>
<td></td>
<td>excretion, hypotension</td>
<td>excretion</td>
</tr>
<tr>
<td>NSAIDs</td>
<td>Peptic ulcer, acute renal failure, exacerbation of asthma, etc.</td>
<td>Blockade of physiological prostaglandin synthesis</td>
</tr>
<tr>
<td>Tricyclic antidepressants</td>
<td>Drowsiness, dry mouth, blurred vision, constipation, urinary</td>
<td>Disruption of autonomic control (antimuscarinic anticholinergic effect)</td>
</tr>
<tr>
<td></td>
<td>retention, cardiac arrhythmias</td>
<td></td>
</tr>
</tbody>
</table>

Factors may lead to non-concordance with medication such as side effects, perceived lack of efficacy and ignorance. It is therefore to establish any reasons for this. In addition, clinical conditions may affect the patient’s mental status such as hypoxia resulting from exacerbation of COPD or asthma or hyperpyrexia. This can lead to patients forgetting to take any medication or conversely taking a double dose. In these circumstances, it is important to see the packages to check whether the correct number has been taken since the date prescribed.

You would also need to ask specifically about the use of over-the-counter medication such as paracetamol and herbal/homeopathic health food type preparations such as vitamins. Always ask women in the appropriate age group whether they take the oral contraceptive. These are often not considered to be ‘medication’ and patients will not disclose this information if not prompted.

### Allergies

Establishing any known allergies caused by drugs, environmental factors, foods, and wound dressings and other agents are essential as this may be the cause of their symptoms. Allergic reactions cause a number of clinical disorders such as the following:

- Acute anaphylaxis
- Serum sickness