Nurse Education Today 34 (2014) 214–217

Contents lists available at ScienceDirect

Nurse Education Today

journal homepage: www.elsevier.com/nedt

The Safe Clinical Assessment: A patient safety focused approach to clinical assessment☆,☆☆,★

Paul Silverston *

Medical Education, University Campus Suffolk, United Kingdom
The Postgraduate Medical Institute, Anglia Ruskin University, United Kingdom

ARTICLE INFO

Article history:
Accepted 8 March 2013

Keywords:
Patient safety
Clinical assessment
Consultation skills
Model of Illness
Nurse education

SUMMARY

Medical consultations are complex and multi-faceted, requiring that nurses develop a sound knowledge and skill base in a wide variety of different areas, from communication skills to clinical reasoning and from physical assessment skills to prescription writing. Clinical assessment is an integral part of the medical consultation process, although it is often taught as a stand-alone module in nurse education programmes, such that nurses at different levels in their training will learn these skills. This article describes how patient safety skills and practices can be incorporated into clinical assessment teaching for nurses at all levels of training but especially within training programmes for Emergency Nurse Practitioners, Nurse Practitioners and for nurses involved in the assessment and management of patients with minor illnesses.

Introduction

One of the problems inherent in teaching clinical assessment as a stand-alone module is that it can be difficult for the student to appreciate the role that clinical assessment plays within the consultation process as a whole. Clinical assessment should be viewed as the tool in the consultation process that enables the nurse to move from the symptom that the patient presents with to the diagnosis and management of the patient. Placing clinical assessment within this context is important because it needs to be appreciated that a clinical assessment of the patient involves more than simply a medical assessment of the symptom. An example of the need to place clinical assessment within the context of the consultation as a whole would be the assessment of a patient with a minor head injury in the Emergency Department, or in Primary Care. An appropriate clinical assessment would include taking a social history from the patient, not because it would contribute to the assessment of the head injury itself but because it is important in the subsequent management of the patient. This demonstrates the importance of not "disconnecting" clinical assessment from the rest of the consultation process.

Concerns over patient safety, in the widest sense, have grown considerably over the past decade, resulting in the development and publication of the 2011 World Health Organisation (WHO) Patient Safety Curriculum Guide, which highlighted the need, worldwide, to improve patient safety and to teach patient safety-oriented skills, attitudes and behaviours to all health care professionals (Ellis, 2009; Tingle, 2011). To a large extent, this document represents a response to the challenge of increasing mortality and morbidity rates arising from medical errors and the human and financial cost of this. Emphasising the need to place patient safety at the heart of every consultation and each clinical assessment is one way in which risk reduction can be achieved and patient safety improved (Silverston and Stewart, 2012). The author is involved in teaching Consultation and Clinical Assessment Skills on a number of different medical and nurse education programmes, in which the concepts of "Safe" Consulting and "Safe" Clinical Assessment are discussed. These sessions have been well-received and well-evaluated by those who have attended them. There are a number of key components within the "Safe" Consulting/"Safe" Clinical Assessment curriculum and simple visual models can be used to demonstrate how patient safety skills and attitudes can be applied to the consultation/clinical assessment process. The first of these is the Model of Illness (Silverston, 2012).

The Model of Illness

A fundamental principle in "Safe" Consulting/"Safe" Clinical Assessment is to show that there is a relationship between illness and consulting and that this has a profound impact on both the consultation and the clinical assessment process. The Model of Illness is a simple, visual model in which the relationship between symptoms and time is demonstrated, visually (Fig. 1). This model can be used to explain to students the importance of knowing about the natural history of an illness, so they can learn patterns of illness that encompass both the early and late presentations of an illness. This is of particular importance in understanding how any

☆ Competing interests: The author declares no competing interests.
☆☆ Funding: No funding was required for this paper.
★ Authorship: Paul Silverston is the sole author of this paper.
* The Mill Barn, Mill Lane, Exning, Suffolk CB8 7JW, United Kingdom Tel: +4401638577729.
E-mail address: paul.silverston@btinternet.com.

0260-6917/$ – see front matter © 2014 Elsevier Ltd. All rights reserved.
http://dx.doi.org/10.1016/j.nedt.2013.03.001

given illness can present in different ways, depending upon when the patient is seen and also in helping students to fully appreciate the dynamic nature of illness. In order to learn about a pattern of illness, one has to know how the illness develops and in order to give appropriate safety-netting advice, one needs to know how an illness progresses. A classic example of how this is used in clinical practice is the content of a minor head injury advice sheet, where the patient, or their relative, is asked to look out for the early signs and symptoms of a worsening head injury. The natural history of a progressive head injury is taken into account in the advice that is given. The same applies to the advice that would be given to the mother of a feverish child, in terms of looking for the signs and symptoms of meningococcal disease. One cannot give advice on what to look out for unless one knows what the natural history of the illness is, which is based upon the change in symptoms over time.

The second way in which the Model of Illness is helpful is in explaining that illness is a dynamic process and that a single point in time clinical assessment in an evolving illness process is fraught with difficulty and danger. In particular, when patients present early in an illness, before disease-specific signs and symptoms have developed, clinical assessment can fail to elicit any worrying signs and symptoms and yet the patient may already be on the "Red Line" slope to disaster. This is not because the clinical assessment has been inadequate but simply because the patient may be presenting too soon for the "Red Line" illness to be detected. Teaching the limitations of a single point in time clinical assessment in a dynamic and evolving illness process is as important as teaching the student how to perform a clinical assessment. Students need to appreciate these limitations, so that they can place their clinical assessments within the overall context of the illness process. Failure to do so may result in patients and their relatives being given false reassurance and inadequately safety-netted. Many of the tragic events that are widely-publicised in the media involve the assessment of a patient who presented early in their illness, before disease-specific signs and symptoms were present and were sent away, only to re-present later with very obvious "Red Line" signs and symptoms. Clinical assessment teaching needs to prepare students for the real difficulties and dangers inherent in assessing patients during the early phase of an illness, so as to reduce the risk to these patients. This is the basis of giving-out head injury advice to patients who have been assessed as having a minor head injury but whose head injury may progress after they have been sent home.

The Model of Illness can also be used to help explain the problems that can be experienced with diagnostic uncertainty when patients present early in an evolving illness, as many illnesses will share non-specific signs and symptoms, such as fever, headache, or malaise. Most of these illnesses will follow the "Blue Line" course but some will be early presentations of a "Red Line" illness, in which the signs and symptoms have yet to develop to the point where they will be detected within a clinical assessment. In early presentations of illness, clinical assessment may not enable one to distinguish between a child with a cold and one with meningococcal disease, or an adult with gastroenteritis and appendicitis, or one with irritable bowel syndrome and carcinoma of the colon. Clinical assessment teaching needs to highlight the need to manage diagnostic uncertainty safely by always excluding the worst-case illness, first and by recognising the limitations of a single point in time assessment in an evolving illness process by always safety-netting the patient for the possibility of misdiagnosis and consequent treatment failure. Since clinical assessment is what connects the symptom that the patient is presenting with to both the diagnosis and the management of that patient, a clinical assessment that fails to detect a "Red Line" illness will result in the patient receiving an incorrect diagnosis and treatment. That is why clinical assessment teaching is so important and must contain within it aspects of patient safety training, especially in the safe management of diagnostic uncertainty and in acquiring good safety-netting skills.

Understanding the relationship between illness and clinical assessment and the relationship between symptoms and time is important because of changes in patient behaviour and the ever-increasing accessibility of health care. Patients are presenting much earlier in the course of their illnesses as health care options, media campaigns for serious illnesses (such as meningococcal disease) and medico-political pressures increase. Understanding the relationship between illness and clinical assessment enables us to respond to this challenge. The need to appreciate that symptoms change over time and that the same illness can present in different ways depending upon when the patient presents cannot be over-emphasised. Students learn patterns of illness from lectures and from textbooks which often present illnesses in their established form, simply because the diagnosis is much easier to elicit when one has disease-specific symptoms and signs. However, patients are now presenting at a stage in their illness when these disease-specific signs and symptoms have yet to develop, so students need to learn patterns of illness that include the early and evolving presentations of illnesses.

Another way in which the Model of Illness can be of value in teaching clinical assessment and consultation skills is in showing students how the change in symptoms over time can be used to our advantage in the re-assessment of patients (Fig. 2). For example, one can perform repeated single point in time assessments over a period of time on an Observation Unit, or one can arrange for the patient to be reviewed at a time in the future when one would have expected the "Blue Line" illness to have resolved, or the "Red Line" illness to have progressed, to the point where a diagnosis can be made. The third option is to safety-net the patient, such that the re-assessment is performed by the patient or relative which can either be symptom-based ("come back if the symptoms worsen, or new symptoms develop"), or time-based ("come

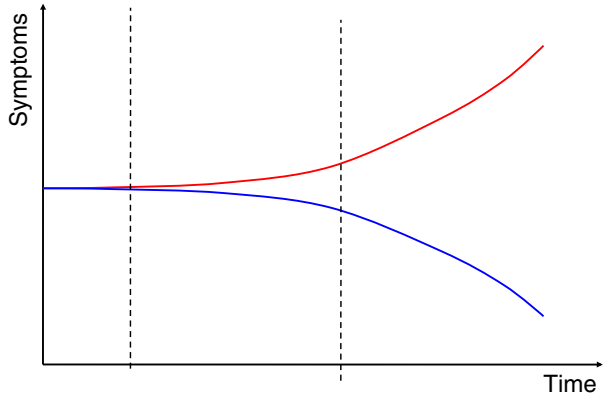

Fig. 1. The Model of Illness.

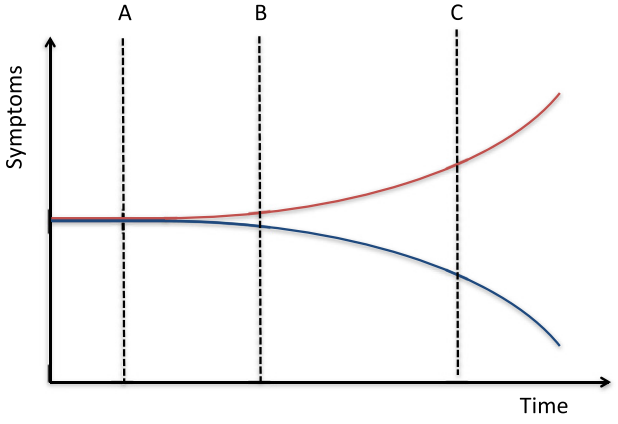

Fig. 2. The Model of Symptoms vs Time.

back if the symptoms haven't gone by next week"). Safety-netting is an important skill to learn in consulting and involves a knowledge of the illness itself; an assessment of the patient's/relative's comprehension, competency and ability to follow instructions; and good communication skills. The Model of Illness can be used as a visual aid to explain to patients what one has found, or not found, in the first clinical assessment (point A) and to explain why and what they need to look out for at point B, should the illness progress, in order to prevent the tragedy of a patient not re-presenting until the illness has reached point C, when a tragedy may be too late to avert.

The "Safe" Approach

Clinical Assessment teaching involves teaching students to gather and process information from multiple sources. This is achieved in a step-wise approach, with students first learning how to gather information by taking a full history and through performing a full examination of the patient, following a standard template. (This is the so-called "clerking process", which nurses will observe medical students performing on a daily basis.) The next step in the development process is to simultaneously gather and process information in a symptom or disease-focused way and this is what is taught in Advanced Clinical Assessment modules. The "Safe" approach to this process is to place patient safety at the very heart of the clinical assessment, so that the student learns how to rapidly identify the "Big Sick" patient and learns how to "exclude the worst, first", which are the fundamental principles of safe practice. Students are shown a simple, visual model of how information is gathered and processed from multiple sources and how patient safety skills and practices can be incorporated into this process. This is then reinforced through symptom and case-based learning (Fig. 3).

In "Safe" Clinical Assessment, the student is encouraged to move around the "wagon wheel" gathering and processing information from each stop on that wheel, whilst placing patient safety considerations uppermost in their mind. This approach works very well in symptom and case-based learning and is best demonstrated by presenting the student with problems to solve through the use of this approach. For example, at the first stop, "The Patient", the student is asked to simply observe what the age and sex of the patient is, along with any other significant discriminating factors which might be significant for the symptom presented by the patient. In the case of a patient with abdominal pain, for example, one can demonstrate that there are different "Red Line" illnesses that have to be excluded first depending upon the age and sex of the patient. At the next stop, "History", symptom and disease-focused history-taking skills can be discussed and the students can be shown the benefit of this approach by taking, for example, the case of a patient who presents with persistent vomiting. The "Safe" approach involves not just considering the serious illnesses and conditions that might be the underlying cause of the vomiting but also how factors from the patient's history might impact on the safety of that patient, with that symptom, such as a patient whose safety is dependent upon being able to ingest oral medication. This approach requires that students learn about patterns of serious illness, so that they can match the symptom that they are presented with to a recognisable illness process and also symptom-sort looking for the most serious illnesses first. Learning about "Red Flags" in the history is a key part of safe practice.

At the next stop, "Clinical Observations", the importance of performing a set of observations is emphasised. However, the "Safe" approach emphasises that this is not simply an information-gathering and information-recording exercise, but that information-processing skills are required to interpret and act upon the results. Students are encouraged to think about which observations have particular relevance to which symptom and body system and what the results mean, in terms of the clinical assessment of that patient. The relevance of specific findings is discussed, in terms of the early detection of the patient who has already decompensated and is "Big Sick" at presentation, along with the importance of detecting the "Big Sick" patient who is still compensating and whose vital signs reflect this. The relevance of an abnormal finding to the rest of the clinical assessment is also discussed. For example, in a patient who presents with the symptom of breathlessness, the presence, or absence, of either a temperature, or abnormal oxygen saturations, should influence the rest of the clinical assessment process, as one goes in search of the cause of this deranged physiology.

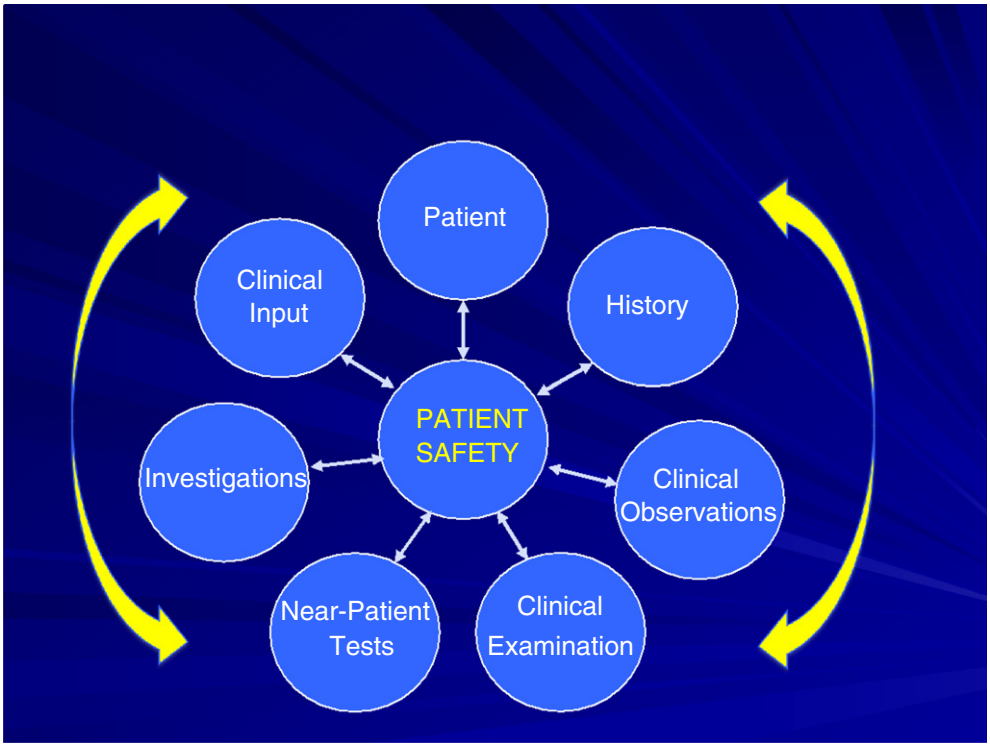

Fig. 3. The Model of Safe Information-Gathering and Processing.

At the next stop, "Clinical Examination", the role of the clinical examination in clinical assessment is discussed, not just its psychomotor performance. Students are encouraged to consider what the specific purpose of a clinical examination is in the clinical assessment process, along with its relevance to the symptom presented by the patient. Clinical examination, like taking a set of observations, is not simply an information-gathering process and both require the student to process the information that they have gathered. The role of the clinical examination in detecting the "Big Sick" patient is discussed but also the limitations of the clinical examination, in terms of false-positive and false-negative findings and the importance of considering these findings within the context of the whole clinical assessment. An example of this would be a patient who presents with sudden onset breathlessness and whose oxygen saturation is low. Clinical examination of the chest might, or might not, reveal the presence of either a spontaneous pneumothorax, or a pulmonary embolus, but the absence of clinical findings does not exclude the presence of either of these potentially life-threatening conditions.

At the next stop, "Near-Patient Tests", the use of bedside tests such as urinalysis and an electrocardiogram (ECG) in detecting serious illness is discussed, along with the limitations of these tests within the clinical assessment process. Newer near-patient tests, such as the D-Dimer and FAST ultrasound system, are now available but these are not without their own limitations and the potential for false-positive and false-negative results have to be considered. A good example of this was the dependence that was placed on requiring a change in the ST-segment on an ECG to make the diagnosis of an acute myocardial infarction. Blood tests, such as the serum troponin have made this assumption a thing of the past, resulting in a change in the clinical assessment process for patients with chest pain and the term "Non-ST Elevation Myocardial Infarction (NSTEMI)" being applied. Students are also often surprised to learn of the many limitations of urinary dipstick testing and the incorrect interpretations placed on the results of these frequently relied upon tests. Patient safety is about considering not only the minimum standard of investigation to confirm, or exclude, the presence of a serious medical condition but also the limitations of those tests in the clinical assessment processes.

At the next stop, "Investigations", the role of investigations, such as imaging and blood tests is discussed, along with the need to learn what are the minimum standards of investigation required to detect specific serious illnesses, along with appreciating the limitations of those investigations. For example, in a patient who presents early in during the course of a serious illness, the disease-specific investigations and markers of serious illness may yet to have become abnormal. Investigating the patient may result in false-negative results being produced that cannot be relied upon. An example of this would be testing for glandular fever before sero-conversion has taken place. In addition, investigations such as the Erythrocyte Sedimentation Rate (ESR) can be notoriously difficult to interpret and are not disease-specific. It is important to recognise the limitations of any investigations performed and to interpret the results accordingly, so as not to place the patient at risk. Investigations are only a part of the clinical assessment process and need to be related to the symptom presented, along with the rest of the clinical assessment process if they are to be interpreted correctly.

The last stop on the wagon wheel is "Clinical Input", which relates to the gathering and processing of information from more senior, or more experienced colleagues and specialists. The importance of presenting the clinical information that has been gathered and processed is discussed, in which the presence of or, as importantly, the potential presence of serious illness, should be highlighted, along with the pertinent positive and negative findings to support this conclusion from the clinical assessment performed. However, patient safety considerations require that a clinical assessment of the reliability of the person providing the clinical input is also performed, as this will determine the quality of the information that is gathered from this source. Whilst this is a potentially difficult assessment to make and may lead to difficult discussions, it is also part of the assessment process that should not be shirked: Patients before politics should be the fundamental principle in such discussions.

Summary

Over the past decade, the importance of Communication Skills training has been emphasised in order to reduce the number of complaints from patients relating to this and many Objective Structured Clinical Examinations (OSCEs) now require students to demonstrate competence in this area for a pass to be achieved. The challenge for the next decade is to make training in patient safety as integral a part of Consultation and Clinical Assessment Skills training as Communication Skills training is now and to formally assess the competence of students in this area. The approach adopted in "Safe" Consulting and "Safe" Clinical Assessment encourages nurses to practice "protective medicine", that is to protect their patients through the adoption of patient safety focused skills and behaviours and by placing patient safety at the heart of the consultation, or clinical assessment. Understanding the relationship between illness and clinical assessment, along with the relationship between symptoms and time, is fundamental to safe practice. Illness is a dynamic process and a single point in time assessment performed in an evolving illness process needs to be seen within this context. Clinical assessment is not simply about gathering information and recording it and, as nurse educators, we need to teach students how to process information. Patterns of serious illness have to be taught as part of the clinical assessment process, so that students understand what the role of clinical assessment is in detecting these illnesses, along with the limitations imposed by the early presentation of illnesses. At its simplest level, clinical assessment is about the early detection of the "Big Sick" patient and the connecting link between the patient presenting with a symptom and a diagnosis and management plan being made. Clinical assessment teaching needs to reflect this.

References

Ellis, O., 2009. Putting safety on the curriculum. BMJ 339-b3725.
Silverston, P., 2012. Using a model of illness to aid symptom-based learning in primary care. Journal of Education for Primary Care 23 (6), 443–445.
Silverston, P., Stewart, L., 2012. Teaching safe consulting. Student BMJ 20, e7791.
Tingle, J., 2011. The WHO patient safety curriculum guide. British Journal of Nursing 20 (22), 1456–1457.

Paul Silverston trained as a Mobile Intensive Care Paramedic in San Francisco, USA in 1978, before training at Bristol University Medical School. He was a GP at Oakfield Surgery, Newmarket, from 1992 to 2012 and is currently Visiting Senior Fellow in Medical Education at University Campus Suffolk and Hon. Visiting Senior Lecturer at The Postgraduate Medical Institute, Anglia Ruskin University. He has been involved in nurse education for nearly 30 years and currently teaches on the Clinical Assessment and Emergency Care Courses at Anglia Ruskin University; the Physical Assessment for Healthcare Practitioners Course at University Campus Suffolk; and for the Addenbrooke's Hospital Postgraduate Medical Centre's Nurse Education Programme.