

Essential Clinical Methods in Paediatrics

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By

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This book is dedicated first to God the Almighty who makes all knowledge possible, and second to all the children with health needs for whom, hopefully, the contents of this book, imbibed by diligent clinicians, will bring succour.

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PREFACE TO THE THIRD EDITION

Please read through the prefaces of the second and first editions that will follow as they, in prefacing their respective editions, also broached on issues contained in this edition and are a continuity in this edition, so you can fully grasp the essence of this edition.

It is important to remind everyone that there are two direct interactive activities at the first stage of determining what could be wrong with a presenting patient. The first is the history and the next is the physical examination. These constitute the stage of collecting data and at the end of the data collection from these two distinct activities, two additional stages are engaged in to conclude what could be wrong with the patient—clinical reasoning and investigations. Clinical reasoning is a process of analysis and synthesis of the information from the history and the physical examination of the patient to come up with the most probable clinicopathological diagnosis based on which investigations most often to confirm the diagnosis are ordered. This is basically the traditional approach to a patient assessment.

The history is about the information (primary oral data) that the patient/caregiver “brings to the table”, as it were. It is about why the patient is presenting as well as other issues/complaints that may not be related to the presenting complaints. This, very often, then sets the tone for the next level of interactive activity, the physical examination of the patient. The history can be considered as the entry point in the effort to determine what the problem (or problems) with the patient is (or are).

The physical examination on the other hand is when the derangements in the bodily anatomy (structure), physiology (function) and sometimes biochemistry mentioned by the patient/caregiver are confirmed, if possible, using certain skills, in addition to making sure that all other structures and functions of the patient are normal or intact.

At the end of this first stage, the information from the history and physical examination is used to engage in the clinical reasoning stage and based on the outcome of this effort, the next stage, again directly involving the patient, investigations, are decided, ordered and carried out.

The investigations—bedside, side laboratory or main laboratory—often give results that are supportive or confirmatory of thoughts already engaged in following the analysis and synthesis of the data from the two earlier interactive activities if such data and thoughts were correct e.g., investigations to confirm a diagnosis of tetralogy of Fallot such as a chest x-ray, electrocardiogram etc. It is also often useful in resolving any confusion that may arise when clear conclusions cannot be reached with these earlier two levels of activities e.g., to differentiate a case of Hodgkin's lymphoma from a non-Hodgkin's lymphoma.

Sometimes, however, this investigative stage is immediately resorted to in emergencies especially if there are pathognomonic features that even if the history may not have been or cannot be obtained from the outset, a conclusion (diagnosis) is often entertained, albeit mentally, by simply seeing the patient or doing a quick physical examination to be able to determine what urgent investigation, as it were, is to be requested e.g., a restless patient with fast breathing and severe pallor needing an urgent haematocrit level determination. These features exhibited by such a patient immediately suggest a state of severe anaemia (the mental diagnosis) prompting the request for a haematocrit determination. This urgent step should never becloud the idea that ordinarily, the usual steps in clinically assessing a patient when a sequence should have been followed but for the emergency situation at hand, should be the expectation! Additionally, the results obtained at this point can be attended to as promptly as necessary. Thereafter and with the patient stabilised, these (the investigation and interventions) would be made part of the history of the presenting complaints when reporting the case, as they will be part of what had been done for the patient since arriving at the health facility. They are not to be treated in isolation or made into the presenting information. In other words, in a life-threatening presentation, an urgent cursory look at information from the patient and juxtaposing any of these with the knowledge and experience of the clinician will result in the clinician coming to a quick conclusion (e.g. the diagnosis of severe anaemia) that will often result in the request for an urgent investigation (an urgent haematocrit and grouping and crossmatching of blood) or intervention (urgent transfusion) even without detailed information from or an examination of the patient. It is after this urgent investigation (to sometimes help determine the urgent intervention needed) or, as necessary, intervention, that a detailed history and physical examination will be done when attending to the patient. This approach, in emergencies, is the right approach and has the advantage of also helping gain the confidence of the patient and the relatives who expect an urgent intervention and reversal of the bad situation. Of course, for non-emergency

situations, the interaction with the patient and data collection, documentation, analysis and synthesis and conclusions before investigations and interventions will be the approach that will improve confidence building with the patient and the relatives. For documentation purposes in these two scenarios, however, it will still proceed as usual as stated in this book or as is known by the trainee/clinician.

For the avoidance of doubt, there is nothing new about doing quick investigations on patients. It is however necessary to leave this approach for life-threatening emergencies. Other situations should go through the usual process of history and a physical examination and diagnosis, and then the investigations that may be necessary to confirm or further elucidate the problem.

The presence of a disease in a patient, especially if not interfered with by medication is often discerned from its clinical features, history and physical examinations. Establishing these clinical features and their characteristics and finally analysing and synthesising them will often give clues that will determine the ongoing pathological process or processes present and ultimately, the disease/s itself/themselves as the provisional diagnosis/es. This is because a diagnosed disease can be viewed as a condition that is identified from certain symptoms and signs resulting from particular system/s damage/s from an often definite cause.

Therefore, in establishing if there is a disease or not:

- The history tends to extract from the patient/caregiver the symptoms that are known to them about the ongoing disease as well as other information that will help point to the disease or other important issues to be handled, while
- A physical examination will confirm, where possible, the symptoms complained about as structural, functional or biochemical derangements as well as establish the extent of involvement of the system/s in the disease and sometimes also reveal further information as may not be known by the patient/caregiver concerning the disease presenting and possibly other diseases present.

There are, unfortunately, many ways of obtaining and documenting as well as analysing and synthesising information about a presenting patient, the objective of this book, as there are clinicians, areas of practice and books. These differences of course also depend on the individual clinician's knowledge, acquired dogmas and personal idiosyncrasies. These factors,

unfortunately, do not often result in consistent approaches to handling patient information, hence often creating confusion in the minds of the trainees under such clinicians or while interacting with different clinicians. This book is geared towards helping those who will imbibe its contents to develop a knowledge principle that is consistent in the approach to patient information documentation to eliminate the “this is what I know, feel or think” tendencies in most approaches to instructing the trainees.

The pattern in diseases that is deducible with near certainty from the clinical assessment attendant on interacting with the patient is the pathological process/s in the system/s that give/s rise to the observed symptoms and signs. Up to this point, medicine is or can be regarded as an exact science as these are potentially reproducible in a consistent manner, once the competencies at obtaining the history from and conducting a physical examination on the patient, the inputs, are assured e.g., that the feet are swollen (the symptoms) may, when examined, suggest that it is due to fluid in the tissues pointing to possible oedema. The pathological processes that will be thought of/considered here will include whether it is due to:

- a haemodynamic abnormality, a transudate
 - elevated capillary hydrostatic pressure e.g., raised central venous pressure, or
 - reduced venular oncotic pressure e.g., a deficiency state or
- an inflammatory process such as in an exudate.

These will all be given due consideration when the time of appearance and characterization of the established symptom/s (swollen dorsum of feet)—of long duration or short, painful or not, with a colour change or not; if tender as well as pitting or non-pitting when examined—are put into context. The presence of other symptoms especially from the involved system/s will help improve the analysis and synthesis processes being engaged in. These additional considerations will give more clues that will sharpen the idea of the pathological processes playing out and possibly the cause/s or aetiological agents of the disease. Though uncertainty occasionally can occur at this level, beyond this level of the pathological processes being considered are the levels of analysis and synthesis of data where certainty may sometimes become a challenge—clinicopathological diagnosis and aetiology. At best, these uncertain conclusions are often presumptions called differential diagnoses that are deducible from the available information until the investigation results are out. These considerations will of course differ depending on what is going on with the patient.

It should be noted that unless we make conscious and serious efforts to adequately acquaint ourselves as clinicians with the tenets of the clinical assessment of patients, we run a risk of being overtaken by ‘developments’. While it is unarguable to state that technological advancement is taking its toll on clinical medicine, just like with the impact of renewable energy on hydrocarbon energy, clinical medicine will still be around for a long while. That said, it must however be borne in mind that the role of artificial intelligence (AI) in all spheres of life is bound to make practitioners of this interesting, exciting and noble profession seem redundant sooner rather than later if we do not proactively get engaged in its evolution. Fortunately, unlike most other areas of life where technology and AI are making human roles redundant, one is certain that the aspect of human relations implicit in attending to a patient, which is an integral and strong feature of clinical practice, will remain a force to be reckoned with in keeping alive the clinical practice of medicine that will be based on human interactions—again hoping that the current “humanisation” of AI does not beat us to that also! One is concerned that we may neglect this existing window of opportunity in consolidating what we do as a profession to our peril.

Therefore, just like renewable energy is still coexisting with hydrocarbon energy, clinical skills would still be relevant and coexist with technological advancements in medicine. This, of course, should be a truism as outside the true nature of medical practice being based on human interactions, sometimes technology will fail or in some places is not available, making it necessary that the clinician, though assisted by modern technologies and AI will occasionally need the basic skills and knowledge acquired during training to differentiate themselves from other health workers wholly dependent on technology and AI. This, in the opinion of this author, should be on the minds of trainers as they hand over the requisite and necessary skills to their trainees.

In the avalanche of existing new knowledge that abounds, it is important for one to always remember that there is nothing or, not much that is new in the pathologies and manifestations of established/known diseases than as is already known (within the available capacities of technologies at any given time e.g., light microscopic findings and electron microscopic findings). However, the investigations, particularly the use of miniaturized equipment, treatment modalities and preventive and rehabilitative approaches have all been changing over time and for the better.

There is obviously an overwhelming impact of these new investigative technologies on the present clinical assessment in medicine. They however

remain investigations and ought to be resorted to or become the determinants (if one can say so) after clinically assessing a presenting patient. Evidence-based medicine which is supposed to result from an interplay of clinical skills and judgement, patients' values and preferences and finally, relevant scientific evidence (research findings) in patient management have, in clinical assessments, tilted so much to relevant scientific evidence than clinical judgement (from a skilled assessment of the clinical features of diseases) as a consequence of, putting it mildly, the none-completeness of an assessment of patients by clinicians during consultations, which, over time must have led to concerns about the diagnostic outcome in handling patients. This, unfortunately, must have resulted in efforts being directed as it were at 'what can be done' to help positively improve diagnosis. Rather than these efforts targeting the streamlining of the necessary clinical features and skills to make them more precise, they were mostly directed at the roles of laboratory assessments and measurements in determining disease states. Looking at the traditional practice, which is imbued with much time for physician-patient interactions and the resultant inevitable empathy and bonding that would follow therefrom, in which the clinical features of diseases are the fulcrum of these meetings before laboratory considerations, this prevailing current approach to practice has led to a seeming situation that appears like the "tail wagging the dog"! This is so because access to a patient's problems ought to be through the clinical features ("the dog") and subsequently the investigations ("the tail") will follow! Though this is seemingly still going on, however, due to the overemphasis on laboratory findings, the interactions of clinicians with the patient under the prevailing circumstance are more likely to have the clinician more interested in thinking of laboratory tests to ask for to establish evidence of the ongoing disease as patients mention their symptoms rather than to fully grasp the goings-on in the patient. Expectedly, this, more likely, becomes a cause for concern as it would have left much to be desired in these interactions since it jeopardises and erodes how empathetic a clinician can be during the consultation. Another effect of this near total reliance on scientific evidence is that it is a negative reinforcer of already depreciated and depreciating clinical skills, the things that ought to improve the clinical judgement of the clinicians, in favour of burgeoning laboratory evidence of disease as the most important evidence-based medical practice. Sadly, for those who know, diseases in evolution have patterns which the patient's story will generate if carefully sought for, but impatience and deficient knowledge and skills, have worked together with all the above mentioned to make developing clinical skills and judgement competencies a present-day mirage! Potentially attendant on the premium being placed on research

findings (scientific evidence) and a limited premium on clinical skills and judgement is the erosion of patient values and preferences, which empathic interactions with the patient would enhance with ease—jeopardizing the other two arms of evidence-based medicine. Any wonder patients' dissatisfaction with attention being received from us as their clinicians will continue to be on the increase if we don't change our approach to how we interact with patients.

As mentioned, gaps in clarity in clinical assessment contributed immensely to openings for, permit me to say, perhaps wrongly directed research (not about clinical skills and judgement) and results therefrom that have now become the *grundnorm* in medical practice which have not helped clinical skills. Reading through this book, it is hoped, will help improve the clinician's skills and judgement to align such outcomes more correctly to existing research findings and possibly create or establish the need for new research efforts!

Finally, and being futuristic, one is aware that there are sensors that can be on the body surface or internally to detect malfunctions of the system/s even before they manifest as symptoms. We must also begin to think of how to incorporate those symptomless groups of patients with sensor-detected internal malfunctions in our approach and also the classification of such cases as patients or not. This is because strictly speaking, these are not classical patients as they have not presented with *pator* or pain-symptoms. Maybe they can be classified under our 'medical check-up clients' (see preface to the Second Edition) who ordinarily do not have symptoms but come for a check-up and if any abnormalities are found will be treated.

For the aforementioned reasons and more, the effort to keep faith with the basic skills that a trainee/clinician needs to operate with effectively has led to the continued improvement in the contents of this book in the face of clear dangers of extinction of these skills by the onslaught of modern trends.

This edition like the second is in three sections—Sections I and II are about obtaining data and Section III is about using those data. Section I is on history taking where some areas of ambiguity in the previous editions were further clarified and made easier to understand while Section II is about the physical examination. Just like in the previous section, this section has also been reviewed to make clearer the relevant 'to do' steps to be undertaken in carrying these examinations out and the outcome or findings, when abnormal, stated. Section III is on the steps to be undertaken in utilizing the data obtained to come to a meaningful conclusion as well as how to present all

the previous efforts effectively, concisely and summarily. This section has been greatly enriched and simplified with an algorithm of steps in clinical reasoning that if understood, effectively makes a clinicopathological diagnosis at the trainee's competence level. Additionally, the differential diagnosis has also been looked at using this same clinical reasoning algorithm which makes it a lot easier to understand.

As was stated in the First Edition, this edition is still about the first contact with the patient. The ongoing patient management skills needed for patients on admission are also on similar principles to the history, physical examination and clinical reasoning before decisions though there are some realignments of inputs which make it appear to vary. These are not the subject of this book. That said, however, a few comments on it here may be of use to the trainee reader. In ongoing patient management, one proceeds thus:

- A. Preamble:
 - a. note the admission/previous diagnosis/es.
- B. Then review the:
 - a. state of the symptoms that are present in the review of systems on admission or when the patient was previously reviewed
 - b. presence of any new symptoms
 - c. vital signs of the patient since admission or last reviewed
 - d. results of monitoring orders as stated for the patient on admission or when last reviewed.
 - e. results of investigations previously ordered
 - f. treatment given and received as specified.
- C. After the above, conduct the physical examination of the patient.
- D. Analyse all the above inputs to establish one of the following as the present on-admission conclusion:
 - a. diagnosis/es originally made as a 'diagnosis/es on treatment'—usually at the very early stages of treatment when there may not have been any or only a slight improvement in the condition of the patient.
 - b. A 'resolving diagnosis/es' if diagnosis made earlier is correct and there are improvements in the symptoms and signs.
 - c. A change of diagnosis to a 'new diagnosis.'
 - d. Additional diagnosis/es—where new issues arise including complications.
- E. Continuation, modification or change of treatment, monitoring orders or request for new investigations as necessary based on the above conclusions.

From above, except for the preamble, the rest of the steps are then, for presentation by the trainee to a senior, rearranged as the presenting complaint aspect of the history but most essentially, now including ‘C’, as the admission part of the history of the patient. In other words, the trainee would have reviewed the patient on admission before the senior clinician comes on a ward round. The ‘B’ part, privileged information obtained as patient is on admission, will usually be better than what one would have obtained from the patient or caregiver coming from home which may, occasionally at best, be guesswork or memory-deficit information that may often not help in analysis and synthesis!

This book features the experiences of the author as a clinical instructor for about 35 years. A good number of issues confronting the trainee or even the clinician in knowing what to do in the sub-sections of a patient’s history and physical examinations have been handled directly, or ways to handle them are implied. It, therefore, behoves a trainee, in particular, after clerking a patient to use it to appraise oneself on one’s performance or an instructor clinician to use it to appraise the performance of the trainee.

One can now safely say and advise that what the reader of this book is interested in achieving—why you got a copy of the book to read—will require a focused effort at understanding and applying the contents and more importantly will require you to **think** about what you hear and see and **apply common sense** to achieve the desired levels of capabilities and competencies necessary to adequately resolve the medical problems that the patient has.

As was mentioned in the preface to the First Edition, medicine and paediatrics are based on body systems while surgery, obstetrics and gynaecology are based on body regions. However, there is a commonality in all: the history of the patient and general physical examination. It is after the general physical examination that the differences in approach—the body system or body regions—will become applicable. Therefore, though written by a paediatrician with an emphasis in the title on paediatrics, any trainee in any aspect of clinical medicine will find this book useful in the areas of commonality.

Finally, a word of advice to trainers. In my many years of teaching clinical skills, I have come to realise that the method adopted by most, giving only an introductory one to two hours of information to the trainees (undergraduate and postgraduate) on starting clinical postings and then expecting them to catch up on the necessities as they clerk and present usually is inadequate.

An effort of almost 7 to 10 days will assist them to grasp many of the principles and expectations before requiring them to clerk and present and goes a long way in improving and shortening the time they normally would need to clerk well. This is further enhanced if after presenting, the trainees are asked to critique the presentation of their colleague before the trainer collates and concludes. Just advice for trainers, though!

Good luck.

PREFACE TO THE SECOND EDITION

This Second Edition has been late in coming. This was not intended and my apologies. It was due partly to efforts, as I hope you will find as you read through this edition, to resolve a few knotty issues existing in practice and that were not explicitly handled in the First Edition, which confront the young trainee in practice and also has been given varied interpretations by the trainers. One, therefore, hopes that this edition will improve our understanding and application of what we do, why we do it and how best to correctly do it so that the patient benefits, the trainee is better focused, and the trainer is fulfilled.

Clinical methods are the whole gamut of processes employed in handling observations and management (the treatment) of a patient in the clinic or at the bedside. To some, this should be devoid of laboratory findings. These processes, including their organization and documentation, are often referred to as the 'clerking' of a patient.

The tradition is about empowering the trainee with principles and concepts of organisation and documentation of the information from the patient that will have universal applicability to most if not all situations as should be expected in medical practice. It was first introduced in the First Edition and has been maintained in this edition. This I hope has clarified the essence of this book which was not understood by a few in the First Edition. This edition has been further packaged to hopefully address most issues that may have been agitating the minds of an average trainee and some trainers.

As highlighted earlier, the introduction of the First Edition of this book generated comments and issues confirming that it was timely. This, as we all know is because clinical skills and the correct documentation have been vanishing among clinicians. One may not be wrong to say that this is a carryover from practices in developed countries where sustainable infrastructure is available, but unfortunately leading to a deleterious situation in less developed countries in the clinical environment. Critically, one will agree that there are a lot of issues, mostly contextual. These include the confusion arising from and conflicts between the principles that ought to be appreciated and taught and how they should be applied in usage, and drawing a line between them. These include but are not limited to:

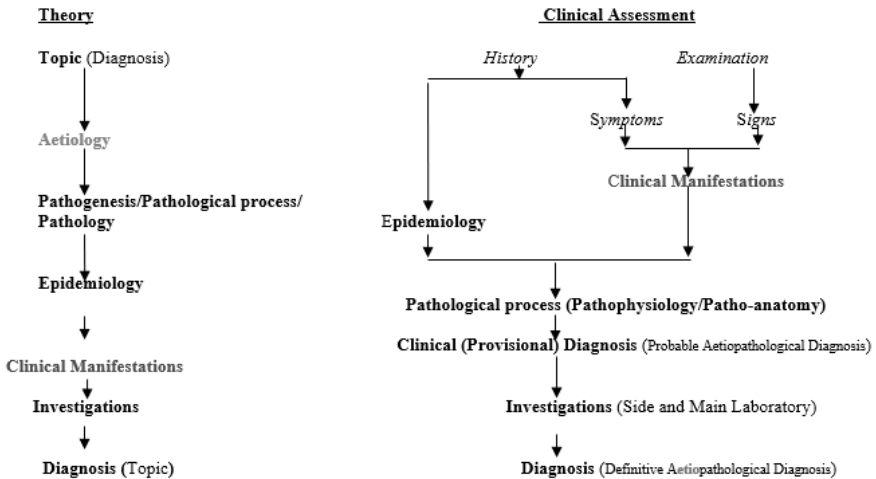
- i. How information is obtained, which is very often influenced by the knowledge and experience of the clinician and other factors such as educational background, exposure as well as the culture of the caregiver. This aspect, which is not the focus of this book, however, is the main focus of most books on clinical skills.
- ii. How the obtained information is documented, which is based on knowing what should be documented, where it should be documented and why. This is given a scathing mention by most clinical skills books but is the main focus of the First Edition of this book and also this edition. As an aside, in most other professions like law and accountancy, information gathering is different from its documentation. They all have their format of documentation for a sequential and logical reading and understanding for all to follow. For example, when a firm is being audited, the sales and purchase vouchers are collected as they become available. Thereafter, the auditor will, with the utmost care, arrange the documentation of the data from those vouchers according to a set standard so that the resultant information will be meaningful to anyone reading through the documentation. One believes that we, in medicine, also need to seriously address this as it ought to be the fulcrum of good practice. Unfortunately, this is an uphill task in medicine as most practising clinicians feel that how it is being done, sometimes without a sequence, is good enough for them as they believe they have results even with their level of poor clinical documentation. The costs of such approaches to their practices, denying them much evidence-based information to guide them resulting in less-than-optimal output from such practices with its attendant toll on the well-being of the patient and the clinician cannot often be easily quantified.
- iii. There is also the issue of what to document. This ought to be the basic (primary) data (information) from the patient that needs to be documented. These basic data are the raw materials to be used for analysis after documentation. This, however, is often not adhered to or if done, is not correctly done hence often confusing them with terminologies used in the analysis.
- iv. How the information will be presented may slightly differ depending on whether it is:
 - a. an undergraduate or postgraduate presentation or
 - b. teaching (the first contact with the patient) or service (the continuous management of the patient) rounds.Generally, the presentation is not much different from the documentation except where the above factors interfere or at the

presentation the trainee does not stay within the confines of what has been correctly documented.

Compounding these issues are also institutional curriculum requirements of what is to be taught at what level and also the depth of knowledge to be acquired.

- v. Next is the documentation or presentation that does not discriminate between the long case and case report/summary formats. In the long case format, used for training and often assessment, there is a formality and sequence of documentation and subheadings where the obtained, diverse information is entered. The assumption here is that the information about the patient at every level is ignorant of the next sub-level of information i.e., there is no prior knowledge of the subsequent facts of the patient. In case summaries, however, the prime motive is to summarily highlight the salient facts that are known about a patient that will help unravel what is wrong with the patient. The assumption here is that the information from the patient is known as against what is applicable in a long case format where the information about the patient unfolds as the story progresses.
- vi. Beyond the above issues, there is occasionally a conflict between the content of regular textbooks on diseases and what is contained in books on skills concerning features of clinical findings that will, on the ward, help a clinician decide between several possibilities. While current technological advancements appear to be taking a toll on necessary clinical skills that will give pathognomonic features, hence making clinical reasoning effective, there is clear evidence that this phenomenon is gradually getting into how textbooks on diseases are being written. The result is that the clinical features of diseases in these textbooks are often deficient in their differentiating pathognomonic features. There is a need to therefore be cautious about these and if conflicts arise in training, the information in books on clinical skills should supersede. Understandably too, clinical skills books should not be in a hurry to adopt the clinical features of textbooks on diseases especially if these will water down the clinical features that will help clinicians make better diagnoses. While this ought not to be an issue as theory and practice (Fig Pre 2-I) are the reverse of each other, the deficiencies in these regards in current disease textbooks are adding to the conflicts in practice.
- vii. Another point of departure between theory and practice that seems to add to these conflicts is what one can call the 'theoretical basis of practice determination.' The theory establishes a focused approach to disease i.e., gives the specifics of a disease: one will

know the symptoms, risk factors and expected examination findings in a disease. Practice on the other hand starts with an open-ended view in a ‘casting one’s net into the river’ kind of approach, collecting all the facts about the patient presenting with which, hopefully, the patient’s reasons for presenting (of the disease) and more, if present, will be elucidated in a kind of ‘separating the chaff from the wheat’ approach.



*Pre. 2-1 The Near Inverse Relationship Between Theory and clinical assessment–
Diagnosis to Clinical Manifestations*

Source: Essentials of clinical methods in Paediatrics and Research and Basic Statistics Second Ed.

Note that HISTORY and EXAMINATION are the basic building blocks in a clinical assessment from which all the rest of the information is mentally derived i.e., a good clinician must be theoretically competent.

The application of this point of departure by replacing practice skills with theory expectations often leads to a narrow approach to the history or physical examination e.g. a patient presenting with vomiting and frequent watery stools and further information being limited to dietary, immunization and family and social histories, these which ordinarily would address issues surrounding the symptoms mentioned or on examining a patient, elucidates the malfunction of some systems that can occur when they are diseased or secondary to another system disease (see issues under the physical examination

sections) and considering these other systems' malfunction as primarily their involvement in the other system disease.

It is to be acknowledged that as one garners experience in practice, there is an unconscious movement from the 'casting the net into the river' expected practice skills approach to the specifics of theory in practice. Unfortunately, for the trainee assessment purposes (by who but these experienced clinicians—any wonder, therefore?) and provided expected conditions are met, these approaches are often used. They should however not become routine practice. This way, these focused approaches will not take the place of a holistic management assessment of a patient that will make a holistic management intervention possible after the analysis of the available facts.

Therefore, when the information documentation style is substituted with the information obtaining style, a presentation style is not in conformity with correctly done documentation, the teaching approach is substituted with the service round approach or critical theoretical approaches replace practice approaches etc., these confusion and conflicts give rise to dogmas developing.

At the end of the day, however, it will be one's choice whether to learn and practice with principles and concepts with wide applicability or learn and practice with dogmas which can be likened to those personalized opinions that over the years have seemed to fill the gaps in inadequately appreciated skills and practices of the profession. These, as experiences have shown, tend to have limited applicability and sometimes are ambiguous and confusing.

It is pertinent to point out that the average clinician deals with three types of clients:

- client presenting with pain (symptoms)
- client for observation, and
- client for a medical check-up.

Quite often they are all regarded as patients. The reason for this is that from inception, medical attention started with the need to alleviate pain or deal with health issues, the real patient terminology taking origin from the Latin word *patior*, meaning with pain or suffering pain while the other functions of the clinician were, however, added over time and yet the term patient applied to them even though they had no *patior*. Critically therefore the term for purposes of this book and hopefully training will be with reference to the first type, the 'real patient'.

Therefore, the patient is someone on self-referral seeing a clinician with symptoms (*patior*) for the first time. It also will include someone on follow-up, having been managed earlier with symptoms or on referral from another doctor where the patient had presented with symptoms. The first scenario is straightforward to handle. The latter two scenarios however are not as straightforward. This is because those on follow-up and referral will have the symptoms present in these initial contacts constituting their presenting complaint, (the PC), (in addition to subsequent symptoms appearing before this visit) to the current clinician attending to them for the first time. These approaches to these different kinds of patients will therefore make it possible for the whole gamut of clinical assessment—the history and physical examination—to be applied to such patients, whether on self-referral, follow up or from a clinician’s referral.

The latter two categories of clients that the doctor attends to that are without symptoms, hence will not need ‘indirect questions’, the fulcrum of presenting complaints and a history of presenting complaints, and will therefore have a comment on the purpose of their contact as their opening statement, but the whole gamut of the clinical assessment from the past medical history and beyond will be stating the purpose of their visit, then the risk factors in their case—specific for the visit for observation and general for those on medical check-up—and finally the physical examination findings.

As stated in the preface of the First Edition of this book, the major reason for this book is to assist the clinician with the necessary skills in obtaining and correctly documenting information (Pre. 2-2): the history documenting symptoms and epidemiological data and physical examination establishing the signs of a presenting patient. The objective of these is to ascertain, cognizant of the varying degree of contribution from the above aspects, if there is a disease in the patient, any other disease conditions the patient may have or even health issues present but is not aware of and finally establish the baseline medical data of the patient. All these in the end will be used for:

- i. the holistic management of the patient: investigating, treating and informing/educating (counselling) the patient, and
 - ii. data generation for future evidence-based medical practice.
- Unfortunately, however, despite the above possibilities with a meticulous clinical assessment of a patient, this skill and its follow-up mental and ancillary activities—clinical reasoning with an attendant formulation of diagnosis/diagnoses and marshalled-out

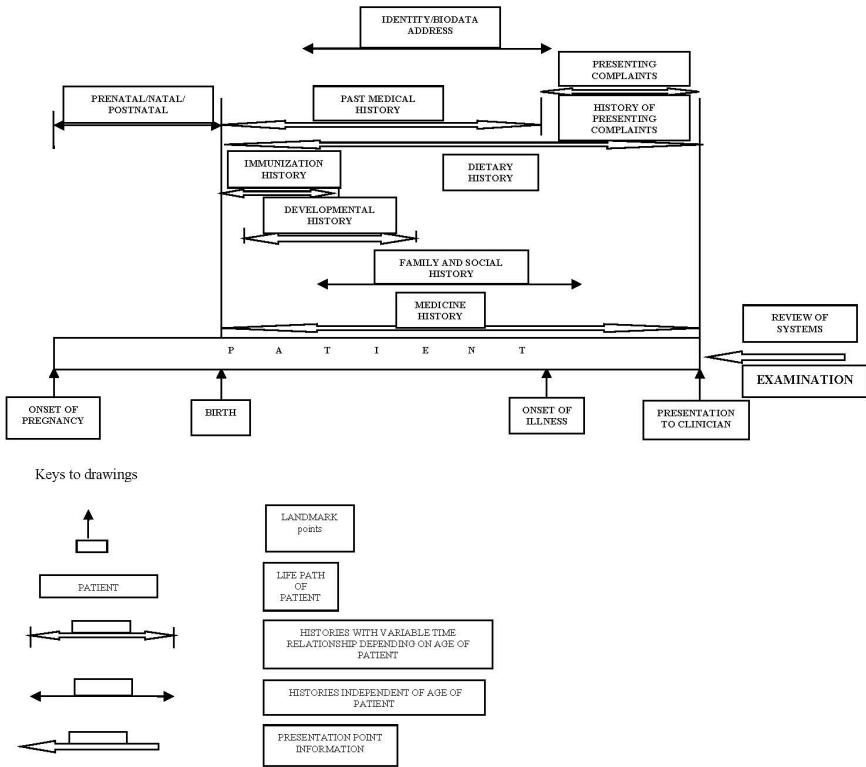
action plan for the patient—have a progressive decline amongst the clinicians. The reasons for this sad state of affairs may not be far-fetched and may have been vicariously contributed to by:

- the effect of technological advancements (which ought to be a component of the ancillary activities thought out by the clinician to complement the clinician's earlier efforts but have taken over)
- the apparent awareness of the patient as to possibilities available
- the giving-in or submissive attitude of the clinician (this again, is multi-factorial)

all these which undoubtedly have impacted, though negatively, the psyche of the clinician as a professional. One must know, and with certainty that in a meticulously clinically assessed patient, the following are possible:

- I. the history will give a direction as to the probable diagnosis/diagnoses in 80–85% of cases and a **physical examination and investigation** will provide **supporting evidence in 80–85% of these cases** to the diagnosis/diagnoses.
- II. In another 10–15% or rather 15–10% (taking a cue from I), even after a good history, it is only with a physical examination that the probable diagnosis/diagnoses will be made with the **investigation** providing **supportive evidence in these 15–10%** of cases.
- III. In the final 5% of cases, at the end of the meticulous clinical assessment (history and physical examination), the clues as to the diagnosis/diagnoses will not be in focus and this can only be done with investigations.

These percentages will not be far-fetched once it is remembered that a patient is not likely to present unless they are aware of their disease and symptoms. Additionally, too, these manifestations to the patient's awareness may be functional without residual effects that may be detected on examination of the patient or they may be intermittent e.g. a patient with vomiting and frequent watery stools may not vomit or move the bowel as the patient is being seen, and, depending on their frequency, volume and the time that has elapsed, may not have affected systems (the skin/musculoskeletal system, cardiovascular system, respiratory system and central nervous system) as they do when serious. These manifestations when present will, therefore, more often than not direct a meticulous clinician to the possible disease.



Using the various levels of the arrows in the diagram, the history and physical examination of the patient are done from up to down as shown.

Pre 2-2 Diagram of Components of the clinical assessment of a patient

Source: *Essentials of clinical Methods in Paediatrics and Research and Basic Statistics Second Edition*

Summarily therefore and no matter the acclaimed imperfections, (often an issue by not very skilled clinicians), the clinical assessment of a patient if meticulously done, can still provide clues as to what a patient is suffering from in 85% of cases with history alone, and with a physical examination, this goes up to 95% of cases. This is aside from the rapport and trust that will be generated by the interactions and the essential counselling of the patient, as issues arise, that the interaction will avail an astute clinician. Investigations of course will be useful in 100% of cases—supportive in 95%

and directional in 5%. Despite the advantages of an investigation, using it as the fulcrum to determine what the patient is suffering from leads to an impersonal approach to practice with a high propensity for patient alienation. This is because when it is used mainly or all by itself, it will not tell the story behind the disease (shared with a physical examination) and all these will make it impossible to achieve holistic medical care for the patient or even generate data for future holistic medical practice. To overcome some of these challenges, therefore, there will need to be counselling to achieve meaningful rapport and the trust of the patient which usually arises from interactions with a clinically well-assessed patient.

It is however pertinent to point out that these diagnoses percentages will vary with the knowledge and experience of the clinician, the patient's (or caregiver's) level of cooperation during data gathering, the complexity of the case, the availability of technology and the clinical discipline area.

Following on from the above, it is important to reiterate that no matter how information is obtained during history-taking or the physical examination, there are appropriate headings where the different pieces of information obtained are correctly stated. This is essential if the correct logic and subsequently, correct reasoning will flow. Chemistry and physics are regarded as pure sciences. Their results will only be obtained when the necessary principles are obeyed e.g., passing light through a prism gives a particular dispersion depending on the angle of the prism. If this prism is not placed at this angle, the dispersion will not be as expected. It is the same with chemistry where weights, volumes, temperatures, pressures, time etc. must be adhered to for the expected results to be obtained. This is equally applicable to medical practice. The clinical diagnosis will always be missed if the clinical assessment is not meticulously done and documented because a wrong input in medicine, like the pure sciences, gives a wrong output. This situation is possible in medicine because most diseases have patterns making a meticulous determination of these patterns to be a prerequisite for correct conclusions. Outside of the clinical assessment errors, a wrong approach or methodology in data analysis is also a potential danger to the resultant clinical diagnosis outcome as this may use even correctly obtained data wrongly with the consequent wrong diagnosis. The consequence of these two flaws in clinicians is that such clinicians will resort to waiting for laboratory results (technology), be they from the side laboratory or main laboratory, to have a semblance of competence in practice.

It is an incontestable fact that the objective of medical practice is to holistically manage a patient making contact with a clinician. This starts

with a meticulous assessment and correct documentation of information from any such lucky patient to meet a good clinician. In other words, the correct documentation of information courteously and ethically obtained from the patient should be of utmost importance to the clinician. This will of course help the clinician to bring all the knowledge acquired about diseases in the course of training to bear fruit, as diseases have patterns which the correct documentation will make manifest. A correct analysis of such documentation to arrive at a diagnosis or diagnoses and the attendant plans of action for further management (investigations to confirm the provisional diagnosis in most cases, treatment, prognosticating and counselling) subsequent on these will yield such expected results as will be fulfilling to the patient and clinician. Additionally, the caregiver, if the parent of the patient, can also further be a vehicle for the dissemination of the right information given to them by the clinician during the advice/counselling stage (from information gathered from the clinical assessment and management of the patient) to other parents, especially if from a rural area. This book is aimed at making you, the reader, a good clinician! The clinical assessment of a patient provides the raw or basic data that will be used in clinical reasoning and for this reason and its other uses, a clinical assessment must always be done meticulously.

This edition, as against the First Edition is in four parts. Part I is about the patient's history. Part II is about the patient's physical examination while Part III is about the algorithm of clinical reasoning and some essential commentaries and part IV is on the principles of research and the basic statistics for research. In the history section, an effort has been made to define the various subheadings or, better still, explain the determinants of these subheadings. While much change has not been made to the First Edition, the presenting complaints, the history of the presenting complaints and the review of the systems have had some more detailed explanations to hopefully improve understanding. In Part II, on the physical examination and techniques, there have been quite a few changes. Parts III and IV are additions to the contents of the First Edition. While Part III is expected to hopefully help the clinician utilize the information gathered from applying Parts I and II, part IV, it is hoped, will help the clinician generate knowledge from their activities.

It is important to note that the emphasis in this book is the approach to a patient being seen for the first time i.e., the **first contact** with the patient. This is in contrast to the patient assessment approach for a patient already under the care of a particular clinician—the **ongoing management** of the patient.

Generally, medicine as a whole is subdivided into specialities. Some are system based like paediatrics while others are body region based e.g., surgery. The effort in this book will be to explore paediatrics from its right perspective: its systems. These systems are contained in various body regions in different combinations just as the systems, each often involving more than one region. One would also wish to advise that recourse be made to sister specialities for more detailed information not covered in this book when necessary. No one book can be said to be able to take care of all issues in a profession. This is because a profession is, like a living organism, dynamic, with new things and practices evolving. There is also a limit to the knowledge of the author/authors as well as the coverage of a book. This book, with its author, is no exception to this. However, it is hoped that the principles established in this edition (reading from the preface and throughout the whole book) will find dynamic applicability to help the trainees resolve most, if not all of their conflicts.

In the tradition of the First Edition, this edition has sustained the principles governing our activities as clinicians and has further explored the distillation of issues of documentation in the history, techniques and documentation in the physical examination and approaches to clinical reasoning, summarising cases as well as research methods.

Best wishes as you undertake the journey of seeking knowledge in this book.