
The GP/Hospital Interface

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An interface can be defined as the area of contact between two systems: something that serves to connect or to co-ordinate different systems: not just a boundary, therefore, but a place of interaction.

The term 'system' is used to indicate a set of inter-related interdependent elements forming an organised or complex whole with a purpose or an activity. In this sense hospital practice and general practice clearly appear to constitute two separate 'systems' existing within a larger system, the Health Service; there are obvious differences between the two in the kind of work they do, their base of operation, mode of employment and administrative structure, and each may pursue its task remote from the other. In addition to these differences of structure and function there are differences of perspective and purpose that are of greater significance for the future.

Four developments have largely shaped the present form of these two systems: the growth in importance of the hospital, once a refuge for the destitute or a place of isolation and now a highly resourced diagnostic and treatment centre; the parallel growth in specialisation—until the last war mainly in London (Stevens, 1966); the gradual exclusion of GPs from hospitals, beginning with the major voluntary hospitals in the early years of this century, but proceeding more slowly elsewhere so that even in the late 1930s about half of those doctors with access to beds worked mainly as GPs (Hill, 1951); and finally the growth of outpatient departments, bringing the hospital increasingly into competition and conflict with the GP (Loudon, 1978).

The profession in this country was, of course, created out of two disparate elements reflecting, from the beginning, differences of social status, perspective, power and prestige (Carr-Saunders and Wilson, 1933): on the one hand, the physicians who saw themselves as the guardians of medicine and as the only competent licensing authority and, on the other, the apothecaries and barber/surgeons who claimed to respond to the needs of society. These differences persist in the hidden assumptions of the inhabitants of each system and in their attitudes to each other. The nineteenth century saw the integration of diverse skills into one medical profession; the twentieth century, it has been suggested, may witness increasing fragmentation within the profession (Stevens, 1966). If that occurs then the short period of time when specialists were few outside London and many doctors worked both inside and outside hospitals may be seen from the perspective of history as a brief coming together

of two quite different professions in the course of a relationship that began and ended in conflict and divergence.

The coming of the National Health Service formalised and accelerated the process of separation and worsened relationships between the two systems. An American observer (Mechanic, 1968) noted that, 'by whatever criterion one wishes to impose—the complexity of medical work, level of remuneration or independence from the Government, it is clear and unequivocal that the hospital consultant occupies the upper tier in the medical hierarchy'. Hospital doctors, released from their dependence on private referrals, would 'more openly express their contempt for the limited capacities of the general practitioner and their disrespect for the level of work that characterised his responsibilities'. The gap between the two systems widened; indeed, it seemed clear that the one had been formed from the other by a process of extrusion. The interface was no longer a place of interaction; the frontiers were closed.

The two systems differed from each other not only in power and prestige but also increasingly in capability. A long and rigorous postgraduate training, familiarity with the use of technical and diagnostic services and control of beds where all important illness was managed ensured for the hospital system a high capability in investigation and treatment. Resources flowed to the acute hospital services since it seemed that it was there that they could be most effectively deployed; problems flowed towards it because investment had created both a high capability and a high value for its work.

The contrast with general practice in all these matters was marked. No preparation for the work of general practice was necessary; it was wasteful to put at the service of the GP facilities with which he was unfamiliar. Within recent memory few practitioners had direct access to investigative services (Levitt, 1964); access was—and still too often is—a privilege and not a right. Investment was negligible; until 1966 the practitioner paid by loss of personal spending power for any improvements to his premises or to the organisation of his practice.

It is not surprising, therefore, that the general picture since 1949 is of increasing utilisation of all acute hospital services and a parallel increase in staff. Discharges and deaths have almost doubled—due mainly to more intensive use of beds—and outpatients and casualty attendances have also risen, though more slowly (*see* Table 1). The number of new outpatients seen fell substantially in 1975 (to 13 per cent below the peak figure of 1972), at

Table 1. NHS Hospital Statistics—England.

	1949	1972	1973	1974	1975	1976	1977
<i>Discharges & Deaths</i> (thousands)	2,788	5,223	5,132	5,172	4,976	5,254	5,345
<i>Outpatients*</i> (thousands)							
New patients	5,859	7,927	7,916	7,825	6,926	7,498	7,612
Total attendances	25,080	33,243	33,318	33,352	30,947	32,396	33,282
ratio	4.3	4.2	4.2	4.3	4.5	4.3	4.4
<i>Accident & Emergency</i> (thousands)							
New patients	3,805	8,008	8,372	8,258	8,370	8,778	8,904
Total attendances	9,863	13,047	13,356	12,921	12,792	13,077	13,212
ratio	2.6	1.6	1.6	1.6	1.5	1.5	1.5
<i>Medical Staff (wte)</i>							
Consultants	3,307**	8,501	8,988	9,359	9,614	9,982	10,115
Other (SHO and above)	4,968**	12,781	13,481	13,844	14,869	15,217	15,819
<i>New outpatients per consultant (wte)</i>	1,772	932	881	836	720	751	753

*Excluding Accident and Emergency Departments.

**Partly estimated figures.

a time when many consultants were actively reducing their workload, but since then has started to rise again. The ratio of total to new patients has, however, tended to increase over the years; it stands at 4.4 in 1977 compared with 4.2 in 1970.

The number of consultants (whole-time equivalents) has trebled since 1949, as has the number of medical staff in the non-consultant grades above house-officer. The number of new outpatients per consultant (whole-time equivalents) has fallen by 19 per cent over the five years 1972-1977. It may seem obvious that so striking an expansion of staff and work could have occurred only in response to need, that is to say in response to morbidity: that group of morbid conditions within the population for which acute hospital care is the appropriate or only available remedy.

To what extent does this match the reality and how easy is it to define what is a hospital problem? Curious variations in hospital utilisation have been noted in this and other countries and appear to be related to factors other than morbidity. The availability of resources affects utilisation; for example, operation rates in the USA have been shown to correlate with the number of surgeons (Bunker, 1970), and utilisation of in-patient services is affected by the number of beds available (Feldstein, 1964). Again, these might seem to state the expected. However, in Wales the threefold differences in rates of admission for appendicitis that exist are unlikely to reflect differences in the incidence of appendicitis (West and Carey, 1978) and the creation of special care baby units has been accompanied by a doubling of admissions to such units over the ten years up to 1974, rising from 6 per cent to 16 per cent of all live births; Richards (1976) suggested that, if there had been a real increase in need of this magnitude, the reasons for that increase required investigation. If morbidity alone does not determine utilisation of hospitals, what does?

The three immediate determinants of hospital

utilisation are referrals from GPs, self-referral by patients without the intervention or knowledge of the practitioner, and what might be called 're-cycling'; that process, resulting from decisions taken by hospital staff, by which some patients circulate for varying lengths of time within the same department or between departments.

Referral by GPs

A number of studies have revealed very wide variations in rates of referral by GPs. When practices and populations of widely differing characteristics are involved or when the period of study is short it is not easy to assess the significance of these variations, but studies within quite circumscribed localities—even within the same practices—reveal such differences between doctors as to make it unlikely that they relate to real differences in the need for hospital care. American studies indicate that hospital utilisation may be affected by the way primary care is organised, and can be reduced; a change to prepaid group practice and comprehensive coverage results in reduced utilisation of hospital beds and fewer operations, without detectable harmful results to the health of the community (Gross, 1974; Bellin *et al.*, 1969; Alpert *et al.*, 1968). Contrary to the general trend in the UK, Fry's (1971) practice has halved its rate of referral to outpatients over 20 years; it is difficult to believe that in that part of London there is either an area of unsatisfied need for hospital care or an oasis of health in a desert of morbidity.

In the case of referrals to psychiatric clinics it seems that there is not a great deal of difference between the group of patients referred and others, similarly affected, who are not referred (Kessel, 1960); the practitioner's decision to refer appears to be influenced by factors other than the type of disturbance or its severity (Kessel and Shepherd, 1962; Rawnsley and Loudon, 1962). As far as

psychiatric disorder is concerned, therefore, there appears to be less difference than expected between 'hospital-type' problems and 'GP-type' problems; morbidity differences do not explain the variations in referral rates.

No consistent relationships between referral rates and various characteristics of the doctor have been found. Studies within practices, which showed that the older doctors (Evans and MacBride, 1968) and the doctor with the longest experience in his community (Morrell *et al.*, 1971) had the lowest rates of referral, suggest that the relationship with age and experience merits further study. A link with a hospital seems to increase referral rates. Rates were high in one practice for those partners with a hospital appointment (Evans and MacBride, 1968); the nearer the doctor's surgery to a psychiatric clinic the higher his rate of referral of psychiatric cases (Hare, 1959) and a period of collaboration with a psychiatrist was accompanied by a threefold increase in psychiatric referrals over two years (Bodkin, 1953).

Self-referral

Self-referral, the second determinant of utilisation, is here defined as action initiated by the patient without any intervention by the GP; the term, therefore, does not cover those referrals arranged by the doctor in response either to a direct request by the patient or to hidden pressure from the patient or relatives. If such referrals were to be taken together with self-referrals, the patient would probably emerge as the most important immediate determinant of utilisation. Of referrals to a teaching hospital in this country 17 per cent, though ostensibly decided by the doctor, were in effect decided by the patient (Blaney *et al.*, 1964) and this may well be an underestimate; up to a half of referrals to a university clinic in America were estimated to have been in response to patient pressure (Williams *et al.*, 1960).

Self-referral in the narrower sense seems to be increasing and the self-referred differ in some respects from those referred by practitioners. A study in Glasgow showed that the self-referred who came from their own homes—often by ambulance ordered by themselves—were much less likely to be admitted than were those sent by GPs; many of their complaints were trivial (Patel, 1971). Only about a tenth of this group seem to have made any real attempt to contact their own doctor and their actions were largely based on 'beliefs', the belief that, for one reason or another, their own doctor would not be able to see them or the belief that their symptoms were too serious to wait. It is possible that in Glasgow, and perhaps elsewhere, a higher proportion of those low in the capacity to control anxiety or high in manipulative tendencies have found a way of by-passing the practitioner and getting to hospital.

'Re-cycling'

The third immediate determinant of utilisation is decisions taken within the hospital itself: decisions either to keep the patient circulating back to the same clinic or

to refer to another department. In one teaching hospital a fifth of out-patient attendances were cross-referrals between one department and another, those sent up without a diagnosis from their practitioner being particularly at risk (Butterfield and Wadsworth, 1966). Another decision is to retain the patient; for every patient newly referred to general medical clinics there are five others classed as follow-up patients (Loudon, 1976).

The implications of all these studies is that the indications for referral and for in-patient care are imprecise and capable of widely differing interpretations; it is not so easy to define a 'hospital-type' problem and there is a wide range of optional behaviours on the part of the GP and the hospital doctor.

The scope for a reduction in utilisation is suggested by many studies. Forty per cent of referrals to a medical out-patient clinic were judged to be unnecessary (Wade and Elmes, 1969) and a high proportion of such referrals require no investigation and follow-up (Priest, 1962; Forsyth and Logan, 1968). Consultant judgement of the worth of referrals to out-patients is expressed in behaviour: by seeing at their first visit less than 50 per cent of those referred to certain clinics or by referring patients to another department without consulting the practitioner (Scott and Gilmore, 1966).

Re-cycling can be reduced. In any case it results too often in dual care (Cammock and Lee, 1966), the same patient being looked after by both the GP and the hospital doctor at the same time for the same condition. Half the follow-up attendances at one medical clinic were judged unnecessary (Wade and Elmes, 1969) and with each successive attendance an increasing proportion are handed over to the care of junior staff (Scott and Gilmore, 1966). Drastic pruning of follow-up attendances in surgical clinics has been suggested in order to free nearly a million and a half patients a year (Loudon, 1976) and shown to be possible (Kirk, 1976; Fowler, 1976). Conventional diabetic clinics can be dismantled (Hill, 1976).

In-patient care may also be given to those who do not need the facilities of an acute hospital; 25 per cent of men and 40 per cent of women in general medical beds were not considered in clinical need of in-patient care (Forsyth and Logan, 1960) and similar results have been obtained elsewhere (Torrance *et al.*, 1972; Crombie and Cross, 1959). Perhaps the need is not a clinical one but arises from social circumstances or a lack of available alternatives. However, for about a third of medical and surgical patients in a teaching hospital alternative care was judged possible (Loudon, 1972) and it has been estimated that perhaps 30 per cent of pre-school children admitted to hospital could safely be nursed at home (Field and Millar, 1969). Access to beds in a community hospital allows GPs to care for about half the cases they would otherwise have admitted to an acute hospital (Oddie *et al.*, 1971; Kernick and Davies, 1976). Mather and his colleagues undertook the crucial experiment of comparing hospital and home care for a serious condition, showing that certain categories of patients with myocardial infarction do as well at home as in hospital (Mather *et al.*, 1976).

Thus, hospital utilisation, of either out-patient or in-patient services, cannot be assumed, as it often is, to be an indicator of need; it is not a proxy for need. What then are the underlying factors affecting the three immediate determinants that are responsible for utilisation?

Factors Underlying Utilisation of Hospitals

These factors are likely to be related to the fact that three human beings are involved — the patient, the GP, and the specialist. The relationship between each of them, and their attitudes to each other, to medicine, and to hospitals influence referral decisions because, in order to move the problem from the practitioner to the hospital, gain must accrue, or be thought to accrue, to at least one of them.

Referral decisions thus depend upon the utility—the gain as compared with any loss—as seen by any of the three parties involved. Among the gains to the practitioner are reduced effort, sharing of responsibility, lessening of anxiety, and the possibility of a solution to the problem; the patient and the problem pass for a while out of his daily round. Losses to him include possible prolongation of the management, loss of control of the case, loss of opportunity to learn and to exercise responsibility, and an increase in the anxiety of the patient and his family that the GP will have to deal with.

The patient may have his problem solved or be assured that due attention has been paid to it; he may receive investigation and treatment that is not available to him without referral; he may acquire other, less readily acknowledgeable, gains in the game of life or of relationships, which flow from confirmation of sickness or reinforcement of the sick role (Hyman, 1971) and opportunities to participate in the institutional neurosis that is said to afflict chronic hospital attenders, hospital doctors colluding with them against the practitioner (Heasman, 1962); the patient may express in this way some of his lifelong difficulties and conflicts. Losses to him include inconvenience, loss of working time and income, increased anxiety, the risk of discomfort, and loss of control over what happens to him.

For the hospital, input of problems has two effects: first, provided the referral process works reasonably well, the flow of selected problems assists the maintenance and development of specialist expertise, and secondly, since utilisation has up till now been a major determinant of growth in the acute hospital services, increased input makes the case for more staff and more resources. Input can be controlled to some extent, but more attention is generally directed to output. Community care is seen not as an alternative to hospital care or as a means of preventing the need for hospital care but rather as a matter of assisting with the disposal of problems: in other words, with output.

Utilisation of acute hospital services results from all the factors mentioned: referrals by GPs, self-referrals by patients and decisions by hospital doctors to retain or cross-refer patients, and these are affected by one other important factor; Loudon (1976) has drawn attention to the risk that retaining patients 'devalues the general

practitioner in everyone's eyes' and Spencer (1971) pointed out how much the GP's control of the problem may depend upon mutual trust and confidence between him and the patient; such trust is less easily engendered in so far as the hospital is seen as an alternative system, with superior resources and capability, for the same problems as those handled by the practitioner. The gains to the acute hospital from increased input are therefore substantial and attention to output keeps the system free to receive more input.

Moreover, the bigger the gap between what the GP can offer and what the hospital can offer, the greater the apparent gain as seen by the patient or the GP. The relationship regulated by the referral process is therefore founded upon a lack of continuity: upon a degree of distancing between the GP and the hospital, the effects of which increase as the differences in facilities, knowledge, resources and prestige widen. The hospital may thus be seen as the producer and the GP as the consumer (Armstrong, 1979); the higher the value of the goods the more they must be sought and the more control the producer has over the consumer. The distance between the two may be increased either by enhancing the value of the product or by diminishing the value of what the consumer has to offer.

The present interface based upon the referral process may therefore be seen either as a (somewhat imperfect) response to patient needs or as a means of maintaining a producer/consumer relationship; it may also be seen as a device for allowing two different groups of doctors to work in different ways on different sorts of problems.

Analysis of other types of organisations (Parsons, 1960) suggests that in most organisations three principal levels can be identified: the technical or production level which performs the actual task of the organisation, the organisational (managerial) level which co-ordinates and integrates the task performance, and the institutional or community level—the Board of Directors for example—which relates the activities of the organisation to its environment.

The technical core has well-defined goals, seeks to achieve more control by limiting uncertainty, and concentrates on soluble problems; it has a relatively short time-horizon. Management seeks to insulate the technical core from environmental influences in order to reduce uncertainty and to enable it to perform more effectively; since complete closure is not possible it buffers environmental influences by surrounding it with input and output components.

In contrast, the institutional level has a highly permeable boundary and it is here that the organisation faces the greatest degree of uncertainty, has least control over input, is strongly affected by uncontrollable and unpredictable events in the environment, and has to be relatively open and responsive; it has to accept whatever presents itself and mould it as best it can. The institutional level therefore seeks to maintain an interchange or a relationship with the environment; it is orientated towards relationships over a long period, with less concern for immediate goals.

The analogies with hospital practice and general

practice are close, though they must not be pursued too far. Balint (1961) drew attention to the way in which the hospital doctor attempts to restrict the field of observation, as does the scientist, whereas the GP has to accept, and respond to, whatever the patient offers. The hospital has to limit attention to those problems for which a solution is possible within a reasonable time-span and uses the powerful weapons of technology and of specialist knowledge in a limited field to attain as much certainty as is possible. The GP deals with undifferentiated, many-sided problems, including those for which no solution is possible and for which his only weapon is the commitment of his own personality. He deals most of his time with uncertainties; he covers the whole field of medicine and any illness may present to him in its earliest stage when only what he learns from and knows about the patient can help him. The more diagnostic categories to consider and the less severe the abnormality the lower the inter-observer agreement rates (Koran, 1975), so the GP's judgement is often only a tentative assessment of the problem and he knows that others may view it in a different way. Time will often reveal what he is dealing with (the probable causes of a one-day fever differ from the probable causes of a six-day fever) and he must carry the patient through the waiting period. The patient is therefore the focus of his attention; what he learns and knows about him and his reactions and personality are usually the best guide to diagnosis and management; the illness is a disequilibrium that, having witnessed the damage done by too much medicine, he hopes to see him through with as little fuss and harm as possible. Not for him the easy acceptance of the conventional rule in medicine — that it is more culpable to judge a sick person well than to judge a well person sick (Scheff, 1963); he has the more difficult task of judging how far to suspect a serious illness and what weight to put upon all the other elements in the problem before him. The differences are marked between this perspective and the usual medical viewpoint which a critical observer described as implying that the best health care is 'where everything known to medicine is applied to every individual by the highest medical scientist in the most specialised institution' (Mahler, 1975); the medical problem is the central concern, not the sick man (Jewson, 1976).

No matter where they may start from and what they may share in common, those who work in two such different ways are likely in time to develop broadly different 'appreciative systems' (Vickers, 1968). Experience develops certain readiesses to note some things and to ignore others and these readiesses are organised into an 'appreciative system' that conditions new experiences and is itself conditioned by them. The present interface may thus represent genuine differences of function: a means of allowing two different sets of doctors to go about different tasks each in their own way.

However, there is always a risk that such different perspectives of the role and purpose of medicine will come into conflict with each other and a new phenomenon must now be taken into account. Until now GPs could be seen, by themselves and by others, as hospital doctors *manqué* but, as the choice of general

practice as a career becomes a positive decision, those factors that determine that choice will increasingly influence the characteristics of the inhabitants of each system. In the course of time each system might grow farther apart, accumulating two populations of doctors with broadly different characteristics and perspectives, and each will in due course shape still more divergently the tasks they have chosen to do and the appreciative systems that condition their thinking.

The choice of career is clearly a complex business: a balance of advantages and disadvantages. To choose general practice is to choose also relative isolation, poorer scientific facilities, a less competitive career and a less orderly organisation; any or all of these may attract or repel the individual doctor. Similarly, the choice is a complex one for the specialist. Choosing a career with less dissonance between scientific medicine and the reality of practice, more orderliness in organisation and greater collegiality, he also chooses a more competitive career, less accessibility to patients, less involvement of self and a task which focuses on goals rather than on relationships. Individual specialists will find some parts of this package attractive and other parts unattractive. Nevertheless, as the process of differentiation by choice continues, the dangers of mutual incomprehension and conflict may increase.

That the conflict is there despite individual good relationships is suggested by evidence that the GP is more openly sceptical about hospital medicine than he was; he is increasingly critical of a 'science' of medicine that operates and looks as if it can only operate by excluding the difficult, the imponderable and the unquantifiable from its calculations; indeed, behaving as if they did not exist. Armstrong (1979) points out the change from the expressed view of the 1960s that the GP should protect the hospital from some problems to the view that it is now the patient who stands in need of protection from the hospital. On the hospital side the hidden conflict emerges when ancient rights are put at risk and old assumptions challenged. The resistance to the introduction of the hospital practitioner grade not only expresses consultants' discontent with their lot but is also a reaction conditioned by history against the notion of a permanent hospital role for the GP. To impede vocational training schemes for general practice has proved useful in the battle for consultant interests; it is also an assertion of where power lies.

It is questionable, however, whether the present arrangement expresses the real nature of the antithesis. The antithesis may be between the science and the practice of medicine, between scientific detachment and patient responsiveness, representing a tension that in varying degrees all clinicians carry within them; between the reductionist approach suitable for a limited range of problems and a less scientifically respectable 'holistic' approach appropriate to multifactorial, dynamic and often insoluble problems. It would be a pity if, in the process of divergence, general practice lost touch with medicine's scientific base and hospital practice parted company with a long tradition of trying 'to combine a biological approach to the problem of the individual with

an attempt to assess the many factors in his ill-health' (Fraser, 1960). Perhaps, indeed, specialist behaviour still expresses the need for such an approach. As Susser (1963) pointed out, 'the corollary of overall responsibility of the general practitioner is limited responsibility for the specialist' and for some specialists, who do not relish episodic care over a limited field, the clinic for those with chronic illness, or follow-up out-patients, or private practice may be a means of answering a human need that the present division of responsibilities fails to meet.

For a number of reasons it seems that to perform two different jobs requiring different skills and perspectives two systems are needed though not necessarily in their present form or in their present relationship to each other. The problem in the present organisational structure is that it is the 'technical core' with its necessarily limited task and concerns that determines the priorities and purposes of the whole. Tension between two systems with such differences of perspective is inevitable but could be made more productive if communications were improved and the balance between the two made more equal. The present arrangement does not ensure the best use of clinical resources; duplication of care, inappropriate use of high cost facilities, failure to meet the diverse needs of clinicians and a growing schism between the two systems are major losses.

If the balance is to be set right and the GP is to be supported by a hospital service that seeks to enhance his capability rather than being content to live off his deficiencies, the resources must be found to make ready the community services for the extra load and responsibilities. This is unfortunately not a good time to begin this process. At a time of national decline, resources can be found only by freeing them from their current use and, naturally, those that have them will seek to retain them; the cycle by which increased input leads to growth has been too regularly rewarded for change to be easily accepted. Change is always difficult and when people are under threat already their reactions are too often based upon deeply ingrained attitudes rather than their true interests. The threat is likely to intensify if, indeed, the phase of consultant expansion is nearing its end; the prevalence of some disorders in the community or the kind of disorders referred may now in some cases be insufficient to maintain specialist expertise (*see* Hopkins, 1976, and Little *et al.*, 1978) and most GPs are aware in their daily work of alterations in health and morbidity over the last 20 years, which have not yet been fully documented.

Studies quoted here show how much has been done by hospital doctors themselves to change current thinking and behaviour; the difficulty is to make change generally acceptable with sufficient speed. The handicap the acute hospital labours under is its power; in the struggle for resources it has all the advantages; it is visible, it represents society's hope for an answer to suffering and death, its implicit assumptions are those by which all clinicians are judged, the training of the young is entrusted to it, it has inbuilt mechanisms for growth that operate increasingly powerfully as the alternatives are weakened. Its strength is such as to cry out to be used and

it may therefore be used without heed to the real interests of patients or of medicine or of the acute hospital itself. The prospect is sombre; the conflict may intensify before a new relationship can be forged and a new interface established that really does connect and co-ordinate and not divide.

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Book Review

Today's Treatment: 3. Edited by S. Lock. British Medical Association 1979. Price, including postage, UK £5.50; abroad US \$ 13.75.

If, like me, you hoard articles from the *BMJ* in the erroneous belief that one day you will get around to reading them, you will welcome a collection of articles first published in 1977 and 1978, now in a convenient book. Although the title suggests therapeutics, about one-third of the book is devoted to diagnosis, and there is a diverse range of articles, from the first on the structure and function of the lungs, to the last which deals with the management of urinary frequency.

Three main themes are covered—Diseases of the Respiratory System, Diseases of the Urinary System and the Use of Antibiotics—in 40 articles by as many authors. Inevitably with so many authors the content and style differs in each article. (Is 'Cigarette-tosis'—page 55—really necessary?) Some authors confine themselves to practical therapeutics while others delve into chemical structure and pharmacokinetics, but most articles are easy to read and contain much practical advice that the average textbook omits. No doubt every reader will find a statement with which to disagree, but in the main the views of the authors fulfil the editor's aim of 'middle-of-

the-road [advice], based on practical experience . . . ' On page 186 the dosage of 'Propantheline 15—200 mg three times a day' is dangerously inaccurate and needs correction. Equally, the unwary may be misled by the different use of the term 'respiratory failure' in juxtaposed articles on pages 42 and 43. Some authors clearly regard their articles as sufficiently authoritative without references, while others give suggestions for further reading. Where references are given there is editorial inconsistency; some articles use the first author's surname (but these are not always arranged alphabetically in the bibliography, page 119), others use numerals in the text (which do not always appear in the bibliography, —pages 129 and 131). While appreciating the tediousness of preparing text for publication, and the current debate on a uniform style for bibliography, many readers will be irritated by these lapses.

The strength of this book lies in the ready availability of practical advice; for example, the general physician will find the tables of drug dosage in renal failure (pages 94 and 95), or the treatment of septicaemia (page 274), valuable for quick reference, but anyone looking for a systematic account of therapeutics will be disappointed, for that is not the aim of the book.

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