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## C O N T E N T S

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FACTORS AFFECTING THE OUTCOME OF  
TREATMENT OF PULMONARY TUBERCULOSIS  
IN SUB-OPTIMAL CONDITIONS:

An 18-month Follow-up of 224 Patients

By

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## Patterns of Disease at Selected Rhodesian Hospitals\*

BY

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It might be reasonable to think that the prime reason for admission to hospital would be on medical grounds, but on the other hand a variety of social conditions might well necessitate admission. When considering the problems which face the African of Rhodesia, many of the reasons for admission will be sociological, even when the underlying medical condition is relatively minor, as their conditions of living may present considerable problems as far as the provision of suitable domiciliary medical care is concerned.

In Rhodesia, as in many other parts of Africa, or for that matter other parts of the world, our lack of knowledge of population distribution presents problems of medical administration. In April, 1969, a census of the African population was carried out and we are hoping that we shall have some information shortly on a number of factors concerning their vital statistics which will allow us more adequately to define the population which our hospitals serve. As we have no accurate disease prevalence figures in relation to population, it is necessary, therefore, to make use of information derived from hospital discharges if we are to look at the pattern of disease.

It would appear reasonable to conclude that if the pattern of discharges from urban and rural hospitals varied this might give some clue to the aetiology of the various diseases, because 70 per cent. of the patients in an urban hospital come from the urban area. We know that the pattern of living in an urban area is in contrast to that in a rural area, and factors such as housing, dietetic habits, water supplies and sewage and refuse disposal might well influence the incidence of disease. Furthermore, the occupational opportunities vary widely from town to country and some of the hazards of modern urban society such as traffic accidents and assault might well influence the disease pattern.

Coincidental with the opening of Mpilo Central Hospital in Bulawayo, an institution with nearly 600 general beds for Africans, opportunity was taken to establish a medical record system on

modern lines. A study has been made of all patients discharged from this hospital from 1959 to 1968 inclusive. During seven years of this decade I was medical superintendent of this hospital and personally supervised the medical records department. For the remaining three-year period the staff who continued to work in this department were those who had been trained by myself, and there is good reason to believe that over this period there was little variation in coding techniques for the diseases. The coding system used was the International List of 150 causes for Tabulation of Morbidity and Mortality (List A) as contained in the 1955 Revision of the Manual of the International Statistical Classification of Diseases, Injuries and Causes of Death. During this period approximately 145,000 people were discharged from the hospital, giving an average annual discharge figure of about 14,500 patients. When we range these discharges by frequency for each year excluding tuberculosis of the respiratory tract because of a change of admission policy which took place during this period, we find there is little variation year by year in the top 10 disease groups. These 10 diseases constitute just over 40 per cent of all discharges and in order of frequency they are—

No.	International Code (1955)	Disease or Disease Group
1.	A114	Diseases of the genito-urinary system such as salpingitis, cystitis, pyelitis, cervicitis, etc., but excluding acute and chronic nephritis, urinary calculi and prostatic hyperplasia.
2.	AN140	Fracture of the limbs.
3.	A118	Non-septic abortion.
4.	A104	Gastroenteritis and colitis.
5.	AN145	Lacerations and open wounds.
6.	A89	Lobar pneumonia.
7.	A90	Bronchopneumonia.
8.	A137	Ill-defined and unknown causes of morbidity and mortality.
9.	A121	Infections of skin and subcutaneous tissue.
10.	AN143	Head injury (excluding fracture).

Although figures over a similar long period are not available from Harare Central Hospital, a hospital for Africans which is presently the teaching hospital in Salisbury, it seemed worth while to compare the experience over one year, namely, 1968, at Harare. When this is done we find that during this period approximately 18,500 people were discharged. Moreover, when we compare the top 10 diagnoses on discharge, we find that nine of these are similar, the only difference being that infections of the skin and sub-cutaneous tissue in

\*An address read at the General Practice Section of the 1969 South African Medical Congress in Pretoria.

Bulawayo are ousted by benign neoplasms and neoplasms of unspecified nature in Salisbury. Does this mean that the gynaecologists in Salisbury are more enthusiastic for their fibroids, while the traumatic surgeons in Bulawayo favour the lacerated wound? Perhaps Salisbury women are more sophisticated in seeking gynaecological attention, while the Bulawayo men are more aggressive with their "flick" knives. However, both these diagnostic groups figure in the top 20 diseases from the two hospitals.

There seems little doubt that the same basic problems account for the admissions to hospital in both these large urban areas, and it is fitting to compare these with the discharge diagnoses which would be encountered in a rural area. Early in 1968 the faculty of medicine in the University of Rhodesia established a project in one of the Tribal Trust Lands where students would have the opportunity to study the sociological problems in such an area and see something of rural medical practice. The area selected was the Wedza Tribal Trust Land extending from 60 to 100 miles south-east of Salisbury. In this area there are two small hospitals, one run by the Ministry of Health and the other by a Roman Catholic mission. Both these hospitals were under the combined clinical supervision of the senior lecturer in community medicine and the mission medical officer.

All the discharges from these two hospitals over a 12-month period from 1st April, 1968, to 31st March, 1969, were recorded in a manner similar to that in the two hospitals above. When we range these discharges by frequency we obtain a somewhat different picture from that which we had in the urban area. The 10 most common diseases on discharge are—

No.	International Code (1965)	Disease or Disease Group
1.	A37	Bilharzia.
2.	A87 + A92	Acute respiratory infections.
3.	A104	Enteritis and other diarrhoeal diseases.
4.	A65	Avitaminosis and other nutritional deficiency.
5.	A32	Measles. Pneumonia (which includes bronchopneumonia and lobar pneumonia).
6.	A89 + A90	Diseases of genito-urinary system.
7.	A114	Bronchitis, emphysema and asthma.
8.	A93 + part of A97 and A66	Infections of skin and subcutaneous tissue.
9.	A121	Inflammatory disease of the eye.
10.	A74	

If we now compare the discharge patterns in the urban areas with those in the rural area, we find that only four of the diseases in the top 10 in the rural area are the same as those in the urban area. The four which are common to both are—

- (1) Diseases of the genito-urinary system.
- (2) Gastroenteritis and colitis.
- (3) Lobar pneumonia and bronchopneumonia.
- (4) Infections of the skin and subcutaneous tissue.

It should be noted that in the rural area the 1965 Revision of the International Classification of Disease was being used and thus pneumonia in this classification must be equated with lobar pneumonia and bronchopneumonia grouped together.

When these four diseases are considered we are presented with some of the problems associated with poor standards of living. Gastroenteritis is common in people who are unaware of the problems of food hygiene and storage; pneumonia may be related to inadequate housing provision; while the infections of skin and the genito-urinary system are again frequently associated with lack of personal hygiene and lack of education. It might be concluded, therefore, that improvement in social well-being, particularly in the form of environmental changes, could do a great deal both in urban and rural areas to diminish the load on the hospital services.

When we consider those diseases which are different in the two areas, some interesting facts emerge. The second and third commonest diseases in the urban areas, namely, fracture of the limbs and non-septic abortion, do not feature in the top 10 in the rural area and are only listed as nineteenth and seventeenth and are relatively unimportant. While it might be fair to conclude that the presence of heavy traffic, both in the form of motor cars and bicycles, may contribute in the urban area to many fractures, nevertheless assault is important, as only a small percentage of fractures in urban hospitals are referred from rural areas. On the other hand, how do we account for the frequency of abortions? Are many of these self-induced and, if so, why are they commoner in an urban area than a rural area? Are the pressures on a woman bearing an unwanted child in an urban area greater and is she consequently forced into the hands of the abortionist? It seems to me that this problem of abortion in urban areas highlights the need for adequate family planning facilities, as many of the patients who feature in the group with diseases of the genito-urinary system undoubtedly stem from the aftermath of an abortion.

The fact that head injuries, lacerations and open wounds feature prominently in the urban areas also reminds us of the violence associated with urban living, be the violence personal or otherwise. It is evident that urban hospital services have to be geared to dealing with trauma in a way quite different from that required in a rural area.

In looking at those diseases common in the rural areas we find that bilharziasis, acute respiratory infections and nutritional deficiency are three of the top four diseases. Does this mean that those diseases do not occur in urban areas? While it might be argued that bilharziasis is less likely to occur in an urban area, we must remember that many of the so-called urban dwellers regularly move from town to country and *vice versa*. Similarly, we would be foolhardy to conclude that upper respiratory tract infections are not frequently found in the urban area, although the evidence might be more correct in the case of nutritional deficiency.

Although there are many hazards associated with the use of hospital discharges in determining the pattern of disease in the community, nevertheless some useful information can be derived from them. As it seems worth while comparing the discharge pattern in an urban hospital with that in a rural hospital, it is necessary to try to ensure that the figures have some comparability in so far as the accuracy of the diagnosis is concerned. Obviously the diagnostic aids in an urban area are more advanced than those in a rural area, so we are immediately faced with a problem. However, although consultant services in urban areas may make the diagnosis more refined, this may well be compensated for as the commoner diseases, which are easily diagnosed, will probably make up the vast bulk of the discharges.

The two diseases, bilharziasis and upper respiratory tract infections, illustrate one of the problems in making comparative studies based on hospital discharges. Although this may be a real difference in the prevalence of disease, it is probably due to the selective process of admission to hospital. Because of the pressure of beds in the urban hospitals, it was hospital policy not to admit cases of bilharziasis for treatment, but to deal with it on an outpatient basis. Similarly, upper respiratory tract infections were dealt with as outpatients in the urban hospitals, but in the rural hospitals, often because of the distance the patient had travelled for treatment, it was necessary to admit them. A policy of admission may, therefore, be an important factor in influencing discharge patterns.

Nor can we ignore doctor preference or patient preference as a possible cause of influence in hospital discharge figures. A doctor may deliberately admit a particular type of patient as he is interested in this disease, or a hospital may acquire a reputation, often on the flimsiest evidence, for the treatment of a disease which causes patients to present themselves in considerable numbers.

A further difficulty of comparison is the ability to make a diagnosis and this may not necessarily be at the rural hospital. The eighth commonest diagnosis in the urban areas was ill-defined disease and yet this did not feature in the rural area. As the central hospitals constitute the ultimate reference hospitals, not unnaturally the obscure cases are referred to them. Furthermore, the diagnosis is probably more critically examined in the larger hospitals with more staff available, and especially when students are around.

In relation to the problem of a policy of admission, it is important to remember that in urban areas all infectious diseases are admitted to isolation hospitals, while in rural areas they are merely admitted, where possible, to isolation facilities in the same hospital. This accounts in our study for the presence of measles in the rural hospital.

Despite all these pitfalls which we have mentioned, in my opinion this type of study is still important to us in the developing countries. Before long we hope to obtain some accurate prevalence figures for disease based on a better knowledge derived from population studies. Meanwhile, we have to make provision for the expansion of our health services and to do this we have to have some idea of our needs for personnel and buildings such as hospitals. To estimate these requirements some knowledge of the disease pattern, even despite its inherent inaccuracies, is of value. We can see from both the urban and rural figures in this study that the provision of facilities such as adequate environmental facilities, family planning services, nutritional advice and simple personal hygiene measures is of paramount importance in our health services. Although adequate hospitalisation is required, particularly in the urban area, nevertheless in both urban and rural areas much improvement can be brought about in a developing country by use of paramedical personnel supervised by the few medical practitioners available.

Considerable work has been done recently on the possibility of planning and evaluating training methods for medical and other health staff. It is also necessary to have a quantitative evaluation of long-term staff needs. To do this it is important to have available as much information

on disease problems in a country as possible, and towards this end the studies of hospital discharge patterns are of use.

#### SUMMARY

The contrasting pattern of disease seen in hospitals in urban and rural areas affords an opportunity to consider the varying problems of aetiology. A study was made of 145,000 discharges from Mpilo Central Hospital, Bulawayo, over the decade from 1959 to 1968 inclusive, and this pattern of disease was contrasted with a similar study made over a period of one year of disease as recorded at Harare Central Hospital, Salisbury, and in hospitals in a Tribal Trust Land. Variations in disease patterns between hospitals in urban and rural areas and the relationship of these disease

patterns to the provision of suitable medical services in urban or rural areas are considered.

The organisation of such studies presents problems of comparison and the difficulties of making such comparative studies are illustrated. Nevertheless, a case is submitted for the continuation of such studies as the information derived therefrom is vital to the medical services in a developing country.

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