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Regionalisation Of Hospital Infrastructure In The Eastern Transvaal Area

Crisp, Nicholas Gilmour

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REGIONALISATION OF HOSPITAL INFRASTRUCTURE IN THE EASTERN TRANSVAAL AREA

Nicholas Gilmour Crisp

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REGIONALISATION OF HOSPITAL INFRASTRUCTURE IN THE EASTERN TRANSVAAL AREA

CRISP, Nicholas Gilmour, MBChB
University of the Witwatersrand, 1991

ABSTRACT

The extremely complex fragmentation of health services in the greater South Africa has lead to confusion, duplication and uncoordinated planning.

This study assesses the hospital component of the health services in one discrete geographical area where service responsibilities are particularly complex.

Each of the hospitals identified within the study area was visited and, after a short conducted tour, detailed information was obtained on a standard questionnaire during interviews with senior hospital personnel. Final detail was obtained by inspection of various functional components in each hospital.

Proposals regarding the process of regionalising the hospital services in a future post-apartheid era (when political boundaries, particularly homeland boundaries, have disappeared and the health services can be rationalised under a unified health authority) are made.

The major finding is that, while some expansion is needed, the existing facilities can be reorganised into a functional complex at minimal cost and limited disruption of services.

STREEKSORGANISERING VAN HOSPITAAL INFRASTRUKTUUR IN DIE OOS-TRANSVAAL GEBIED

CRISP, Nicholas Gilmour, MBChB
Universiteit van die Witwatersrand, 1991

ABSTRAK

Die uiters komplekse fragmentering van gesondheidsdienste in die groter Suid Afrika het verwarring, duplisering en onkoordineerde beplanning veroorsaak.

Hierdie studie ondersoek die hospitaalkomponent van die gesondheidsdienste in een afgebaakende geografiese gebied waar verantwoordelikheid vir dienste besonders kompleks is.

Elke hospitaal wat binne die ondersoekgebied geidentifiseer is is besoek en, na 'n kort toer, is gedetaileerde inligting versamel op 'n standardiseerde vraestel tydens onderhoud met senior hospitaal- personeel. Finale detail is ingewin deur inspeksie van verskeie funksionele komponente in elke hospitaal.

Voorstelle met betrekking tot die streeksorganisering van hospitaaldienste in 'n toekomstige post-apartheid era (wanneer politiesegrense, veral tuislandgrense, verdwyn het en gesondheidsdienste gerasionaliseer kan word onder een unitere gesondheidsowerheid) is gemaak.

Die hoofbevinding is dat, alhoewel 'n bietjie uitbreiding nodig is, die bestaande fasiliteite herorganiseer kan word in 'n funksionele kompleks met minimaal kostes en beperkte ontwrigting van dienste.

DECLARATION

I declare that this dissertation is my own, unaided work. Several other workers assisted in the fieldwork and participated in discussions which led to the recommendations but I remain the primary worker.

It is being submitted for the degree of Master of Medicine (Community Health) in the University of Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other University, nor the College of Medicine.

The protocol for the study was approved by the Committee for Research on Human Subjects (Medical) of the University[1] and the work complies with the ethical standards of the University.

Nicholas Crisp

(Signature of candidate)

NICHOLAS GILMOUR CRISP

20th day of NOVEMBER, 1991

[1]Ref : R14/49 (Registry).
Protocol No : 5/2/91 dated 4 March 1991.

PREFACE

This work was undertaken at the request of the Centre for the Study of Health Policy (CSHP) at the University of the Witwatersrand.

The study forms part of an ongoing, in-depth study into health services in Kangwane and the surrounding region. Other studies examine the clinic and other primary care services, intersectoral issues, and certain vertical services such as tuberculosis, ambulances and mental health care. The recommendations of the study, whilst suggesting some fairly radical changes and reorganisation, do consider the political and health implications in a realistic manner. The study was undertaken in the hope that cognisance will be taken of the facts (as one example of many similar situations) in the process of reorganising South Africa's health services in the near future.

The author has a background as an ex-Medical Superintendent and Regional Director in the Department of National Health and Population Development with several year's service in the area studied. The knowledge and insight into the circumstances of the area were useful qualities for this study.

Numerous thanks and acknowledgements are due. Special thanks go to Prof John Gear of the Department of Community Health who supervised the study, assisted with the field work and gave valuable support and advice. Also to Dr Max Price from the CSHP for his untiring review of every detail in the report and numerous extremely valuable inputs.

The Health departments of Kangwane, Gazankulu, Lebowa and the Transvaal Provincial Administration (especially the Medical Superintendents and hospital staff who were very tolerant and helpful) provided as much information as they could. Last, but not least, the Department of National Health and Population Development is thanked for their support, interest and time which made this study possible.

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1. INTRODUCTION

Health services in the greater South Africa are severely fragmented by virtue of both constitutional and health legislation. The Self-governing territories and the Independent States provide services in their own right in terms of the National States Constitution Act, 1971 (Act 21 of 1971).[1] The Department of National Health and Population Development has functions in terms of the National Policy for Health Act, 1990 (Act 116 of 1990)[2] and section 14 of the Health Act, 1977 (Act 63 of 1977).[3] The four Provincial Administrations have functions described in section 16 of the same Act plus delegated functions from section 14. Section 20 describes the functions of the local authorities. Local authority responsibilities are complicated by a multiplicity of structures generically grouped by this term but governed by several totally different Acts of legislation. These include the Provincial Government Act, 1986 (Act 69 of 1986)[4], the Black Local Authorities Act, 1982 (Act 102 of 1982)[5] and the Regional Services Councils Act, 1985 (Act 109 of 1985).[6] Finally the Constitution of the Republic of South Africa Act, 1985 (Act 110 of 1985)[7] gives a health function to each of the three houses of parliament; House of Assembly for whites, House of Representatives for coloureds and House of Delegates for Asiatics ("Own Affairs").

However, the man-in-the-street does not understand nor pay heed to such complications. When ill, an individual seeks health care from the most convenient, trusted and familiar service. This results in a complex, though logical, self-referral pattern.

Furthermore public health service facilities have grown and developed for various historical reasons, with commensurate adaptions to resource allocations which do not necessarily bear any relation to the needs of the community to be served.

Population figures are unfortunately unreliable, especially where they need to be most accurate. This, plus the false and ungeographical border determination, severely inhibits the ability to plan accurately and has contributed to many

unnecessary and illogical developments in the past.

This study of hospital services forms part of an ongoing, in-depth study into health services in Kangwane and the surrounding region. Other studies examine the clinic and other primary care services, intersectoral issues, and certain vertical services such as TB, ambulances and mental health care.

The primary objective of the hospital study was to make proposals regarding the process of regionalising the hospital services in a future post-apartheid era when political boundaries - particularly homeland boundaries - have disappeared and the health services can be rationalised under a unified health authority.

A secondary objective was to make more detailed recommendations with respect to some of the hospitals in order to improve their present functioning.

The area of the Lowveld-Escarpment Regional Services Council, including the Lebowa and Gazankulu districts of Mapulaneng and Mhala respectively and Kangwane in its entirety was identified as a logical, continuous geographical area. (**FIGURE 1**) The physical infrastructure, geographical barriers such as mountains and rivers and the socioeconomic constitution of the population influenced this decision. The final influence was the fact that this area forms an existing sub-planning unit of the Regional Development Advisory Committee.

Thirteen hospitals were identified within this area. Two were then excluded. The South African National Tuberculosis Association (SANTA) tuberculosis hospital in Barberton has been excluded as it does not function as a general hospital. Secondly, the provincial hospital in Waterval Boven was assessed to be structurally a large polyclinic rather than a hospital. The eleven remaining facilities included in the survey are: Tintswalo, Mapulaneng, Matekwane, Lydenburg, Sabie, Bongani, Themba, Rob Ferreira, Shongwe, Barberton and Embhuleni. (Bongani was later considered to be a ward of Themba hospital but some details are still reflected independently.)

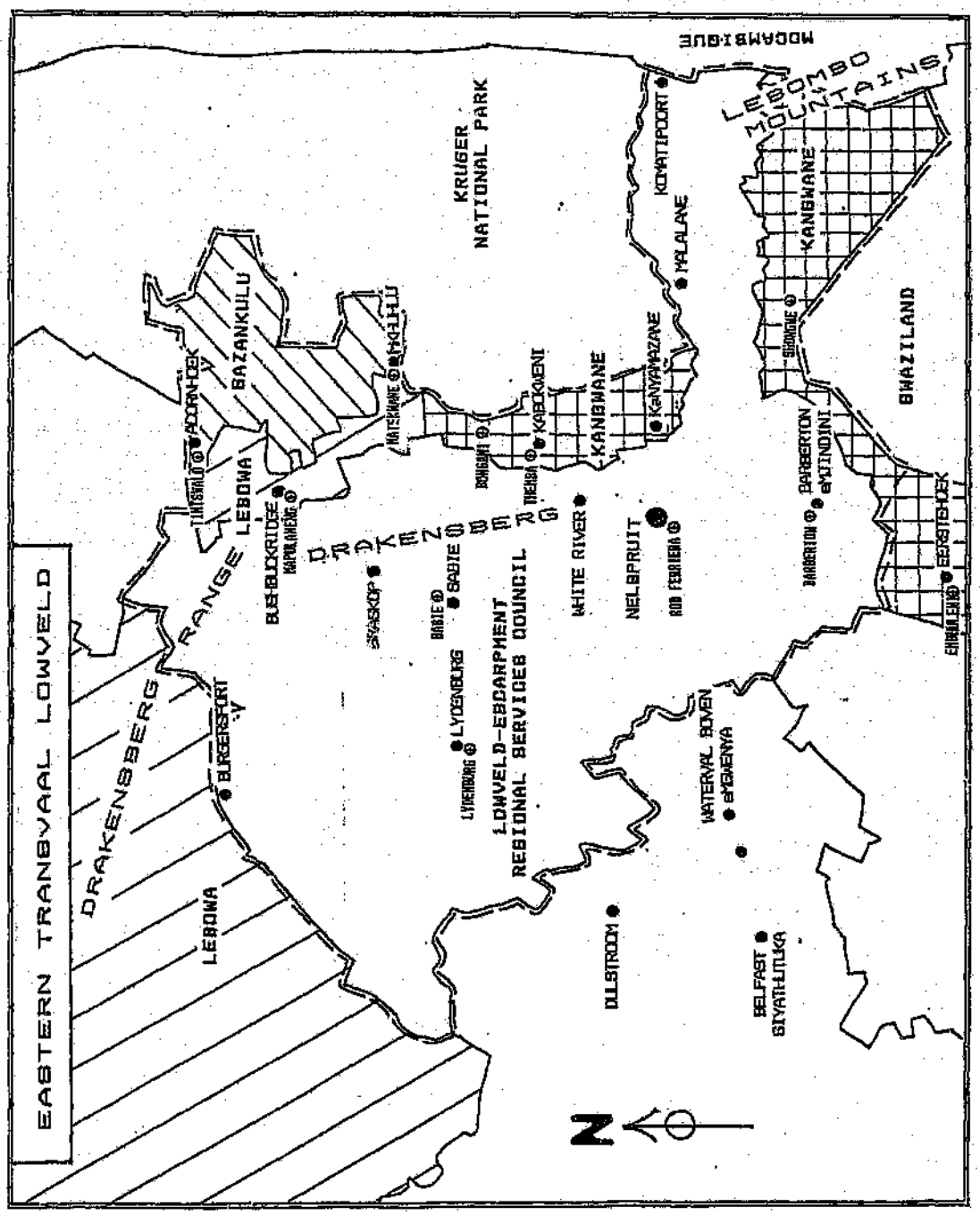

Figure 1. Map of the study area.

2. LITERATURE REVIEW

There is very little information available in the published literature which relates directly to the subject under investigation. Even less is available locally. Publications concerning reorganisation of services are conspicuous by their absence.

Several publications are available which address district and regional health planning. [8,9] Local documents tend to concentrate on minimal standards. [11-14] Whilst these documents make a valuable contribution to the planning process, they do not attempt to address the complications which have arisen from the political legacies from the past.

The National Plan for Health Facilities [11] which was "issued by the Department of Health and Welfare on behalf of all the health authorities in the RSA" in November 1985 is, in fact, designed for 'white' South Africa. On page eight of the document it is stated that "the major complicating factor (in facilities planning) is the continuous influx of patients from the self-governing and independent black states to the white areas of the RSA for health services.....It is, however, essential that community health centres for citizens of these states be provided in their own areas to prevent to (sic) influx into white areas." The document does state that funding of community health centres (CHC's) in black areas would have to be provided simultaneously.

The document makes no reference to joint planning or coordinated provision of services and/or facilities. It is stated that the provinces would determine which hospitals would provide a regional function. No mention is made of any consideration to be given to the self-governing and independent black states when planning this function.

Together with recent political developments have come documents which recognise the current deficiencies in coordination. The Health Matters Advisory Committee (HMAC) [now the Health Matters Committee (HMC)] approved a mechanism for the coordination of health facilities in 1990 [15] and extended the mechanism in a modified form to include all private facilities this year, 1991. [16]

Finally, the size and composition of the populations of the various components of the study area are a matter of speculation. Hospital drainage areas have been regarded as magisterial district boundaries. These are very clearly not the true drainage areas. The 1985 census [17] has proved to be inaccurate and inconsistent (except for the fact that it records an undercount everywhere), especially in the rural areas. [18,19] Attempts have been made to justify the demographic data sources used. Health status and efficiency of the supporting primary health care infrastructure has been largely educated guesswork although the services' working documents have been consulted.

3. METHODOLOGY

3.1 Objectives

The objectives of the study were;

* to describe the existing hospital facilities with particular regard to current and potential capacity

* to place the existing hospital facilities within the context of a rational geographical model

* to make concrete recommendations for future planning to the health authorities

3.2 Questionnaire

A standard questionnaire was compiled in order to ensure that the description of each facility would be comparable. The questionnaire (Annexure 1) is divided into sections.

* budget information

* physical facilities and infrastructure, including the buildings and the site services required for its continued functioning

* functional units for patient care, clinical services, support services and special support services

* personnel and management

A supporting questionnaire was distributed to doctors in order that a breadth of opinion might be obtained on certain issues.

A standard checklist was used for the estimation of completeness of equipment in outpatient and casualty departments. In the case of wards a few items were chosen as indicators of basic accoutermen't.

The questionnaire combines both objective and subjective assessment.

The questionnaire was not piloted as the investigators between them have diverse experience in the administration of several types of hospitals. It was decided that each hospital would be so different that adaptations would have to be made in any case. The framework was accepted as the minimum requirement to which any additional information could be added and which would be a bonus.

3.3 Investigation

During July of 1990 nine of the eleven hospitals were visited. Seven were visited by both investigators. A third control investigator (MP) attended four hospital visits. Two more were visited by only one investigator (NC). The remaining two hospitals were visited in August and September by only one investigator (JG). Each investigation was completed within one day.

A standard procedure was adopted. A short conducted tour of each facility was done in order to get an idea of the lay-out of the facilities so that meaningful discussion could take place during detailed questioning. Thereafter as much of the detailed information as possible was obtained during interviews with the hospital's Superintendent, Secretary, Matron and other informed personnel. Thirdly a more detailed inspection of various functional components in the hospital was carried out.

In all cases the information obtained is incomplete and in all cases the questionnaire had to be adapted in order to accommodate the specific way in which the wards are allocated and the hospital laid out.

No hospital was revisited. A comprehensive report was written for each facility. These reports were submitted to the Medical Superintendents for comment together with the recommendations and proposals. The relevant role players were invited to a presentation of the findings and given the opportunity to correct any erroneous reporting. Extremely limited changes were made to the original reports and none of these affected the recommendations.

3.4 Biases and variation

There were two main investigators and some of the observations in the latter half of the study were made by only one or other. There is therefore the potential for inconsistency. The investigators did, however, examine seven hospitals together, four with a third control, and spent much time discussing and standardising findings. Every effort has been made to confirm the facts (rather than impressions) recorded.

The backgrounds of the investigators and their perspectives of what is and is not acceptable does introduce a bias. The conclusions are none-the-less based on the facts recorded.

The main aim was to determine functionality and not to describe the quality of the present functioning service. The latter is seen as a fluid measure which alters with seasons, managers and extraneous events but the physical structure is less subjected to short-term change.

- There is no doubt that this methodology has limitations but it is the author's belief that despite the somewhat subjective, qualitative rather than quantitative methodology used, the results are relatively objective and biases are minimal. The information obtained is believed to be a true reflection of the reality and the options and recommendations concluded are based on fact.

4. FINDINGS

4.1 Hospital beds, budgets and equity (Table 1.)

The populations being served by each hospital have generally been taken to be the de facto population of the defined magisterial district within which each hospital is geographically situated. However, patients obviously use the facility of most convenience or personal preference. For instance people living in the Komatipoort area are likely to use services at Shongwe or Themba hospitals just as much as Nelspruit. Likewise Matekwane hospital serves southern Mhala and not purely Mkhuhlu. It also serves part of the White River area, as does Themba hospital.

There are about 1,5 million people living in the area under consideration.

The sources of demographic data were: the 1985 census adjusted for a 15,1 percent undercount and 2,9 percent annual population growth; a 1989 Human Sciences Research Council (HSRC) sample census survey of the Kangwane areas; and Department of National Health and Population Development (DNHPD) figures for some urban areas including black local authority areas. It should be noted that the HSRC figures, in which there is most confidence, are between 35 and 50 percent higher than the figures calculated for the same areas from the 1985 census adjusted as described. This suggests that the non-Kangwane populations may be seriously underestimated in table 1.

There are approximately 3000 hospital beds available in the facilities reviewed in the study. It should be noted that the bed tallies for each facility (on counting the actual beds available per ward) did not match the total bed capacity claimed for the facility. In some cases the actual beds available are less than the stated bed capacity of the facility. In three hospitals patients were doubling up in beds or sleeping on the floor.

TABLE 1 **BUDGETS AND RESOURCE ALLOCATION**

FACILITY	Population of drainage area *a	Registered bed capacity	Observed bed capacity	Percentage of registered beds in use	1989 Registered bed occupancy %	Registered beds per 1000 population	Total budget 1990/1991 (R mill)	Includes clinics	Includes works budget	Estimated hospital budget (R mill)	Annual expenditure per bed in use (R)	Hospital budget/head population served	Cost per patient-day
Tintswalo Combined	148 396 228 270	260 454	340 518	131 % 114 %	124 110	1.75 1.99 *b	10.9 17.7	Yes Most	Yes Some	8.1 4.9 *b	23 724 28 699 *b	54 65 *b	68.54 81.31
Matekwane	79 874	194	178	92 %	92 *c	2.43 *b	6.8	No	No	6.8	38 202	85 *b	104.38 *c
Mapulaneng	201 200	464	493	106 %	94.8	2.31	9.6	Yes	Yes	7.1	14 410	35	44.25
Lydenburg	68 400	139	137	99 %	65	2.03	2.8	No	No	2.8	20 438	41	84.91
Sabie	36 000	116	100	86 %	61	3.22	2.7	No	No	2.7	27 000	75	104.54
R. Ferreira Regional catchment	120 000 1 500 670	308	268	87 %	81	2.57 0.21	15.6	No	No	15.6	58 209	130 10	171.32
Barberton	81 000	296	284	96 %	51	3.65	8.8	No	No	8.8	30 986	109	159.71
Themba Combined	333 000 333 000	558 628	500 574	90 % 91 %	83 85	1.68 1.89 *d	*d 15.5	*d Yes	*d Yes	*d 11.5	*d 19 983	*d 34	58.94
Bongani	*d	70	74	106 %	100 *e	*d	*d	*d	*d	*d	*d	*d	
Shongwe	232 000	218	350	161 %	210	0.94	12.25	Yes	Yes	9.1	25 900	39	54.25
Embhuleni	201 000	192	201	105 %	82	0.96	5.9	Yes	Yes	4.4	21 721	22	75.98
Total	1 500 670	2 815	2 925	104 %	94	1.88	90.85			76.77	26 246	51	79.35

*a See text.

*b Tintswalo and Matekwane serve overlapping populations. For the purposes of ratios, the resources of the two has been combined and are presented first for the combination and then for the hospitals separately.

*c Estimated occupancy from percent of beds in use. In reality much lower, probably about 70 %.

*d Themba and Bongani are in the same region. Same population used for both. Bongani is really an outlying ward of Themba. Bed and expenditure to population ratios are given first for Themba and then for both.

*e Estimated occupancy.

The superintendents of each hospital provided figures on the total hospital expenditure. In the case of the self governing territory facilities this was the budget for the "health ward" and included clinic services and some maintenance. The "total budget" includes seconded staff, drugs, dental services, but excludes central head office expenditure, capital expenditure, nursing college costs, environmental health expenditure, population development programme costs, major works department expenditure and special contracted services. (In the case of Shongwe hospital, when all these costs are included, the total health ward expenditure increased from R12,25 million to R16,5 million for 1989).

Transvaal Provincial Administration (TPA) hospital budgets reflect direct hospital expenditure and the expenses incurred by the District Surgeon service. Maintenance budgets are not reflected and nor are the community based health services.

The actual expenditure on the hospital per se in the health services of the self-governing territories is almost impossible to determine. In order to adjust the health ward expenditure to be comparable to direct hospital expenditure, the former was reduced by 26 percent. This figure is derived from a detailed costing study of costs in the Shongwe health ward.[20]

A sum of R77 million is budgeted for the internal running costs of these 10 hospitals in the 1990/1991 financial year. (This does not include the running of any peripheral clinics.)

It will be noted from **Table 1** that the budget for Matekwane hospital is somewhat different from the other hospitals in that it includes capital redemption costs. This is because Matekwane Hospital was built for the Gazankulu Department of Health by, and is run by, Lifecare; a private company who manage numerous health facilities in South Africa. Capital redemption forms part of the budgeted costs for 20 years. The real running

costs are unknown. On an estimated capital cost of R8 million, and a 20% annual interest the loan repayment amounts to R1,643 million.

The hospitalisation component of the health care is thus R76.9 million. There is therefore an estimated average of R26 246 to be spent this year per hospital bed. Alternatively, R51 is budgeted per head of the population for the whole study area for 1990/91.

The individual facility budgets per head of population served are **not** fairly comparable as the actual and theoretical drainage areas ~~bear~~ not ~~correlation~~. It is, however, clear that the actual money available on each hospital's budget bears no constant relation to the bed capacity of the facility.

The costs per patient day would be particularly useful but the available data on bed occupancy is very speculative. The DNHPD figures for annual bed occupancy averages for these facilities range from 51 percent for Barberton hospital to 210 percent for Shongwe hospital. The approved bed totals are used in the calculations rather than the actual beds in use.

The outpatient load of each hospital differs, as does it's maintenance cost and the expenditure on clinics/transport, etc. As a result it is difficult to estimate inpatient costs, and therefore to make accurate comparisons, without collecting primary data. There are however, several obvious observations:

4.1 a)

Rob Ferriera hospital expenditure is about double the cost per bed of other hospitals and three times the cost per bed of Mapulaneng and Themba hospitals.

The disproportionate expenditure on Rob Ferreira hospital is related to the fact that it performs several specialist functions, has a very active theatre (performing several technical surgical procedures) and has to maintain an intensive care unit too. These specialised services consume funds.

Rob Ferriera already serves to some extent as the regional referral hospital. The second set of figures illustrates the situation from the regional facility perspective.

4.1 b)

Barberton hospital is only half occupied most of the time and this makes the cost per patient day significantly more expensive than shown here.

Even so, Barberton hospital is the least cost-effective facility on pure bed cost. Even if the population for eMjindini is elevated from the original estimate of 11 000 to the most recent assessment of 19 000, the bed population ratio of 3,65 would decrease to 3,3 per 1000, and expenditure per capita in the magisterial district to R99.

4.1 c)

Mapulaneng hospital is the most underfunded facility.

4.1 d)

The bed cost of Matekwane hospital may be falsely elevated because the budget includes capital redemption. Also outpatients are cut to a minimum as only referred outpatients are seen and this makes it difficult to compare Matekwane's costs to the other

hospitals. Furthermore this budget is due for revision before the end of the financial year and is likely to be closer to R8 million.

4.1 e)

The figures showing the combined Mhala resources for Tintswalo and Matekwane hospitals are a little exaggerated by Matekwane's capital redemption and high costs.

4.1 f)

There are 144 registered and approved beds not presently used but some 254 additional beds made available in other hospitals (which are not approved). There is therefore a final excess of 110 beds on the 2815 approved in the region, giving a total of 2925 beds in use.

Shongwe hospital is operating 132 beds more than the approved number, Tintswalo 80 more and Mapulaneng 29 more. Even with these inflated bed capacities, these three hospitals are 100 percent or more occupied virtually all of the time.

4.1 g)

The average per capita hospitalisation budget for the population of the self-governing territories allocated to the hospitals of those regions is R41 including Matekwane and R39 excluding Matekwane, compared to R98 for the population of the "RSA" allocated to the Transvaal Provincial Administration (TPA) hospitals. However, many inhabitants of the self-governing territories use TPA hospitals and vice versa. The expenditure per capita of true population drainage per facility is impossible to determine.

4.2 The functionality, quality and access of facilities

The functionality and quality of the facilities is reflected in **Table 2. It must be noted that the accessibility has been assessed with disregard to any existing constitutional borders.**

Space refers to the capacity of the physical structure to accommodate the work.

Quality refers to the scale of obvious maintenance requirements.

Structural design refers to appropriate architecture for climate and space utilisation, including masterplan layout.

Infrastructural access/siting refers to macro access for patients and services to the facility.

Functional access refers to micro access to parts of the facility itself, for patients and to the facility's services.

In this case there is no doubt that Matekwane hospital fulfils all the criteria for an excellent facility which is well placed and accessible for the population in its geographical area. On the other hand Embhuleni hospital, which is a magnificent building (and therefore scores highly), is extremely inaccessible and a badly placed facility. All the other facilities are fairly accessible and functional and of reasonable standard except for Bongani hospital.

Bongani is totally dilapidated and in fact does not serve any function as a hospital. It should rather be seen as a remote additional ward of Themba hospital, taking care of chronic patients particularly those suffering from tuberculosis.

TABLE 2 **FACILITY**

FACILITY	SPACE[1] patients/services	QUALITY/ condition	STRUCTURAL DESIGN appropriateness	INFRASTRUCTURAL ACCESS/SITING roads, rail	FUNCTIONAL ACCESS patients	FUNCTIONAL ACCESS services
Tintswalo	1 - 4[2]	1 - 4	3	4	3	2
Mapulaneng	3	2	3	4	4	4
Matekwane	5	5	5	5	5	5
Lydenburg	3	3	2	3	4	4
Sabie	3	3	2	3	3	2
Bongani	1	1	1	1	2	2
Themba	3	2	3	3	2	4
Rob Ferreira	3	1 - 5[3]	4	5	5	5
Shongwe	2	2 - 4[4]	3	2	2	1 - 2
Barberton	3	3	2	3	2	3
Embhuleni	5	5	5	1	5	5

(Scored: 1 = Poor; 2 = Average; 3 = Good; 4 = Very good; 5 = Exellent.)

[1] Availability of space for wards and services.

[2] Some parts very old, cramped; new buildings (OPD theatres - very good.)

[3] The present facilities for non-whites are inadequate and of a very stadard but could be upgraded and integrated at relatively little cost.

[4] Some parts very old, cramped; new buildings (OPD theatres - very good.)

Table 3 tabulates the essential services to each facility. It reinforces the comments regarding Bongani. The water supply is dubious, the sewerage system is totally inadequate, there is no spare capacity in the kitchen nor the laundry, and the hospital plus the nurses' home are in need of urgent major repair.

Three of the TPA hospitals do not have laundries of their own. They either contract their laundry out to private contractors or send them to the hospital in Middelburg. The laundry at Themba hospital is in a critical condition while those at Embhuleni and Barberton hospitals also need attention.

All of the hospitals (except Tintswalo and Bongani) have spare capacity in their kitchens. Most of the hospitals have some maintenance requirements, largely major, and mostly urgent.

It is distressing that at least half of the hospitals are still on manual telephone exchanges. This hampers communication and impairs the proper referral process necessary in cases of emergency. Most hospitals have some or other form of radio communication in addition to their telephone system.

The figures reflected in Table 4 are subjective assessments of ward layout, quality of inpatient accommodation and the average occupancy of the hospital made by the investigators on the day of the visit. The estimates of the proportions of out-patients referred to hospital, admitted from out-patients and the distribution of the catchment population of the hospital were made by the senior hospital staff. These estimates were confirmed with several members of staff at various points within the facility. *There has, however, been no attempt to correlate the figures with OPD or admission registers.*

TABLE 3 **SERVICES TO FACILITY**

FACILITY	WATER	SEWERAGE	WASTE	MAINTENANCE	WORKSHOP	KITCHEN	LAUNDRY	TELECOM	MORTUARY
Tintswalo	Limited Severe problems	Own plant off-site Problem reticulation	Remote dumping	Major backlog: all toilets, kitchen, laundry	Poorly equipped	Too small	Spare capacity if new machines	Manual 5 lines	9 Not adequate
Mapulsmeng	Limited	Own plant Unlimited	Remote dumping	Painting, cleaning & minor	Adequate	Spare capacity	At maximum capacity	Manual 2 in-lines	Adequate 16
Matekwane	Unlimited	Reticulated Unlimited	Remote dumping	None - new	Adequate	Spare capacity	Spare capacity	Manual 5 in-lines	Adequate 6
Lydenburg	Unlimited	Reticulated Unlimited	Remote dumping	Major rewiring and roof repairs	Adequate	Spare capacity	None (contract)	Automatic 4 in-lines	Adequate 6
Sabie	Unlimited	Reticulated Unlimited	Remote dumping	Minor painting and repairs	Adequate	Spare capacity	None (contract)	Manual 3 in-lines	Adequate 6
Bongani	Poor volume Dubious	Septic tanks overflow	Own pit and burn	Totally delapidated	Poorly equipped	At maximum capacity	At maximum capacity	Manual 1 in-line	Unused 9
Themba	Unlimited	Reticulated Unlimited	Remote dumping	Revamp - laundry, lifts & steamlines, kitchen	Adequate to good	Spare capacity	Inadequate Needs maintenance	Automatic 5 in-lines	At maximum capacity 12
Rob Ferreira	Unlimited	Reticulated Unlimited	Remote dumping	Revamp black section	Adequate & Med equipped	Spare capacity	None (contract)	Automatic 14 in-lines	Adequate 18 + Private
Shongwe	Pump problems	Shared plant Spare capacity	Remove to own pit	Laundry, old buildings roofs, paint	Well equipped	Equip. needs replacing Spare capacity	Max. capacity Equipment out of order	Manual 12 lines	Spare 15
Barberton	Unlimited	Reticulated Unlimited	Remote dumping	Only minor Recently revamped	Adequate	Spare capacity	At maximum capacity	Automatic 4 in-lines	At maximum 9
Embhuleni	Unlimited	Own plant Unlimited	Local burn and bury	None - in good condition	Inadequate	Spare capacity ++	Over maximum capacity	Manual 2 in-lines	Adequate 15

TABLE 4 WARDS

FACILITY	WARD LAYOUT	QUALITY OF WARDS	INPATIENT OCCUPANCY[1]	OUTPATIENTS PROFILE[2] REFERRED	OUTPATIENTS PROFILE ADMITTED
Tintswalo	Poorly laid out. Old - piecemeal additions	Poor	95%	< 5%	12%
Mapulaneng	Good - Double storey	Fair. Minor maintenance	75% - 80%	< 1%	+/- 10%
Matekwane	Exellent. All under single roof	Exellent Brand new	+/- 70%	> 90%	+/- 35%
Lydenburg	Racial segregation Old - built on	Fair to good both sides	Black > 70% White < 50%	W - 100%[3] B - 5%	Few
Sable	Racial segregation Old - built on	Fair to good both sides	Black 50%-60% White < 50%	Haphazard - run by local GPs - unsatisfactory	Haphazard - run by local GPs - unsatisfactory
Bongani	Add-on-and-add-on. Poor	Very poor	100%	All transferred from Themba	10%
Themba	Multi storey otherwise fine	Fair	90% +	10%	20%
Rob Ferreira	Multi storey Racial segregation	Whites exellent Blacks poor	White 50%-60% Black > 120%	W - most B - none	W < 5% B 5%-10%
Shongwe	Old - piecemeal expansion	New wards good. Old very poor	120%	Very few	unknown
Barberton	Old add-on Racial segregation	Fair to good both sides	White < 40%[4] Black 30%-40%	W - none B - none	10% -
Embhuleni	Good but lots of ramps	Exellent excesive	< 50%	No figures or estimates available	No figures or estimates avail.

[1] Average of wards on day of visit.

[2] Subjective estimates by superintendent and other staff.

[3] Most white patients admitted directly to ward by private GPs, not via OPD.

[4] Large proportion of inappropriate hospitalisation.

Besides Bongani, which is very poorly laid-out and not a good facility, all the other hospitals are quite useable facilities. The TPA hospitals are all built on a racially segregated basis. The facilities for whites are in all cases better than the facilities for blacks. It is however only in the case of Rob Ferreira that major maintenance would be necessary on what is currently the black section to bring it up to an acceptable standard. Having said this it is important to immediately state that all TPA hospital beds were officially made "open", available to any race, just after completion of this study's fieldwork. The impact of this on occupancy and utilisation of these facilities has not been assessed.

Mapulaneng, Tintswalo and Shongwe hospitals and the black section of Rob Ferreira hospital are extremely full. All the other facilities are relatively less occupied. Barberton hospital has a low occupancy. It is not clear why this should be the case and, in fact, it seemed to the investigators that a large proportion of those who are actually admitted do not really require hospitalisation (eg anecdotal reports indicated admission for dental extraction and scaling of teeth and the caesarian section rate is 50- 60 percent.)

The pattern shown in the estimated out-patient profiles in Table 4 reflects current management of the health service. The difference between Mapulaneng, with less than one percent of its patients referred and an admission rate of less than ten percent, compared with Matekwane hospital with more than ninety percent referred and at least one third of those admitted, is striking. Ideally all out-patients seen in any hospital should be referred from a primary health care network outside of the hospital. When this is the case personal experience in other similar hospitals has shown that between one quarter and one third of out-patients are admitted.

Another interesting point of note is that some hospitals service predominantly the local population living in the immediate vicinity of the facility and is *not the population resident in the district theoretically serviced by the facility.* In effect Mapulaneng and Themba hospitals, for example, are being used as clinics for their local populations.

4.3 Clinical, diagnostic, therapeutic and dispensary facilities

The diagnostic and clinical therapeutic services are reflected in **Table 5.** The South African Institute for Medical Research (SAIMR) has laboratory services at several hospitals. The Institute is responsible for by far the majority of all public sector laboratory tests performed in the area. A private firm of pathologists operates extensively in the private sector of medical care in the area.

X-ray facilities in the hospitals are generally quite good. Rob Ferreira hospital has two X-ray facilities. The older one is far less adequate than the very modern new one.

All the operating theatres seen are very functional and totally adequate for most general and emergency surgery. Rob Ferreira hospital has an enormous theatre complex with one theatre specifically allocated to urological work and another one shared by ophthalmic and ear, nose and throat (ENT) work. The major problem with the theatre complexes in the smaller hospitals is a lack of recovery facilities. Theatres are for the most part very well equipped. Rob Ferreira is so well equipped that it is capable of handling patients with aorta grafts, hip replacements and other major surgery. Only Rob Ferreira has a proper and fully equipped intensive care unit (6 beds). An intensive care unit is being planned for Themba hospital. In the meantime all hospitals have some means of coping with patients with more serious clinical and post-surgical problems. (High care rooms, etc.)

TABLE 5 CLINICAL SERVICES

FACILITY	LABORATORY	X-RAY	THEATRES	PHYSIO	OCC THERAPY	PHARMACY
Tintswalo	Own lab	Fair	4 Excellent	Shared Physio/Occ Therapy Inadequate		Cramped
Mapulaneng	SAIMR on premises plus own	Fair to cramped	3 Average	Inadequate	None	Adequate
Matekwane	Refer to SAIMR Mapula	Good	1 Good	Adequate	None	Good
Lydenburg	Refer to SAIMR Nelspruit	Good	3 Good	None	None	Good Central prepack
Sabie	Refer to SAIMR Nelspruit	Good	2 Average	None	None	Adequate Central prepack
Bongani	None	None	None	None	None	Cupboard
Themba	SAIMR on premises Cramped	Fair	4 Average	Inadequate	Minimal Just adequate	Adequate Central prepack
Rob Ferreira	SAIMR on premises Cramped	Excellent	6 Excellent	Very good	Cramped	Adequate
Shongwe	Own lab, well equipped Sufficient space	Good	2 Good 1 Poor	Shared, cramped. Physio dominates.		Adequate Central prepack
Barberton	SAIMR on premises	Good	3 Average	Adequate	None	Adequate Poor fridge
Embhuleni	Own lab Very good	Spacious Good	3 Excellent	Adequate	None	Excessive Spacious

Physiotherapy and occupational therapy services are largely deficient. Rob Ferreira has both of these services plus an orthopaedic and orthotics workshop.

It also has a medical technical maintenance workshop for medical equipment maintenance. No other hospital has any of these facilities. The TPA hospitals use these facilities but the self governing territories contract services privately. In many instances the service is poor.

The pharmaceutical distribution network in the study area is extremely fragmented but all of the hospitals have reasonable pharmacy and storage accommodation. Some TPA hospitals obtain prepacks from Middelburg hospital, others from Nelspruit and the Kangwane hospitals obtain prepacks from their own central store, also in Nelspruit. The Gazankulu and Lebowa hospitals obtain pharmaceuticals by yet other means. Gazankulu has embarked on a pilot initiative with a private pharmaceutical company (Lennon Petersen Associates). It is not surprising that simple essential pharmaceuticals are out of stock from time to time in some facilities.

4.4 Personnel

The personnel situation in each of the hospitals varies quite considerably. The detail of personnel in each of the hospitals is reflected in **Table 6.**

All hospitals have some form of management structure which purports to involve the community. In nearly all instances the community "representation" is in fact not representative and comprises a nominated Board.

TABLE 6 PERSONNEL AND MANAGEMENT[1]

FACILITY	POSTS	OCCUPIED	EXPERIENCE TRAINED	ON-GOING IN-SERVICE	MANAGEMENT MEETINGS	STAFF MEETINGS	UTILISATION OF QUALIFICATION
Tintswalo							
Mapulaneng	All adequate	Grossly inadequate Especially medical	Doctors foreign Nurses no info.	Regular All staff	Regular	Regular per category	Fairly appropriate
Matekwane	All adequate	Some vacant paramed/nurse	Fair All categories	Regular All staff	Regular	Regular	Fair
Lydenburg	Adequate but needs another Doctor	All	Good	Regular (Except Doctor)	Regular	Regular	Fair: too small to apply
Sabie	Adequate but all doctors part-time	Mostly	Good	Regular	Regular	Regular	Fair: too small to apply
Bongani	Adequate but no doctors full-time	All	Good	Regular All nurses	None	Regular	Not appropriate
Themba	Adequate	——Incomplete information——		Regular All staff	Regular	Regular	Good
Rob Ferreira	Lots of part-time specialists Adequate	Mostly	Very good	Regular All staff	Regular	Regular	Not always enforced
Shongwe	Adequate	All	Doctors no Nurses good	Regular All staff	Regular	Regular	Key posts only Others rotate
Barberton	Part-time specialists Full/part-time Drs.		Fair	Regular	Regular	Regular	Fair
Embhuleni	——————no information——————			Regular	Regular	Regular	High turnover

[1] All of the hospitals have nominated Hospital Advisory Boards except Bongani which has an elected committee.

5. REGIONALISATION DEFINITIONS AND PRINCIPLES

5.1 Definitions

The term "*regionalisation*" is used to refer to the process of patient-referral and services procurement between hospital facilities in a co-ordinated manner within a defined, logical, geographical area with a uniform infrastructural accessibility.

The regionalisation process anticipates the dissolution of the existing political borders, which are not based on any geographical or infrastructural logic. It also anticipates the "defragmenting" of preventive/promotive and curative health services into a unitary system.

5.1 a) District (or Community) hospital

This refers to a facility that is staffed by doctors and is capable of at least straight-forward and common surgical procedures (e.g. caesarean sections, laparotomies, manipulation under anaesthetic, simple internal fixations, and burr holes), and of diagnosing and treating common and uncomplicated medical conditions. In principle these hospitals would have no medical specialists on their full-time staff. In effect what should happen is that a cadre of general specialist would develop. With the support and in-service training of the district staff by specialists at a regional level, these staff would be competent to handle all common and most emergency situations.

It is important to remember that this applies not only to doctors but to all health staff, paramedical, nursing, etc included.

It is felt that the full-time presence of a specialist at a district hospital would retard the development of the "general specialists" and deny the rest of the region the specialist expertise. It is a reality that specialists are rare so centralising them would allow the greatest benefit to the whole region.

It is acknowledged that there are big and small district hospitals and some degree of flexibility would be needed. However, the principles mentioned still hold.

Each District Hospital would service a network of community or peripheral services (fixed and mobile clinics plus health centres). The relationship of these facilities to the hospitals is not within the brief of this investigation.[21]

This description encompasses that made in the National Plan for Health Service Facilities.[11] The National Plan norm, however, requires that four private medical practitioners practise in the area and that a primary health care service must already be established within the area. The definition in the National Plan presupposes full-time medical officers in district or community hospitals.

5.1 b) Regional hospital

This is a hospital which receives referrals from a network of district hospitals, in a logical geographical and infrastructurally accessible region. Such a facility should be able to do specialist surgical work and to diagnose and manage complicated medical problems. It should not be providing experimental medical services nor highly technical and sophisticated services such as radiotherapy or other services where economies of scales are not achieved. Technical and support functions such as pharmaceutical supply, medical equipment

servicing and repairs, and orthotics workshops should be controlled regionally.

This facility would have a major regional teaching and training function. It may also have to provide a "district hospital" function for the local community. Again this definition encompasses that of the National Plan for Health Service Facilities. [11]

5.1 c) Tertiary hospital

These facilities should be dealing with rarities and highly technical problems. Patients with super-specialist problems would be referred from regional and district hospitals. These would include procedures such as coronary artery angioplasty, lithotripsy, heart transplantation, etc.

5.1 d) Other

There are obviously grey areas where the activities of different levels of hospital care overlap or where the skills of a particular doctor enable one hospital to manage conditions which another hospital of a comparable level cannot manage. However, for the purposes of modelling a health service, these definitions are useful.

The hospital component of patient care must not be seen in isolation. The socio-economic and health status of a community and the ability of the primary health care infrastructure to fulfil their needs will strongly influence the grading and need for hospitals.

5.2 Reasons for Regionalisation

The rationale behind the regionalisation of hospital services, and all other health services that are attached to them, are many.

5.2 a)

It is anticipated that better utilisation of existing facilities will be realised. There will almost certainly be a decrease in the duplication of existing facilities and a substantial decrease in the use of transport in order to provide services to the facilities.

5.2 b)

The regionalisation of more complex medical services would make the decentralisation of expertise from major metropolitan areas possible. It would be possible to provide a cost effective specialist service locally which would result in a reduced load on GaRankuwa hospital (Pretoria) - presently the referral hospital for 6 of the 10 hospitals in this region (and for all of the hospitals in the self-governing territories situated in the northern Transvaal.)

5.2 c)

The presence of specialists in the region would permit better training of district hospital personnel and in-service training within the area. Conversely, specialists would be more acutely aware of the circumstances in the facilities from which their patients are referred and would develop a closer relationship with the district hospital personnel.

5.2 d)

Patients requiring specialist care would spend far less time travelling. If admitted they would be nearer to relatives who would be able to visit them. Besides the convenience to the patient, this would also save the health services a considerable sum of money.

5.2 e)

Perhaps the greatest savings in time and cost would be with respect to follow-up repeat visits.

5.2 f)

Regionalisation of the secondary health care system would ensure a much better support to district hospitals and primary health care facilities in the periphery. This support ranges from better and more regular in-service training to greater availability for telephonic consultations, to better communication about patients referred in from or sent back to the periphery.

5.2 g)

The co-ordination of laboratory services, pharmaceutical supplies, the blood bank, as well as the laundry, stores and other support services would no doubt result in better services, probably be much more efficient and cost less.

6. OPTIONS FOR REGIONALISATION

Three regionalisation options are discussed but only Option A is seriously contemplated.

6.1 Assumptions

The following assumptions apply in all three options:

6.1 a)

True desegregation of existing facilities will be realised.

6.1 b)

The geographical and infrastructural area chosen for the study is reasonable and manageable with the exception that the southern portion of the Eerstehoek health ward of Kangwane has easier and more direct access to Ermelo and Middelburg or Witbank and should be excluded from the region under consideration during further planning.

6.1 c)

All hospitals are regarded as being referral centres for a primary health care infrastructure. This applies to both inpatient and outpatient sections of the hospitals. In other words **no hospital should be a primary contact point for the provision of minor ailment services to patients.**

6.2 Option A

OPTION A. Rob Ferreira hospital the regional hospital with all other hospitals district hospitals.

This is the most obvious option. Rob Ferreira hospital is the most attractive for specialist care as far as facilities are concerned. The facility is well designed and constructed, especially on the present white side which has a capacity of about 130. There is an extremely well equipped theatre complex, there is already a six-bed intensive care unit which is highly functional, and there are technical workshops available on the premises.

Nelspruit, in which town the hospital is situated, also has the best infrastructural access to the whole region under discussion. Of all the hospitals in the area reviewed, Rob Ferreira (Nelspruit) is the most directly "on-the-way" to the next biggest centres of the Pretoria-Witwatersrand-Vereeniging area. In addition, Nelspruit has an international airport which airfield is highly accessible for casualty evacuation and transfer of patients to the academic centres. Nelspruit also has the best civil and industrial infrastructure in the area.

Were Rob Ferriera to become the regional facility for the area the question arises as to what district facility would be available for the immediate environs of Nelspruit. Most locals, for at least the foreseeable future, are likely to be whites and Asians. These people are predominantly private patients making use of private general practitioner services. However, the non-private patients do need at least primary health care services outside of the hospital and access to district hospital services. The present local authority clinics at Currie Street and the Municipal building, as well as at Nelsville, plus the district surgeon service and the TPA family planning clinic could become comprehensive public sector primary care

centres. Regarding the need for district hospital services, it is likely that the load of local referred patients could imbalance the regional function of this facility if referred to the regional facility directly.

This option is expanded in the recommendations.

6.3 Option B

OPTION B Themba hospital as the regional referral unit.

A major advantage of this option is that Themba hospital is the biggest facility available for such a referral unit. It already provides significant specialist services by means of full-time employed specialist staff.

There are also certain political considerations. It may be important as part of an affirmative action process of redressing past discrimination to emphasise that there is no reason why the high care referral hospital of the region should not be situated in an area where the majority of residents are, and will be black. Townships, especially large ones such as Kabokweni and KaNyamazane, will have to be developed in the long term so that they do not forever remain dormitory towns for commuter populations. Moving State-provided services and administrations into these areas is part of this process.

There are however several negative points. Themba hospital requires major adaptation and refurbishment in order to accommodate such regional functions. Were this facility to become the regional referral unit for the whole Eastern Transvaal area, a new district facility, additional to Themba hospital, may be needed for the Kabokweni/KaNyamazane area. Secondly, Kabokweni (Themba hospital) is not infrastructurally well placed for access to the major routes to the metropolitan centres, nor to the airfield.

Finally, although this is not a strong argument, Themba is also physically removed from the potential source of specialists, at least for the foreseeable future. It is likely that specialists, black or white, would probably choose to live in Nelspruit or White River rather than in the more isolated area of Kabokweni once the Group Areas Act is abolished, an objective that the State President, Mr FW de Klerk, has on several occasions indicated will be achieved in 1991.

In this model Rob Ferreira would become a district hospital and would have to refer patients to Themba hospital for specialist care. This seems less likely to happen as most specialists already work in Nelspruit and at Rob Ferreira hospital and would merely go to the private facility where they would service predominantly white and Asian patients.

The secondary care facilities that do exist at Rob Ferreira hospital, such as the ICU, would be wasted since one could not justify two such facilities so close together.

Nearly all of the other hospitals would take longer to transport patients to Themba than to Rob Ferreira and the tertiary referral route from Themba must pass Rob Ferriera hospital.

6.4 Option C

OPTION C. Rob Ferreira and Themba hospitals as a joint regional referral unit.

In this option the two facilities would operate as one unit, each responsible for certain specialist services. An advantage is that this option would allow for more space for specialist care. The most pragmatic allocation would be

to allocate surgical-type specialities to Rob Ferreira hospital and the non-surgical-type specialities to Themba hospital. This is purely because of the existing facilities available at the two hospitals and the desire to move rapidly into a rationalised system without waiting for long term hospital expansion schemes.

The problems described under Option B still apply, namely that Themba hospital as a facility needs a fair amount of maintenance and that it is not ideally placed in a referral line towards the next centre of referral.

However the main problems relate to the many specialities that are needed to service the separated medical and surgical departments. For example, radiologists, pathologists, anaesthetists (for medical ICU and theatre), and even the physicians and surgeons themselves are often required to consult one another about their patients. These specialists would have to travel between the facilities or else be duplicated at each. The laboratory and X-ray facilities themselves would have to be duplicated. All this is likely to undermine many of the efficiency gains of regionalisation.

7. OPTIMUM BED CAPACITY OF A REGIONAL HOSPITAL FACILITY

It has been difficult to assess the exact number of regional hospital beds required for this region. Such planning would require a separate study and would have to take into account population growth and movements over the next 20 years. It would also have to take into account the effect on demand of the new private hospital that will be opening in the near future in Nelspruit. However, it is likely that the beds currently available for provincial use would not be sufficient. Rob Ferriera hospital's present capacity provides 0,21 beds per 1000 existing population. The 138 beds developed for the non-white population groups are for the most part of an inferior standard and require upgrading.

Figures of
1 acute care bed / 300 population and
1 chronic care bed / 1500 population

have been suggested by Buch and de Beer based on work (done in this same area) with respect to proposed minimum standards.[14]

This would mean that the 1,5M population of this area would require 6000 hospital beds, 5000 for acute care and 1000 for chronic care. This is **double** that which is available in the existing facilities. It is not clear whether the recommended bed norms include inpatient beds situated in health centres.

Glatthaar [13] suggests 1 secondary care bed per 1000 population (including maternity). By this norm only 1450 beds would be required, including those in the community health centres. This is **half** of those beds already available in hospitals alone.

It is likely that the real need lies somewhere between the two. Where a primary health care infrastructure functions well and health status is fair, 2,5 district beds

per 1000 (acute and chronic) probably constitutes reasonable inpatient capacity. In this area 3750 district beds would be required now, exclusive of any regional facility.

Glatthaar [13] suggests one regional hospital of 600 to 800 beds per million population, or 0,6 - 0,8 beds per 1000. The DNHPD [22] works on two beds per 1000 population for regional hospital planning but it is unclear how the drainage population is derived.

One regional hospital bed per 10 district beds would seem to be a reasonable ratio (based on personal experience of the proportion of patients admitted to district hospitals who require regional-level-type care), though references of this sort are conspicuous by their absence.

The ratios are obviously dependent on several diverse influences such as health status and accessibility and competence of the primary health care network as already mentioned. The regional hospital size will likewise depend on the competence of the district hospital network.

On a basis of this 1:10 ratio a present regional hospital would require 280-290 beds. This is on the understanding that this does not include any district beds for the local population. Additional beds could be provided for this purpose in the same facility.

However, on Buch's recommended bed ratios per 1000 population, the present population would justify 6000 community hospital beds and a 600 bed regional hospital. (Either by enlargement of existing facilities or building additional facilities).

Once again, the truth is likely to lie somewhere between the two extremes. The 1:10 ratio translates to 0,25 regional beds needed per 1000 population, or 375 beds. There is little doubt that a properly functioning PHC infrastructure would

reduce the load on the existing hospitals. It is none-the-less evident that additional district beds are necessary in some areas, These should take the form of health centres wherever possible.

The present bed to population ratio of 1,88:1000 is reduced to 1,75:1000 if Rob Ferriera's capacity were to be entirely reserved for a regional function. A total district bed availability ratio of 2,5:1000 population would mean a need for 3750 beds plus a 375 bed (0,25/ 1000) referral hospital. [4125 beds].

If the southern portion of the Eerstehoek area is excluded from this region , as already suggested, the requirements drop to 3424 district and 342 regional beds respectively. This is felt to be a reasonable target for the present population. Any planning process will have to take cognisance of demographic trends for the next two decades at least.

Furthermore, it is essential that a separate study be done to determine the true catchment and service areas of each hospital before deciding where the additional beds should be provided.

It would appear that Rob Ferriera needs to provide 342 regional beds and 300 district beds, making a total of 642 beds (more than double the present capacity.).

Whilst only inpatient bed capacity is discussed here, it must be remembered that a hospital must provide numerous services. The physical size, layout and relationship to services is widely referenced in the literature.[8,9,11,12,22] Outpatient services should be secondary care facilities but this is possible only if the primary health care network is thoroughly developed and efficiently run. The fragmentation of primary and secondary care responsibilities undermines the potential of both and will continue to pressurise all authorities to build more hospitals.

8. RECOMMENDATIONS

The recommendations are broadly grouped into

* *those which apply to the general referral and servicing pattern*

* *those which pertain to Rob Ferriera hospital with regional hospital requirements to be considered*

* *recommendations specific to each community hospital facility*

8.1 Recommendations which apply to the general referral and servicing pattern

a) The hospital component of health care cannot be seen in isolation. The functioning of district hospital facilities, the need for their expansion and their adequate staffing depend on the proper functioning of primary health care services and elevation of health status. **Where hospitals are flooded with patients whose problems do not require doctor care the answer is not necessarily to enlarge the hospital.**

If district hospitals are to see only referred patients then the primary health care services available within local authorities would need to be expanded and adapted to incorporate minor ailment curative care and maternity services, and the primary health care services which are not available in the rural areas would need to be developed.

b) There would have to be a well advertised and strict policy of not accepting unreferred patients for hospitalisation and out-patient

services in all hospitals, especially at Rob Ferriera. There is obviously a commensurate obligation to develop PHC services.

c) Southern Eerstehoek, and therefore Embhuleni hospital, should be excluded from the region as the infrastructure makes Ermelo a more logical referral centre (or even Middleburg).

8.2 Recommendations which pertain to Rob Ferriera hospital per se when regional hospital requirements are considered

a) With Embhuleni hospital's referrals reallocated away from Nelspruit the immediate bed requirement for the regional hospital is 342 beds. (1 per 10 district beds)

The 308 beds presently available at Rob Ferriera hospital would provide for the district beds (2,5:1000 population).

The real requirement is therefore an additional 340-350 bed regional facility.

This is felt to be a realistic estimate of the true needs. In the absence of a competent and comprehensive PHC system and a shortage of district hospital beds, Rob Ferriera with its present capacity is likely to be severely stressed as the regional hospital. This stress is unlikely to be relieved by the new private hospital.

b) Certainly the current black section of the hospital requires substantial upgrading and investment.

c) The South African Defence Force (SADF) would have to move out of the ward which they presently occupy.

d) The unused wards would have to be opened.

e) Expansion is required in the short to medium term in order to fulfil the needs for a regional role. The grounds of the hospital have plenty of space, on a relatively flat terrain, for development of the infrastructure and future expansion to the wards.

f) The theatre and ICU facilities are likely to be sufficient for district needs, especially once the private hospital is opened, and partially fulfil regional needs. This will require further study.

g) The fact that there is no laundry on the hospital premises is a potential problem which may be overcome if a sufficient, adequate and accessible laundry contract can be obtained.

h) The planned private hospital which is under construction may draw the specialists away from the public health facility and thus make the public sector's access to (private) specialist staff more difficult. In the event of Rob Ferreira becoming a regional hospital it would certainly have to have full-time specialist staff posts. An option may be to make the regional hospital a satellite facility of an academic hospital.

The specialist functions currently being provided on a full-time basis at Themba, Tintswalo and Shongwe hospitals should be transferred to the full-time staff establishment of Rob Ferreira hospital. This would allow consolidation and reinforcement of specialist services. Immediately available are internal medicine, psychiatry, ophthalmology, gynaecology, and general surgery services at least1.

8.3 Recommendations specific to each community hospital facility

a) As far as the district hospital component of the study is concerned, further recommendations can be made.

All the other hospitals need certain management changes in order to ensure that they are referral facilities and not primary facilities for the local population. Mapulaneng and Themba hospitals have this problem. Bosbokrand and Kabokweni respectively urgently need health centres to cope with primary health care needs. Simple minor ailments, antenatal care and uncomplicated deliveries are obstructing curative care which must be hospital based.

The impression of the study is that **there is an urgent need to concentrate on upgrading clinic facilities and services, to improve training and support structures for primary care, to improve communication to ensure this support and to insist that no unreferred (non-emergencies) be seen at hospitals.**

This structure will ensure that the minimum number of hospital beds (both district and regional) will be needed. Obviously if the district hospitals function well, with competent staff, then the regional hospital will not be unnecessarily burdened.

b) In some instances some restructuring of the district hospital facilities will also be necessary.

i) The area served by Tintswalo, Mapulaneng and Matekwane hospitals needs another 60+ beds on paper, not-withstanding equally urgent essential upgrading and development of the

PHC network. It is unclear as to where these beds should be provided as the referral and servicing pattern is complex. It is, however, the author's feeling that there should be no consideration of building on at Tintswalo at this stage, apart from the maternity unit which is currently under construction. The proposed training centre is acceptable and not directly related to the brief of this study. Additional inpatient beds would be a high priority as part of the upgrading of the PHC network.

ii) Mapulaneng is a very adequate but highly abused facility. There is an urgent and desperate need for staff accommodation and redefinition of the methods of providing the whole health service of that area.

iii) Bongani hospital must be demolished and a 20-bed community health centre erected on a new site in the community to be served.

It would be too expensive to rehabilitate the buildings. There is an insufficient sewerage system and very poor accommodation for staff. The second best option would be to down-grade the facility to a health centre or clinic in order to avoid the need for the extensive servicing presently required. It is no longer advisable to treat tuberculosis patients in sanatoriums, which is what this basically is. Bongani is in any case not very well situated and there is very poor accommodation opportunity in the immediate vicinity of the hospital for any staff.

The Nsikasi / White River area would lose 54 beds in this process. Themba is, however, designed to accommodate these 54 beds and could do so. This area needs 830-850 district beds, a deficit of 250-270 beds.There is an urgent need for at least one, and perhaps two, health centres in Kabokweni, and similarly so in KaNyamazane, in order to provide midwife obstetric facilities, casualty and primary health care services in the community.

iv) Themba hospital should NOT be contemplating either an intensive care unit (ICU) nor extension of the maternity capacity.

The establishing of an intensive care unit costs an enormous amount of money and should be carefully considered in the absence of permanent specialist staff.

v) The area served by Shongwe and Barberton hospitals, including northern Eerstehoek, has a population of 480 000 to 500 000. Somewhere in the order of 1200 to 1250 district beds are required. The 646 presently available provides for half of this need. Shongwe is severely over-stretched while Barberton is under-utilised. Shongwe should NOT be contemplating ward expansion as it may be a far more appropriate solution to plan a new, more accessible facility elsewhere in the region. A proper drainage pattern study should be undertaken prior to further action.

Shongwe hospital needs to consolidate existing facilities for better functioning as a district hospital. It also desperately needs extensive structural maintenance in several places,

especially the maternity ward. This facility is not an option for a regional hospital owing to its poor siting.

vi) The services provided by Barberton hospital need to be reviewed in order to find out why the utilisation of the facility is so much lower than expected.

vii) Irrespective of whether Eerstehoek is served by Nelspruit or Ermelo, Embhuleni is extremely poorly situated and may have to be closed as a hospital. Part of the building, perhaps the present maternity section, would be useful as a health centre. A facility in southern Eerstehoek could justify an additional 130 beds on paper! This facility is inappropriate to the needs of the community and is totally under-utilised. This is largely due to the poor infrastructural accessibility and lack of population in the immediate vicinity of the hospital. As a result of this, amongst other factors, it is extremely difficult to staff the hospital. At present this facility is merely a consumer of funds. Urgent attention to the PHC infrastructure may resurrect the usefulness of this facility. It will always be an expensive hospital to run.

An alternative may be to adapt the building to serve as a university, technicon or school campus, or a centre for the aged or disabled.

viii) The Sabie / Lydenburg area needs 260 beds and has 255.

These two hospitals plus Barberton and Matekwane hospitals need no urgent changes. There are some maintenance requirements.

However, all the TPA hospitals need some reorganisation, either minor or major, in order to cope with racial desegregation.

c) Most of the hospitals have urgent maintenance requirements. These should be attended to before any contemplation of expansion or alterations. Themba, Shongwe, Tintswalo and Mapulaneng hospitals have urgent and substantial maintenance requirements.

The equipment available at all the non-TPA hospitals needs improvement and upgrading.

d) Staff accommodation and recreational facilities are grossly lacking, especially in the more remote hospitals. This applies to non-nursing professional staff, but also to professional nurses, at all hospitals especially in the hospitals of the self governing territories.

9. CONSTRAINTS

There are several constraints to the immediate regionalisation under any of the three options proposed.

The first is obvious and relates predominantly to the multilateral co-operation which is needed between diverse authorities due to the constitutional legislation of the day.

The second is the fragmentation of both the levels of health services (primary, secondary and tertiary) and the levels of clinical care within secondary and tertiary medical care. The clinics and health centres are the responsibility of different authorities from those of the hospitals and yet different again from that of the academic hospital authorities.

Thirdly, any change is likely to constitute a threat to certain carefully constructed personal empires.

Option A undoubtedly provides the best solution. It is strongly recommended that all planning for expansion to any facility outside of Option A be stopped in the short term and that the authorities firstly concentrate on achieving a **proper regional structure from the primary care level by committed co-operation.**

Maintenance must receive attention urgently. Planning for the short term must include a detailed study into the expansion of Rob Ferriera hospital to cope with a regional function. This will include full-time specialist staff, paramedical services, etc.

The services provided by clinics outside of the self governing territories (Section 30 areas, including private industrial clinics, and local authorities) must be expanded to include curative health care; the so-called "Section 38A nursing service".

However, it is firmly believed that there are ways of integrating the hospital and clinic services of the whole region, even under present legislative constraints. It is worth doing this in the interests of providing comprehensive, affordable health care as well as is possible in order to develop models for regional health services which can be the basis for future health policy and l islation.

It is not necessary to wait for constitutional change before regionalisation plans can be made. It is essential that the authorities represented in the area use every existing co-ordinating channel and forum in order to design and implement a regional plan.

TABLE 7 CURRENT AND PROPOSED BED CAPACITIES OF HOSPITALS

FACILITY	Population of drainage area	Registered bed capacity	Observed bed capacity	Desired capacity (2.5 community beds/1000) (0.25 regional beds/1000)	Change from current registered	Change from current observed
Tintswalo	148 396	260	340	371	111	31
Combined	228 270	454	518	571	117	53
Matekwane	79 874	194	178	200		
Mapulaneng	201 000	464	493	503	39	10
Lydenburg	68 400	137	137	171	34	34
Sabie	36 000	116	100	90	26	-10
Rob Ferreira	120 000	308	268	300		32
				642	334	
Regional catchment	1 369 670			342		374
Barberton	81 000	296	284	203	-93	-81
Themba	333 000	558	500	833	275	333
Combined	333 000	628	574	833	205	259
Bongani	*c	70	74	0 *c	-70 *c	
Shongwe	232 000	218	350	580	362	230
Embhuleni	70 900	192	201	175	-17	-26
Total	1 369 670	2 815	2 925	3 424 Add. community beds	611 *b	499 *b
				342 Add. regional beds	342	
				3 766 Total add. beds	953 *b	841 *b

*a Assuming Embhuleni continues as small hospital serving only North Eerstehoek population of 70 900.
*b These are net figures i.e. if beds are closed these must be added to the new beds to be opened.
*c Bongani serves same population as Themba. Recommend closing Bongani.

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APPENDIX

Final questionnaire used

HOSPITAL QUESTIONNAIRE

NORTHERN TRANSVAAL AND KANGWANE REGION HOSPITALS SURVEY

HOSPITAL: [ ] DATE: [ ]

SECTION 1 : BUDGET

1 What is the total budget (1990/1991) for this hospital? [ ]

2 What is the estimated proportion allocated to the hospital itself? [ ]

3 Describe the estimated drainage area: .....
.....
.....
.....

4 What is the estimated population in that area? [ ]

5 How is the hospital's budget estimated and allocated?
DESCRIBE: .....
.....
.....
.....

6 How much autonomy is there in the vote allocations?
DESCRIBE: .....
.....
.....
.....

7 How much autonomy is there in the actual expenditure?
DESCRIBE: .....
.....
.....
.....

8 How much deregulation is experienced in the budget?
DESCRIBE: .....
.....
.....
.....

ATTACH COPY OF 1990/1991 BUDGET ESTIMATE.

SECTION 2 : PHYSICAL FACILITIES

1 BUILDINGS

1.1	What is the total capacity of the hospital?	beds
1.2	What is the present functioning capacity?	beds
1.3	How many OPD consulting rooms are there	
1.4	How many fully equipped OT's are there?	
1.5	How many beds reserved for mother-lodgers?	beds

Rank on a scale of 1 - 5:
(1 = poor, 2 = average, 3 = good, 4 = very good, 5 = excellent)

1.6 Functional area

	space (1 - 5)	quality (1 - 5)
Administration		
Laboratory		
X-rays		
Physiotherapy		
Pharmacy		
Stores		
Wards		
OPD		

1.7	State of repair of existing buildings.	1	2	3	4	5
1.8	Design of existing buildings.	1	2	3	4	5
1.9	Layout of existing buildings.	1	2	3	4	5
1.10	Design and layout of master-plan.	1	2	3	4	5
1.11	Infrastructural accessibility of facility.	1	2	3	4	5
1.12	Functional accessibility for patients.	1	2	3	4	5
1.13	Functional accessibility for services.	1	2	3	4	5

2 WATER

2.1	What is the volume of water used per day?		l
2.2	What is the water source? (borehole, river,etc)		
2.3	What is the pump / source capacity?		l/hr
2.4	What is the storage capacity?	a.)	l
		b.)	hr
2.5	What is the life-expectancy of the supply ?		yr

3 SEWERAGE AND WASTE

3.1	What is the liquid sewage volume per day?	l
3.2	What type of sewage plant? (oxidation, municipal, etc)	
3.3	Can the present load be handled easily?	YES / NO
3.4	Can plant manage planned hospital expansion?	YES / NO
3.5	Is incineration available?	YES / NO
3.6	Is there an adequate refuse site?	YES / NO

4 MAINTENANCE

What maintenance is urgently required? DESCRIBE:

4.1 Major:

4.2 Moderate:

4.3 Minor:

SECTION 3 : OUTPATIENTS DEPARTMENT (OPD)

1.1	What proportion of out-patients are referred?	%
1.2	Proportion of consultations resulting in admission?	%
1.3	Proportion of consultations which are repeats?	%
1.4	Geographical source of patients ranges from	km to km
1.5	Proportion of outpatients living < 5km from hosp?	%
1.6	Proportion of hospital's drainage population living < 5km from hospital?	%

---

2 Equipment and consumables present and working:

		PRESENT	WORKING
2.1	Vaginal speculum	YES / NO	YES / NO
2.2	Glucometer	YES / NO	YES / NO
2.3	Emergency trolley	YES / NO	YES / NO
2.4	Laryngoscope	YES / NO	YES / NO
2.5	50% Dextrose water	YES / NO	YES / NO

SECTION 4 : INPATIENT WARDS

1 PAEDIATRICS

1.1 Is there a separate section in the hospital? YES / NO

1.2 Is a working incubator available in the ward? YES / NO

1.3 Are there clean nappies in stock? YES / NO

1.4 Number of patients in the ward today:

1.5 Total number of beds available in ward:

1.6 Proportion with doctor's notes in previous 24 hr: %

1.7 Proportion of patients appropriately present: %

1.8 Proportion of patients present for medical reason: %

1.9 Patients admitted:

	1d	2d	3d	4d	5d	6d	7d	8d	9d	10d	11d	12d	13d	14d	>14d
no.															
%															

2 MATERNITY

2.1 Is there a separate section in the hospital? YES / NO

2.2 Is a working incubator available in the ward? YES / NO

2.3 Are there sufficient sanitary pads in stock? YES / NO

2.4 Number of patients in the ward today:	
2.5 Total number of beds available in ward:	
2.6 Proportion with doctor's notes in previous 24 hr:	%
2.7 Proportion of patients appropriately present:	%
2.8 Proportion of patients present for medical reason:	%

2.9 Patients admitted:

	1d	2d	3d	4d	5d	6d	7d	8d	9d	10d	11d	12d	13d	14d	>14d
no.															
%															

3 MEDICAL

3.1 Is there a separate section in the hospital? YES / NO

3.2 Is a working Dx set available in the ward? YES / NO

3.3 Are there IV admin sets in stock? YES / NO

3.4 Number of patients in the ward today:	
3.5 Total number of beds available in ward:	
3.6 Proportion with doctor's notes in previous 24 hr:	%
3.7 Proportion of patients appropriately present:	%
3.8 Proportion of patients present for medical reason:	%

3.9 Patients admitted:

	1d	2d	3d	4d	5d	6d	7d	8d	9d	10d	11d	12d	13d	14d	>14d
no.															
%															

4 SURGERY

4.1 Is there a separate section in the hospital? YES / NO

4.2 Is a working laryngoscope available in the ward? YES / NO

4.3 Is there a mobile oxygen supply in the ward? YES / NO

4.4 Number of patients in the ward today:	
4.5 Total number of beds available in ward:	
4.6 Proportion with doctor's notes in previous 24 hr:	%
4.7 Proportion of patients appropriately present:	%
4.8 Proportion of patients present for medical reason:	%

4.9 Patients admitted:

	1d	2d	3d	4d	5d	6d	7d	8d	9d	10d	11d	12d	13d	14d	>14d
no.															
%															

5 INTENSIVE CARE / EXTRA CARE UNIT

5.1 Is there an ICU / ECU in the hospital? YES / NO

5.2 What is the bed capacity? beds

SECTION 5 : CLINICAL SERVICES

1 LABORATORY

1.1 Is there a laboratory on the hospital premises? YES / NO

1.2 The laboratory is run by:

SAIMR	YES / NO
Hospital	YES / NO
Private	YES / NO
Other	YES / NO

1.3 Are the equipment and disposables available to do the following investigations? :

	TEST	a) EQUIPMENT	b) DISPOSABLES
District Hospitals	Urine micro	YES / NO	YES / NO
	U&E	YES / NO	YES / NO
	Glucose	YES / NO	YES / NO
	Compat	YES / NO	YES / NO
	Hb	YES / NO	YES / NO
	WCC	YES / NO	YES / NO
	Z-N	YES / NO	YES / NO
	M[illegible]a slide	YES / NO	YES / NO
	VDRL	YES / NO	YES / NO
Additional for Regional Hospitals	Blood gases	YES / NO	YES / NO
	Thyroid funct.	YES / NO	YES / NO
	LH	YES / NO	YES / NO
	FSH	YES / NO	YES / NO
	Liver funct.	YES / NO	YES / NO
	Bact. culture	YES / NO	YES / NO
	Platelets	YES / NO	YES / NO

2 X-RAYS

2.1 Are the equipment and disposables available to do the fol lowing investigations? :

	TEST	a) EQUIPMENT	b) DISPOSABLES
District Hospitals	CXR	YES / NO	YES / NO
	Longbone XR	YES / NO	YES / NO
	Abdomen XR	YES / NO	YES / NO
	IVP	YES / NO	YES / NO
	HSG	YES / NO	YES / NO
Additional for Regional Hospitals	Barium studies	YES / NO	YES / NO
	Scanning XR	YES / NO	YES / NO
	Ultra-sound	YES / NO	YES / NO

2.2 What is the percentage of wasted plates? ____ %

2.3 X-rays inspected in the wards:

WARD	GOOD (interpretable)	BAD (uninterpretable)	TOTAL
Medical	%	%	%
Surgical	%	%	%
Paediatric	%	%	%
TOTAL	%	%	%

3 THEATRES

District hospitals

3.1 Is there a working Boyle's machine in OT? YES / NO

3.2 Is there an adequate working oxygen supply in OT? YES / NO

3.3 Is a stocked emergency trolley available in OT? YES / NO

Regional hospitals (additional)

3.4 Is there a working ventilator in each OT? YES / NO

3.5 Is there a working cardiac monitor in each OT? YES / NO

3.6 Are CVP catheters available in theatre? YES / NO

3.7 The service interval for Boyle's machines and vaporisers is: mth

3.8 How many anaesthetics were done in the last 12mth? (GA's and regional blocks - exclude LA's)

3.8 How many anaesthetic- / OT-related deaths were recorded in the past 12 mths? (within 24 hrs of anaesthesia)

SECTION 6 : SUPPORT SERVICES

1.1 How many meals does the KITCHEN serve per day? [ ]

1.2 How many meals can be served per day? (capacity of equipment and space) [ ]

1.3 Is the kitchen clean and tidy? YES / NO

2.1 Is there a LAUNDRY on the premises? YES / NO

2.2 If not, where is the laundry done? [ ]

2.3 What is the laundry's daily load? [ ] dry kg/day

2.4 What is the laundry capacity? (capacity of equipment and space) [ ] dry kg/day

2.5 Is there clean linen available in the laundry? YES / NO

3.1 Are there sufficient refridgeration facilities for vaccines in the PHARMACY? YES / NO

3.2 What is the floorspace of pharmacy stores? [ ] m2

3.3 How many items are dispensed per week? :

Prepack [ ]

Bulk [ ]

Total [ ]

3.4 Were PenVK tabs ever O/S in the past 12 mths? YES / NO

3.5 Was Paracetamol syrup O/S in the past 12 mths? YES / NO

3.6 How long does it take to supply a clinic order? [ ] d

3.7 Is the pharmaceuticals store tidy and uncluttered? YES / NO

4.1	Is there basic equipment in the hospital WORKSHOP sufficient for minor maintenance?	YES / NO
4.2	How often is the boiler inspected?	mth
4.3	Is Medical equip. repaired on hospital premises?	YES / NO
4.4	How long does it take to get an ECG machine repaired?	mth

5.1	Is there sufficient MORTUARY space?	YES / NO
5.2	Is there an adequate post mortem facility?	YES / NO

SECTION 7 : SPECIAL SUPPORT SERVICES

		Fraction	%
1	Staff accommodation		
1.1	For what proportion of professional staff posts is accommodation available on hospital premises? (*excluding Nurses*)		%
1.2	For what proportion of professional staff posts is accommodation readily available near the hospital?		%
1.3	What proportion of Nursing staff *in training* are accommodated on the hospital premises?		%
1.4	What proportion of *trained nurses* can be accommodated on the hospital premises?		%

2 Telecommunications

2.1 The following telecommunications are available:

a.) Telephones YES / NO ____ in-lines

_____ exchange

b.) Facsimile YES / NO

c.) Telex YES / NO

d.) Radiophone YES / NO

2.2 What is the average period (cumulative) per month that telecommunications (in or out) are inadequate or totally absent? ____ hr

2.3 The switch-board operators all speak and understand English well? YES / NO

QUESTIONNAIRE FOR DOCTORS

Doctors' assessment of paramedical services.

Please mark the appropriate box with a cross " X ".

		YES	NO
1	LABORATORY		
1.1	Are you of the opinion that the most important laboratory tests are readily available at the hospital?		
1.2	Are you satisfied with the quality of the results?		
1.3	Are you satisfied with the time taken to produce results?		
1.4	Are you satisfied with the time taken to get results of tests set away? (eg histology, cultures, etc)		

(Comments overleaf)

2	X RAYS		
2.1	Are you satisfied with the time taken to get a routine X-ray taken?		
2.2	Are you satisfied with the quality of the X-rays available?		

3	THEATRES		
3.1	Are you satisfied with the quality of equipment available in theatre?		
3.2	Are you satisfied with the quantity and sophistication of equip available in theatre?		

SECTION B PERSONNEL

ATTACH COPY OF STAFF ESTABLISMENT LIST

1 Posts

	FILLED	VACANT	FROZEN	TOTAL
MEDICAL				
NURSING				
PARAMEDICAL				
OTHERS				

2 Annual staff turnover

Past 12 months	Resigned/Transferred	Appointed
MEDICAL		
NURSING		
PARAMEDICAL		
OTHERS		

3 Training and Experience

3.1

Post basic qualification experience	<2 yrs	2-5 yrs	6-10 yrs	>10 yrs
MEDICAL				
NURSING (PROF NURSES)				
PARAMED				

3.2

Specialised qualification	Course		Diploma		Degree	
	people	certif	people	certif	people	certif
MEDICAL						
NURSING						
PARAMED						

3.3 Is there a regular in-service-training programme for staff?

MEDICAL	YES / NO
NURSING	YES / NO
PARAMEDICAL	YES / NO
ADMIN	YES / NO

3.4 Is there a college / school of nursing attached to the Hospital? YES / NO

3.5 Does the school include Prof Nurse training? YES / NO

3.6 Is there an adequate reference library for all staff? YES / NO

4 Management

4.1 Are there regular management meetings? YES / NO

4.2 Are there regular staff meetings? YES / NO

4.3 Is there a clear grievance procedure for all the staff? YES / NO

4.4 Are there any staff incentives schemes? (eg rewards, bonus, merit, certificates) YES / NO

EXPLAIN:.....
.....
.....
.....

4.5 Are staff qualifications and experience appropriately utilised? YES / NO

EXPLAIN:.....
.....
.....
.....

4.6 Comment on the stock control programme/s .....
.....
.....
.....

5 Community participation

5.1	Are there Community representatives present on any hospital management structure?		YES / NO
5.2	Are they	a) elected	YES / NO
		b) nominated	YES / NO
		c) both	YES / NO
5.3	What is the meeting interval?		mths
5.4	Do the representatices attend meetings?		YES / NO
5.5	Do the representatives contribute in meetings?		YES / NO

CASUALTY / O P D CHECKLIST

If sections are separate
please complete separate forms for each section.

Indicate if the following are present (and in working order/not expired) in the O P D / casualty today.
[DELETE ONE IF NOT APPLICABLE]

CIRCLE THE APPROPRIATE ANSWER.

	YES	NO		YES	NO
Diagnostic set	Y	N	Tongue depressors	Y	N
Snellen's chart	Y	N	Earpieces	Y	N
Foetal stethoscope	Y	N	Handsoap	Y	N
Baumanometer	Y	N	Hand towels	Y	N
Stethescope	Y	N	Syringes	Y	N
Hb-meter	Y	N	Needles	Y	N
Glucometer	Y	N	Ringers lactate	Y	N
Vaginal speculum	Y	N	5 % Dextrose water	Y	N
Ambubag	Y	N	50 % Dextrose amps	Y	N
Laryngoscope	Y	N	Swabs	Y	N
Oxygen supply	Y	N	Cotton wool	Y	N
Nebuliser	Y	N	Urine dipstix	Y	N
Oxygen mask	Y	N	Plastic gloves	Y	N
Connecting tube	Y	N	Lubricant jelly	Y	N
Refuse bin	Y	N	Administration-sets	Y	N
Sharps container	Y	N	Bronules	Y	N
P O P saw	Y	N	Adhesive plaster	Y	N
P O P scissors	Y	N	Drawsheets	Y	N
Suction	Y	N	Fluoroscene	Y	N
			Antihist inj	Y	N
			Steroid inj	Y	N
			Adrenaline inj	Y	N
			Anticonvulsant inj	Y	N
			Bronchodilator	Y	N
			Test tubes	Y	N
			Glucose test strips	Y	N
			Haemotysis sticks	Y	N
			Blades	Y	N
			Endotracheal tubes	Y	N
			Urine catheters	Y	N
			Urine collection bags	Y	N

Author: Crisp,N.G.
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