

**Investigation of feasibility and options for
using gap analysis in allocation of
resources to support universal coverage in
Zimbabwe**

Final report

**S Shamu
Training and Research Support Centre**

**with
Ministry of Health and Child Care**

**With the Regional Network for Equity
In health in East and Southern Africa (EQUINET)**

October 2014



**REBUILDING THE FOUNDATIONS FOR UNIVERSAL HEALTH COVERAGE WITH
EQUITY IN ZIMBABWE**

With support from Rebuild programme: LSTM

Table of Contents

Executive Summary	2
1. Introduction	4
1.1 Context for the work	4
1.2 Aims	5
2. Methods	6
2.1 Authorities and limitations	8
3. Findings on the background data collection	8
3.1 Demographic Profile	8
3.2 Health Facilities	9
3.2 Human Resources for Health.....	10
3.3 Bed occupancy and workload	12
3.4 Health expenditure	13
4. Results.....	14
4.1 Step 1: Gaps in infrastructure against population levels.....	15
4.2 Step 2: Gaps in equipment against norms	16
4.3 Step 3: Gaps in human resources for health against norms.....	19
4.4 Step 4: Gaps in medicines and other supplies against norms	19
5. Use of the gap analysis in resource allocation.....	20
6. References	22
Appendix 1: District allocation of USAID programme funds	23
Appendix 2: Districts and facilities included in the pilot survey	25
Appendix 3: Equipment norms for the essential health benefit	31
Appendix 4: Facility, equipment and personnel assessed in the pilot survey	41

Shamu S TARSC (2014) Investigation of feasibility and options for using gap analysis in allocation of resources to support universal coverage in Zimbabwe TARSC, in association with MoHCC, Rebuild programme, Harare

Acknowledgements

Thanks to Dr Rene Loewenson TARSC and Laura Anselmi LSHTM for peer review and direct technical input to the document. Acknowledgements to Dr Sue Laver TARSC for peer review and support to the field work.

Thanks to TARSC, Mr Stephen Marima and Mr Bonani Madina for support with field data collection, to Dr Gibson Mhlanga, Dr Manangazira and Mr Gwati from MoHCC for support with official documents used in the review.

Acknowledgement of funding support from the Rebuild Consortium – London School of Tropical Medicine (LSTM).

Executive Summary

The ReBUILD Programme in Zimbabwe is taking forward a programme of work within the context of work on health financing policy and on Universal Health Coverage (UHC). The Ministry of Health and Child Care (MoHCC), Training and Research Support Centre (TARSC) and national and international partners are implementing research to support policy dialogue and decisions on the technical design around elements of equitable health financing. One element of this work is to identify options for integrating measures of risk or health need in the allocation of funds pooled at central level (including in semi-autonomous funds) to districts and purchasers.

This report presents results of an investigation of the feasibility of and options for integrating evidence on the gap in key infrastructure, personnel to be considered in the allocation of investment / capital expenditure (the gap analysis). A gap analysis aims to orient future capital investment to build capacity for absorbing recurrent resources and to give a measure of current absorptive capacity. A gap analysis compares what is “required” with what is “available” , and thus the gap that needs to be filled.

The work used a field survey to gather evidence from secondary data sources on population, health facilities, personnel and workloads and carried out a pilot survey in primary and secondary level facilities in of care in Mashonaland Central and Matabeleland North. It gathered evidence on key infrastructure, equipment and personnel against the norms and standards for the province. The two provinces were selected as provinces that have different health system features (service to population distribution) and that provide geographical spread. All district hospitals were included and due to resource constraints two health centres were sampled per province. The equipment needs for MCH were used, as a proxy for wider serviced needs. This was judged to be appropriate on review of the work by the Technical Working Group on UHC as it was seen to give a fair indicator of capital needs at the primary and secondary care levels.

As general findings, while the density of facilities largely reflects the density of population, the resettlement from the land reform mean that in some areas people are newly settled without adequate facilities. The total authorised establishment for the Ministry of Health and Child Care has not been revised since 1980 to cater for the population growth. However, there is still a huge gap between the actual health workers in post and the establishment in these norms. The bed establishment, as shown by the ratio of number of beds per 10 000 population, is generally inadequate. Since 2009, the Government has been largely financing human resources. As this consumes on average 75% of funds it leaves limited resources for capital and recurrent expenditures. From 2009 to 2011 the share total current expenditure to total expenditure for the MoHCC was about 86% leaving only 14% for capital equipment.

In terms of infrastructure, the study indicates that it is difficult to justify any new infrastructure investment in both provinces. Further research can assess how health facilities are distributed and who accesses and benefits from them most, The pilot survey did not assess all equipment nor did it calculate the gap for all primary care facilities so it underestimates the actual full equipment gap. Noting this, the survey found gaps in equipment for maternal and child health but that they could be met from the Health Transition Fund in the immediate future. It is not clear whether the same is true for equipment for other areas of service delivery, including for chronic diseases. Comparing against norms for each province by facility using the Health Services Board establishment schedule there was a human resource shortage for the critical cadres in each of the two provinces that could be costed using annual salary requirements at over US\$2 million. The survey estimated that Mashonaland Central would require about US\$1,39 million and Matabeleland South US\$1,12 million for recurrent expenditure from the MoHCC to meet the gap in requirements for medical provisions, utilities and other ancillaries.

The pilot gap has also indicated some lessons for implementing this work in Zimbabwe as part of moving from demand to needs based resource allocation:

- i. Provinces should not be treated as a homogeneous group. Their features and resource requirements vary so allocations should reflect their needs and capacity to absorb resources.
- ii. External fund allocations in some areas (as in areas of off budget specific programme support) have been less successful in allocating resources equitably than funding for system support, such as the HTF. External support to provinces should be made after appropriate analysis of the actual requirements and capacity of the provinces.
- iii. A full gap analysis using asset registers and physical verification of use and functionality of key equipment would need to be carried out to ascertain the true gaps in all the provinces.
- iv. Physical verification is essential to avoid the risk of facility personnel understating or overstating their true status. When it comes to asset inventory, facilities are always likely to understate their stock and functionality of key equipment in the hope of getting more.
- v. This pilot gap analysis only focused on maternal and child equipment at the district hospital and one or two rural health centres. In a complete exercise a full set of indicator equipment covering all major conditions and services in the EHB should be included, an indicator set that covers the range of services provided.
- vi. While norms for the district and rural health facilities have been developed showing the ideal types of equipment and human resources required per facility; there is need to revise them further given the population movements that have happened since 2000, and the current disease burden.
- vii. A more holistic approach is needed for planning and estimating the staff establishment given changes in staffing, and taking population numbers and age distribution and disease trends into account.
- viii. A future gap analysis exercise could be informed by using the “OneHealth Tool” developed by Futures Institute. The tool can provide a useful and comprehensive Gap Analysis at the District Level since it uses standardised costing methods, unit costs of assets and services and standardised estimation techniques for staffing and equipment needs.

1. Introduction

The ReBUILD Programme in Zimbabwe seeks to take forward a programme of work within the context of the work in Zimbabwe on health financing policy and on Universal Health Coverage (UHC). The Ministry of Health and Child Care (MoHCC), Training and Research Support Centre (TARSC) and national and international partners are implementing research to support policy dialogue and decisions on the technical design around elements of equitable health financing within the Rebuild programme of the Liverpool School of Tropical Medicine. One element of this work is to identify options for integrating measures of risk or health need and gap analysis on delivery of the EHB in the allocation of pooled central funds to districts and purchasers.

In most developing countries and particularly in Zimbabwe, appropriate principles that guide resource allocation still need to be developed and implemented. Zimbabwe's health financing system allocates more funds to curative care than to preventive services. It has not changed significantly since 1980. The criteria for resource allocation by geographic area have remained unclear. A separate analysis of the budget allocations post 2000 show that not much emphasis is put on allocating resources based on need (Shamu 2013). Government confirmed this in its National Health Strategy 2009-2013 (MoHCW 2009).

1.1 Context for the work

The country has since 1980, experimented with various resource allocation methods to improve equity in the allocation of resources. From 1980 to 1992 MoHCC used an *incremental budget allocation system*. The system entailed allocating more funds to those provinces that would have exhausted their budgets. It thus penalised those provinces that would have underspent the allotted fund (MoHCC, TARSC 2002). It improved demand based access to resources, but it exacerbated rather than abated financial inequities. Provinces, facilities that attracted huge resources continued to receive more based on historical allocations. In terms of functional expenditure, curative care, which by nature is more expensive than preventive care was perversely rewarded (MoHCC, TARSC 2002). Between 1992 and 2001, the MoHCC used a workload resource allocation formula using information from the health information system. The data used for the formula consisted of population, facility, use and workload based indicators, presented in Table 1. The formula was used for the allocation of the recurrent budget only.

Table 1. Indicators for the Workload based Allocation (1992-2001)

Population level	Facility	Utilisation	Health Service/workload
Total Population	Number of government hospitals	Total outpatients	Planned bed occupancy
Male Population	Number of government rural health centres	Total inpatients	Actual bed occupancy
Female Population	Total beds	Total equivalent patient days	Average number of occupied beds
Area per '000' sq km	General beds		Staff Salaries and allowances
	Maternity beds		
	Number of Vehicles		

Source MoHCC, TARSC 2002

A combination of dwindling resources as a result of economic decline, a bias towards hospital expenditure and a clear lack of strategy for equitable allocation of the limited resources led Ministry of Health and Child Care (MoHCC) to use a demand based resource allocation system. Around the second quarter of each financial year Provinces drew their operational plans, costed them and sent estimates of their resource requirements for the next financial year to the MoHCC. The process did

not make clear who originated these ‘resource requirements’, nor how far communities were consulted or evidence of health need used. Some provinces and districts tried to make clearer the factors influencing how they allocated funds, for example:

- Matabeleland North Province used population and patients numbers
- Bindura District used the number of facilities
- Kariba District used seasonal trends of disease conditions such as malaria

These only related to *recurrent* resources and only Kariba district was found to have used need vs service supply in allocating resources.

Vertical programmes include significant, sometimes separate externally funded resources, but do not make clear how the funds are allocated to provinces, especially for programmes that do not cover the whole country. For example the maps in Appendix 1 show how USAID programmes are distributed in the country. The maps show how the geographically Manicaland Province is benefiting across all the USAID funded programmes, whilst some provinces obtain very little support. These funds are currently channelled off-budget. Although there are discussions underway for the external partners to start direct budget support through a National Development Fund Account so that they can be subjected to the MoHCC allocation system, this is not yet effected.

In 2001 TARSC and MoHCC worked on a needs based resource allocation formula and piloted it in different locales of the country. However, after the pilot the country went into a decade of economic decline that forced the Ministry to use the demand (bid) based resource allocation, based on the submission of bids forwarded to the treasury by districts through their provincial offices and Ministry of Health headquarters from guess-estimated values. In such a demand based allocation framework, those who have established and better services, better developed infrastructure and personnel demand more and get more. The availability of personnel has an impact on the levels of resources to be allocated to particular areas and on the efficiency in use of the resources.

1.2 Aims

Following these experiences, this project seeks to improve the resource allocation mechanism in the public health sector in Zimbabwe, especially should new resources be collected from earmarked taxes. It explores a resource allocation method that:

- takes into account both equity and absorptive capacity;
- is applicable at mostly at the primary or district level;
- is compatible with the country’s short and medium term economic planning cycles;

A separate report explores options for a formula for allocation of *recurrent* expenditure at district level (the resource allocation formula) (TARSC, Atchison Actuaries 2014) .

This report presents results of an investigation of the feasibility of and options for integrating evidence on the gap in key infrastructure, personnel to be considered in the allocation of *investment / capital* expenditure (the gap analysis). A gap analysis aims to orient future capital investment to build capacity for absorbing recurrent resources and to give a measure of current absorptive capacity. According to McIntyre and Anselmi (2012) the comparison between what is “required” and what is “available” is the gap that needs to be filled.

It reports on a pilot survey that examines gaps in facilities and staffing within districts covered, to guide allocation of capital expenditure.

2. Methods

The gap analysis was implemented between December 2013 to July 2014. It gathered evidence from secondary data sources on population, health facilities, personnel and workloads and carried out a pilot survey to measure the levels of identified facilities and resources identified for inclusion in a survey of gaps on resources needed for the Essential Health Benefit.

The field survey was implemented from March to April 2014 and focused on primary and secondary levels facilities in Mashonaland Central and Matabeleland North to assess the relative gaps across districts in key infrastructure, equipment and human resources. The pilot survey assessed availability of;

- key infrastructure against the norms and standards for the province
- key equipment against the norms and standards for the province
- key human resources and other sundries

The key areas included are shown in *Appendix 4*. The potential investment requirements were estimated where gaps of key infrastructure, equipment and human resources existed.

We gathered data on the recurrent expenditure in the districts of two selected provinces. We ascertained what was currently available in terms of equipment (availability and functionality), human resources in each district using an infrastructure and human resources against a standard norm for both the provinces and the districts. For Human resources, the norms refer to the post establishment either per facility or per district. The norms for equipment are not very specific on the quantities as they mention just the type of equipment that is supposed to be found at a clinic or hospital. The pilot survey included all district hospitals and two health centres and clinics per province as non-hospital primary health care services as well as two designated mission hospitals in both Mashonaland and Matabeleland Provinces and assessed the gap in key maternal and child health services.

The 2 pilot provinces (with **all** their districts) from the country's 10 provinces were chosen to participate in the exercise based on the criteria set out in *Table 2 and 3*. The selection was based on an average disease burden, where the provinces that had higher 'disease burden'; where a selected. The average disease burden indicator was a composite indicator that was constructed using population indicators on prevalence rates and morbidity indicators for various diseases. These were simply converted to percentages, aggregated into some composite indicator and then weighted using population figures from the 2012 census. The two provinces of Mashonaland Central and Matabeleland North were then chosen on the basis of having higher 'disease burden' than the other provinces. Convenience sampling was implemented to allow for some geographical balancing for the 2 dominant population sub-groups in Zimbabwe. Hence, these two provinces were selected as representative provinces; Mashonaland (northern) and one Matabeleland (southern) province and thirdly as provinces that has different health system features (service to population distribution) and provides a good basis for some geographical spread.

All districts in the 2 (two) provinces of Mashonaland Central and Matabeleland North were included in the pilot survey. Given the limited resources, the survey could not cover all the facilities in the district, but concentrated on the district hospitals, to indicate financial and non-financial gaps. Two health centres in each province were sampled to complement the data obtained from the district hospital and pilot use of the tools at that level. Two health centres were sampled per province as a convenience sample based on proximity to one of the district hospitals that were surveyed. Using the district map and the names of the health centres, the researchers picked the most convenient for logistics given cost constraints. While being near to a district hospital would give an advantage to the health centre, it may not necessarily be the case as external funding programmes have targeted more remote health centres. The sampled health centres cannot be read as reflective of the state of all health centre facilities in the district, nor can the data collected be seen as representative of the

gap in all facilities in the district. It does provide a reasonable estimate of the gap in key maternal and child health services, equipment and assets for district hospitals.

Table 2: Health need 2009, 2010, Maternal and child health indicators

	% children <5yrs <2SD under-weight [1]	IMR (*)	% children <5yrs with diarrhoea in past 2 wks [2]	% children <5yrs with fever [3]	% children <5yrs with ARI [4]	% Unmet need for family planning [5]	Adolescent birth rate [6]	Adult HIV prevalence [7]	Un-weighted Health needs score [1+2+3+4+5+6+7]
Province									
Manicaland	2.1	63	14.4	10.6	6.7	30.2	4.3	19.7	120.5
Mashonaland Central	3.8	71	10.8	12.5	5.4	33.9	4.1	18.5	160.0
Mashonaland East	3.7	66	12.1	9.4	4.5	31.1	3.8	18.0	144.1
Mashonaland West	2.4	66	14.1	9.5	5.8	32.1	3.9	19.1	152.9
Matabeleland North	5.8	46	6.9	4.9	8.5	19.1	4.8	19.0	115.0
Matabeleland South	4.1	37	7.2	0.1	5.3	18.0	4.4	20.8	96.9
Midlands	2.7	66	9.0	4.1	7.6	32.2	3.9	16.1	141.6
Masvingo	2.1	52	11.1	4.8	10.2	35.6	4.3	15.1	135.2
Harare	2.8	58	11.7	10.3	4.6	2.5	2.5	19.3	111.7
Bulawayo	2.3	54	11.4	1.9	5.0	2.7	2.7	16.8	96.8

NB: All the indicators are in percentage terms and you add them up. If any indicator is reported in a different metric, it is adapted before inclusion in the total.

Source: UNICEF 2009 (*) and Zimstat and OFC Macro 2011 (**)

Table 3: Weighted Health need Score for Provinces

Province	Un-Weighted Health need Score	Population	Weighted Health need Score (%)
Manicaland	120.5	1 139 940	0.007
Mashonaland Central	160.0	1 139 940	0.014
Mashonaland East	144.1	1 337 059	0.011
Mashonaland West	152.9	1 449 938	0.011
Matabeleland North	115.0	743 871	0.015
Matabeleland South	96.9	685 046	0.014
Midlands	141.6	1 622 476	0.009
Masvingo	135.2	1 486 604	0.009
Harare	111.7	2 098 199	0.005
Bulawayo	96.8	655 675	0.015

A full gap analysis using asset registers and physical verification of use and functionality of all key equipment was not possible due to limited resources for the work and a desire to make the tool manageable so indicator assets had to be used. While the MoHCC has documents stating the key personnel and assets that needed to be available at the district and lower levels of care, it is only at the rural health centre level where these are clearly stated in terms of the actual numbers required. At the district hospital level, the norms document provides a list of the equipment and assets that should be found at hospital, without providing the actual numbers needed as shown in Appendix 3; In the survey we thus focused on maternal and child health rooms and theatres and used the numbers of standard equipment that should be generally found in the respective rooms. The gap

analysis only focused on maternal and child equipment at the district hospital and one or two rural health centres leaving other key equipment that are necessary especially for the district hospitals and the wider district. This was judged to be appropriate on review of the work by the Technical Working Group on UHC as it was seen to give a fair indicator of capital needs at the primary and secondary care levels.

2.1 Authorities and limitations

Permission for implementation of the work was obtained from MoHCC at central level and from the respective provincial medical directors. Before data collection consent was also obtained from each facility. The study faced a number of limitations. Not all provinces were included due to resource limitations, and as noted above while the data represents the district hospital level and the maternal and child health equipment, it does not adequately reflect clinic level services, due to the limited sample, nor equipment for other health programmes. This bias is acknowledged. It did however provide an opportunity to test the tool at both district hospital and health centre levels.

3. Findings on the background data collection

This section provides the background data collected for the work.

3.1 Demographic Profile

Availability of key capital items cannot be looked at in isolation of the population. The population growth trends inform on the need to either maintain the current capital stock or invest in more to cater for the growth. This section thus presents total and regional population figures.

The country's population has grown on average by about 1.1% since the last census of 2002. (Table 4). The growth rate was affected by outward migration in the period. With the exception of Bulawayo - which recorded a negative growth of -0.3%- the other 9 provinces recorded a positive growth ranging from 0.5% (Matabeleland North and South) to 1.3% (Mashonaland Central). The female population is larger than the male. A growth in population size triggers a need for investment to cater for the increased population or a recalibration of the existing resources to cater for the new population and thus an adjustment in resource allocation, for both recurrent and capital resources, including for new facilities and the resources for them.

Table 4: Population per Province 2012

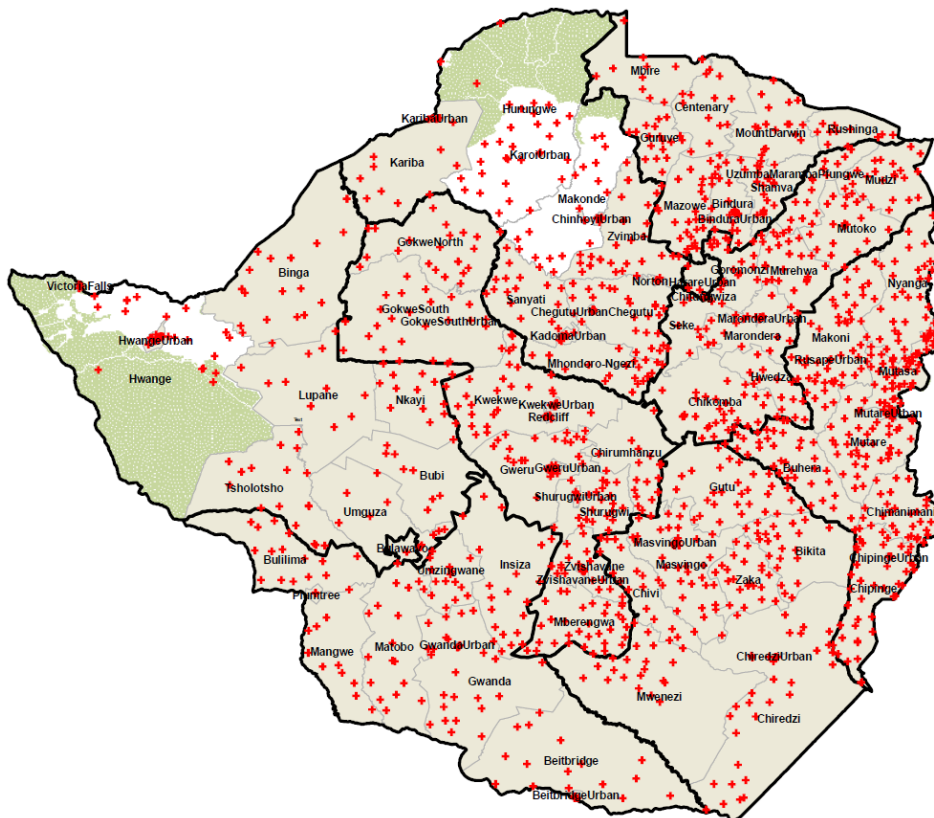
	Population						Households		
	Males	Females	Total	Percent	Sex Ratio	Growth rate	Number	Percent	Average Size
Bulawayo	304 446	351 229	655 675	5.1	87	-0.3	167 092	5.4	3.9
Manicaland	831 762	923 238	1 755 000	13.5	90	1.1	416 871	13.6	4.2
Mashonaland Central	559 702	580 238	1 139 940	8.8	96	1.3	270 617	8.8	4.2
Mashonaland East	648 207	688 852	1 337 059	10.3	94	1.7	329 717	10.7	4.1
Mashonaland West	721 218	728 720	1 449 938	11.2	99	1.7	336 262	10.9	4.3
Matabeleland North	359 173	384 698	743 871	5.7	95	0.5	163 966	5.3	3.8
Matabeleland South	328 009	357 037	685 046	5.3	92	0.5	156 424	5.1	4.4
Midlands	779 233	843 243	1 622 476	12.5	92	1.0	362 109	11.8	4.5
Masvingo	691 350	795 254	1 486 604	11.5	87	1.2	341 197	11.1	4.4
Harare	1 011 831	1 086 368	2 098 199	16.2	93	1.0	531 967	17.3	3.9
Total	6 234 931	6 738 877	12 973 808	100	93	1.1	3 076 222	100	4.2

Source: Zimstat 2012

3.2 Health Facilities

Figure 1 below shows the distribution of both public and private health facilities (clinics and hospitals) in Zimbabwe. It does not show the type and size of the facilities, but does indicate areas of concentration and gaps.

Figure 1: Distribution of Zimbabwe's Health Facilities 2011



Source: UNICEF 2013

Table 5 shows the health facilities by province and category.

Table 5: Health Facilities by Province and Category 2009

Provinces	Rural Health Centres	District +Church Hospitals	Provincial Hospitals	Central and Specialised hospitals	Total Facilities
Harare	45	0	0	7	52
Manicaland	253	36	1	0	290
Mashonaland Central	130	15	1	0	146
Mashonaland East	168	22	1	0	191
Mashonaland West	128	22	1	0	151
Matabeleland North	92	17	0	0	109
Matabeleland South	105	18	1	0	124
Midlands	206	28	1	0	235
Masvingo	170	23	1	0	194
Harare	34	0	0	7	41
Total	1331	181	7	14	1533

Source: MoHCW 2009

Matabeleland North and South have fewer, sparsely populated facilities. Masvingo also has few facilities in the southern districts. While these areas also have lower populations, people have to move further to access services. Manicaland has the largest number and concentration of health facilities. While on the whole the density of facilities reflects the density of population, the resettlement from the land reform mean that in some areas people are newly settled without adequate facilities.

Table 6 below shows the different health facilities by level, type and ownership. Most facilities are owned by the Local Government (urban and rural district councils) followed by the Central Government and lastly the church based and private sector.

Table 6: Facility ownership by level of care 2012

Level of Care	Central Government	Mission	Rural District Councils	Private	Total
Primary: Clinics/RHCs	301	55	525	109	990
Rural hospital	55	61			116
Secondary (District)	50	8	0	0	58
Tertiary (Provincial)	8	0	0	2	10
Quaternary*(Central Specialist)	7	0	0	12	19
Total	421	124	525	221	1193

Source: MOHCC 2013 * Includes the two psychiatric hospitals – Ingutsheni and Ngomahuru

The Rural Health Centres (RHCs) and the urban clinics are the first point of contact between the community and the health sector. They provide the essential primary health care. According to the MoHCC, the RHCs should provide services for a population of 10 000 people, living within a radius of not more than 8 kilometres (MoHCC 2009). RHCs are also funded by rural district councils, although their health workers are paid for from the Central Government budget. Urban clinics are mostly financed from the Local government funds, user fees and a small grant from the Central Government to cater for 50% of their recurrent expenditure (TARSC/MoHCC 2002).

The next level of care consists of district hospitals, numbering 58 district hospitals 50 of which are owned by the government and the remaining 8 are designated district hospitals owned by the Zimbabwe Association of Church Hospitals (ZACH). The district hospitals are the first referral points of care and cater for a catchment population of approximately 140 000 people. Provincial Hospitals cater for a population of 1 million people is the second level of referral, while the Central Hospitals cater for all referrals and specialist needs. More often, patients have by-passed the referral system by jumping the primary care level facilities in the process overburdening the secondary and tertiary levels of care.

Most mission and non-government facilities receive some form of budget support from the central government (mainly for recurrent primary health care expenditures and salaries). Some of the mission hospitals have been designated as district hospitals, where government does not have such facilities. In essence, it means the designated facilities are part of the government public health system; hence receive some form of government support. Mission and non-government facilities that receive government support should be included in the final gap analysis and resource allocation procedures.

3.2 Human Resources for Health

The total authorised establishment for the Ministry of Health and Child Care is 43 254. This establishment has not been revised since 1980 to cater for the population growth. However, there is still a huge gap between the actual human resources in post and the post establishment, set by

MoHCC norms, calculated on the basis of the level of care, the type of facilities and the population they serve. By the end of 2012 the Ministry had in post 35 525, which is 82% of the post establishment (See *Table 7*). Of these 82% are in the public sector, 10.4% are in Mission hospitals and 7.4% are in Rural District Councils (DFID HDRCC 2012)..

Table 7: Trends in Human resource availability 2006 - 2011

Category	2006 December in Post	2007 December in Post	2008 June in post	2009 Decem ber in Post	2010 December in Post	2011 December in Post	Authorised Establishment for Critical Cadres
Top Management Team	7	13	16	42	42	45	
Doctors	668	667	738	607	916	1 054	1 806
Nurses Grades	13 495	14 768	13 699	11 965	17 029	17 022	14863
Environmental Health	1 293	1 220	1 157	1 031	1 433	17 775	
Pharmacy	338	318	332	328	472	467	351
Radiography	158	154	261	242	206	241	
Physiotherapy	374	355	368	316	377	378	
Nutrition	783	761	787	778	905	858	
Orthopaedic	35	33	35	16	33	32	
Oral Health	195	192	181	172	239	255	
Laboratory	324	320	317	184	417	433	664
Research officers	23	21	36	24	24	23	
Health Information	93	100	145	115	166	165	
Health Promotion	41	42	38	32	45	54	
Hospital Equipment	78	72	85	98	105	112	
Administration General	6 708	6 207	5 879	6 096	6 105	5 347	
Programme Managers	11	8	9	8	9	1	
Total	24 624	25 251	24 083	22 054	28 523	28 262	All (43 254)

Source DFID HDRCC 2012

Table 8: Nurse/Population 2012

Province	Population	RGNs/PCNs	Nurses Per 10,000 Pop	Midwives	Per 10,000 Pop
Bulawayo	653 337	1 183	18.1	339	5.2
Harare	2 123 132	2 276	10.7	609	2.9
Manicaland	1 752 698	1 198	6.8	320	1.8
Mashonaland Central	1 152 520	751	6.5	171	1.5
Mashonaland East	1 344 955	1 086	8.1	230	1.7
Mashonaland West	1 501 656	1 015	6.8	420	2.8
Masvingo	749 017	1 084	14.5	346	4.6
Matabeleland North	683 893	574	8.4	192	2.8
Matabeleland South	1 614 941	712	4.4	201	1.2
Midlands	1 485 090	1 211	8.2	459	3.1

Source: DFID HDRCC 2012

Table 9 shows the number of posts on establishment and filled by 2011 by category and province. The post establishment shows the standard in terms of the number of personnel per category. It differs by province. These establishments, while used for this study, have not been revised since they were set in the 1980s. We note therefore that they should not be taken as representing the actual number of personnel *needed* per category per province and a revision of establishments should be undertaken against the needs in the essential health benefit and the population levels.

Table 9: Administration and accounting posts vs establishment, hospital level by province, 2011

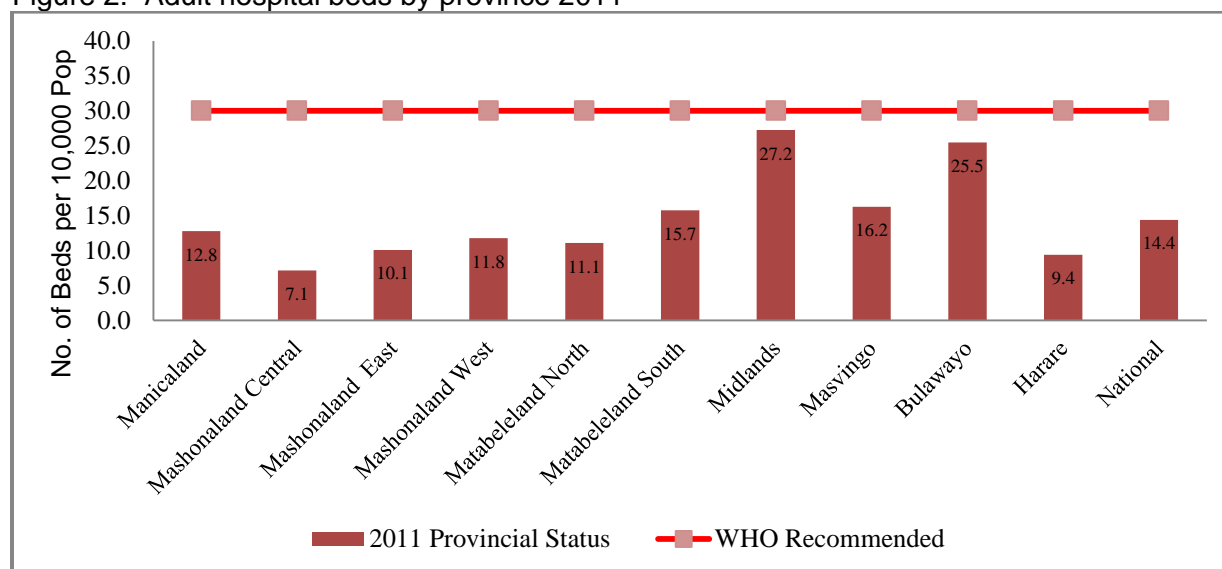
Province	Nos. of Hospitals	Hospital Administrator		Executive Officer		Accountant		Accounting Assistant	
		Est	Filled	Est	Filled	Est	Filled	Est	Filled
Bulawayo	3	1	1	3	1	5	4	80	65
Harare	6	4	5	0	1	4	4	45	67
Manicaland	22	7	8	7	3	5	6	16	11
Mashonaland Central	12	8	4	13	11	7	5	25	24
Mashonaland East	17	9	7	10	7	7	6	19	16
Mashonaland West	14	11	7	8	4	6	4	17	13
Masvingo	14	8	6	8	8	6	6	13	14
Matabeleland North	10	7	3	1	0	6	3	12	10
Matabeleland South	10	8	2	4	1	7	6	18	13
Midlands	17	11	9	8	7	9	9	23	20
<i>Total</i>	<i>125</i>	<i>74</i>	<i>52</i>	<i>62</i>	<i>43</i>	<i>62</i>	<i>53</i>	<i>268</i>	<i>253</i>

Source; DFID HDRCC 2012: Est- Refers to Establishment.

3.3 Bed occupancy and workload

The increase in population has given rise to an increased burden of disease against a background of inadequate human resources in post and an inadequate bed establishment, as shown by the ratio of number of beds per 10 000 population (*Figure 2 and Table 10*)

Figure 2: Adult hospital beds by province 2011



Source: DFID HDRCC 2012

Table 10: Bed occupancy and workload pressure 2012

Province	Manica-land	Mash Central	Mash East	Mash West	Mat North	Mat South	Mas-vingo	Mid-lands	Harare	Bula-wayo	Total
Bed Establishment	2 327	866	1 477	1 672	948	1 212	2 436	4 411	2 006	2 027	19 382
Admissions	73 917	49 573	34 057	59 846	36 080	31 178	57 236	73 658	101 973	30 835	548 353
Discharges											
No of Outpatients	858 784	540 781	443 801	682 256	513 237	314 335	746 053	679 056	273 293	130 308	5 181 904
No of Attendees	1 062 997	678 422	592 800	962 736	625 842	403 096	1 034 147	938 023	430 664	153 470	6 882 197
Bed occupancy (%)	30.8	62.6	35.5	39.5	41.3	30.6	27.8	18.2	79.4	54.2	38.1
Average In-patients stay	3.9	4.5	6.2	4.5	4.7	4.8	4.9	4.9	5.5	13.4	5.4
Turnover Factor	29.5	50.8	20.8	31.9	32.2	23.4	20.5	13.6	52.7	14.7	25.7
Turnover Interval	8.8	2.7	11.3	6.9	6.7	10.8	12.9	22.0	1.4	11.4	8.8

Source: Zimstat 2012

According to McIntyre and Anselmi, the inclusion of bed numbers is meant to determine the capacity of inpatient care within each area (McIntyre and Anselmi (2012)). The bed occupancy ratio, it can be used to prioritize further investments. While this pilot gap analysis did not ascertain the number of facilities needing refurbishment, a full gap analysis survey can ascertain the number of facilities that need overhaul or refurbishment and estimate the resources required for this.

3.4 Health expenditure

The 2010 National accounts show that total health expenditure in Zimbabwe was largely from household out-pocket (39%) sources followed by private sector expenditure (24%), external funders (19%) and government (18%) (MoHCC 2013). Private sector consists of medical aid schemes and private companies. While the external share of expenditure has risen from 4.2% in 2001, government expenditure concurrently went down from 39% to current 18%, leaving critical expenditures such as drugs purchases and hospital equipment to be funded by external partners. In the past a larger share of external partners' funds was used to finance preventive and health promotion services. However on account of the fall in the government share of contribution, external funders are currently financing a large share of both curative and preventive services. *Table 11* shows for information only the sources of funds and areas of expenditure, as they are not all included in the resource allocation.

Since 2009, the Government has been largely financing human resources. As this consumes on average 75% of funds it leaves limited resources for capital and recurrent expenditures. From 2009 to 2011 the share total current expenditure to total expenditure for the MoHCC was about 86% leaving only 14% for capital equipment (MoF 2013). *Table 12* shows the MoHCC budget allocations by function from 2002 to 2013.

The focus on curative expenditure has also affected the delivery of primary health care services at the secondary and primary levels of care. For the period of analysis, over 76% of the total budget went towards curative services, while about 7% went towards preventive services. Ironically a large share of the curative expenditure and the preventive expenditure went towards payment of salaries for the human resources at the expense of the actual services. For the same period, external partners accounted for a lot of the drug and equipment expenditure for the district hospitals and lower level facilities. External partners have also made considerable expenditures on health workers,

in topping up salaries for the critical staff categories in order to retain the key staff and motivate them (See Table 13). This does create a dependency that would need to be covered by government or other sources when they eventually stop the support.

Table 11: Sources of funds and areas of expenditure

	Curative	Preventive	Administration	Research
General Tax revenue	xxx	xxx	xxx	xxx
AIDS Levy	xxx	xxx	xxx	x
Workman's Compensation	xxx		xxx	
Social Safety Nets	xxx			
Local Authorities	xxx	xxx	xxx	
Health Services Fund	xxx		xx	
Medical Aid Societies	xxx	x	xxx	
External Funds	xxx	xxx	xxx	x
Other Ministries	xx	xx	xx	

Source:Author

Table 12: Functional allocations of MoHCC budget as share of total budget 2002-2013

allocation head	2002	2003	2005	2006	2008	2009	2011	2012	2013
administration	4.8%	6.7%	6.8%	8.3%	9.09%	13.9%	14%	14.8%	8%
medical care (i)	78.0%	81.3%	80.5%	81.7%	80.56%	79.9%	74%	73.9%	83%
preventive services	16.0%	10.9%	11.3%	6.7%	9.57%	6.0%	10%	8.9%	7%
Research	1.2%	1.1%	1.4%	3.3%	0.78%	0.2%	2%	2.4%	2%

Source; Ministry of Finance budget estimates 2002-2013; * estimates

(i) Medical care budget allocation includes about 40% built-in budget for preventive care.

Table 13: Nominal expenditure (US\$) on human resources and capacity building 2009 - 2013

	2009	2010	2011	2012	2013
DFID	7 882 192		4 656 300		
UNICEF	5 218 056				
ESP	4 350 000	350 560			
VNSSP		490 585			
UNFPA	870 500				
Global Fund	8 637 992	22 402 249	14 114 562		
DFID Cholera	807 609				
HTF				5 385 626	7 030 899
Total	27 766 951		18 770 862		

Source Crown Agents 2012; UNICEF 2013 (in absolute terms HTF contribution in 2012 was the same as in 2013)

4. Results

The gap analysis served two purposes, firstly to orient the future capital investment so that capacity for absorbing recurrent expenditure allocation would be created and secondly to give a measure of current absorptive capacity. In determining the gaps in the pilot survey in the districts a series of iterative steps were taken.

The first step involved using the general population levels and the number of facilities. In calculating the gaps, the population figure was used to calculate the gaps in infrastructure and the consequent health service inputs in each district.

In the second step of the gap analysis the availability and functionality of key assets and equipment was determined against the recommended 'norm' as outlined in the Essential Health Benefit.

In the third step financial costings were attached to the gaps to provide an estimate of additional financial resources needed for the districts /provinces. Unit cost and prices were sourced from the Ministry of Finance, Ministry of Health and the Ministry of Public Works procurement units/departments.

4.1 Step 1: Gaps in infrastructure against population levels

There are basic minimum equipment items that should be found in each health facility as stated in the Ministry of Health and Child Care 2013 draft Essential Health Benefit (EHB). In a full gap analysis these can be counted for each facility and any gaps recorded, quantified and costed. In Zimbabwe, several factors are taken into account when determining recurrent expenditure allocation and a general standard is applied according to the population served by each type of health facility. This population figure was used to identify the gaps in infrastructure and the consequent health service inputs in each district, shown in *Tables 14-16*. Data from the Health Services Board on human resources, the Ministry of Public Works on infrastructure, and the Health Information system on number of health centres was used to complement the population figure to ascertain the gaps.

Table 14: Catchment population for health facilities 2009 - 2013

Facility type	Standard Catchment population
Rural health centre	10 000
District hospital	140 000
Provincial hospital*	1 000 000

*Catchment area defined in terms of the average provincial population.

Source: MoHCC 2009

For Mashonaland Central with a population of 1 138 940, and the standard catchment population per type of facility, Table 15 shows number of facilities in the province, as available and as needed for the current population level. Mashonaland Central requires 3 more district hospitals to meet norms. Based on MoHCC estimates of costs for building and annually running a fully functional district hospital, we estimated the total investment required to meet the cost of a new hospital as US\$60 million and the annual running cost as US\$1 million. However, the province has 8 extra rural hospitals and 15 extra Rural Health Centres, some owned by missions and some by the Rural District Councils. It is therefore difficult to justify any new investment in the province.

Table 15: Gap Analysis-Mashonaland Central Province

	Provincial Hospital	District Hospital	Rural Hospitals	Rural Health Centres
Available facilities	1	6	8	129
Standard/Norm of facilities required	1	9	0	114
Estimated Facility Gap	0	-3	8	15
Estimated Cost of building costs		US\$60.0 million		
Estimated Running Costs		US\$1.0 million		
Estimated Total Costs Year 1		US\$61.0 million		

2013 MoHCC Budget Bid used for estimates of costings of services and their operating costs including HRH

In Matabeleland North the similar findings are shown in *Table 16*. While a new provincial hospital is not needed on the basis of the population (as per the norm of 1 provincial hospital per 1 million people), it is the only province without a functioning provincial hospital for third level referrals, the one may be needed so that the people in the province can also access services associated with third level hospital services. The cost of this was estimated at US\$60 million for capital costs and annual running costs of US\$2 million that includes annual staff and provisions. However, the province has against norms as one extra district hospital, 12 extra rural hospitals and 26 extra Rural Health Centres, some of which are owned by the missions and some by the Rural District Councils. Given population size alone it is therefore difficult to justify any new infrastructure investment in the province. Further research would be needed to assess how health facilities are distributed in the province and who accesses and benefits from them most,

Table 16: Gap Analysis-Matabeleland North Province

	Provincial Hospital	District Hospital	Rural Hospitals	Rural Health Centres
Available Facilities	0	7	12	101
Standard/Norm of Facilities	1	6	0	75
Estimated Facility Gap	-1	1	12	26
Estimated Building Cost	US\$60.0 million			
Estimated Running costs	US\$2.0 million			
Estimated Total Costs Year 1	US\$62.0 million			

2013 MoHCC Budget Bid used for estimates of costings of services and their operating costs including HRH

For both provinces further research would be needed to assess how health facilities are distributed in the province and who accesses and benefits from them most. As indicated earlier standards also need to be reviewed to assess whether the norms need revision given the current disease burden.

4.2 Step 2: Gaps in equipment against norms

In step 2 of the gap analysis we selected essential equipment needed for delivery a comprehensive maternal and child health services as outlined in the Essential Health Benefit as updated in 2013 (See *Appendix 3* for the full list of equipment for health centres and hospitals). In this exercise we only used the maternal and child health equipment, which is acknowledged to be a biased sample. We determined availability of a sample of assets and equipment against the recommended 'norm' as outlined in the MoHCC's Essential Health Benefit. The Essential Health Benefit provides a list of the equipment that should be available at the District level to deliver a defined package of primary health services, but not the quantities. Without the actual quantities, we assumed that the district needed at least a single piece of equipment per functional room for it to operate normally. For example, if a district hospital had 2 operating theatres, we would assume each would have one piece of major equipment or furniture sufficient for it to operate normally. We also ascertained whether the equipment was still functional or not. Where gaps existed, these were quantified and monetised as shown in the tables below. Estimates of unit costs for the various pieces of equipment were sourced from UNICEF (UNICEF 2012). The UNICEF supply catalogue provides average indicative prices for various hospital equipment and medical products. For the Pilot study we estimated the financial gaps for all the district hospitals in the province and a selected health facility in one of the districts. *Tables 17 and 18* give the estimated total financial gaps for each of the facilities in the province and for the province in total. As the survey largely only used district hospitals (with two sampled clinics per district it is not possible to make an absolute statement on the size of the investment gap in the district.

Table 17: Selected equipment gap analysis: Mashonaland Central

	Rushinga clinic	Nyakudya clinic	Guruve district hospital	Chimanda district hospital	St alberts mission hospital	Mt darwin hospital	Concession district hospital	Shamva district hospital	Total (US\$)
Incubator	8238.57	8238.57	8238.57		8238.57		8238.57	8238.57	49431.42
Other source of heat for premature infant					2266.19				2266.19
Bag and mask (infant size) for resuscitation		80.93			80.93				161.86
Suction apparatus for use with catheter	3.44				3.44	3.44			10.32
Resuscitation table for baby		13549.52	13549.52						27099.04
Ventouse (vacuum extractor - manual or electrical)	786.41			786.41		786.41			2359.23
Manula vaccum aspirator	200			200		200			600
Dilatation and curretage (D&C) kit						120.65			120.65
Operating Table							3241.38		3241.38
Anesthesia giving set					78.69			78.69	157.38
Tray, drum, or package with sterilized instruments ready for use							12.46		12.46
Electric autoclave (Pressure and Wet Heat)		1313.29	1313.29	1313.29	1313.29	1313.29		1313.29	7879.74
Non-electric autoclave (Pressure and Wet Heat)						1313.29	1313.29	1313.29	3939.87
Electric dry heat sterilizer			541.72			541.72	541.72	541.72	2166.88
Electric boiler or steamer (no pressure)			3940.5			3940.5	3940.5	3940.5	15762
Heat source for non-electric equipment			22.71		22.71	22.71	22.71		90.84
Automatic Timer		16.4	16.4	16.4			16.4	16.4	82
Blood pressure apparatus	11.27		11.27	11.27					33.81
Urine Test Strip for Protein			5.75			5.75			11.5
Blood pressure apparatus				11.27					11.27
Stethoscope							2.46		2.46
Thermometer				7.77					7.77
Infant scale				12.06					12.06
Infant stethoscope			2.46	2.46		2.46			7.38
measuring tape						0.99			0.99
Total	9239.69	23198.71	27642.19	2360.93	12003.82	8251.21	14073.19	18698.76	115468.5

Table 18: Selected equipment Gap Analysis: Matabeleland North

	St luke's hospital	Lupane rural health care centre	Nkayi district hospital	Binga district hospital	Victoria Falls Hospital	Chinotimba clinic urban	Tsholotsho district hospital	Nyamandlovu district hospital	Inyathi district hospital	Total (US\$)
Incubator	8238.57		8238.57	8238.57		8238.57		8238.57		41192.85
Suction apparatus for use with catheter		3.44	3.44	3.44						10.32
Resuscitation table for baby		13549.52				13549.52	13549.52	13549.52		54198.08
Forceps		6.48								6.48
Ventouse (vacuum extractor - manual or electrical)		786.41	786.41			786.41	786.41		786.41	3932.05
Manula vaccum aspirator	200	200				200		200		800
Dilatation and curretage (D&C) kit		120.65				120.65		120.65		361.95
Operating Table								3241.38		3241.38
Anesthesia giving set								78.69		78.69
Tray, drum, or package with sterilized instruments ready for use								12.46		12.46
Electric autoclave (Pressure and Wet Heat)		1313.29		1313.29					1313.29	3939.87
Non-electric autoclave (Pressure and Wet Heat)			1313.29	1313.29	1313.29	1313.29				5253.16
Electric dry heat sterilizer			541.72		541.72		541.72	541.72	541.72	2708.6
Electric boiler or steamer (no pressure)				3940.5	3940.5		3940.5	3940.5	3940.5	19702.5
Heat source for non-electric equipment	22.71			22.71	22.71					68.13
Automatic Timer		16.4							16.4	32.8
Urine Test Strip for Protein		5.75				5.75			5.75	17.25
Vaginal spectrum						4.98				4.98
Infant stethoscope	2.46									2.46
Total	8463.74	16001.94	10883.43	14831.8	5818.22	24219.17	18818.15	29923.49	6604.07	135564.01

The total investment required for the equipment in the district hospitals and two sampled primary care facilities Mashonaland Central was estimated as US\$115 468. A lot of investment in maternal and child health was done by the Health Transition Fund (HTF) in almost all provinces in Zimbabwe; so the figure for future capital expenditure on equipment is relatively low. The HTF had a planned budget of US\$5 million for maternal and nutrition equipment, and since 2012 has spent about US\$2million dollars on this (HTF 2013).

The estimated investment needed for Matabeleland North in the district hospitals and two sampled primary care facilities was estimated at US\$135 564, again not a large amount. The impact of the HTF equipment funding is also evident in this province.

It should be noted that this pilot survey did not assess *all* equipment nor did it calculate the gap for all primary care facilities so it underestimates the actual full equipment gap. This is likely to be higher than what was measured. In a full gap analysis exercise facilities would need to identify all gaps against norms so they can be costed. It is however likely that equipment gaps, at least for maternal and child health, can be met from the HTF fund for equipment needs in the immediate future. It is not clear whether the same is true for equipment for other areas of service delivery, including for non communicable diseases (NCDs). While the estimates hold for the district hospitals only two primary care facilities were sampled so that there may be other primary care services where needs may be higher.

4.3 Step 3: Gaps in human resources for health against norms

In the third part of the gap analysis we determined the gaps in terms of the critical human resources. We included the clinic personnel: doctors, nurses, environmental health technicians, pharmacists and laboratory scientists. Administration personnel were not included for this exercise but may be included in a more comprehensive exercise. We created a file showing the standard or norms or establishment for each province by facility using the Health Services Board establishment schedule. This enabled us to identify the extent of human resource shortage for the critical cadres in each of the 2 provinces. We then used indicative salaries from government for the identified cadres to calculate the estimated annual salary requirements. Based on this we found that over US\$2 million is required to pay for the for the estimated human resources requirements for the two provinces to reach their full establishment. In Mashonaland Central Province, the district hospital that had the largest gap was Guruve, followed by Shamva hospital, while Chimhanda hospital had the least gap. In Matabeleland North Province, the district hospital that had the largest gap was Nyamadhlovu, followed by Binga hospital, while Victoria Falls hospital had the least gap. Overall, the province of Matabeleland (US\$135 564) had a larger gap compared to the province of Mashonaland Central (US\$115 469).

Table 19: Estimate of *critical clinical staff* annual costs to reach full establishment

	Nurses	Doctors	EHT	Pharmacy	Laboratory	Total
Mash Central						
Establishment	794	51	258	26	22	1151
Vacancy rate (%)	3	69	57	8	18	
Actual Vacancy	24	35	147	2	4	212
Unit cost(US\$)	US\$ 374	US\$ 603	US\$ 366	US\$ 422	US\$ 422	
Estimated cost to fill establishment	US\$107 712	US\$253 260	US\$645 624	US\$10 128	US\$20 256	US\$1 036 980
Mat North						
Establishment	618	32	173	19	30	872
Vacancy rate	18	41	54	26	93	
Actual Vacancy	111	13	93	5	28	251
Unit cost	US\$374	US\$603	US\$366	US\$422	US\$422	
Estimated Cost to fill establishment	US\$498 168	US\$94 068	US\$408 456	US\$25 320	US\$141 792	US\$1 167 804

4.4 Step 4: Gaps in medicines and other supplies against norms

The gap analysis did not include all the information on supplies such as drugs, syringes, gloves, fuel etc that are important service delivery components. These items can be budgeted for on a basic norms approach, or based on averages. For example, “if on average 2,000 syringes are used every month in rural health centres”, this should be budgeted for in every new rural health centre. However, in this analysis we calculated this recurrent expenditure based on the Health Transition fund (HTF) and Health Services Fund (HSF) support to health system. The Health Transition Fund, through UNICEF has been providing drugs and other medical items to health facilities through a push system. They estimated a monthly Health Services Fund allocation to facilities (UNICEF 2013). We used this HSF fund allocation to provincial hospitals, district hospitals and rural health centres for HSF support to estimate the gap in terms of the recurrent expenditure or equalisation grant needed from the national budget to support the facilities in terms of medical provisions, utilities and other ancillary services (See *Table 20*). Using those estimates Mashonaland Central would require about US\$1,39 million and Matabeleland South US\$1,12 million for recurrent expenditure from the MoHCC to meet the gap in requirements for medical provisions, utilities and other ancillaries.

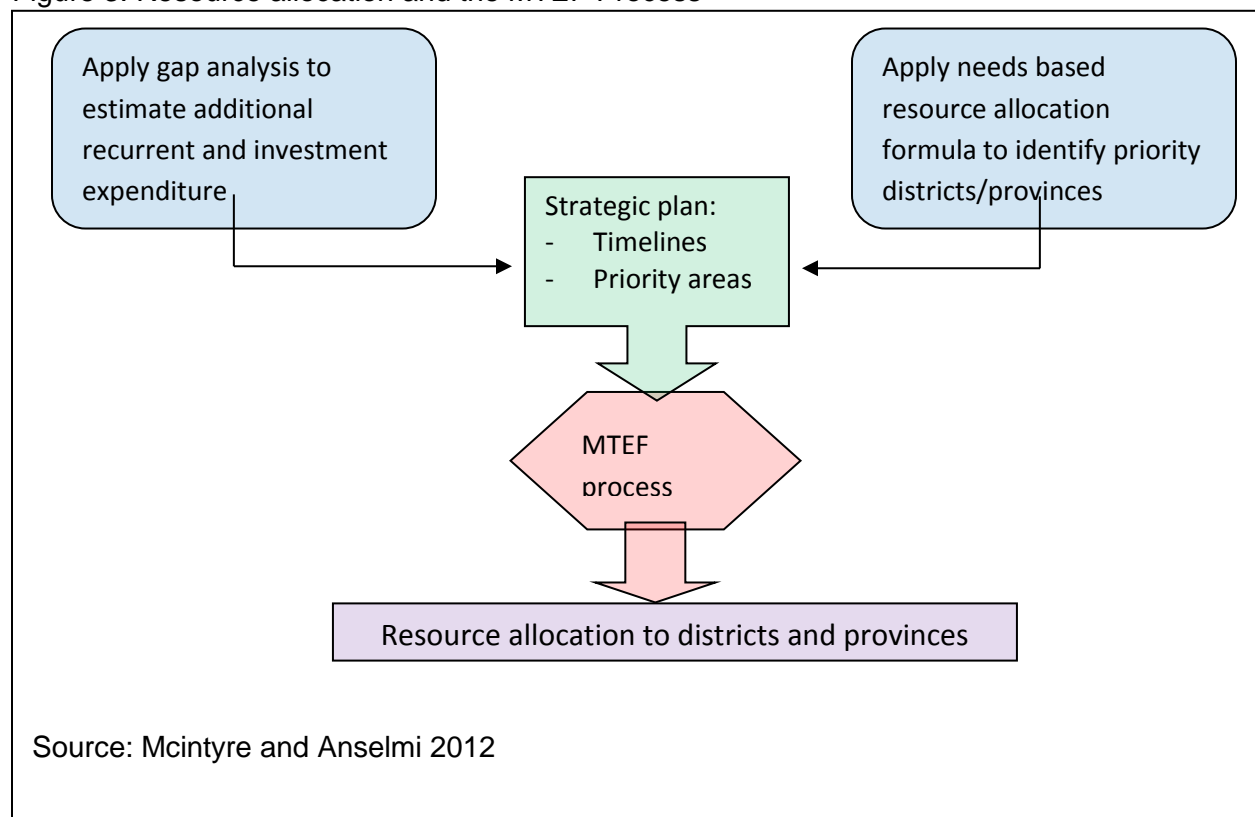
Table 20: Estimated recurrent expenditure

	Monthly (US\$)	Estimated Number of facilities	Total Funding Per Month (US\$)	Total Funding Per Year (US\$)
Mashonaland Central				
Rural Health Centre	750	129	96 750	1 161 000
Rural Hospital	1000	8	8 000	96 000
Mission Hospital/other	1500	6	9 000	108 000
Provincial Hospital	2000	1	2 000	24 000
Total				1 389 000
Matabeleland North				
Rural Health Centre	750	101	75 750	909 000
Rural Hospital	1000	12	12 000	144 000
Mission Hospital/other	1500	7	10 500	126 000
Provincial Hospital	2000	0	0	0
Total				1 179 000

5. Use of the gap analysis in resource allocation

Ideally the gap analysis and the application of the needs-based resource allocation formula should be done at the same time. The work on the resource allocation formula is separately reported, Combining both gap analysis and recurrent resource allocation would allow the MoHCC to identify expenditure allocations. We found capital requirements to not be significant for the indicator equipment included, noting the limitations of the study. For larger costs, such as the construction of new hospitals, the capital investment expenditure can be spread over a number of years. The gap analysis and the resource allocation formula would feed directly into MoHCC plans and the country's medium term economic plans as shown in *Figure 3* below.

Figure 3: Resource allocation and the MTEF Process



The pilot gap analysis suggested some gaps, at least from the national data and the evidence in the selected provinces, in facilities, hospital equipment, and personnel. They are summarised below:

- i. Health facilities have not been built in areas where new families have been resettled after land reform.
- ii. Refurbishment and procurement of new hospital equipment stalled in recent years. This has largely been addressed by external funds for maternal and child health equipment. However there may be a gap in equipment for other needs, such as diagnostics for certain non communicable diseases.
- iii. Using the current norms and the fact that a clinic can be substituted for a rural health facility or a district hospital can be substituted for rural hospital, in terms of capital equipment, the 2 pilot provinces are reasonably services by infrastructure.
- iv. Since 1980, the human resource establishment has remained the same, while the population and disease burden has grown, creating a need for the revision of the post establishment to reflect the new realities.
- v. External partners have played a key role in procuring critical hospital equipment and refurbishment of key buildings as well as paying retention allowances for critical staff raising concerns around the critical issue of sustainability. Since these are temporary measures, they are likely to create gaps in future when these partners conclude their support that would need to be covered by the national budget.

The pilot gap has also indicated some lessons for implementing this work in Zimbabwe as part of moving from demand to needs based resource allocation:

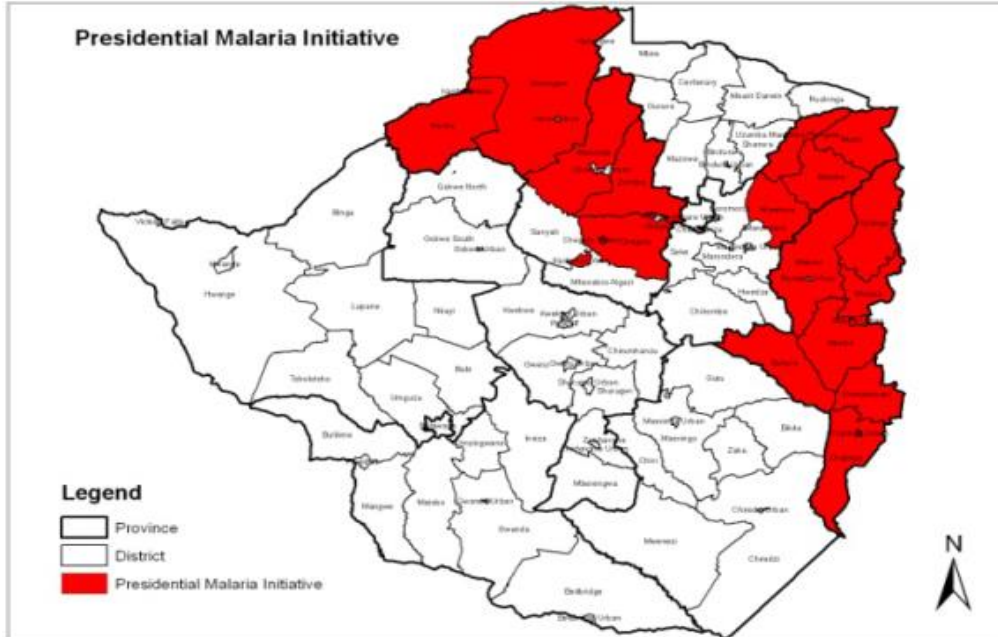
- ix. Provinces should not be treated as a homogeneous group. Their features and resource requirements vary and allocation needs to be according to their need and capacity to absorb resources.
- x. External fund allocations in some areas (as in areas of off budget specific programme support) have been less successful in allocation resources equitably than external funding for system support such as the HTF. External support to provinces should be made after appropriate analysis of the actual requirements and capacity of the provinces.
- xi. A full gap analysis using asset registers and physical verification of use and functionality of key equipment would need to be carried out to ascertain the true gaps in all the provinces.
- xii. Physical verification is essential to avoid the risk of facility personnel understating or overstating their true status. when it comes to asset inventory, facilities are always likely to understate their stock and functionality of key equipment in the hope of getting more.
- xiii. This pilot gap analysis only focused on maternal and child equipment at the district hospital and one or two rural health centres. In a complete exercise a full set of indicator equipment covering all major conditions and services in the EHB should be included, an indicator set that covers the range of services provided.
- xiv. While norms for the district and rural health facilities have been developed showing the ideal types of equipment and human resources required per facility; there is need to revise them further given the population movements that have happened since 2000, and the current disease burden.
- xv. A more holistic approach is needed for planning and estimating the staff establishment given changes in staffing, and taking population numbers and age distribution and disease trends into account.
- xvi. A future gap analysis exercise would be well informed by using the “OneHealth Tool” developed by Futures Institute. The tool can provide a useful and comprehensive Gap Analysis at the District Level since it uses standardised costing methods, unit costs of assets and services and standardised estimation techniques for staffing and equipment needs. Further work on the Gap analysis using the ‘OneHealth’ Tool is already underway.

6. References

1. Community Working Group on Health (CWGH) (2013) The 2014 Pre-budget position paper, CWGH, Harare.
2. DFID Human Development Resource Centre (2012) An Impact Assessment of the Zimbabwe HHWRS, DFID, Harare
3. McIntyre, D. Anselmi, L., (2012) Guidance on using needs based formulae and gap analysis in the equitable allocation of health care resources in East and Southern Africa Regional Network for Equity in Health in Southern.
4. Ministry of Finance 2000-2013 Estimates of Expenditures, MoF Harare.
5. Ministry of Health and Child Welfare (2009) National Health Strategy 2009 -2013, MoHCW, Harare
6. Ministry of Health and Child Care (2013) National Health Accounts Draft Report, MoHCC , Harare
7. OECD (2014) Statistical Tables for Zimbabwe, OECD Publishing, Paris;
<http://www.oecd.org/statistics/> accessed 19 May 2014
8. Shamu, S, TARSC (2013) Literature Review on Needs based Resource Allocation TARSC, MoHCC Harare
9. TARSC, MoHCC (2002) Report of s study on inclusion of equity indicators in the resource allocation formula for Ministry of Health Funds in Zimbabwe, Equity Gauge Monograph, TARSC, Harare.
10. UNICEF (2009) Multiple Indicator Cluster Survey, UNICEF Harare
11. UNICEF (2013) Annual Report to Donors on the Health Transition Fund, UNICEF Harare
12. UNICEF (2012) Annual Supply Report, UNICEF, New York
https://supply.unicef.org/unicef_b2c/app/displayApp/%28layout=7.0-12_1_66_67_115&area=%24ROOT%29.do?rf=y accessed 19 May 2014
13. Zimbabwe Statistical Agency Zimstat (2012) A compendium of statistics, ZIMSTAT, Harare
14. ZIMSTAT (2013) Poverty and Poverty Datum Line Analysis in Zimbabwe 2011/2012, ZIMSTAT, Harare.
15. Zimbabwe Statistical Agency, Zimstat and OFC Macro (2011) Zimbabwe Demographic Health Survey, Zimstat, Harare

Appendix 1: District allocation of USAID programme funds

Figure A1: Districts covered by USAID presidential malaria initiative, Zimbabwe 2012



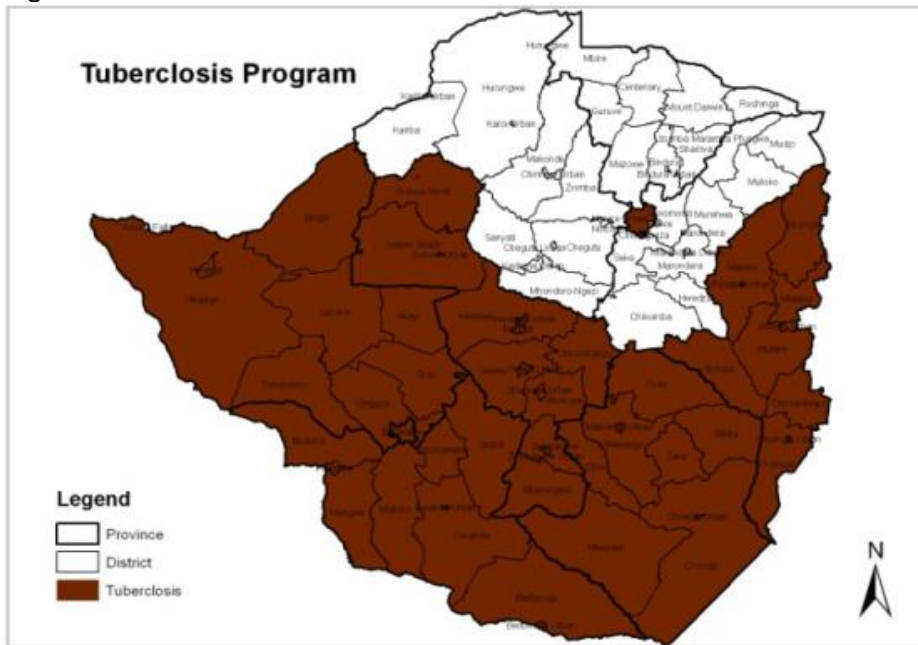
Source: USAID 2013

Figure A2: USAID Maternal and Neonatal and Child Health Districts



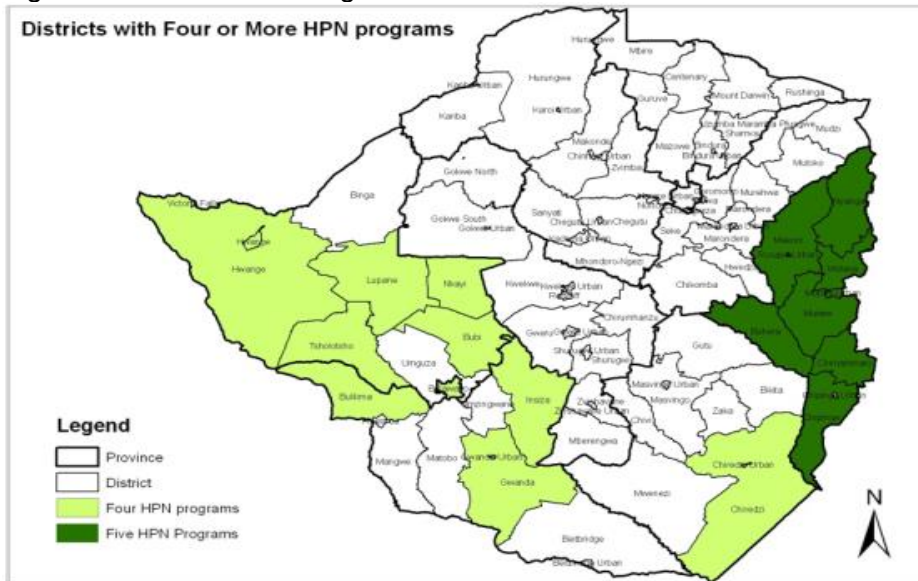
Source: USAID 2013

Figure A3: USAID Tuberculosis Districts



Source: USAID 2013

Figure 4: USAID HPN Programmes



USAID 2013

Appendix 2: Districts and facilities included in the pilot survey

Districts hospitals and clinics included shown in green

MASHONALAND CENTRAL

Centenary District

Name	Category	Ownership
1. St. Alberts	Designated District Hosp.	Mission
2. Chawarura	RHC	Govt.
3. Hoya	RHC	Govt.
4. Machaya	RHC	Govt.
5. Muzarabani	RHC	Govt.
6. Hwata	RHC	RDC
7. David Nelson	Clinic	RDC
8. Farm Health Scheme	Clinic	RDC
9. Chadereka	RHC	Govt.
10. Dambakurima	RHC	Govt.
11. Chidakamwedzi	Clinic	RDC

Shamva District

Name	Category	Ownership
1. Shamva	District hosp.	Govt.
2. Madziwa	Rural Hosp.	Govt.
3. Chishape	RHC	Govt.
4. Goora	RHC	Govt.
5. Mupfurudzi	RHC	Govt.
6. Bushu	Clinic	RDC
7. Chidembo	Clinic	RDC
8. Chihuri	Clinic	RDC
9. Mobile	Clinic	RDC
10. Wadzanayi	Clinic	RDC
11. Takawira	Clinic	RDC
12. Nyamaruro	Clinic	RDC
13. Nyamaropa	Clinic	RDC

Guruve District

Name	Category	Ownership
1. Guruve	District Hosp.	Govt.
2. Chitsungo	Rural Hosp.	Mission
3. Bvokochora	RHC	Govt.
4. Nyakapupu	RHC	RDC
5. Mashumbi Pools	RHC	Govt.
6. Bepura	RHC	RDC
7. Negomo	RHC	Govt.
8. Nyamhondoro	RHC	Govt.
9. Shinje	RHC	Govt.
10. Angwa	RHC	RDC
11. Bakasa	RHC	RDC
12. Chapoto	RHC	RDC

13. Chipuriro	RHC	RDC
14. Gonono	RHC	RDC
15. Kachuta	RHC	RDC
16. Mahuwe	RHC	RDC
17. Mastvitsi	RHC	RDC
18. Gota	RHC	RDC
19. Musengezi	RHC	RDC
20. Chikafa	RHC	RDC
21. Masomo	RHC	RDC
22. Masoka	RHC	RDC
23. Chirunya	RHC	RDC
24. Chidodo	RHC	RDC
25. Kemitamba	RHC	RDC
26. Mugarakamwe	RHC	RDC
27. Nyambudzi	RHC	RDC
28. Ruyamuro	RHC	RDC
29. Bickdale	RHC	RDC
30. Brandon	RHC	RDC

Mazowe District

Name	Category	Ownership
1. Concession	District Hosp.	Govt.
2. Mvurwi	Rural hosp.	Govt.
3. Rosa	Rural hosp.	Govt.
4. Howard	Rural Hosp.	Mission
5. Chinehasha	RHC	Govt.
6. Nyakudya	RHC	Govt.
7. Shutu	RHC	Govt.
8. Bare	RHC	RDC
9. Makope	RHC	RDC
10. Jingamvura	RHC	RDC
11. Mukodzongi	RHC	RDC
12. Christon Bank	RHC	RDC
13. Begownie	Clinic	RDC
14. Home Eden	Clinic	RDC
15. Tsungubvi	RHC	RDC
16. Mazowe secondary	Clinic	Mission
17. Nzvimbo	RHC	RDC
18. Dambo	RHC	RDC
19. Hatcliffe	RHC	Govt.
20. Mvurwi FHS	Clinic	RDC
21. Donje	Clinic	RDC
22. Vonabo	clinic	RDC
23. Danbary	Clinic	RDC
24. Davaer	Clinic	RDC
25. Montgomery	Clinic	RDC

26. Shopo	clinic	RDC
-----------	--------	-----

Mt. Darwin District

Name	Category	Ownership
1. Mt. Darwin	District Hosp.	Govt.
2. Karanda	Rural hosp.	Mission
3. Dotito	RHc	Govt.
4. Kamutsenzere	RHC	Govt.
5. Mukumbura	RHC	Govt.
6. Nyamahobgo	RHC	Govt.
7. Pfunyanguo	RHC	Govt.
8. Tsakare	RHC	Govt.
9. Chawanda	RHC	RDC
10. Kaitano	RHC	RDC
11. Nembire	RHC	RDC
12. Pachanza	RHC	RDC
13. Mutungagore	RHC	Govt.
14. Bveka	RHC	RDC
15. Mutasa	RHC	Govt.
16. ZRP	Clinic	Govt.
17. Matope	Clinic	RDC
18. Bandimba	Clinic	RDC
19. Chimbu	Clinic	RDC

Rushinga District

Name	Category	Ownership
1. Chimhanda	District hosp.	Govt.
2. Mary Mt.	Rural Hosp.	Mission
3. Mukosa	RHC	Govt.
4. Mukonde	RHC	Govt.
5. Nhawa	RHC	Govt.
6. Rushinga	RHC	Govt.
7. Mazowe Camp	Clinic	Govt.
8. Nyamatikiti	Clinic	Govt.
9. Bungwe	RHC	RDC
10. rusambo	RHC	RDC
11. Chimhanda	RHC	RDC

MATABELELAND NORTH

Binga District

Name	Category	Ownership
1. Binga	District Hosp.	Govt.
2. Siabuwa	Rural Hosp.	Govt.
3. Kariangwe	Rural hosp.	Mission
4. Chunga	RHC	Govt.
5. Lubimbi	RHC	Govt.
6. Lusuli	RHC	Govt.
7. Muchesu	RHC	Govt.

8. Siasumbu	RHC	Govt.
9. Chinengo	RHC	Govt.
10. Pashu	RHC	RDC
11. Tinde	RHC	Mission
12. Simatelele	RHC	Govt.
13. Sinasengue	RHC	Govt.
14. Sinangonde	RHC	Govt.

Bubi District

Name	Category	Ownership
1. Inyathi	District hosp.	Govt.
2. Lukala	RHC	Govt.
3. Mbembeswana	RHC	RDC
4. Siganda	RHC	RDC.
5. Balanda	RHC	RDC
6. Majiji	RHC	RDC
7. Sikhumi	Clinic	Govt.
8. Mdutshana	RHC	Govt.
9. Casyman (Turk)	RHC	Govt.

Hwange District

Name	Category	Ownership
1. Victoria Falls	District Hosp.	Govt.
2. Lukosi	Rural hosp.	Govt.
3. Kamativi	RHC	Mission
4. Wankie Colliery	Pvt. Hosp.	Industry
5. Chisuma	RHC	Govt.
6. Jambezi	RHC	Govt.
7. Kanyambizi	RHC	Govt.
8. Makwandara	RHC	Govt.
9. Mwemba	RHC	Govt.
10. Dete	Clinic	RDC
11. Dinde	Clinic	RDC
12. ZRP Vic. Falls	Clinic	Govt.
13. Lupote	Clinic	RDC
14. Ndlovu	Clinic	RDC
15. Simangani	Clinic	RDC
16. Mabale	Clinic	RDC
17. Hwange Prisons	Clinic	Govt.
18. Hwange ZRP	Clinic	Govt.
19. Empumalanga	Clinic	Town council
20. Chinotimba	Clinic	Town council
21. Lukunguni	Rural Hosp.	Mission
26. St. Patricks	Hosp.	Mission

Lupane District

Name	Category	Ownership
1. St. Lukes	Designated District hosp.	Mission

2. St. Pauls	Rural hosp.	RDC
3. Dongamuzi	RHC	Govt.
4. Gomoza	RHC	RDC
5. Jotsholo	RHC	Govt.
6. Kanyandavu	Clinic	Govt.
7. Lupaka	RHC	Govt.
8. Lupane	RHC	Govt.
9 Mdlankunzi.	Clinic	RDC
10. Dandanda	RHC	Govt.
11. Gwayi	Clinic	RDC
12. Fatima	RHC	RDC

Nkayi District

Name	Category	Ownership
1. Nkayi	District hosp.	Govt.
2. Dakamela	Rural hosp.	Govt.
3. Mbuma	Rural hosp.	Mission
4. Sivalo	RHC	Govt.
5. Ngwaladi	RHC	Govt.
6. Zenka	RHC	Govt.
7. mateme	RHC	Govt.
8. Gwelutshena	RHC	Govt.
9. Sebhumeane	RHC	RDC
10. Neginwe	RHC	RDC
11. Fanisoni	RHC	RDC
12. Zinyangeni	RHC	RDC
13. Sikhobokobo	RHC	RDC
14. Sesemba	RHC	RDC
15. Guwe	RHC	RDC

Umguz District

Name	Category	Ownership
1. Nyamandlovu	District Hosp.	Govt.
2. Fair Bridge (ZRP)	Clinic	Govt.
3. Fingo	Clinic	RDC
4. Igusi	Clinic	Govt.
5. Mbembesi	Clinic	Govt.
6. Ntabazinduna	Clinic	RDC
7. St. James	Clinic	Mission
8. T.G. Silundika (Edu.)	Clinic	Govt.
9. Imbizo Camp	Clinic	Govt.
10. Khami Prisons	Clinic	Govt.
11. Grey prison	Clinic	Govt.
12. Ntabazinduna Training Depot (ZPS)	Clinic	Govt.
13. Ntabazindunna Training Depot (ZRP)	Clinic	Govt.

14. Umuntu	RHC	Govt.
------------	-----	-------

Tsholotsho District

Name	Category	Ownership
1. Tsholotsho	District hosp.	Govt.
2. Tsholotsho Urban	Clinic	RDC
3. Nkunzi	RHC	RDC
4. Bubude	RHC	RDC
5. Makaza	RHC	Govt.
6. Madlangombe	RHC	RDC
7. Phimula	Rural hosp.	Mission
8. Sodaka	RHC	Govt.
9. Mtshayeli	RHC	Govt.
10. Mlagisa	RHC	Govt.
11. Sipepa	Rural hosp.	Govt.
12. Jimila	RHC	RDC.
13. Mpanedziba	RHC	RDC
14. Kapane	RHC	RDC
15. Siketnte	RHC	RDC
16. Dlamini	RHC	RDC

Appendix 3: Equipment norms for the essential health benefit

3.1 BASIC PACKAGE OF CORE HEALTH SERVICES FOR THE PRIMARY CARE LEVEL (CLINIC/RURAL HEALTH CENTRE)

No.	ITEM DESCRIPTION	Ideal QTY
	<i>Furniture</i>	
1	Standard hospital beds and mattresses	8
2	Bedside lockers	8
3	Bassinet and mattress	1
4	Benches, 3 metres length for patient in the waiting area	10
5	Desk, office	2
6	Examination couch	1
7	Examination lamp, mobile, single-poise	1
8	Chairs, office vinyl padded seat and back	4
9	Chair, swivel	1
10	Footstool, single step	2
11	Fan, electric, free standing	4
12	Heater, electric, 2 bar	4
13	Infusion stands, single hook, mobile	2
14	Paper basket bin	5
15	Pedal bin, foot operated	4
16	Under bed bench for visitors, for two seating	8
17	Refrigerator, domestic	2
18	Cabinet, Filing central lockable, steel	2
19	Shelves, Free standing steel	2
20	Screen, 4 wing with washable cloth	2
21	Cabinet, steel with 4 adjustable shelves and feet, doors lockable	2
	Transportation Items	
1	Trolley, dressing small	4
2	Trolley, medicine lockable	2
3	Trolley, patient canvas	2
4	Trolley, clean linen	2
5	Trolley, dirty linen, skip	2
6	Dirty linen spare canvas, 5 for each trolley	10
7	Wheel chair, standard adult	2
8	Receptacle (Kicker-about) stainless steel on 3legged holder	2
	Medical Equipment	
1	Adult weighing scale with height measure	1
2	Adult weighing scale, bathroom	2
3	Autoclave pressure	2
4	Baby weighing scale, electronic	2
5	Baby weighing scale, mechanical	1
6	Baby weighing scale, spring type	2
7	CardioTocograph	1
8	Doppler	2
9	Diagnostic set	2
10	Delivery bed (obstetric)	2
11	Glucometer	2
12	Haemoglobin meter	2
13	Laryngoscope set, adult	2
14	Laryngoscope set, paediatric	2

15	Nebulizer, electric	1
16	Non-Invasive Blood Pressure monitor (NIBP)	2
17	Resuscitator, Infant	1
18	Resuscitator, Adult	2
19	Suction pump, mobile, single bottle (electric)	3
20	Suction pump, single bottle, foot operated (manual)	3
21	Sphygmomanometer, mercurial, desk, wall or rail mounted	4
22	Sphygmomanometer, aneroid	2
23	Stethoscope, binaural	2
24	Stethoscope, foetal, Pinard	2
25	Oxygen cylinder, complete with all accessories	3
26	Oxygen cylinders, spare 2 for each oxygen trolley	6
27	Urine Test kits (Disposable)	1000
28	Ultra sound scan machine (mini)	1
29	Vaccine cool box	2
30	Thermometer, mercury free (box of 12) in °C	2 box
31	Thermometer, digital, 36 in a box	1 box
	Hollowware	
1	Bowl, splash 35cm diameter, stainless steel	10
2	Bowl, 15cm diameter, st.st or (polypropylene) pp	10
3	Bowl, 10cm diameter, st.st or pp	10
4	Gallipots, st.st or pp	10
5	Kidney dish, small	5
6	Kidney dish, medium	10
7	Kidney dish, large st.st or pp	10
8	Jug, measuring graduated 1000mls st.st	2
9	Thermometer, holder st.st	4
10	Medicine measuring cup, graduated st.st. 30mls	10
11	Urinals, st. st or pp	2
12	Bed pans st.st or pp	4
	Miscellaneous Items	
1	Tape, measuring cotton type, 2metres in cm and inches	2
2	Clock, battery operated	2
3	Ladder, aluminium 5 step	1
4	Plastic, 100 litre, hard type for disinfecting soiled linen	2
5	Torch, ordinary standard type, battery operated	2
6	Scissors, Bandage cutting	2
	Surgical Instrument Sets	
	Suture Pack	
	• Debridement and Suture of wounds	
	Dressing Pack	
	• General dressing	
	• Burns	

**BASIC PACKAGE OF CORE HEALTH SERVICES FOR THE DISTRICT HOSPITAL LEVEL
STANDARD EQUIPMENT LIST**

DEPARTMENT: OUT PATIENT ROOM:

- Patient trolley area/ bay
- Wheel Chair, adult
- Wheel Chair, child
- Wheel chair, folding
- Patient trolley, with side rails and mattress
- Canvas stretcher

ROOM: Screening

- Oxygen Cylinder, complete
- Diagnostic set
- Sphygmomanometer mercurial desk model
- Stethoscope, binaural
- Examination lamp, mobile, angle poise
- Examination couch
- Haemoglobin meter
- Scale, weighing adult with height measure
- Scale, weighing baby
- Dressing trolley, with drawer
- Dressing trolley, small

ROOM: Consulting

- Diagnostic set
- Sphygmomanometer mercurial desk model
- Sphygmomanometer, Aneroid
- Stethoscope, binaural
- Examination lamp, mobile, angle poise
- Examination couch
- Haemoglobin meter
- Glucometer
- Set of Laryngeal Mirrors
- Set of tuning forks
- Penlight Torch
- Patella Hammer
- Tongue Depressor, stainless steel

ROOM: Treatment / Dressing

- Examination couch
- Dressing trolley, small

CASUALTY ROOM: Resuscitation

- Anaesthetic machine, small
- Infusion pump
- Diagnostic Set
- Laryngoscope Adult, complete set
- Laryngoscope Child , complete set
- Nebulizer electric
- Diagnostic set
- Sphygmomanometer mercurial desk model
- Sphygmomanometer, Aneroid
- Stethoscope, binaural
- Examination lamp, mobile, angle poise
- Examination couch
- Haemoglobin meter
- Glucometer
- Non Invasive Blood Pressure Monitor (NIBP)
- Resuscitation/crash trolley, complete
- Resuscitation set, manual, Adult and child
- Suction unit, single bottle, electric
- Suction unit, manual
- Sphygmomanometer mercurial, wall mounted
- Stethoscope, binaural
- Syringe Pump
- Infusion stand, double hook
- Trolley, dressing, small
- Oxygen cylinder, complete or oxygen units if piped gas is installed
- Oxygen Cylinders spare
- Nitrous oxide cylinders spare
- Warming blanket
- Instrument cabinet, lockable with adjustable glass shelves

Instruments required in Casualty Emergency

- Chest drainage Kits
- Cut down set
- Dressing Scissors
- Magills Forceps, child
- Magills Forceps, Adult
- Mouth gag
- Ring cutter
- Spencer Well's Artery Forceps
- Tracheotomy set
- Anaesthetic Sundries
- Surgical sundries

ROOM: Plaster

- Examination Couch/Plaster table
- Surgeon stool
- Plaster Trolley with all accessories etc
- Bowl stand with bowl, single
- Knee rest, small
- Knee rest, large
- Set of Plaster instruments (recommended set)
- Electric saw with spare oscillating blades in a container
- Plaster saw, electric

ROOM: Observation

- Beds with mattresses, Hospital standard
- Bedside Lockers
- Bench, under bed, two seating
- Infusion stands, single hook
- Oxygen Cylinder, complete
- Sphygmomanometer mercurial, mobile
- Stethoscope binaural
- Non Invasive Blood Pressure Monitor (NIBP)
- Stand, inclining for raising end of trolley/bed
- Clock, battery operated, wall mounted
- Heater, two bar, electric
- Fan, oscillating, table model

ROOM: Dentist

- Dental instrument sets
- Dental Unit complete with compressor
- Dental X-ray film processor
- Mobile dental equipment in a case
- Oiling machine
- Instrument cabinet, dental
- Sterilizer, table top
- X-ray unit

ROOM: Operating Theatre

- Operating Theatre Table, Standard and mattress
- Patient trolley, Transfer system
- Anaesthetic Machine, complete with sundries
- Laryngoscope Adult, complete set
- Laryngoscope Child , complete set
- Electro-surgical unit
- Operating theatre light, ceiling mounted
- Operating theatre light, mobile
- Oxygen unit, for piped outlet
- Nitrous gas piping
- Vacuum unit, for piped outlet
- Suction machine, single bottle
- Suction pump, foot operated
- Kick-about, receptacle

- Infusion stand, single hook
- Bowl stand with st.st bowl, single
- Foot stool, single step
- Clock, battery operated, wall mounted
- Surgeon stools
- Trolleys dressing, small
- Oxygen concentrator
- Blood/Fluid Warmer
- Sphygmomanometer, mercurial, desk
- Non Invasive Blood Pressure Monitor (NIBP)
- Stethoscope, binaural
- Trolley, small dressing with drawer (anaesthetist)
- Tourniquet with gradual adjustment, latex

ROOM: Recovery

- Patient trolley, Transfer system
- Crash cart, complete with defibrillator
- Pressure Infuser
- Non Invasive Blood Pressure Monitor (NIBP)
- Oxygen unit, for piped outlet
- Vacuum unit, single bottle for piped vacuum outlet
- Suction machine, electric, single bottle
- Suction unit (ambu) foot operated
- Blood/Fluid Warmer
- Sphygmomanometer, mercurial, rail mounted
- Trolley, small dressing with drawer
- Pressure Infuser
- Laryngoscope Adult, complete set
- Laryngoscope Child , complete set
- Surgical sundries
- Stand, inclining for raising end of trolley/bed

ROOM: Main Operating Theatre

- Operating Theatre Table, Standard and mattress
- Patient trolley, Transfer system
- Anaesthetic Machine, complete with sundries
- Laryngoscope Adult, complete set
- Laryngoscope Child , complete set
- Electro-surgical unit
- Operating theatre light, ceiling mounted
- Operating theatre light, mobile
- Oxygen unit, for piped outlet
- Nitrous gas piping
- Vacuum unit, for piped outlet
- Suction machine, single bottle
- Suction pump, foot operated
- Mayo table
- Kick-about, receptacle
- Infusion rod, double hook
- Infusion stand, single hook
- Infusion stand, double hook
- Bowl stand with st.st bowl, single
- Bowl stand with st.st bowl, double
- Foot stool, single step
- Clock, battery operated, wall mounted
- Surgeon stools
- Swab count board
- Trolleys dressing, small
- Trolleys dressing, large
- Trolley, small dressing with drawer (anaesthetist)
- Oxygen concentrator

- Blood/Fluid Warmer
- Scavenging system for waste anaesthetic gases
- Sphygmomanometer, mercurial, desk
- Non Invasive Blood Pressure Monitor (NIBP)
- Stethoscope, binaural
- Tourniquet with gradual adjustment, latex
- Tourniquet, pneumatic

ROOM: Main Operating Theatre Recovery

- Patient trolley, Transfer system
- Defibrillator
- Crash cart, complete
- Pressure Infuser
- Non Invasive Blood Pressure Monitor (NIBP)
- Vacuum unit, single bottle for piped vacuum wall outlets
- Oxygen rota meter, single for piped oxygen wall outlets
- Oxygen cylinder, complete
- Suction machine, electric, single bottle
- Suction unit (ambu) foot operated
- Blood/Fluid Warmer
- Infusion pump
- Syringe pump
- Sharp destroyer
- Sphygmomanometer, mercurial, rail mounted
- Sphygmomanometer aneroid
- Trolley, small dressing with drawer
- Pressure Infuser
- Laryngoscope Adult, complete set
- Laryngoscope Child , complete set
- Stools
- Surgical sundries
- Stand, inclining for raising end of trolley/bed
- Tracheotomy dilator
- E.C.G monitor and recorder
- Penlight torch
- Drug cupboard, wall fixed, lockable with inner cupboard
- Pedal Bin

ROOM: Scrubbing

- Instrument cabinet, double door lockable, adjustable glass shelves for storing sterile gloves and gown packs
- Dressing trolley for opening on sterile gown pack and gloves
- Receptacle, for waste paper

ROOM: Setting

- Wall mounted double shelves, stainless steel wire gauze or perforated steel
- Large and small dressing trolleys
- Instrument cabinet, double door lockable, adjustable glass shelves to storing solutions
- Cabinet, warming sterile water bottles

ROOM: Sterile Items

- Movable shelving, for storage of all sterile items
- Baskets wire, variety sizes for storage of minor items

Instrument Sets and Packs

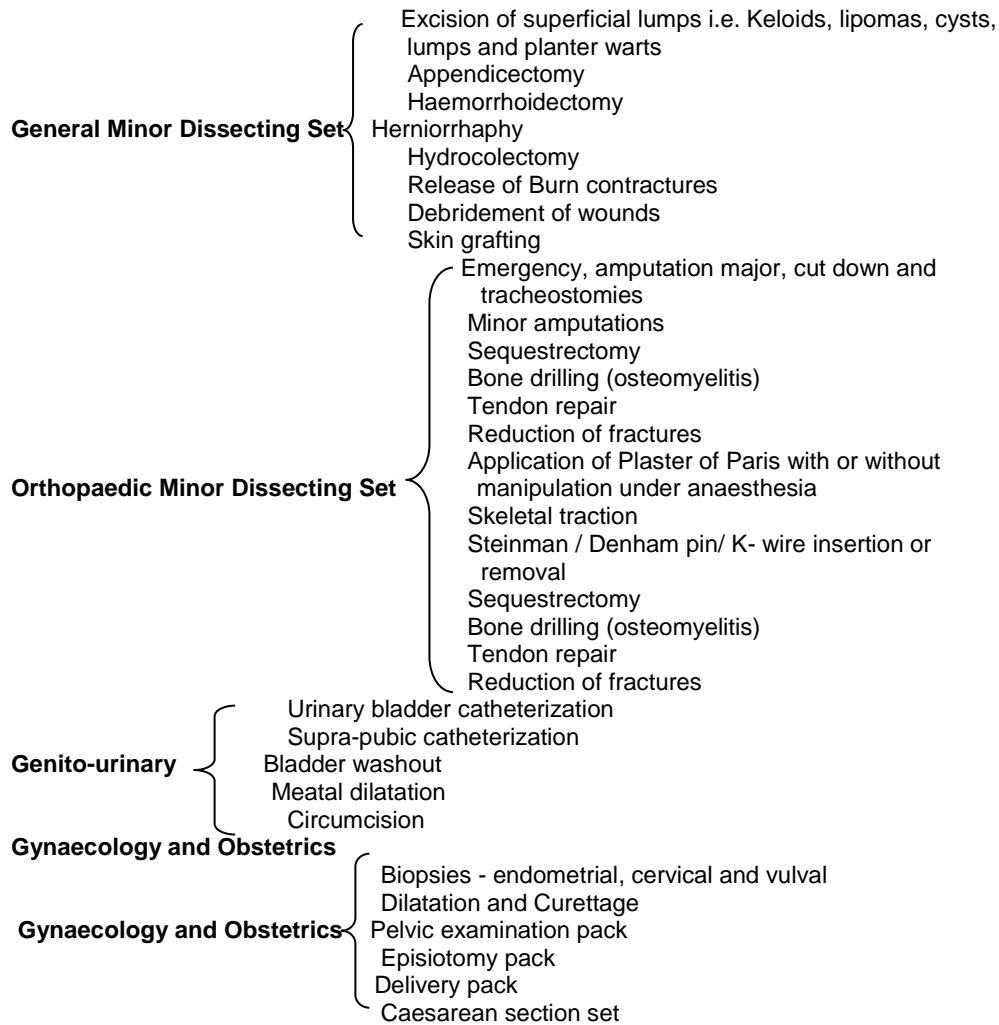
Incision and Drainage Pack } Abscess,
Superficial haematoma

Suture Pack

- Debridement and Suture of wounds, primary and secondary

General Major Dissecting set plus Gastro-intestinal pack

- Laparotomy { Exploratory
Acute abdomen



Dental

- Tooth extraction

ROOM: Utility/ Sluice (In all rooms)

- Trolley with cleaning utensils
- Trolley, dirty linen
- Bed pan washer (disinfector)
- Bed pans
- Urinals
- Bedpan / urinal rail
- Mop bucket with mop-wringer

MATERNITY

ROOM: Ante-Natal

- Bed, Standard Hospital and mattress
- Bed side locker
- Bench, under bed, seating for two
- Bin, pedal
- Bassinet with mattress on trolley
- Baby weighing scale
- Cardiotocograph
- Diagnostic set
- Examination lamp, angle poise, mobile
- Haemoglobin meter
- Glucometer
- Trolley, clean linen

- Trolley, clean utility
- Trolley, dressing small
- Trolley, food bain-marie
- Trolley, medicine
- Trolley, patient records
- Foot stool, one step
- Kick-about receptacle
- Stand, single bowl
- Stand infusion, single hook
- Stethoscope foetal, Pinard
- Stethoscope, binaural
- Sphygmomanometer mercurial, wall/ rail mounted
- Sphygmomanometer, mercurial, mobile
- Resuscitation kit, manual
- Resuscitation, baby warming system
- Oxygen unit, wall mounted
- Oxygen unit, wall/rail mounted
- Over bed table
- Vacuum unit wall/rail mounted
- Vacuum Extractor
- Suction machine, single bottle, electric
- Foetal Heart detector
- Revolving stool
- Wheel chair, adult
- Clock, battery operated
- Heater, two bar, electric
- Fan, oscillating, table model

ROOM: Post-Natal

- Bed, Standard Hospital and mattress
- Bed side locker
- Bench, under bed, seating for two
- Bin, pedal
- Bassinet with mattress on trolley
- Baby weighing scale
- Cardiotocograph
- Diagnostic set
- Examination lamp, angle poise, mobile
- Haemoglobin meter
- Glucometer
- Trolley, clean linen
- Trolley, clean utility
- Trolley, dressing small
- Trolley, food bain-marie
- Trolley, medicine
- Trolley, patient records
- Foot stool, one step
- Kick-about receptacle
- Stand, single bowl
- Stand infusion, single hook
- Stethoscope foetal, Pinard
- Stethoscope, binaural
- Sphygmomanometer mercurial, wall/ rail mounted
- Sphygmomanometer, mercurial, mobile
- Resuscitation kit, manual
- Resuscitation, baby warming system
- Oxygen unit, wall mounted
- Oxygen unit, wall/rail mounted
- Over bed table
- Vacuum unit wall/rail mounted

- Vacuum Extractor
- Suction machine, single bottle, electric
- Foetal Heart detector
- Revolving stool
- Wheel chair, adult
- Weighing scale, bathroom
- Clock, battery operated
- Heater, two bar, electric
- Fan, oscillating, table model

ROOM: Admission-Labour

- Examination couch
- Urine test set
- Foetal stethoscope, Pinard
- Foetal heart detector
- Baby weighing scale
- Scale, platform with height measure
- Pelvimeter or tape measure (cotton)
- Sphygmomanometer, wall mounted, mercurial
- Sphygmomanometer, aneroid
- Stethoscope, binaural
- Foot stool, one step

ROOM: Delivery

- Vacuum extractors
- Baby weighing scales
- Bassinets with mattresses on trolleys
- Cabinet, filing, lockable steel
- Cabinet, steel, central locking
- Trolley, dressing small
- Resuscitation kits, manual, infant
- Resuscitaire, infant warming system
- Footstool, one step
- Foetal heart detector, Doppler
- Incubator, infant transporter
- Infusion stand, single hook
- Lamp, angle-poise, mobile
- Sphygmomanometer, mercurial, wall or portable
- Kick-about (receptacles) with st. st. bowls
- Single bowl stands
- Stethoscopes, binaural
- Stethoscopes, foetal, Pinard
- Footstool, one step
- Tape, measuring cotton in centimetres and inches (2 m length)

ROOM: Nursery

- Bassinets with mattress, on trolley
- Baby weighing scale
- Baby measuring device
- Phototherapy
- Oxygen flow meter (single unit) for O₂ piping wall outlet
- Vacuum unit, for piping wall outlet
- Incubators, baby
- Laryngoscope, paediatric
- Suction pump, Foot operated
- Suction machine, single electric, mobile
- Trolley, dressing small
- Thermometer, wall mounted
- Clock, battery operated
- Heater, two bar, electric
- Fan, oscillating, table model

ROOM: Medical Gases

- Oxygen gas cylinder size 0.5Kg
- Oxygen gas cylinder size 0.9Kg } Anaesthetic Machine (Pin-index)
- Oxygen gas cylinder size 9.2Kg
- Nitrous gas cylinder (N₂O) size 31.3Kg } Central Bank to supply all piped gas areas
- Oxygen gas cylinder size 1.8Kg } Ward size to fit standard O₂ trolley
- Nitrous gas cylinder size 1.5Kg }
- Carbon dioxide cylinder size 0.9Kg
- Carbon dioxide cylinder size 1.4Kg } Pin-index type
- Entonox cylinder size 1.47Kg }
- Compressed air cylinder size 7.6Kg } Bull-Nose type
- Compressed air cylinder size 3.8Kg }

Hollow Ware

- Bowl, splash 35cm diameter, stainless steel
- Bowl, 15cm diameter, st.st or (polypropylene) pp
- Bowl, 10cm diameter, st.st or pp
- Gallipots, st.st or pp
- Gallipots, st.st or pp
- Gallipots, st.st or pp
- Kidney dish, small
- Kidney dish, medium
- Kidney dish, medium
- Jug, measuring graduated 1000mls st.st
- Thermometer, holder st.st
- Medicine measuring cup, graduated st.st. 30mls
- Urinals, st. st or pp
- Bed pans st.st or pp

Appendix 4: Facility, equipment and personnel assessed in the pilot survey

MNH Inventory		Maternal and Child Health							
FIND THE DMO and For permission first									
PREFERABLY: MATRON OR SISTER-IN-CHARGE FOR FACILITY CHECKLIST									
#	Question	CODING							
1	Facility Name								
2	Facility Number								
3	Interviewer Name								
4	Today's Date								
Section 2: Labor & Delivery Inventory									
6	6: DESCRIBE THE SETTING OF THE DELIVERY ROOM	private room with visual and auditory privacy				1			
		non-private room with visual and auditory privacy				2			
		visual privacy only				3			
		no privacy				4			
NOTE THE AVAILABILITY AND CONDITION OF SUPPLIES AND EQUIPMENT REQUIRED FOR DELIVERY SERVICES. EQUIPMENT MAY BE IN DELIVERY ROOM OR AN ADJACENT ROOM.									
#	Question	CODING				GO TO			
	EQUIPMENT REQUIRED FOR DELIVERY SERVICES (Available)	Observed	Reported, not seen	Not available	DK		DK - Don't Know		
7	Latex gloves	1	2	3	8				
8	Sharps container	1	2	3	8				
9	Already mixed decontaminating solution	1	2	3	8				
10	Hand disinfectant	1	2	3	8				
11	Waste receptacle with lid and plastic liner	1	2	3	8				
12	Soap for handwashing	1	2	3	8				
13	Water for handwashing	1	2	3	8	no/dk -> 15			
14	How is water being made available for use in the delivery service area today?	PIPED (1)	BUC KET (2)	TAP (3)					
NOTE THE AVAILABILITY AND CONDITION OF OTHER SUPPLIES AND EQUIPMENT									
#	Question	CODING							
		AVAILABILITY (a)						FUNCTIONING (b)	
								(if observed only)	
	OTHER SUPPLIES AND EQUIPMENT (Available)	Observed	Reported, not seen	Not available	DK		YES	NO	DK
15	Syringes and Needles	1	2	3	8				
16	Sterile scissors or blade	1	2	3	8				
17	Incubator	1	2	3	8	observ	1	2	8

						ed ->				
18	Other source of heat for premature infant	1	2	3	8	observ ed ->	1	2	8	
19	Disposable cord ties or clamps	1	2	3	8					
20	Towel or blanket to wrap baby	1	2	3	8					
21	Blank partographs	1	2	3	8					
#	Question	CODING				GO TO				
22	Does this facility perform newborn resuscitation?	YES			1					
		NO			2	no -> 27				
		NO			2					
		DK			8					
#	Question	CODING				GO TO				
		AVAILABILITY (a)						FUNCTIO NING (b)		
								(if observed only)		
	EQUIPMENT AND SUPPLIES FOR RESUSCITATION	Observed	Repor ted, not seen	Not avail able	DK		YES	NO	DK	
23	Bag and mask (infant size) for resuscitation	1	2	3	8	observ ed ->	1	2	8	
							4	2	8	
24	Suction bulb for mucus extraction	1	2	3	8	observ ed ->	1	2	8	
25	Suction apparatus for use with catheter	1	2	3	8	observ ed ->	1	2	8	
26	Resuscitation table for baby	1	2	3	8					
	CHECK WHETHER THE EQUIPMENT IS IN THE DELIVERY ROOM OR AN ADJACENT ROOM.									
#	Question	CODING				GO TO				
		AVAILABILITY (a)						FUNCTIO NING (b)		
								(if observed only)		
	EQUIPMENT	Observed	Repor ted, not seen	Not avail able	DK		YES	NO	DK	
27	Forceps	1	2	3	8	observ ed ->	1	2	8	
28	Ventouse (vacuum extractor - manual or electrical)	1	2	3	8	observ ed ->	1	2	8	
#	Question	CODING				GO TO				
		AVAILABILITY (a)						FUNCTIO NING (b)		
								(if observed		

							only)		
	EQUIPMENT	Observed	Reported, not seen	Not available	DK		YES	NO	DK
29	Manual vacuum aspirator	1	2	3	8	observed ->	1	2	8
30	Dilatation and curretage (D&C) kit	1	2	3	8	observed ->	1	2	8
	EQUIPMENT	Observed	Reported, not seen	Not available	DK		YES	NO	DK
31	1A) Operating Table	1	2	3	8	observed ->	1	2	8
32	2A) Operating light	1	2	3	8	observed ->	1	2	8
33	3A) Anesthesia giving set	1	2	3	8	observed ->	1	2	8
34	4A) Scrub area adjacent to or in the operating room	1	2	3	8				
35	5A) Tray, drum, or package with sterilized instruments ready for use	1	2	3	8				
	CHECK FOR THE FOLLOWING PIECES OF EQUIPMENT USED FOR STERILIZATION	Observed	Reported, not seen	Not available	DK		YES	NO	DK
36	1A) Electric autoclave (Pressure and Wet Heat)	1	2	3	8	observed ->	1	2	8
37	2A) Non-electric autoclave (Pressure and Wet Heat)	1	2	3	8	observed ->	1	2	8
38	3A) Electric dry heat sterilizer	1	2	3	8	observed ->	1	2	8
39	4A)Electric boiler or steamer (no pressure)	1	2	3	8	observed ->	1	2	8
40	5) Non-electric pot with cover (for steam/boil)	1	2	3	8				
41	6A) Heat source for non-electric equipment	1	2	3	8	observed ->	1	2	8
42	7A) Automatic Timer (May be on equipment)	1	2	3	8	observed ->	1	2	8
43	8) TST Indicator strips or other item that indicates when sterilization is complete.	1	2	3	8				
44	9) chlorine-based or glutaraldehyde solution (for chemical method)	1	2	3	8				
45	10) Written protocols or guidelines for sterilization of disinfection	1	2	3	8				
Section 3: Antenatal Care Inventory									
	AVAILABILITY OF OTHER EQUIPMENT	Observed	Reported, not seen	Not available	DK		YES	NO	DK
46	1A) Blood pressure apparatus	1	2	3	8	observed ->	1	2	8
47	3A) Fetal stethoscope (Fetoscope)	1	2	3	8	observed ->	1	2	8
48	3B) stethoscope	1	2	3	8	observ	1	2	8

						ed ->			
49	6A) Adult weighing scale	1	2	3	8	observed ->	1	2	8
50	8) Urine Test Strip for Protein	1	2	3	8				
51	9) Ability to do boiled urine test	1	2	3	8				
52	10) RPR Kit (Syphilis Test)	1	2	3	8				
53	11) HIV rapid test	1	2	3	8				
	Section 4: Postnatal Care Inventory								
									(if observed only)
	AVAILABILITY OF OTHER EQUIPMENT	Observed	Reported, not seen	Not available	DK		YES	NO	DK
54	1A) Blood pressure apparatus	1	2	3	8	observed ->	1	2	8
55	2A) Stethoscope	1	2	3	8	observed ->	1	2	8
56	4A) Thermometer	1	2	3	8	observed ->	1	2	8
57	5A) Infant scale	1	2	3	8	observed ->	1	2	8
58	7) Vaginal spectrum	1	2	3	8				
59	9A) Infant stethoscope	1	2	3	8	observed ->	1	2	8
60	10A) measuring tape	1	2	3	8				
	Section 5: General Inventory								
#	Question	CODING			Number				
		YES	NO						
62	Does this facility have a functional ambulance or other vehicle on-site for emergency transportation of clients?	Yes, functioning with fuel			1				
		Yes, not functioning or no fuel			2				
		No			3				
63	If Yes, is the vehicle functioning								
64	What is the general status of the buildings?	Good	Need refurbishment	Need new buildings					