FINAL REPORT OF THE INTERNATIONAL INSULIN FOUNDATION ON THE RAPID ASSESSMENT PROTOCOL FOR INSULIN ACCESS IN ZAMBIA

August 2004

Prepared by the International Insulin Foundation in collaboration with the Diabetes Association of Zambia

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List of Abbreviations

CIDA	Canadian International Development Agency
CIF	Cost, Insurance, Freight (INCOTERM meaning that the insurance and delivery of goods to the destination is paid for by the supplier. Buyer is responsible for the import customs clearance and other costs and risks)
DAZ	Diabetes Association of Zambia
FAMS	Financial Administrative Management Service
HIPC	Highly Indebted Poor Country
HMIS	Health Management Information System
ICT	Integrated Competence Training
IDDM	Insulin Dependent Diabetes Mellitus
IDF	International Diabetes Federation
IIF	International Insulin Foundation
MS Ltd.	Medical Stores Limited
NIDDM	Non Insulin Dependent Diabetes Mellitus
RAPIA	Rapid Assessment Protocol for Insulin Access
THPAZ	Traditional Healers Practitioners Association of Zambia
UTH	University Teaching Hospital, Lusaka
VAT	Value Added Tax
WHO	World Health Organisation

Figure 1 – Map of the Republic of Zambia

◯   Areas where study was carried out

1. Executive Summary
This report, prepared by the International Insulin Foundation (IIF), is to be the first stage in a collaborative process between different stakeholders both at a national and international level to find creative means to improve the welfare of people with Type 1 diabetes in Zambia. The IIF aims to mobilise different areas of expertise and resources to frame practical proposals to help Zambia provide the care that people with Type 1 diabetes require. In parallel this report hopes to contribute positively to the issues of chronic diseases in Zambia.

Introduction
Type 1 diabetes is considered a rare disease in Africa estimated as affecting only 108,000 people[1]. Since survival in many is short this probably greatly underestimates the true prevalence and the potential care needs. Despite major healthcare problems of communicable diseases, Zambia is caring for its citizens with diabetes relatively well. Data suggest four times as many patients than estimated for many other sub-Saharan countries. Moreover, there is little evidence of an urban/rural divide in Zambia.

Key Findings
All these issues need to be placed in Zambia's general health care context where problems of staff, infrastructure and resources are omnipresent.
- Insulin:
  - Variations in Central Board of Health purchasing price of insulin
  - Patients do not know where to get insulin
  - Price of insulin to patients is often high, even though it should be supplied to them for free
- Materials:
  - Lack of syringes
  - VAT and duty are present on syringes and testing material
- Diabetes Care:
  - Lack of structure around diabetes care
  - No national guidelines for diabetes care
  - Lack of educational materials for patients and Healthcare Workers
- Diagnosis:
  - MedLab policy on laboratory supplies is not properly implemented, which leads to patients not being able to access the proper diagnostic tools
- Healthcare worker education:
  - Lack of education in frontline healthcare workers
  - Curriculum for medical and nursing students is not adapted to treating and managing diabetes and other Non-Communicable Diseases
- Other:
  - The Diabetes Association of Zambia (DAZ) needs to raise its profile and find sustainable means of funding
  - A Policy framework is being developed in Zambia to address Non-Communicable Diseases
  - A Health Management Information System (HMIS) that collects disease data from most facilities in Zambia does not include diabetes
  - Important role of Traditional Healers
  - Long distances between patients and source of care/insulin, which means the added expense of travel for patients
  - Very low knowledge about diabetes in the general population and government

Recommendations

Keeping in mind the resource restrictions present in Zambia the following recommendations aim to make best use of limited resources and also to benefit other areas of the health system in Zambia.

- Proper acquisition process to ensure lowest possible cost to Central Board of Health for insulin
- Information and guidelines for patients on where they can receive their insulin
- Implementation/Enforcement of policy of free care for chronic conditions
- Add syringes to essential drug list and supply insulin and syringes together
- Develop diabetes clinics based on the model of University Teaching Hospital (UTH) paediatric clinic
- Define role of each type of facility in diabetes care
- Develop national guidelines for diabetes including patient and healthcare worker information
- Laboratory supplies need to be present as per MedLab Policy and reliable suppliers need to be found for these materials
- Develop an Integrated Competence Training (ICT) manual on diabetes and Non-Communicable Disease diagnosis, treatment and management
- Develop curriculum at medical and nursing schools to include treatment and management of diabetes and Non-Communicable Diseases
- Promotion of DAZ and increase its visibility, in parallel with raising the knowledge about diabetes in the general public and government
- Policy being developed by the Ministry of Health should be far reaching, not only addressing issues affecting the health sector, but also issues of food, transport, sports, education, etc.
- Add diabetes to HMIS system
- Include Traditional Healers in any policy or guidelines developed for diabetes and Non-Communicable Diseases
- VAT and duties on any items linked to the care of people with diabetes should be dropped

2. Background Information

2.1. Diabetes

Type 1 diabetes or Insulin Dependent Diabetes Mellitus (IDDM) is a life-long condition, affecting children, young people and adults world-wide. The disease is recognised by a loss of control over the use of the body's glucose and other fuels and due to the destruction of insulin producing cells in the pancreas (pancreatic islet beta cells). Inadequate care leads to serious health complications such as blindness, kidney failure, nerve disease, limb amputation, heart attacks, strokes and premature death.

Insulin is vital for the survival of people suffering from Type 1 diabetes and in some people suffering from Type 2 or Non Insulin Dependent Diabetes Mellitus (NIDDM). However, also of central importance are the means to administer the medication (syringe/needles), the means to monitor the response to insulin (blood/urine tests) and an understanding of how insulin acts and affects life and work of the individual.

2.2. Insulin

Insulin is the body's hormone, normally made by the pancreas, which regulates glucose metabolism. Insulin is a treatment for diabetes and not a cure and is administered by daily injections throughout the life of the patient. Dosage of insulin injected by the patient varies from person to person based on, age, nutritional status and activity.

Without insulin, people with Type 1 diabetes die very quickly; meaning daily injections of insulin is necessary for life. Some people with Type 2 diabetes need insulin for good metabolic control, but there is not the same urgency.

2.3. Type 1 diabetes and insulin in developing countries
Leonard Thompson, a Canadian child, was given his first injection of insulin on 11 January 1922[2]. He was the first patient to be treated with insulin for Type 1 diabetes. Having survived some 2½ years from his diagnosis, he had done better than most Type 1 diabetic patients in the pre-insulin era.

The International Diabetes Federation (IDF) estimates that in Africa there are approximately 108,000 people with Type 1 diabetes. [1] With the restricted availability of insulin, the life expectancy of a child with newly diagnosed Type 1 diabetes in much of sub-Saharan Africa may be as short as one year. Restricted access to insulin also results in debilitating complications such as amputations, blindness and a much reduced life expectancy.

Restricted access to insulin is not only due to lack of availability, but also cost. Chale and McLarty [3] found that the annual direct cost for an insulin requiring patient was equivalent to US$229, with almost 70% of this amount for the purchase of insulin.

2.4. Incidence and Prevalence of Diabetes
Incidence is the measure of how many people within a certain population will get a disease within a certain time. The incidence of diabetes in children varies greatly from country to country. For Zambia the incidence of Type 1 diabetes is estimated by the IDF as 1 per 100,000 people per year [1] based on a study in Tanzania [4].

The prevalence is the proportion of a population at a given time that has a certain disease. For a lifelong condition like diabetes this will depend, as well as on the incidence, on how long someone with the condition survives after being affected. Before the discovery of insulin the prevalence of Type 1 diabetes was very low, although the incidence may have been high. This is because new cases of diabetes were dying very soon after disease onset, as there was no appropriate treatment for them. In developing countries, the incidence is difficult to assess, as survival may be very short, and many people will die undiagnosed.

One other factor which comes into play is whether patients developing the disease are diagnosed. In some parts of the developing world, patients with weight loss, fatigue and other symptoms of Type 1 diabetes may be misdiagnosed, for example, with AIDS, or those presenting in diabetic ketoacidosis or coma as having malaria. This will artificially lower estimates of incidence.

There is no information on the prevalence of Type 1 diabetes in Zambia other than estimates from the IDF based on assumptions regarding incidence and life expectancy.

2.5. International Insulin Foundation
The IIF was established by leading academics and physicians in the field of diabetes with the aim of prolonging the life and promoting the health of people with diabetes in developing countries by improving the supply of insulin and education in its use.

In order to achieve these objectives, a clear analysis of the constraints to insulin access and diabetes care is needed. The IIF's view is that increasing the supply of insulin through donations or other means, however generous, may offer only temporary relief and that the

root of the problems of insulin supply and diabetes care need to be identified and tackled. This led the IIF to develop the Rapid Assessment Protocol for Insulin Access (RAPIA).

2.6. Rapid Assessment Protocol for Insulin Access - method of assessment
The RAPIA is structured as a multi-level assessment of the different elements that influence the access to insulin and care for people with diabetes in a given country.

The RAPIA is divided into 3 components:
- Macro – aimed at the Ministerial levels, Private Sector, National Diabetes Association, Central Medical Store and Educators
- Meso – Provincial Health Officers, "Health Care Settings" (Hospitals, Clinics, Health Centres, etc.) and Pharmacies/Dispensaries
- Micro – Carers (Healthcare Workers and Traditional Healers) and people with diabetes.

The RAPIA provides information in the categories of:
- Health service structure and functioning with regards to procurement of medicines, diabetes management
- Diabetes policies written and enacted
- Reported practice for Type 1 diabetes management
- Observed practice for Type 1 diabetes management
- Availability of insulin, syringes and monitoring equipment
- Existence of distribution networks for insulin
- Insulin supply-related knowledge and attitudes amongst people with diabetes and their carers.
- Other problems that hamper the access to proper insulin and care

2.7. Zambia
The Republic of Zambia gained independence in 1964 had has enjoyed no civil strife since then. Zambia's economy has been impacted by a decline in the purchasing power of its copper resources and a decline in per capita income from US$752 in 1965 to US$351 in 2002.[5] Zambia ranks 163 out of 175 on the Human Development Index.[6]

An estimated 73 percent of the population lived below the official poverty line in 1998 compared to 70 percent in the early nineties.[5]

In 2002, 39.5 percent of central government expenditures were financed through foreign grants and loans.[5]

Life expectancy at birth in Zambia is 35.18 years and there is an adult HIV/AIDS prevalence rate of 21.5%. [7] Zambia has been hit hard by HIV/AIDS and the pandemic has further weakened its ability to reduce poverty and over the past decade.[5]

2.8. Zambia's Healthcare System
The vision of the health reforms in Zambia is to "provide equity of access to cost-effective, quality health care as close to the family as possible."[8]

Zambia has been implementing health reforms since 1992 under the framework of the Sector Wide Approach (SWAP), which takes a holistic development view of the sector. In the SWAP, resources from government and other stakeholders are pooled so as to ensure efficient utilisation of resources. The mission of the health sector is to significantly increase life expectancy in Zambia by creating environments and encouraging life styles that support

health. The financing of the basic health care package is a priority to try to reduce both morbidity and mortality rates and contribute to poverty reduction. [9]

The Zambian health policy stipulates that "every able-bodied Zambian with an income should contribute to the cost of his or her health". However, exemptions exist based on age (children under 5 and adults over 65), diseases (TB, HIV/AIDS, STDs, Cholera and dysentry; safe motherhood and family planning services; immunisation; and treatment of chronic hypertension and diabetes) and other factors. This is aimed at enhancing an equitable and appropriate delivery of health services to all Zambians, but in practice is not implemented due to lack of resources.[9] and personal discussions at the Central Board of Health (CBoH).

There is inequitable access to basic health services in Zambia between provinces and between urban and rural areas. In urban areas, 99 percent of households are within 5 kilometres of a health facility compared to 50 percent in rural areas. In Zambia, household expenditures on health vary according to location. Poor households spend the highest proportion of their income on health, which can be up to 10% of total expenditure when in kind costs are included. [9] Long distances and cost and lack of transport in a large but sparsely populated country like Zambia is a key determinant of health seeking behaviour.

A lack of human resources is also present in Zambia impacting the delivery of services. This problem is due to three factors:
- Medical staff leaving abroad mainly to the US and UK
- Medical staff leaving the Public Sector for the Private Sector in Zambia
- The impact of HIV/AIDS on health workers

For example in 2003 from 42 graduates from the Medical School only 20 stayed in the public sector the rest went to the Private Sector or abroad. This is due to the financial resources and conditions of service not being very attractive compared to abroad and the private sector.

The Public Welfare Assistance Scheme introduced in 1995 was intended to address inequalities in access. Chronic patients who cannot pay are supposed to be referred to the District Social Welfare Office for assessment. However, the referral system has not functioned well and those who cannot pay fail to access services.

An increasing disease burden and decreasing resources in Zambia, led the government in 1993 to introduce a Cost Sharing scheme. [10]

A general lack of information exists with regards to cost-sharing schemes, fees needing to be paid and referral pathways. While the basic health care package at first point of referral level has been identified and costed at $11.5 per capita, the health sector has made available only $10.5 per capita for the whole system. [9]

The estimates of expenditure in the Transitional National Development Plan (2002-2005) show an expenditure for Health of Kwacha 195,200,000,000 (US $ 4,153,190) and for HIV/AIDS of Kwacha 130,940,546,000 (US$ 2,785,970) for a total budget of Kwacha 7,131,349,321,215 (US$ 1,517,308,366). [9]

Zambia is in the process of an ambitious program of health sector "decentralisation." The start of this decentralisation started with the Medical Services Act of 1985. This act created semiautonomous hospital management boards for all major hospitals (more than 200 beds). [11]

In 1992 the hospital boards, appointed by the Minister of Health, were given the authority to set fees and manage staff. In the same year further legislation was enacted requiring the districts to establish District Health Boards to oversee the districts. These were finally created in 1994 and acted as employers/supervisors of the District Health Management Teams. [11]

District Health Management Teams were set-up in 1993 to act as technical managers of the district health offices in each of the country's districts. The Health Reform Implementation Team was also established in this year to act as a coordinating body to promote the full implementation of the legislated reforms. This body was independent from the Ministry of Health and collaborated closely with international aid organisations. [11]

Resources at a District level are allocated on per capita basis taking into account population density, price of fuel, likelihood of epidemics, and the presence of a bank. At the level of hospitals allocation is based on cost per bed day. Standard bed/population ratios are used to determine the number of beds per given population for 1st, 2nd, and 3rd level hospitals. For other hospitals allocations are based on budgets, subject to availability of resources.

The administrative organisation of health in Zambia is organised as follows:

Figure 2 – Administrative Structure of Zambia's Health System
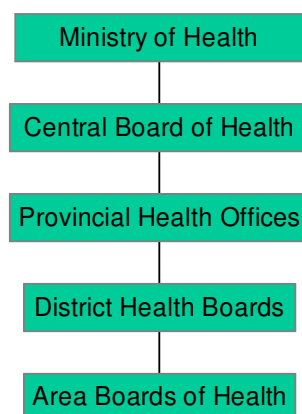
The lowest administrative level for health is the Area Boards of Health, which are set-up to divide the population into manageable health districts. These are still in the process of being established. Their function is to:
- Recruit and support Health Workers
- Request training from the district as necessary
- Monitor and support the function of Health Centres

These Area Boards of Health would then report to District Health Board. Their role is:
- Primary management unit in the decentralised health system
- Administer the affairs of the district health services
- Responsible for planning for the district
- Responsible for ensuring that local priorities are recognised and addressed
- Responsible for coordinating with other sectors e.g. agriculture, local government, etc.
- Responsible for monitoring performance of HCs and level 1 hospitals against established standards
- Responsible for providing training to district staff

The next level is the Provincial Health Office. This office has 6 main areas of activity:

1. Technical Support Function
- Development of Action plans and budget
- Advice on implementation of action plans
- Provide counselling on specific identified needs
- Training
- Financial Management
- HR development
- Epidemic preparedness
2. Monitoring and evaluation
- Action plan implementation
- Quality assurance
- Financial management
- Systems development and management of districts
3. Health management information system and health research
4. Logistical Support
- Supply of equipment, drugs, vaccines, etc. supplied from national level
- Economy of scale functions e.g. maintenance of cold chain
5. Communication – national policies – instructions for District Health Boards
6. Mediation

The Provincial Boards then report to the CBoH, who inturn reports to the Ministry of Health.

In 1995, the National Health Service Act was accepted. It called for a significant change in the role and structure of the Ministry of Health and called for the establishment of an autonomous health service delivery system. This led to the creation of CBoH. The mandate of the CBoH was to "monitor, integrate, and coordinate the programs of the Health Management Boards". [11]

The Ministry of Health's role became one of primarily a policymaking and regulatory institution. The Ministry of Health no longer had any direct involvement in health service delivery, these were contracted to the CBoH. [11]

The CBoH has 4 directorates:
- Technical Support Services – responsible for conducting performance audit of the health boards, monitoring and providing technical support to service provision, and capacity building of the health boards
- Clinical Care and Diagnostic Services – responsible for planning, monitoring, and evaluating provision of diagnostic and pharmaceutical services
- Public Health and Research – responsible for developing guidelines on epidemiology, environmental health, health promotion, and mental health, for developing and maintaining the HMIS, and for facilitating research on all health activities
- Health Services Planning – responsible for the planning and contracting of health services, providing financial management, developing partnerships in health, and providing national level human resource planning and training.[11]

The last echelon, the Ministry of Health, tasks include:
- Development of sectorial policies and ratification of technical ones
- Formal strategic planning
- Legislation
- Resource mobilisation

- External relations
- Performance audit of CBoH

The structure of the Ministry is as follows:

Figure 3 – Structure of the Ministry of Health

| Minister of Health |
| Deputy Minister |
| Director General |
| Permanent Secretary |

| Corporate Management | International PR and Advocacy | Audit | Legal | Planning and Budgeting |
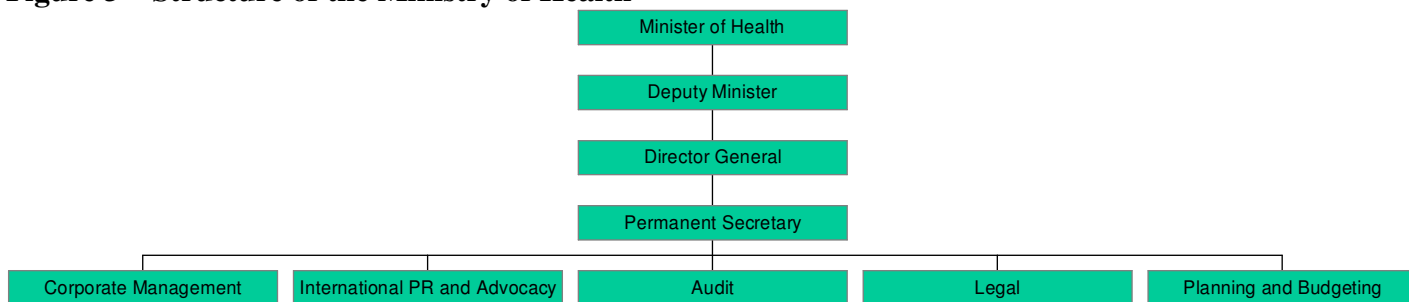
The table below shows the different types of health facilities in Zambia, the population they serve, their activities, the staff they require and the number present in Zambia.

Table 1 – Health Facilities in Zambia

Type of facility	Population served	Main activities	Number in Zambia
Health Post	500 households – 3,500 people in rural areas and 1,000 households 7,000 people in urban areas	Outreach activities in catchment area 80% primary prevention – 20% emergency curative services at health post	20
Health Centre	Urban – 30,000-50,000 Rural – 10,000	1st port of contact with formal healthcare system 24 hours/day Provides clinical services including laboratory support and back up services to health posts HC should be able to: - Blood test malaria - Deliveries - Treat TB - Perform contact training - Test for intestinal parasites - Provide immunisations - Pre-natal care - Growth monitoring - Counselling Urban facilities should also be able to provide dermatology, dental and optometry services	973 Rural 237 Urban 1210 Total
First referral hospital (level 1 hospital)	80,000-200,000	- Medical, surgical, obstetric services and any other clinical services and capacity building to the HC - Provide fairly sophisticated diagnostic services	74
2nd Referral Hospital (Level 2 Hospital - General Hospital)	200,000 – 800,000	- Medical, surgical, paediatric, obstetrics and gynaecology, dental, psychiatric and intensive care services - Offer any other clinical services necessary to support level 1 referrals - Will provide training services - Will provide technical back-up services and capacity building for level 1 facilities	18
3rd referral Hospital (Central Hospital)	800,000+	- General surgery, urology and other paediatrics, opthalmology, dental, ENT, medical, obstetrics and gynaecology, intensive care - Training and research - Technical back-up and capacity building to Level 2 facilities - Referral services for Level 2	5

[8] and [12]

2.9. Implementation of RAPIA in Zambia

In collaboration with the Diabetes Association of Zambia and the support of the Central Board of Health, the IIF carried out the RAPIA in Zambia.

Zambia was chosen as it is a "Highly Indebted Poor Country" (HIPC). The World Bank has defined an HIPC on the basis that the demands on these countries for debt repayment heavily exceed their ability to generate income, and as a consequence, programmes of social investment including health are suffering.

Implementing the RAPIA in an HIPC was to see how a sustainable solution can be found to the issues of access to insulin and proper diabetes care under extreme conditions of scarce resources in the health sector.

The Project Coordinator together with a team of local interviewers carried out the RAPIA in Zambia over a period of a month. In total 182 interviews and approximately another 40 informal meetings and discussions were held in three provinces in Zambia – Lusaka, Copperbelt and Eastern Province and their surroundings. These three areas were chosen by local stakeholders due to their geographical distribution and differences in economic situation.

Each interview had as its main aim to obtain the person's perspective on the problems faced by people with diabetes in Zambia in gaining access to insulin and proper diabetes care, rather than seeking precise statistical information.

3. Type 1 Diabetes in Zambia

In determining Zambia's essential care package the cost per DALY saved is looked at. Diabetes has a cost of 8,657 DALYs compared to 6,777,962 for Malaria. [13] Diabetes is also a disease where patients should receive exemptions. This is however rarely the case except for the paediatric patients at UTH.

The table below shows an estimate of the number of people with diabetes in the different areas studied.

Table 2 – Estimate of people with Type 1 diabetes based on data collected

Location	Population	Number of people with Type 1 diabetes	Number of people with Type 1 diabetes per 100,000 population
National	10,754,000	-	-
Lusaka Province	1,498,381	269	18
Copperbelt Province	1,699,384	214	13
Eastern Province	1,400,466	133	9

The numbers above show that there is a difference between the estimated prevalence of Type 1 diabetes in the different areas of Zambia. These differences may be due to differences in diagnostic infrastructure, distance to health facilities and insulin and difficulties faced by those living in more rural areas. Using these numbers the prevalence of diabetes of 11 per 100,000 on a national level and an expected total of 1,201 people with Type 1 diabetes in Zambia.

The table below shows how life expectancy from disease onset also varies between the different regions.

Table 3 – Differences in calculated life expectancies (years) for people with Type 1 diabetes from different areas of Zambia

Age Range	0-14	15+
National[1]		
Life Expectancy	1.5	12.3
Lusaka Province[2]		
Life Expectancy	18	27
Copperbelt Province[2]		
Life Expectancy	13	19
Eastern Province[2]		
Life Expectancy	9	14

[1] – Based on IDF calculations and data
[2] – Based on IIF calculations and data
Assumptions:
- 46.3% of population 0-14 (World Fact Book – www.cia.gov)
- 53.7% population 15+ (World Fact Book – www.cia.gov)
- Incidence in age range 0-14: 1.0/100,000 (IDF)
- Incidence in age range 15+: 0.67/100,000 (IDF)
- 86% of patients with diabetes are in age range 0-14 (Based on interviews with patients asking age of diagnosis)

It should be noted that fees for the treatment of chronic conditions are exempt under the Cost Sharing Exemption Policy.[10]

4. Zambia's medicine supply

Zambia's national drug policy states as its aim to provide, "Equity access to good quality, safe and efficacious drugs which are affordable and rationally used." A total of US $12-13 million is spent on pharmaceuticals a year in Zambia. Half of this amount is covered by the Zambian government and half by donors.

The structure of medicine supply is the following in Zambia:

Figure 4 – Structure of Medicine Supply in Zambia
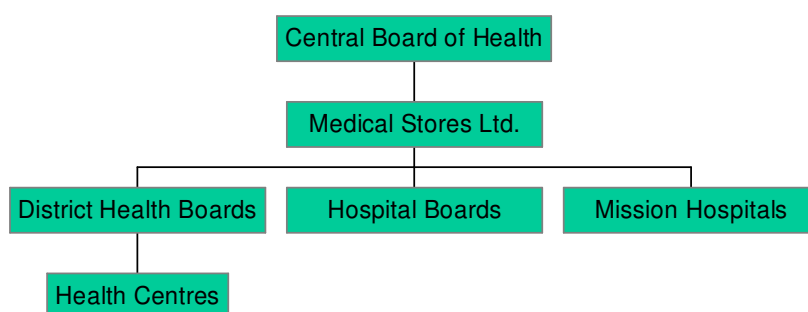
Quantification of needs is determined by the CBoH based on Financial Administrative Management Service (FAMS) stores procedures sent to them by the Districts and Hospitals Boards. They then purchase on the international and national market. The government has two sources of funds Emergency funds, which are government funds and a Grant from the World Bank to purchase medicines. Certain International donors also give certain supplies directly to the CBoH. The FAMS process is also used to order medicines from MS Ltd. It should be noted that due to frequent shortages of medicines and resources a District or Hospital Board may not receive what it has asked for. Each District Health Board and Hospital have a budget for their medicines and our charged for their orders by MS Ltd.

The diagram below details this process.

Figure 5 – The process of quantification, ordering and supply in Zambia

District Quantification	$\leftrightarrow$	FAMS stores procedure
$\downarrow\uparrow$		$\downarrow\uparrow$
Central Board of Health	$\leftrightarrow$	MS Ltd
$\downarrow$		$\uparrow$
International Tender	$\rightarrow$	Medicines in Zambia

Medicines are then stored and distributed by Medical Stores Limited (MS Ltd). MS Ltd is a private company under contract from the CBoH. They then distribute the medicines to the District Health Boards, Hospitals Boards and Mission Hospitals. This done by truck. Mission Hospitals also complement there purchases from MS Ltd.

Note: the structure presented above was the one in place at the time of the RAPIA. There was talk during the RAPIA that this structure might change.

4.1. Zambia's insulin supply and quantification

The quantity of insulin ordered by health units and districts is determined using the consumption method. Facilities (Hospitals) and Districts look at their past consumption of insulin and then order accordingly to the Central Board of Health. Insulin is distributed by

Medical Stores Limited, a private company contracted by the Central Board of Health to store and distribute medicines in Zambia. The Central Board of Health purchases insulin in bulk through tender using a loan from the World Bank or by local tenders to insulin distributors in Zambia, using what is termed "Emergency Funds". Soluble and Lente 100 IU insulin are present on the Zambia National Formulary and these are the only two types of insulin that are supplied by the Central Board of Health. Other formulations and strengths are sometimes found in facilities. These are usually donations from outside sources, or purchased by these facilities directly. Insulin should be present at District, General, Central and Specialised Hospitals.

All resources, including resources for medicines, are distributed as follows:
District Health Boards: 60%
General Hospitals: 25%
Central Hospitals: 15%

This distribution is based on resources available and on a per capita and bed capacity. Hospitals and Districts also have a 4% Grant of the total drug budget to make up for shortfalls of Medical Stores Limited. Zambia's resources are scarce, therefore any reduction in budget at any level, will lead to cuts in various areas of expenditure, namely purchasing of medicines and insulin.

The requests sent by Hospitals and Districts are also indicative and serve as a guide to Medical Stores Limited, who then distribute what is available accordingly.

In looking at the results obtained from the interviews it is interesting to note that insulin is present in Lusaka at some clinics. In the Copperbelt most patients get their insulin from the main Hospitals and in Eastern Province from Provincial or Mission Hospitals.

Patients are unaware of where they can obtain insulin; therefore they go to the main hospital where the supply sometimes is not sufficient for all the patients. For example at UTH there was a patient who had travelled over 70km to get his insulin, when the local clinic in his District had some.

Table 4 – Prices of insulin purchased by Central Board of Health

Source	Type and Strength	Price per vial	Source of Funds
Novo Nordisk	Lente 100 IU	$4.62	World Bank
Novo Nordisk	Soluble 100 IU	$4.62	World Bank
Private Company – Novo Nordisk insulin	Soluble 100IU	$10.05	Emergency Funds
Private Company – Generic Human insulin	Soluble 100 IU	$8.00	Emergency Funds

The Generic insulin that is present at Medical Stores Limited is not accepted by patients and physicians, as it was said to not be as effective as the branded version.

The total expenditure on insulin of the Central Board of Health is detailed below:

Table 5 – Total expenditure of Central Board of Health on insulin

Source	Total Vials	Percentage of Total Quantity	Cost	Percentage of Total Cost
World Bank	39,353	79%	$181,810.86	68%
Emergency Funds	10,260	21%	$85,489.15	32%
Total	**49,613**		**$267,300**	

These numbers are based on information provided by the Central Board of Health and Medical Stores Limited.

The insulin ordered is then invoiced and shipped to the District or Hospital at the cost that the Central Board of Health pays. Depending on the source of insulin the price invoiced will be different.

Table 6 – Comparison of cost of insulin to different facilities

Facility	Total Quantity	Total Cost	Average Price	Proportion of "High Cost" insulin*
Ronald Ross	1,158	$7,136.43	$6.16	28%
Lusaka Urban District Health Board	5,308	$26,465.18	$4.99	10%

* - Insulin purchased using Emergency funds at a cost of $8.00 per vial and $10.05 per vial versus insulin purchased at $4.62.

As the consumption method for calculating supplies is used in Zambia, estimates of the number of patients can be inferred from national insulin orders. The quantities below were given by the Central Board of Health for the period of beginning January to beginning of October 2003. The numbers of people with Type 1 diabetes are based on estimates calculated by the IIF as discussed above.

Table 7 – A comparison of insulin needs versus actual orders and the number of patients these quantities are for

Province	Estimated number of people with Type 1 diabetes	Insulin needed per year in vials for all Type 1 patients[1]	Insulin ordered	Insulin ordered (percentage of total)	Insulin surplus or shortage	Number of people with Type 1 diabetes Based on insulin ordered[1]
Lusaka Province	269	3,497	7,275	29%	3,778	672
Copperbelt Province	214	2,782	7,629	31%	4,847	704
Eastern Province	133	1,729	1,698	7%	(31)	130

[1] - Estimate based on an annual consumption of 13 vials per patient per year

The above calculations do not take into account insulin treated Type 2 patients.

4.1. Price of Insulin

Zambia has a policy whereby patients with chronic conditions receive their treatment (care, medicines and laboratory tests) for free. This is not always the case for insulin and patients face different prices in both the private and public sectors. The graph below shows the different prices of insulin at different levels of the Zambia Healthcare system.
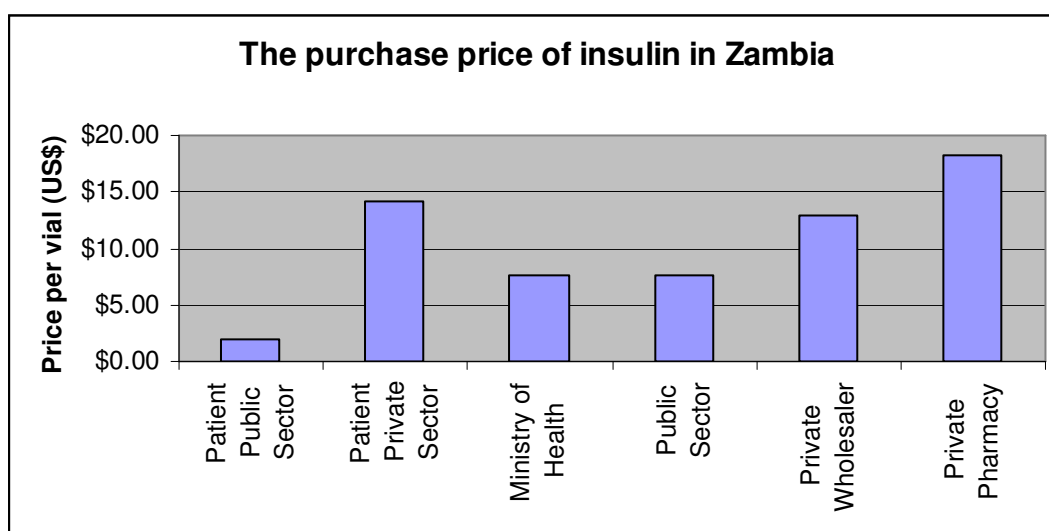

Figure 6 – Different prices of insulin in Zambia

Depending on whether or not they were able to access free insulin from public facilities patients paid anywhere from $4.62 to $17.95 per vial.

5. Access to Syringes

Syringes are essential in the delivery of insulin. As for insulin, syringes should be provided for free according to Zambia's policy on chronic conditions. Lack of syringes in Zambia was highlighted as the largest problem that the health system and patients faced. Most patients had to purchase syringes from the Private sector, as they were not available in the public

facilities. Patients paid from $0.15 to $1.50 per syringe. Patients in rural areas had the most difficulty in accessing syringes.

The quantity of syringes available at Medical Stores Limited is insufficient for the needs of Zambia.

A total of 6,242 syringes had been distributed by Medical Stores Limited from January to October 2003. This quantity is adequate for 104 patients using syringes assuming changing their disposable syringe every 6 days.

In discussions with an employee of a private company that sells syringes, he stated that he was selling 1,000 insulin syringes a month in Lusaka and that demand far outweighed supply.

There is 17.5% VAT on syringes in the private sector and also duty of 5% of CIF value.

6. Access to Diabetes Care

The vision of the health reforms which have taken place in Zambia over the past few years, is to "provide equity of access to cost-effective, quality healthcare as close to the family as possible."

Diabetes care is organised at Hospitals in specialised clinics held once a week. At these clinics patients can have their blood glucose tested, a check-up and get their prescriptions renewed. At UTH the paediatric clinic is a model of what should and could be offered at all appropriate health facilities in Zambia.

The UTH paediatric clinic is held once a week. Patients arrive, have their urine tested for sugar and ketones, BP measured and if their urine glucose level is high they also get a blood test. The patient is then reviewed by a physician. There is a good collaboration with the hospital, laboratory and pharmacy. All health workers in the paediatric ward know to refer patients to this clinic and tell the physician in charge of any new cases. Some nurses and doctors have also received specialised training in the management of patients with diabetes.

In the other health facilities and for the adults at UTH the waits are long and there is only a small interaction with healthcare workers. Most of the time the clinic is just for renewing prescriptions. This lack of attention and time is due to a lack of qualified staff present at most facilities.

At present only 2nd and 3rd level referral Hospitals have the appropriate human and infrastructure resources to provide adequate diagnosis, treatment and follow-up to patients with diabetes. Of the 13 hospitals visited 62% held diabetes clinics. Of the 38% that did not, 60% were in Eastern Province and 40% in the Copperbelt.

There are no national guidelines or official referral pathways. Most patients are referred, but some delayed at low levels of the health service due to lack of knowledge. For example one patient was diagnosed as having malaria at a health centre and only after a few days, during which her condition worsened, was she referred to the main Hospital.

7. Diagnostic issues

Zambia developed the MedLab Policy aimed at providing "Zambians with quality, cost effective, appropriate laboratory services as close to the family as possible." The policy

stemmed from the awareness that to provide proper care to patients there needed to be appropriate laboratory sector.

Based on the MedLab policy these tests should be available at the following facilities:
- Health Centre
    - Urinalysis
    - Blood Glucose (Glucometer)
- Level 1 and Level 2 Hospital
    - Urinalysis
    - Blood Glucose (Glucometer)
- Level 3 Hospital
    - Urinalysis
    - Blood Glucose (Glucometer, spectrophotometer, chemistry analyser)

In practice though most Health Centres do not have the tools to carry out blood glucose measures. Other facilities do not have regular supplies of consumables such as testing strips for urine and glucometers.

The table below shows the availability of different testing materials needed for diabetes were present at a given health facility, based on interviews with healthcare workers.

Table 8 – Presence of different testing materials based on interviews with healthcare workers

	Blood glucose machine	Blood glucose testing strips	Glucose for Oral Glucose Tolerance Testing	Urine glucose testing strips	Urine ketone strips
Copperbelt	42%	32%	21%	58%	42%
Eastern	61%	17%	11%	50%	33%
Lusaka	50%	27%	23%	64%	59%

This absence of material is combined with a lack of trained laboratory staff.

The testing material that is sent to the Districts and Hospitals from Central Medical stores is either donated by the Canadian International Development Agency (CIDA) or purchased through a World Bank Grant or with government funds. Zambia receives both urine testing strips and blood testing strips from these two sources. Costs for these are detailed below.

Table 9 – Cost to Central Board of Health of different testing material

Source	Testing equipment	Cost per test
CIDA	Urine Test Strip	$0.05
CIDA	Blood Test Strip	$0.58
World Bank Grant	Urine Test Strip	$0.01
Government Funds	Blood Test Strip	$0.74

A total of US $17,674.48 was spent on testing materials over 9 months by hospitals and districts which represents a total of 74,600 tests.

Some patients have their diabetes monitored for free. Others, depending on whether they have one urine and/or blood test per month or their own glucometer, can pay anywhere from $1.06 to $51.06 per month for their monitoring costs.

There is 17.5% VAT on testing material in the private sector and also duty of 5% of CIF value.

8. Training

Integrated Competence Training (ICT) Manuals have been developed to help train healthcare workers already in the field on new diseases or methods of treatment. There is no ICT Manual for Chronic conditions and the existing material on diabetes needs to be expanded and up dated.

The curriculum at nursing and medical schools also needs to be adapted. Currently at both the Medical and Nursing Schools at UTH there is no specialised course in chronic diseases, their care and management. The main diseases and procedures students learn are related to the high prevalence communicable diseases present in Zambia.

The overall knowledge of doctors and highly trained/specialised nurses is extremely good, the lack of knowledge of diabetes lies with the healthcare workers that are in the frontline, namely those at health posts and health centres.

Most medical and nurse students had received basic training in treating diabetes, but the main difficulty they faced was a lack of appropriate teaching materials for learning about this condition. As described by a Professor at the medical school, "Healthcare workers lack experience in managing diabetes as most of the knowledge is theoretical rather than practical."

Of the healthcare workers interviewed only 9% received some form of special training on diabetes and only 33% felt adequately trained to treat a patient with diabetes.

9. Diabetes Association of Zambia

The Diabetes Association of Zambia was created in 1987 and comprises patients and healthcare workers. It has as its aim "to create and promote quality health care for all diabetic patients in Zambia."

It provides a voice for people with diabetes in Zambia and is active in organising training for healthcare workers, Youth Camps for Type 1 patients and events around World Diabetes Day. In the large hospitals the diabetes association is well known among healthcare workers, but not necessarily with patients.

The Diabetes Association is currently funded by donations from government, businesses and fundraising. The association has one paid employee at the association's headquarters in Lusaka. There are branches in Chipata, Chingola, Kabwe, Katete, Manze, Mufulira and Ndola that operate closely with the large health facilities in their area.
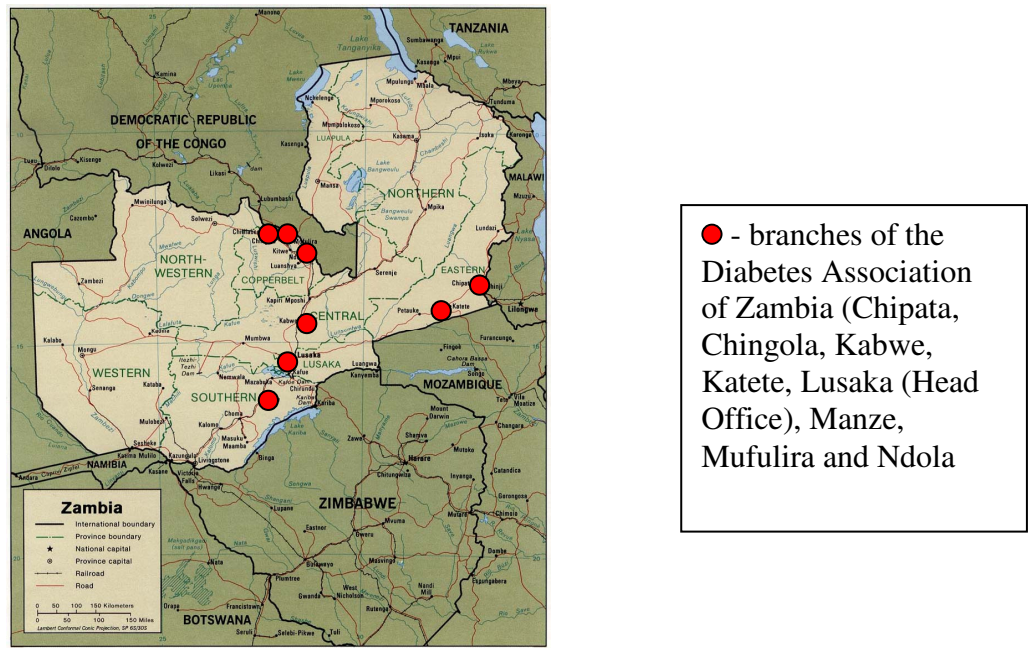
Figure 7 – Branches of the Diabetes Association of Zambia

10. Policy Framework

Due to the high prevalence of communicable diseases such as HIV/AIDS, TB and Malaria, Non-Communicable Diseases and diabetes receive very little attention and even less funding in Zambia. However, the Ministry of Health in Zambia is in the process of drafting a Policy on Non Communicable Diseases.

Currently a policy by which patients with Non-Communicable Diseases should receive their medicines for free. In practice though this policy is not applied.

11. Registers

Zambia has developed a HMIS which collects data on different conditions from most hospital in the country. At the time of the RAPIA only two facilities in the whole country were not yet included in this system.

Health facilities throughout Zambia fill in monthly forms and submit these at the end of each Quarter to the Province. The Province then sends these reports to the Central Board of Health. Currently the following conditions are part of this system.

Table 10 – Diseases included on the HMIS system

Immunisable Diseases	Communicable diseases	Maternal and Child Health	Malnutrition	Non-Communicable Diseases
- Acute Flaccid Paralysis - Diptheria - Measles - Neonatal Tetanus - Tetanus (non neonatal) - Whooping cough	- AIDS - Bilharzia - Diarrhoea: bloody - Diarrhoea: non-bloody - Diarrhoea with severe dehydration - Ear/Nose/Throat infections - Trachoma - Intestinal worms - Leprosy - Malaria - Meningitis - Pelvic Inflammatory Disease - Plague - Rabies - Pneumonia - Respiratory infection: non-pneumonia - STDs - Skin infections - TB - Typhoid fever - UTIs (non-STD) - Yellow Fever - Anthrax - Hepatitis - Mumps - Onchocerciasis - Sleeping sickness - Varicella - Scabies - All other Communicable diseases	- Complications of pregnancy - Complications of delivery - Any perinatal complications	- Protein Energy Malnutrition - Other nutritional disorders	- Cardio vascular diseases - Dental diseases - ENT (not infectious) - Eye diseases (not infectious) - GUD (other than above) - Mental disorders - Muscular skeletal and connective tissue - Neoplasm (all types) - Nervous system disorders: Epilepsy - Nervous symptom disorders: Other - Poisoning - Pulmonary disease (non infectious) - Pyrexia of unknown origin - Skin diseases non infectious - Substance abuse - Trauma: accidents, injuries, wounds, burns - Other diagnoses

Diabetes currently falls under "Other diagnoses".

In parallel 83% of healthcare workers interviewed during this exercise stated that they kept some form of patient record with disease specific information, but they are not standardised and cannot easily be consulted.

12. Traditional Healers

Traditional Healers are an integral part of providing healthcare in Zambia. 89% of Traditional Healers interviewed were members the and Traditional Healers Practitioners Association of Zambia (THPAZ). All those interviewed had heard of diabetes and 95% had actually treated a patient with diabetes.

When interviewing healthcare workers about the interaction between modern and traditional medicine, 70% stated that Traditional Healers "Never" referred patients to them. 74% of Traditional Healers on the other hand said they "Sometimes" referred patients to modern medicine with a further 16% "Always" referring patients. It was observed that the relationship between modern medicine and traditional medicine was better in more rural areas than in urban.

13. Other Problems
- Travel distance and cost was one of the main problems highlighted by patients for not attending clinic and problem accessing insulin. Healthcare workers stated that distance and transport were the largest problems facing patient follow-up. In interviewing healthcare workers most patients they saw travelled more than 2 hours to reach them. On average it costs a patient the equivalent of $2.03 to travel to the clinic. The highest average cost was for patients in the predominantly rural Eastern province with a cost of $3.95.
- Very low knowledge about diabetes in the general population and government
- Lack of educational materials for patients and Healthcare Workers, such as visual aids, manuals, etc.

14. Some positive points
- Cold chain – During the different interviews and meetings, the cold chain was said to work well and no problems were noted.
- Supply of medicines – The supply of medicines works very well in Zambia
- Quality of insulin – No adverse reactions or problems were mentioned during the research.

15. Discussion

During our interviews many respondents remarked on how the process raised awareness of the problem that people with diabetes face. Most patients were grateful and spent a lot of time talking to the people interviewing them. As was stated by a patient "In order to live normal lives, diabetics need education about their condition, medicines for their disease and constant monitoring of the possibilities of developing complications. Presently there is too much, albeit right talk about HIV/AIDS which has relegated other health challenges like diabetes to the background."

Through these discussions not only was much information collected, but some awareness created. The development of a Zambian policy on Non-Communicable Diseases is a positive development in creating the proper environment for treating patients suffering from Type 1 diabetes. For all diseases two parallel paths need to work together; the path of medicines and supplies and the path of care. The path of medicines and supplies starts with their arrival in the country and ends with the patient receiving his/her treatment. This path, however, needs to be complemented by the path of care, which starts with government policies and training of healthcare workers and ends with the interaction between the patient and this worker. If at any point along these two paths a problem or a barrier is present, this will affect the end product, which is someone's health.

The recommendations presented below are done so specifically with Type 1 diabetes in mind, however for feasibility and rational use of scarce resources in Zambia, these can and should be applied to all Non-Communicable Diseases.

16. Recommendations

Keeping in mind the resource restrictions present in Zambia the following recommendations aim to make best use of limited resources and also to benefit other areas of the health system in Zambia.

Problem	Solution	Stakeholders	Measures of success
Variations in Central Board of Health purchasing price of insulin	Purchase insulin through international tenders as much as possible – for emergency supplies find reliable supplier	Central Board of Health, WHO, IIF	Decrease in total cost of insulin purchased by Central Board of Health
Patients do not know where to get insulin	Information and guidelines for patients where they can receive their insulin	Central Board of Health, Clinicians, Pharmacists, DAZ	Increase in insulin dispensed by clinics and other facilities versus main hospitals
Price of insulin to patients is often high, even though it should be supplied to them for free	- Implementation/Enforcement of policy of free care for chronic conditions - Implementation of above recommendations should change this situation	Central Board of Health	DAZ can monitor this from complaints from patients
Lack of syringes	- Add syringes to essential drug list and supply insulin and syringes together - Standardise advice regarding the reuse of syringes	Central Board of Health, Medical Stores Limited	Increase in quantity of syringes procured and distributed, monitoring complaints of patients through DAZ
Lack of structure around diabetes care	- Develop diabetes clinics based on the model of University Teaching Hospital (UTH) paediatric clinic - Define role of each type of facility in diabetes care	Central Board of Health, Clinicians, DAZ	Number of established and running diabetes clinics
No national guidelines	Development of national guidelines for diabetes including patient and healthcare worker information	Central Board of Health, DAZ, IDF	Guidelines in place and applied widely

Problem	Solution	Stakeholders	Measures of success
MedLab policy on laboratory supplies is not properly implemented, which leads to patients not being able to access the proper diagnostic tools	Laboratory supplies need to be present as per MedLab Policy and reliable suppliers need to be found for these materials	Central Board of Health, Donors	Presence of required tools, as described in MedLab policy, in appropriate facilities
Lack of education in frontline healthcare workers	Development of an Integrated Competence Training (ICT) manual on diabetes and Non-Communicable Disease diagnosis, treatment and management	Central Board of Health, DAZ, IDF	ICT manual developed and distributed
Curriculum for medical and nursing students is not adapted to treating and managing diabetes and other Non-Communicable Diseases	Development of curriculum at medical and nursing schools to include treatment and management of diabetes and Non-Communicable Diseases	UTH, Schools of Nursing, WHO	Courses integrated into curriculum
The Diabetes DAZ needs to raise its profile and find sustainable	Promotion of the DAZ and increase its visibility, in parallel with raising the information about diabetes	DAZ, IDF	- Increase in numbers of members - Increase in awareness

Problem	Solution	Stakeholders	Measures of success
means of funding			
A Policy framework is being developed in Zambia to address Non-Communicable Diseases	Policy framework should be far reaching not only addressing issues affecting the health sector, but also issues of food, transport, sports, education, etc.	All stakeholders	Policy approved and applied
Health Management Information System (HMIS) that collects disease data from most facilities in Zambia does not include diabetes	Add diabetes to HMIS system	Central Board of Health	Diabetes added to HMIS system in all facilities
Important role of Traditional Healers	Any policy or guidelines developed for diabetes and Non-Communicable Diseases, should include Traditional Healers	Central Board of Health, THPAZ	
VAT and duty are present on syringes and testing material	VAT and duties on any items linked to the care of people with diabetes should be dropped	Central Board of Health, Zambia Revenue Authority	VAT and duty removed from all materials destined to diabetes care

On the 6th of April 2004 in Lusaka the IIF presented its results of the RAPIA to a panel of representatives from the Central Board of Health, clinicians and members of the DAZ.

Following this presentation the recommendations put forward by the IIF were ranked by the participants. The table below shows the rank of the recommendations.

	Ease of implementation Rank	Impact on people with Diabetes Rank
Establishment of quantification and proper purchasing mechanisms	4	6
Remove VAT and duty from any items linked to diabetes care	6	3
Information and guidelines for patients about where they can receive their insulin	2	2
Add syringes to essential drug list and supply insulin and syringes together	1	1
Development of National Guidelines for diabetes care	3	5
Develop diabetes clinics based on the model of University Teaching Hospital (UTH) paediatric clinic	5	4
Define role of each type of facility in diabetes care	11	8
Development of an Integrated Competence Training manual on diabetes and Non-Communicable Disease	9	9
Development of material for curriculum for NCDS and diabetes	13	12
Promotion of the DAZ and increase its visibility, in parallel with raising the information about diabetes	10	11
Far reaching NCD policy framework	14	10
Add diabetes to HMIS system	7	13
Implement MedLab Policy	12	14
Clear Statement from GRZ whether treatment for diabetes is free	8	7

17. Action Plan

Based on this ranking and in parallel to the implementation of a National NCD programme in Zambia, IDF Africa Region represented by Dr. Kaushik Ramaiya and the IIF represented by David Beran visited Zambia in August 2004 to develop an Action Plan with local stakeholders. This Action Plan and the visit report are presented below. Initially a 6-month plan will be developed. After this period an evaluation will be made and the continuation of the support from the IDF Africa Region and IIF will be dependent on these reports.

The assistance provided will be to different stakeholders in Zambia:
- Ministry of Health, support and assistance for development of Non-Communicable Disease Policy
- Diabetes Association, training and supply of materials
- Healthcare workers and member of Diabetes Association, training
- University Teaching Hospital, Lecturer

The aim of the activities below are to build capacity in an integrated way.

Meetings:
Dr. Lumbwe, Chairman, DAZ
Mrs. Banda, Office Manager, DAZ
Dr. Limbambala, Medical Officer, WHO
Dr. Sichone, Director of Health Policy, Ministry of Health
Dr. Mwaba, Head of Department of Medicine, UTH
Mrs. Pasomba, Nurse at Diabetes Clinic, UTH
Mrs. Mainza, Nurse at Diabetes Clinic, UTH

Site visits:
UTH
DAZ Offices

Presentations and discussions:
DAZ Lusaka

Discussion Points
- Development of a Non-Communicable Disease Policy
- Need for a Situation Analysis for development of a Non-Communicable Disease Policy
- Need for healthcare worker training
- Need for patient education
- Need for the development of a proper diabetes clinic within public facilities
- Lack of testing material
- Need for more manpower at DAZ
- Training of DAZ members
- Lecturer in Diabetes and Endocrinology at UTH
- Lack of proper laboratory equipment at UTH

Impact of RAPIA and developments in Zambia
The supply of insulin seems to have improved based on discussions with stakeholders.

Since the implementation of the RAPIA in Zambia, the main development has been a lot of work on the Non-Communicable Policy. Local partners stated that the IIF's work helped in acting as a catalyst in moving the policy process forward and also introducing a new research methodology to Zambia.

The DAZ has continued its activities in both Lusaka and around Zambia. In Lusaka the association has a member present to give support to patients with blood glucose testing and education especially during the Diabetes Clinic at UTH. DAZ still needs to develop its capacity to raise funds in a sustainable way and expand its activities for its members.

Serious problems still exist with the Diabetes Clinic at UTH with patients having to wait a long time and not always getting their lab results in a timely manner. The Clinic is still only once a week, but is now earlier in the day to avoid patients developing hypoglycaemia.

Phase 1 – Plan for Non-Communicable Disease Policy

Step 1
Budgeting of situation analysis for Non-Communicable Disease Policy

Step 2
IDF Africa Region, IIF, WHO Zambia and DAZ to identify possible funds

Step 3
Implementation of situation analysis

Step 4
Inclusion of situation analysis into Policy framework

Step 5
Timeline for finalisation and implementation of prevention and control programme

Phase 2

IDF Africa Region, IIF, and WHO to collaborate to help in the implementation of Zambia's Non-Communicable Disease Policy

Phase 1 – Plan for DAZ

(These activities to be held in parallel with DAZ activities: opening of new branches and Youth Camp)

Step 1
Signature of Memorandum of agreement with UTH regarding DAZ selling material to patients and role of DAZ to play at UTH

Necessary steps for import of supplies to be taken with Ministry of Health

DAZ to send IDF Africa Region and IIF Minutes from DAZ AGM

Outcomes from AGM that IDF Africa Region and IIF would like to see in the form of minutes or a report:
- Organisation structure
    - Chairman
    - Vice-Chairman
    - Secretary
    - Treasurer
- Plan for the integration of existing and newly created branches
- Full time administrative structure at DAZ offices in Lusaka and budget
- If possible audited financial reports, if not financial statement for last year
- Bank account details and signatories

Step 2
Shipment of "Start-up Kits" containing:
- 5,000 urine strips
- 1,000 glucose strips
- 1,000 syringes

Provision of monthly stock keeping forms and cash flow chart.

Material to be used by DAZ to start revolving fund for association activities and further purchase of material.

Monthly reports of stock and cash flow to be maintained and sent to:
- IDF Africa: Dr. K. Ramaiya
- IIF: D. Beran

Step 3
6 months after receipt of shipment, DAZ will submit a report to:
- IDF Africa: Dr. K. Ramaiya
- IIF: D. Beran

containing the following information:
- Activities of Association during the past 6 months
- Description of how material provided has been used
- Compilation of monthly and final statement of stock and cash flow
- Minutes from any meetings held

- Update on numbers of members
- Full financial accounts for all income and expenditure
- Action Plan for next period of 1 year

Phase 2 – Plan for DAZ

Step 1
Decision to expand the services provided by DAZ
IDF Africa Region and IIF to assess Action Plan and see where assistance can be given

Step 2
Necessary agreement for expansion of supplies with UTH and Ministry of Health

Step 3
Provision of materials

Step 4
6 months after receipt of shipment, DAZ will submit a report to:
- IDF Africa: Dr. K. Ramaiya
- IIF: D. Beran

containing the following information:
- Activities of Association during the past 6 months
- Description of how material provided has been used
- Compilation of monthly and final statement of stock and cash flow
- Minutes from any meetings held
- Update on numbers of members
- Full financial accounts for all income and expenditure
- Action Plan for next period of 1 year

Phase 3 – Plan for DAZ

Step 1
IDF Africa Region and IIF to assess Action Plan provided in Phase 2

Step 2
IDF Africa Region and IIF recommendations to DAZ

Step 3
Preparation of application to WDF

Phase 1 – Plan for Education in Zambia – Healthcare Worker, Patient and DAZ workforce training

Step 1
Budgeting of training of healthcare workers in Lusaka (including GPs)

Identification of staff to be trained

Step 2
Organisation of training

Step 3
Actual training

Step 4
Report on training to IDF Africa Region and IIF

Phase 2 – Plan for Education in Zambia – Healthcare Worker, Patient and DAZ workforce training

Step 1
Budgeting of training in Provinces
Identify 2 Nurses at UTH to be sent to Dar es Salaam for site visit and further training
Identify member(s) of DAZ to be sent to Dar es Salaam for site visit and training

Step 2
Organisation of training in Provinces
Budget for sending Nurses to Dar es Salaam
Budget for sending member(s) of DAZ to Dar es Salaam

Step 3
Actual training in Provinces
Actual training in Dar es Salaam

Step 4
Report on activities to IDF Region Africa and IIF

Phase 3 – Plan for Education in Zambia – Healthcare Worker, Patient and DAZ workforce training

Further training needs to be identified and budgeted

Phase 1 – Plan for Education at the UTH in Zambia – Lecturer (Diabetes and Endocrinology)

Step 1
Identify Lecturer (s) for UTH

Dr. Lumbwe and Dr. Mwaba to identify possible candidates for IDF fellowships.

Step 2
Send Dr. Mwaba CVs for UTH Lecturer(s)

Step 3
Organise Lecturer's visit

Step 4
Report by Dr. Mwaba on the training

Phase 2 – Plan for Education in Zambia – Lecturer

Identify long-term sustainable solution

18. Acknowledgements

- Mr. Richter, Medical Stores Limited
- Dr. Sichone, Ministry of Health
- Mr. Simpaya, CBoH
- Dr. Sinyinza, CBoH
- Mr. Zimba, CBoH
- Mr. Zimba, CBoH
- Mrs. Zulu, CBoH
- Dr. Zulu, District Health Director, Chipata
- Planning Department, Ministry of Finance
- Executive Directors of the following Hospitals: Arthur Davison, Kitwe Central, Ronald Ross General and Mushili Commando

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