

REPUBLIC OF KENYA



MINISTRY OF PUBLIC HEALTH AND SANITATION

**DIABETES COMPREHENSIVE  
CARE MANUAL**

**A Manual for Health Care Workers**

**FIRST EDITION**

DIABETES COMPREHENSIVE CARE MANUAL

JULY 2010

FIRST EDITION

## DIABETES COMPREHENSIVE CARE MANUAL

Funded by: Ministry of Public Health and Sanitation,  
World Diabetes Foundation and the International Diabetes Federation.

Process supported by: Kenya Diabetes Management and Information centre (DMI) and Diabetes  
Kenya Association (DKA)

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## FOREWORD

Today's healthcare environment is affected by several significant factors, including increasing numbers of with chronic diseases, development of new technologies, advances in medical treatments, and the tremendous increase in scientific knowledge about health and illness. One of the challenges is that more people are living with diabetes and its complications yet its management in this country has not improved for the last decade. In spite of the growing diabetes population and the high cost of this disease, the person with diabetes is often poorly served by our current health care system. If diabetes care is to achieve the health benefits that modern science has made possible, it must be:

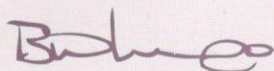
- Continuous, not episodic.
- Proactive, not reactive.
- Planned, not sporadic.
- Patient centered rather than provider centered.
- Population based, as well as individual based.

One system that incorporates these characteristics is a chronic disease model for diabetes and other chronic illnesses affecting people in the Kenya. Primary health care workers currently provide 80% to 95% of diabetes care in this country. To date, most of the efforts to improve care for people with diabetes have assumed that primary health care workers can affect the necessary changes. However, primary health care workers cannot do all that is required for ongoing diabetes management and often are discouraged that the current medical system does not function. The challenge therefore is to find a way to meet the needs of people with diabetes by broadening the delivery of care opportunities available to primary care providers (physicians, nurse practitioners, and physician's assistants).

This manual therefore provides evidence-based guidelines to help primary health care workers manage this multifaceted chronic illness in their hospitals. The Team care operation proposed in this manual meets this challenge by integrating the skills of primary care providers and different health care professionals with those of the patient and family members into a comprehensive lifetime diabetes management program. Additionally, the clinical care team is augmented by the resources and support of community partners.

The ministry appreciates the effort put by all players in coming with this

important document and it is my sincere hope that diabetes management in this country will change once and for all for the goo of the people living with diabetes, their families and community members. In the same spirit I would wish to see it adopted and implemented in all our health care outlets countrywide.



**Hon. Beth W. Mugo, EGH, MP.**  
Minister for Public Health and Sanitation

## INTRODUCTION

Every 10 seconds a person dies from diabetes and related conditions in the world and kills as many as 3.5 million people every year. About 90% of people with diabetes have type 2, which usually occurs in adults over 45 years old. The complications of diabetes (cardiovascular disease, blindness, kidney failure, nerve damage, and lower-extremity amputations) result in higher rates of disability; increases in use of health care services, lost days from work, and unemployment; and decreased quality of life.

Despite its multi-system effects, diabetes is a controllable disease, and there is unequivocal evidence that its enormous human and economic toll can be significantly reduced by early and aggressive ongoing therapeutic intervention. The principal clinical features of type 2 diabetes—hyperglycemia, dyslipidemia, and hypertension—however, cannot be managed successfully with sporadic, reactive, or episodic care. If diabetes care is to achieve the health benefits that modern science has made possible, it must be continuous, proactive, planned, patient centered, and population based.

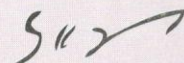
For the diabetes care team care to succeed, the following elements must be in place:

- Ensure the commitment of leadership.
- Gain support from care providers.
- Identify team members.
- Identify the patient population.
- Stratify the patient population according to the intensity of services needed.
- Assess resources.
- Develop a system for coordinated, continuous, quality care.
- Evaluate outcomes and adjust services as necessary

Team composition will vary according to patient need, patient load, organizational constraints, resources, clinical setting, and professional skills. In addition to the patient, who takes the central position, a “core” team usually includes a physician, nurse, and a dietician, at least one of whom a diabetes educator. Many other health professionals can be team members or collaborative consultants if needed.

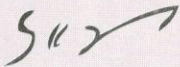
It is easier to coordinate services, communicate effectively, evaluate patient outcomes and satisfaction, and monitor costs involved in providing diabetes care.

The diabetes care team need to assessment, evidence based problems early and initiate treatments to improve both gly can prevent or delay progress lower-extremity amputation participate in treatment deci receive adequate education, diabetes control is achieved. Th better quality of life, and imp health care costs.



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Director of Public Health and Sanitation

The diabetes care team need to minimize patients' health risks by continuous assessment, evidence based interventions, and surveillance to identify problems early and initiate prompt treatment. Increased use of effective treatments to improve both glycaemic control and cardiovascular risk profiles can prevent or delay progression to renal failure, blindness, nerve damage, lower-extremity amputation, and cardiovascular disease. When patients participate in treatment decisions, set personally selected behavioural goals, receive adequate education, and actively manage their disease, improved diabetes control is achieved. This in turn leads to improved patient satisfaction, better quality of life, and improved health outcomes, and ultimately, lower health care costs.



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## ACKNOWLEDGEMENTS

The Kenya Diabetes Comprehensive Care Manual was prepared with the active participation of several diabetes experts from several organizations in Kenya. The participation of the following individuals and organization is gratefully appreciated

The manual is based on the Diabetes Team Care operation of the National Diabetes Education Program, USA and the Chronic Care Manual whom we owe thanks for allowing us to use the materials.

Funding for the process of development of these Guidelines was provided by the World Diabetes Foundation (WDF) through the National Diabetes Comprehensive Care Project. The process received a lot of technical support from the Kenya Diabetes Management and Information Centre (DMI), Diabetes Kenya Association, the University of Nairobi and Kenyatta National Hospital. Dr. Joyce N. Nato of the World Health Organization, Kenya Country Office provided technical advice to the drafting team. We thank all our regional diabetes coordinators (Dr. L.N. Wagana-Central, Dr. C. Muyodi - Coast, Dr. H. Sultani - Western, Dr. Otepo - Nyanza, Dr. Sule - Nairobi, Dr. Njoroge - N. Eastern, Dr. Muli - Eastern, Mr. Kimonjino - R/Valley for their active participation in the process of developing the draft.

The development of the guidelines was carried out under the auspices of the Division of Non-communicable Diseases. In this regard, the support extended by Dr. William K. Maina, Head of the Division and the staff of the division, particularly Zachary Ndegwa, Edward Ndungu and Mrs. Scholastica Mwendu is gratefully acknowledged.

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## CHAPTER 1

### BASIC CONCEPTS OF DIABETES COMPREHENSIVE CARE

#### 1.0: Introductions to Diabetes Mellitus

Diabetes mellitus is a chronic metabolic disorder that occurs when the pancreas does not produce enough insulin, or when the body cannot effectively use the insulin it produces or both. This results in elevated blood sugar (hyperglycaemia) and other metabolic derangements which over time lead to multiple organ damage. The common complications of diabetes include – eye complications, damage to heart, blood vessels, kidneys, nervous system and foot complications leading to amputations.

##### 1.0.1 Predisposing Factors

- Advancing age.
- Family history
- Excessive body weight
- Excessive alcohol consumption
- Physical inactivity.
- Stress.
- Unhealthy diet.
- Gestational Diabetes Mellitus
- Chronic use of steroids

##### 1.0.2 Symptoms

Diabetes Mellitus often goes undiagnosed because many of its symptoms though serious are often missed or are treated as common ailments. Recent studies indicate that the early detection of diabetes symptoms and treatment can decrease the chance of developing the complications of diabetes.

- Common symptoms of diabetes include:
- Frequent urination
- Excessive thirst
- Extreme hunger
- Unexplained weight loss
- Increased fatigue
- Irritability
- Blurry vision
- Impotence
- Numbness or tingling sensation of the feet

### 1.0.3: Types of diabetes

1. Type 1-Previously referred to as Insulin Dependent Diabetes, juvenile diabetes or Autoimmune Diabetes. It is as a result of failure of the pancreas to produce insulin. This accounts for approximately 5-10% of diabetes globally.
2. Type 2-Previously referred to as Non-Insulin Dependent Diabetes or adult onset diabetes. This type results from either failure of the pancreas to produce adequate insulin or failure of body cells to utilize insulin or both. This accounts for approximately 85-95% of diabetes globally
3. Gestational diabetes Mellitus (GDM) – Pregnant women who have never had diabetes before but who have high blood sugar (glucose) levels during pregnancy are said to have gestational diabetes. Gestational diabetes affects about 4% of all pregnant women. Gestational diabetes starts when the body is not able to make and use all the insulin it needs for pregnancy.
4. Other specific types:
  - Diabetes as part of other Endocrine syndromes
  - Drug Induced diabetes
  - Pancreatic disease
  - Monogenic diabetes; previously referred to as Maturity Onset Diabetes of the Young (MODY)

### 1.0.4: Diagnosis:

The diagnosis of diabetes must be confirmed biochemically prior to initiation of any therapy. The presence of symptoms of hyperglycaemia, such as polyuria, polydipsia, pruritus vulvae, lethargy, loss of weight and a random venous plasma glucose 11.1 mmol/L or fasting venous plasma glucose 7.0 mmol/l confirms the diagnosis of diabetes.

In asymptomatic subjects a single abnormal blood glucose result is inadequate to make a diagnosis of diabetes. The abnormal value must be confirmed at the earliest possible date using either two fasting or random blood samples or a 75 g oral glucose tolerance test (50g/m<sup>2</sup> for paediatric patients).

### 1.0.5: Management:

The overall goal of diabetes management is to help individuals with diabetes and their families gain the necessary knowledge life skills, resources, and support

them to achieve optimal health. This is done through team effort and in a stepwise approach. The following are the approaches to diabetes management:

- Nutritional management
- Physical exercise
- Psychological support.
- Drug treatment: using insulin and or oral anti-diabetic drugs depending on the type of diabetes and the individual patient.
- Monitoring of blood glucose

### 1.0.6: Complications of Diabetes

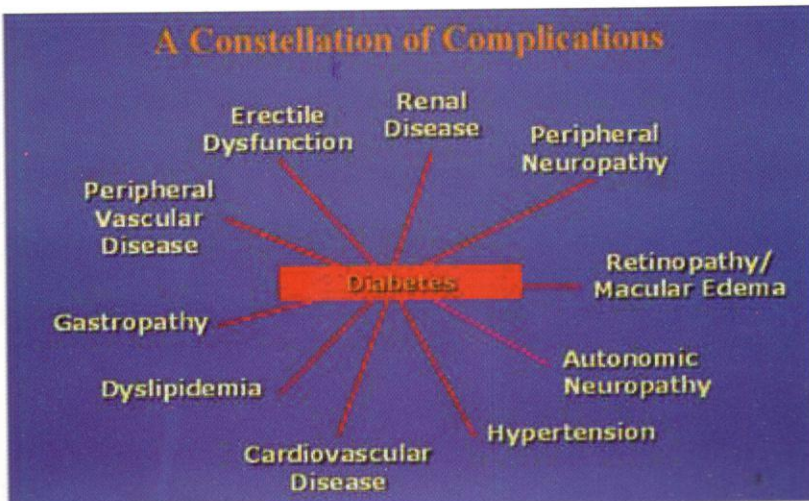
Persistent hyperglycaemia results in progressive multiple organ damage giving rise to both acute and chronic complications.

#### 1.0.6.1: Acute complications:

- Diabetic ketoacidosis.
- Hyperosmolar hyperglycemic state previously Hyperosmolar Non-ketotic Coma.
- Hypoglycemia (From aggressive treatment).

#### 1.0.6.2: Chronic complications:

Diabetes causes A Constellation of Complications as shown below



Source: Adopted from America Diabetes Association

### 1.0.7: Epidemiology and the Global Perspective of Diabetes

Diabetes is one of the commonest non-communicable diseases of the 21st century. In 2007 the global burden of diabetes was estimated to be 246 million people. The international diabetes federation (IDF) estimates that this figure is likely to rise to 380 million by the year 2025 (IDF Atlas, 2007). In its 2009 Diabetes Atlas publication, the International Diabetes Federation, the global burden of diabetes in 2010 is estimated at 285 million and projected to increase to 438 million by the year 2030, if no interventions are put in place (IDF Atlas, 2009). This rise in diabetes is associated with demographic and social changes such as globalization, urbanization, aging population and adoption of unhealthy lifestyles such as consumption of unhealthy diets and physical inactivity.

The *World Health Report 2002* estimated that globally, 7.1 million deaths could be attributed to high blood pressure, 4.4 million deaths to high cholesterol, and 2.6 million deaths to excessive body weight. Excessive body weight is a growing problem in almost every country, even the poorest. It is increasing so rapidly that in middle-income countries the disease burden associated with having a body mass index greater than 25 is now equal to or greater than the disease burden resulting from under-nutrition (WHO, 2002). Excessive body weight is known to be an independent risk factor for development of type 2 diabetes mellitus.

Despite the higher prevalence of diabetes in high-income countries, the majority of the disease burden from diabetes, more than 70 percent, is in the developing regions because of their larger populations.

In Kenya, the prevalence of diabetes is estimated to be 3.3%. This figure is based on regional projections and is likely to be an underestimation as over 60% of people diagnosed to have diabetes in Kenya usually present to the health care facility with seemingly unrelated complaints. Therefore two thirds of people with diabetes do not know they have the disease (IDF 2007).

Several modifiable risk factors come to fore as driving forces of the rising prevalence of type 2 diabetes in Kenya. These factors associated with urbanization include:

- Consumption of refined carbohydrate
- Consumption of high-fat diets,
- Lack of physical activity due to sedentary lifestyles, lack of exercise or Circumstantial reduction of physical exercises occasioned by the



availability of motorized transport, watching television and computer games for long hours

These common urban events and lifestyles are now reaching rural Kenya.

## CHAPTER 2

### 2.0: Diabetes Comprehensive Care Concept

Diabetes Comprehensive Care Concept is a model of care for diabetes that is patient centered, with a multidisciplinary team approach. It aims at inter-linking the patient, the health care system and the community. The delivery of DCC requires reorganization of existing clinics into diabetes comprehensive care clinics.

The DCC must provide one-stop holistic services for people with diabetes. The focus is therefore a continuous, proactive, planned, patient and populations based model of care rather than a care that reacts to the acute needs of the individual. It emphasizes the central role of diabetes patients and their relationship with an organized practice team to achieve optimal health outcomes.

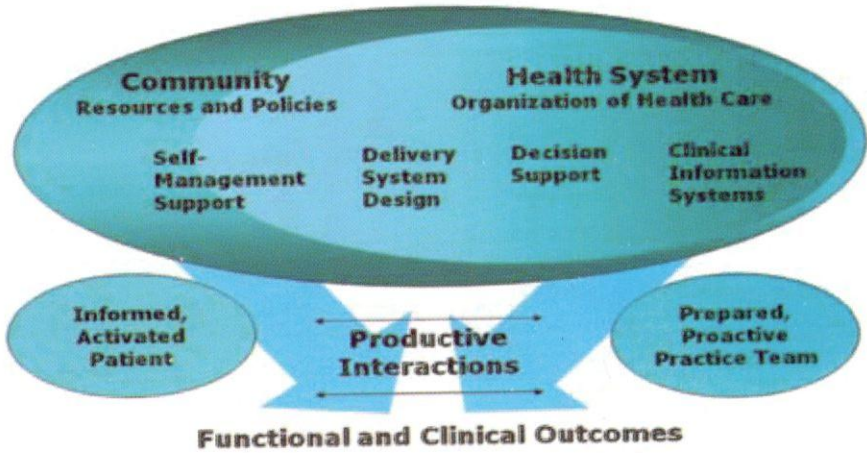
The Diabetes Comprehensive Care Concept is based on the chronic care model. This Chronic Care Model emphasizes the central role of patients and their relationship with an organized practice team to achieve optimal health outcomes. It changes the healthcare system's focus from reacting to the acute care needs of individuals to taking a proactive approach to engaging a population of patients. It challenges the notion of specialized knowledge resting solely with the physician in favour of a broader approach where every member of the care team, including the patient, brings expertise to the table.

The Chronic Care Model puts the patient's long-term health goals, needs, and competencies at the centre of the healthcare system. It includes six essential elements of a health care system that when integrated encourage high-quality chronic disease care:

- Community resources
- Health system
- Self-management support
- Delivery system design
- Decision support
- Clinical information systems.

To achieve real improvements in the quality of care as indicated by process and outcome measures, attention should be paid to each of these six elements.





### Chronic Care Model<sup>1</sup>

Source: <sup>1</sup> Integrating Chronic Care and Business Strategies in the Safety Net.

#### 2.0.1: Formation of the Diabetes Comprehensive Care Team

The key function of a multidisciplinary team is to provide continuous, supportive, and holistic care for people with diabetes throughout the course of their disease. Properly implemented, diabetes team care is cost-effective and the preferred method of care delivery, particularly when services include health promotion and disease prevention in addition to intensive clinical management.

The concept of the comprehensive care of diabetic patients does not imply that all members sit at one place at one time, but rather that their services are availed to the diabetic patients with ease and with interdisciplinary consultation.

The first step requires an organization's key decision-makers to commit to the implementation of multidisciplinary team care and the necessary resources and infrastructure to enable the team to function.

#### 2.0.2: Process of Development of the DCC Team

The following steps are important for setting up of DCC team:

##### a) Ensure the commitment of leadership

The first step requires an organization's key decision-makers to commit to the implementation of multidisciplinary team care and the necessary resources and infrastructure to enable the team to function. Once the commitment is made, a

planning group needs to carry out the steps outlined in items B–H.

**b) Gain support from care providers**

Select well-respected clinicians committed to the course of diabetes, to serve as catalysts to generate interest and support among colleagues.

Obtain the support of other health care providers and other potential team members.

Involve core team members early in organizational and clinical decision-making to gain their active participation.

Demonstrate team care on a small scale, if necessary, to increase provider comfort and adjustment to a new method of care, and to assess its feasibility, efficiency, effectiveness, and impact.

**c) Identify team members**

Meet with potential team members; like clinicians, nursing officers, nutritionists, diabetes educators' e.t.c, policy makers, and departmental representatives such as health administrative officers responsible for financial management.

Clarify the roles of team members to resolve issues related to leadership and role overlap or redundancy in the care delivery process.

**d) Identify the patient population**

Initial assessment may be limited to general demographic characteristics and an estimate of the proportion of patients with type 1, type 2, and gestational diabetes. Further assessment could determine the presence of risk factors, number of patients with and without diabetes complications, severity of complications, the extent of co-morbidities, use of health services, and delivery of preventive care.

**e) Stratify the patient population**

Once the diabetes patient population is known, the team may want to stratify the population into groups according to the intensity of services required. Patients at risk for diabetes complications may benefit from relatively low-cost preventive care focused on risk factor reduction and health promotion.

Identifying the patients with diabetes complications or other co-morbidities over a previous 2-year period can help determine those who will require more extensive resources.

**f) Assess resources**

Identify strengths and weaknesses in available resources (such as support staff, education materials, equipment, supplies, home care services, support groups,

follow-up services).

Ensure that adequate space, equipment, and supplies are available.

Acquire state-of-the-art management protocols and education materials to ensure the delivery of current, culturally sensitive, and consistent care.

Assess community support and resources such as institutional funding and grants from community agencies, groups, or services.

Determine available reimbursement for provider services (including education and nutrition), equipment, and supplies.

Determine availability of grants or industry support for indigent programs.

**g) Develop a system for coordinated, continuous, quality care**

- Define the team philosophy, goals, and objectives. \_
- Develop a secure information system for patient identification, data collection, and ongoing assessment.
- Determine the structure and scope of the program or service. Teams can provide medical and clinical care; diabetes, lipid, and hypertension management; self-management education and nutrition therapy; psychosocial counseling; risk factor reduction; screening for complications; follow-up care; coordination of referrals to specialists; and access to supportive clinical and community resources.
- Base care on locally developed and consensus based guidelines adapted from widely accepted standards or practice guidelines to meet local conditions.
- Develop a system that supports continuity of care through regular team meetings and ongoing documentation and communication of pertinent information among team members, ideally via a computerized information system
- Develop a system for monitoring the achievement of specific performance measures such as use of hemoglobin A1c.

**h) Evaluate outcomes and adjust as necessary**

Perform regular service assessments. These should include clinical and economic evaluation of provider performance measures and patient outcomes.

**2.0.3: Factors Determining the Team Composition**

The composition of the DCC team will be determined by the following factors:

**a) The patient population**

This may be limited to general demographic characteristics and an estimate of the proportion of patients with type 1, type 2, and gestational diabetes. Further assessment could determine the presence of risk factors, number of patients with and without diabetes complications, severity of complications, the extent of co-morbidities, use of health services, and delivery of preventive care.

**b) The characteristics of the diabetes patient population**

Once the diabetes patient population is known, the team may want to stratify the population into groups according to the intensity of services required. Patients at risk for diabetes complications may benefit from relatively low-cost preventive care focused on risk factor reduction and health promotion

Identifying the patients with diabetes complications or other co-morbidities to help determine those who will require more intensive care and extra resources.

**c) Available resources**

The strengths and weaknesses in availability of resources (such as human resource, education materials, physical infrastructure, equipment, supplies, home care services, support groups, follow-up services).

**2.0.4: Team members and their roles**

An ideal core team includes a clinician, a nurse, and a dietitian in addition to the patient. At least one of the core team members should be a trained diabetes educator. For the patient with type 2 diabetes, a physician specialist such as an internist or endocrinologist may be a team member or a collaborative consultant while for the patient with type 1 diabetes, on the other hand, the paediatric physician specialist always should be a member of the core team. It is essential that a key individual such as a physician, other primary care provider, or a Certified Diabetes Educator coordinate the team effort.

Other team members will include people with diverse professional skills such as the following:

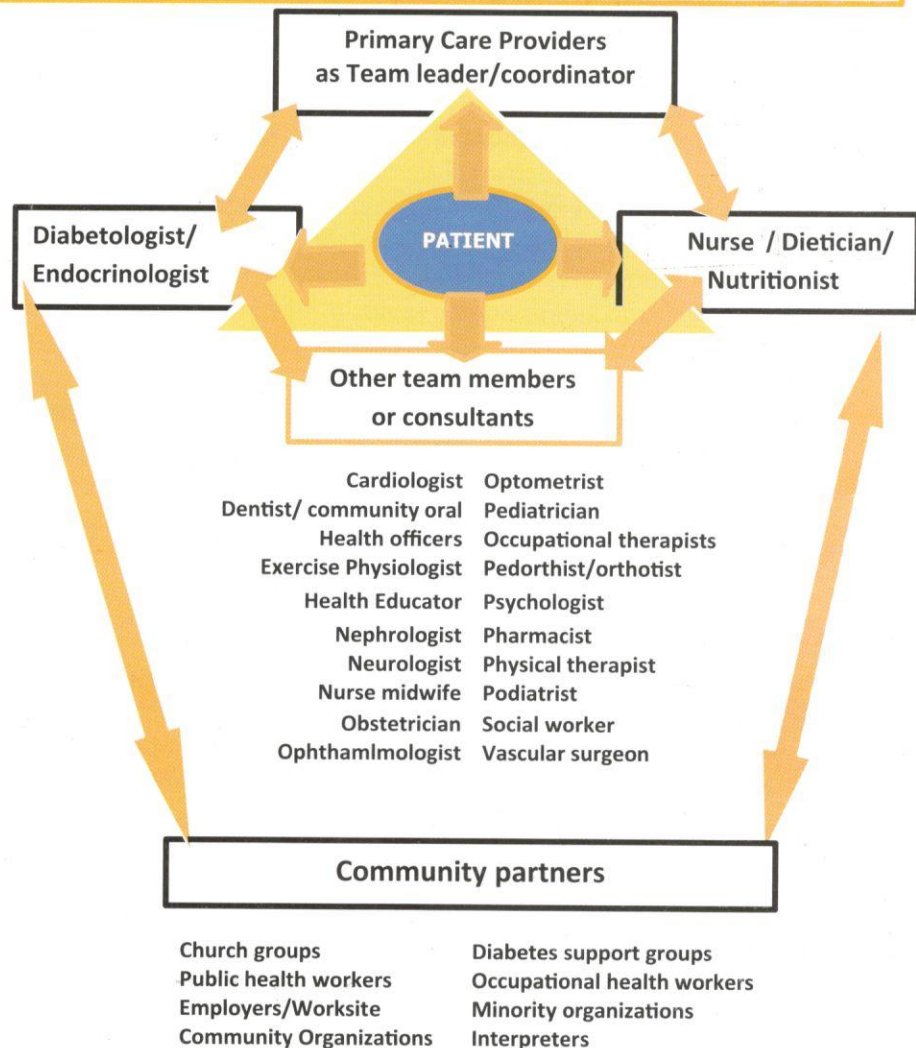
- Gynaecologist
- Pharmacist
- Eye specialist
- Podiatrist
- Physiotherapist
- Occupational therapist
- Laboratory staff

- Dentist
- Psychologist or social worker
- Health educator
- Health records staff
- Health administrator
- Public health officer

Team composition will vary according to patient need, patient load, organizational constraints, resources, clinical setting, and professional skills.

Figure 1

Diagram showing the patient and a typical 4-person "Core provider team, other professionals who may be called upon as team members or consultants, and community



**Roles**

Physicians/medical officers, nurses, and clinical officers can be active members of the core team and often will take on the team coordinator or leadership role.

**Physician/ Clinician**

Provides leadership in the DCC team and take part in diabetes patient management

**Nurse**

With medical direction as needed, the nurse can make clinical management decisions about the treatment of diabetes, lipids, and hypertension; provide self-management education; and coordinate team services to meet the patient's health care needs.

**Dieticians/ Nutritionist**

They are responsible for providing medical nutrition therapy and education. Nutritional intervention provided according to established nutrition practice guidelines.

**Diabetes educators:**

Provide diabetes education to the patients and their families, geared toward all aspects of management of diabetes.

**Pharmacist**

Provide medication counseling, review relevant patient data with the physician, recommend changes in medication, dosage, monitoring and ensure availability of diabetes medical supplies.

**Gynaecologist /Obstetrician**

Member of the core team in management of gestation diabetes and patients with diabetes in pregnancy

**Ophthalmologist:**

An optometrist or an ophthalmologist will conduct all eye exams. They should maintain data on eye examination findings, including funduscopy photographs where feasible, for all individuals examined.

**Health records officers:**

Key role in data management in the comprehensive care of diabetic patients.

**Health administrative officers:**

To provide administrative support in the provision of diabetes services.

**Other specialized areas**

To provide care depending on patients' needs and areas of specialization e.g. Podiatrists, Physiotherapists, Occupational therapists, Laboratory staff, Dentists, Psychologists or social workers, Health educators.

**2.0.5: Qualities of an Effective Team**

Regardless of the team structure, several important elements need attention for ongoing, successful team care. These include:

**a) Promotion of patient satisfaction and self-management**

Attention to patient concerns such as cost of care, confidentiality, waiting time, accessibility of providers, and continuity of care can markedly influence patient satisfaction.

Self-management education provides patients with the knowledge and skills to actively participate in their care, make informed decisions, set collaborative goals, carry out daily management, evaluate treatment outcomes, and communicate effectively with the provider team. Ongoing management requires reassessment and redefinition of collaborative goals, and supportive care to sustain achievement of goals over time.

**b). Promotion of community support network**

The support of family, friends, and the entire community can help people with diabetes sustain self-management practices and a positive outlook over time. Encouraging communities to participate in routine physical activity, and support the concept of healthy foods for all, creates an environment that can contribute to improved health outcomes and quality of life. Teams can help people with diabetes develop a community support network that includes support groups, the faith based group support, and needed services such as transportation.

**c). Coordination of teamwork**

Teams need clear procedures to facilitate timely coordination of all required services. To ensure continuity of care and patient satisfaction, coordination efforts need periodic reassessment.

**d). Communication:**

Team members need to communicate with each other and the patient. Team



meetings, patient rounds, and Continuous Professional Development (CPD) sessions, promote cohesion and a common approach to patient care. Setting targets for blood glucose and lipid values, haemoglobin A1C, blood pressure, body weight, and activity level provides a common ground for discussion of management strategies, collaborative goals, and evaluation of treatment outcomes. Consistent messages from all team members enhance patient understanding and increase effective self-management behaviours.

Providers and patients need to develop and use a written plan for treatment goals, disease management, personal goals, and patient education and skill development. A multidisciplinary planning and documentation tool for the medical record can help team members to clarify responsibilities, coordinate care, and communicate the patient's progress in a timely way that benefits all health care providers the patient encounters.

Referring physicians can be appraised on patient progress through computer-generated reports, medical record notes, personal and telephone contact.

#### **e). Follow-up**

Ongoing patient follow-up and routine scheduled visits for preventive care are key elements to team success. A system to monitor and recall individuals for treatment and appointments, planned visits, and ongoing collaborative goal setting will facilitate the provision of these services.

i) Follow-up care can be in the form of:

- Return face-to-face visits
- Interaction with other team members and community partners
- Telephone interviews and fax or e-mail correspondence.

Arranging for patients to send self-monitored data and to receive phone counseling and ongoing therapeutic management by nurses and dietitians can reduce the need for multiple clinic or office visits and increase access to care for patients in medically underserved locations.

ii) Essential preventive services include:

- foot examinations,
- Nutritional assessment.
- screening for microalbuminuria,
- Retinal eye examinations.

- Preventive dental care.
- Sending patients reminders and screening questionnaires.

#### **f). Use protocols and other practice tools**

Diabetes management tools are an integral part of a collaborative team approach and include standards of care, treatment guidelines, protocols and algorithms, flow sheets, routine investigations (standing orders), chart stickers, and other recording and reminder systems.

#### **g). Computerize information systems when feasible**

Secure computerized clinical information systems can identify patients with diabetes, centralize their data and laboratory values, suggest a change in medication dosage, and enable timely referrals to other providers or specialists. These systems also can automatically remind the team to conduct self-management education, provide preventive services, and schedule follow-up visits. Computerized information systems help monitor quality of care by pooling medical record audit findings and comparing them with baseline measures or values attained in other practice settings.

#### **h). Monitoring and Evaluation:**

Periodic process and outcome evaluations can be used to indicate ways to improve team function and patient care. Databases with analytic reports are important for evaluating the outcomes of team care, determining future progress, and indicating team success in meeting quality measures.

Patient satisfaction and quality-of-life interviews or questionnaires for patients can provide valuable feedback to the team and may influence the scope and quality of care provided.

### **2.0.6: Maintaining a Successful Team**

- Maintaining a successful team entails the following:
- Presence of the right challenge,
- Regular team building programs,
- Ongoing skills training
- Recognition/affirmation.
- Reward for keeping the team's momentum going.
- Trouble shooting and corrective counseling.

## CHAPTER 3

### ORGANISATION OF DIABETES CARE

#### 3.0: Introduction

There is sufficient evidence to show that well organised diabetes clinics with appropriately trained staff and well-designed protocols improve the quality of diabetes care. It is therefore suggested that where diabetes clinics do not exist, clinics be established and integrated into the health-care system. Furthermore, where the clinics do exist, an assessment of the quality of care provided should be done and changes instituted to rectify any deficiencies identified.

#### 3.0.1: Organization

The physical structure of the DCC should facilitate smooth patient flow from one area to another. The registration, pay points, screening, clinical and counseling areas should be laid out in such a way as to enhance efficiency, with regard to both time and movement. They should also be clearly labeled for ease of location.

It should be structured in such a way that interdisciplinary consultations are carried out without undue inconvenience to the patient.

#### 3.0.2: Staffing

**At any given time, the clinic should have at least one from each of the following**

- One clinician: Medical officer or clinical officer.
- Nurse.
- Nutritionist or dietitian.

#### Staff deployment

For effective patient centered care it is desirable that at any given time, the core team is available in the clinic to provide both services and clinic coordination. For continuity of services staff trained in Comprehensive diabetes management are deployed and retained in the DCC. (See ANNEX I.)

#### 3.0.3: Clinic requirements

- Clinic room(s) with nearby toilet
- Furniture and fittings
- Clinicians' table
- Nurses table

- Dietician's table
- Examination couch with sheets / cabinet
- Equipment
- Clinical practice guidelines
- Glucometers with appropriate strips
- Urine test strips
- Earthenware pot (if no fridge ) for storage of insulin
- Tape measure
- Weighing scale
- Height measure
- Sphygmomanometer with 2 cuff sizes
- Stethoscope
- Monofilament
- Education posters and leaflets
- Emergency treatment tray

#### **3.0.4: DCC Inventory.**

An inventory book detailing all clinic equipment, including literature available, should be kept and reviewed weekly or monthly. This will allow the clinic to be adequately equipped at all times.

An inventory of all the clinic equipment/ literature is needed to ensure tracking of the movement of items in and out of clinic.

This will help to know what is available and what is needed at glance.

#### **3.0.5: Record Keeping/ statistics**

Monthly report- New cases, follow up

Admissions / deaths and causes

Annual report and dissemination for action

#### **3.0.6: Liaison care of in patients:**

**Working in concert with the in patient care teams, the DCC team will follow up admitted patients to:**

- Perform follow up rounds on patients admitted and assess their requirements.
- Assist attending nurses on patient care
- Reinforce education according to cause of admission
- In some instances, perform blood glucose or urine check.
- Assist in attending patients during surgery or labour ward.

**3.0.7: Diabetes education**

**Diabetic education should focus on the following areas:**

- Signs, symptoms, treatment options and complications of diabetes.
- Nutrition education
- Foot care
- Regular exercise and weight management.
- Insulin dose measuring and injection techniques, sites and storage
- Use of appropriate syringes/ insulin pens
- Medication adherence
- Eye care.
- Psychosocial issues
- Blood sugar monitoring

**3.0.8: Diabetes information resource centre:**

An information centre would be a valuable part of the diabetes comprehensive care centre. In it, patients and staff would access, with ease:

- Clinical guidelines and manuals.
- Information leaflets/pamphlets
- Food models / nutritional demonstration materials.
- Posters-
- Demonstration materials for storage of Insulin using earthenware pots.
- Foot care tools
- Diabetes research material/ information.
- Any other relevant literature.

**3.0.9: Clinic Set up**

- Triage/ screening.
- Registration
- Clinician
- Nutritionist
- Pharmacy
- Referral/Specialized services
- Supervision

**Suggestions of how to set up a diabetes clinic and access quality of care provided in the Appendix 1.**

## CHAPTER 4

### COMMUNITY PARTNERSHIP IN DIABETES COMPREHENSIVE CARE

#### 4.0: Introduction

A community is a social, religious, occupational, or other group sharing common characteristics or interests and perceived or perceiving itself as distinct in some respect from the larger society within which it exists. It can also be referred to as a social group of interacting people living in a common location that is organized around common values and social cohesion generally in social units larger than a household.

Health care systems need community partnerships because life with diabetes goes beyond health facilities. It requires patient involvement in self-management which is a complex goal requiring community support. Some of the key involvements of the communities in diabetes management include community diabetes education sessions, blood sugar/pressure and BMI check and referral for further management.

Community partnerships provide common access points for reaching people with diabetes, their families, and friends to effectively support them in diabetes self-management. These access points can be situated in different places such as places of worship and multi-purpose social halls. This form of partnership can be implemented using diabetes support groups community health committees, social groups e.g. women groups, youth groups and also faith-based organizations within the community. They provide important Linkages with other health programs e.g. the community strategy, HIV/AIDS programs, TB programs etc

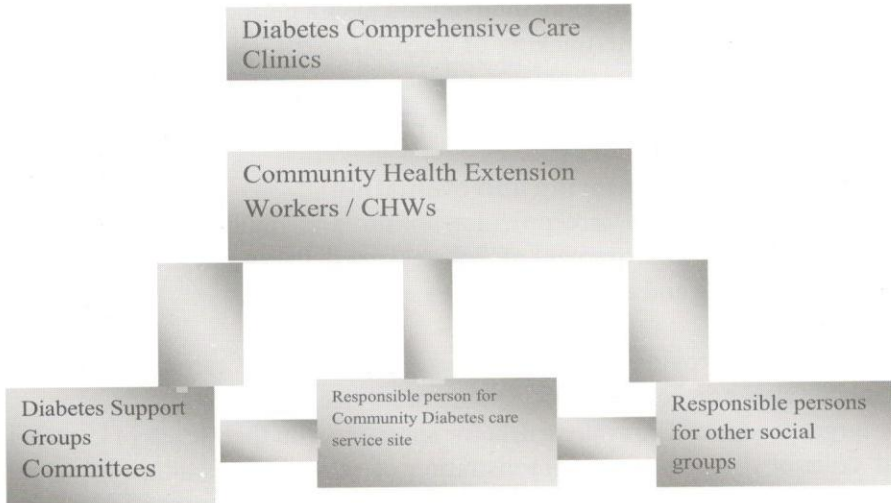
The Community entry will be based on the process of engagement that recognizes the need for the health system to negotiate its way into the community agenda as a continuation of diabetes prevention and care. The comprehensive care clinics in respective health facilities will use existing support groups and/ or community health workers to assess the diabetes care needs in their catchment areas. They will form linkages with local leaders, religious leaders and other social groups to identify common access points for diabetes service provision. The responsible persons from the identified diabetes care service sites will be trained. Each site will be equipped with a standard community diabetes care kit. This will be followed by launching the community diabetes care delivery sites.

#### 4.1: Steps for setting up of community Partnerships

The following steps can assist in developing important partnerships with other organizations, agencies and businesses in the community to provide support and resources for prevention and control of diabetes.

- Identification of needs and alignment of resources already available in the area for patients, their families, and medical staff.
- Creation of new partnerships to mobilise for more resources.
- Making the resources accessible.
- Consider partnering with different groups engaged in other activities in the community to compliment each other.
- Periodically review the community partnerships and provide feedback

Figure. 4.1 Coordination Framework for Community Partnership



## CHAPTER 5

### MONITORING AND EVALUATION

#### 5.0: Introduction

A community is a social, religious, occupational, or other group sharing common characteristics. Monitoring, evaluation and surveillance in diabetes comprehensive care play an important role in providing information to help determine the links between the programme activities and available resources and the goals of the programme.

*Monitoring* is the *routine* tracking of the key elements of programme/project performance, usually inputs and outputs, through record-keeping, regular reporting and surveillance systems as well as health facility observation and client surveys.

*Evaluation* is the *periodic* assessment of the change in targeted results that can be attributed to the programme intervention. Evaluation involves three phases, namely, process, outcome and impact evaluation. It attempts to *link* a particular output or outcome directly to an intervention after a period of time has passed.

*Surveillance* is the routine tracking of disease (or risk factors) using the same data collection system over time. Surveillance describes trends and contributes to predicting future trends and targeting needed priority interventions.

#### 5.1: Relevance of monitoring and evaluation

Diabetes comprehensive care provides holistic and multidisciplinary services geared towards the improvement of diabetes care delivery and therefore requires regular monitoring and evaluation.

The health-care providers and people with diabetes alike can be monitored to maintain relevance, content, and viability of service delivery.

The target groups can be evaluated, at the short-term on their levels of knowledge and skills of diabetes care. Demonstration of skills such as administration of Insulin and foot care can be used during the evaluation process.



**Table 5.1 Framework for Monitoring And Evaluation for The DCC Programme**

Levels of monitoring and evaluation	Indicators
Inputs	Funds, staff, time and materials
Outputs	Services, information materials, trained staff
Outcomes	Positive lifestyle change, Improved quality of self-care, Improved quality of care
Impact	Reduced diabetes related morbidity and mortality

## 5.2: Monitoring the DCC program

### i). Four basic steps in monitoring the DCC program

- Develop data tools.
- Collect data on program outcomes
- Compare program outcomes with prior or expected outcomes
- Utilise data to assist in making policy and management decisions

### ii). Monitoring the quality of care

Periodic monitoring of the quality of care provided and instituting changes to rectify deficiencies that are identified should form an integral component of health-care delivery. This requires the setting of target standards usually based on National guidelines.

Processes Of Care/ Measurement	Monitoring Indicators
Blood pressure measurements at every visit	Percent of patients screened in 1 year
Feet examinations	Percent of patients screened in 1 year
Screening for proteinuria/ microalbuminuria	Percent of patients screened in 1 year
Screening for retinopathy	Percent of patients screened in 1 year
Education given	Percent of patients screened in 1 year
Quality of care	
<b>INTERMEDIATE OUTCOME</b>	
Blood Glucose levels	Percent of patients achieving target
Blood Pressure levels	Percent of patients achieving target
HDL levels	Percent of patients achieving target
Cholesterol levels	Percent of patients achieving target
Triglyceride levels	Percent of patients achieving target
Blood pressure control in hypertensive	Percent of patients achieving target
Retinopathy	Percent of patients achieving target
<b>TRUE OUTCOMES</b>	
Leg amputations	Incidence
Stroke	Incidence
Blindness	Incidence
End-stage renal failure	Incidence
Myocardial infarction	Incidence
<b>RISK FACTOR CONTROL</b>	
Smoking	Percent of patients smoking
Obesity	Percent of patients smoking
Physical activity	Percent of patients smoking

### 5.3: Key Steps of Evaluation

The following are steps for evaluating the DCC program

#### Step 1: Engage Key Stakeholders

Engaging stakeholders is central to establishing a common frame of reference about the program and the key evaluation questions to be asked, and ensure that the findings are used for program improvement. Some of the stakeholders may include, hospital administration, health care providers, diabetes community committees and funding agencies

**Step 2: Describe the Program**

Evaluation requires a consensus program description which includes key objectives, target audiences, services provided, resources and strategies it would employ. This description helps focus monitoring and evaluation, develop associated indicators and data sources.

**Step 3: Focus the Evaluation**

To carry out an effective monitoring and evaluation process the following needs to be done; State objectives, Identify the targeted respondents, Outline the questions or areas to be covered and finally Prepare tools needed to carry out the evaluation

**Step 4: Gather Credible Evidence**

In order to have a credible monitoring and evaluation process there is a need to gather credible information from relevant sources. This can be done through use of; questionnaires, key informant interviews, focused group discussions, audit reviews of reports e.g. Medical reports, analytical reports, utilization data (admissions, hospital length of stay) etc. And direct observations

**Step 5: Analyze and Interpret Data**

The data gathered during the monitoring and evaluation process will be analyzed appropriately to generate useful information. The level and methods of analysis depend on the types of data gathered.

**Step 6: Use the Findings**

The findings shall be used to assess progress towards reaching DCC objectives and goals, and to make reviews in program activities. Program staff members work closely with each work group to review previous plans, assess the latest outcome and process measures, and then develop updated plans for the future. Findings should be documented and shared with partners.

## CHAPTER 6

### MANAGEMENT AND LEADERSHIP SKILLS

#### 6.1 Management

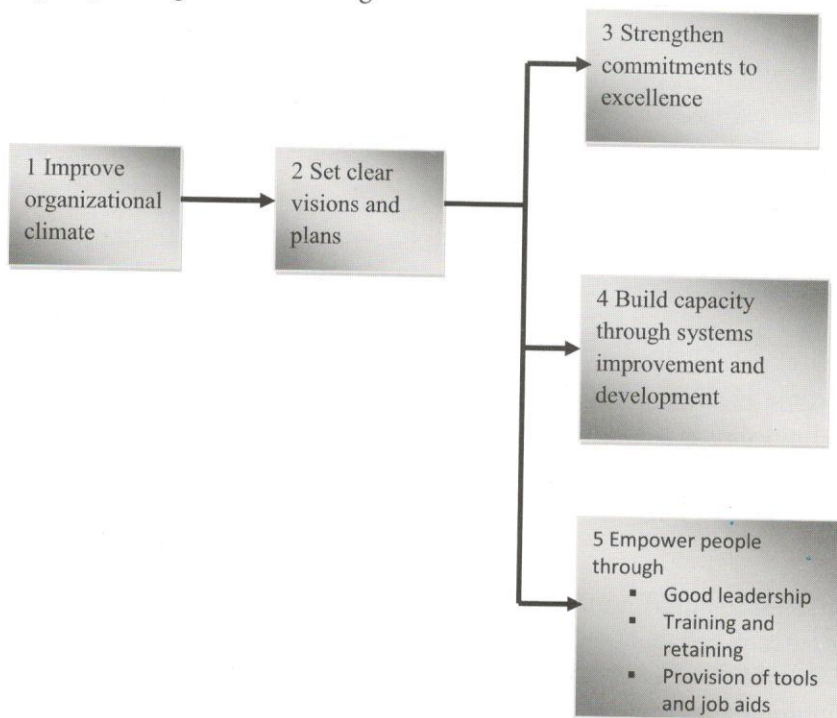
Good management is essential to the success of the diabetes care program. An effective manager can start a desirable activity, change plans when necessary and cease unproductive activities.

#### Key Tasks of the DCC manager

Management of organizational climate: This refers to the manager's role in embedding the DCC missions, goals, guiding principles, structures and working procedures of the team

Management of people: This involves creating a productive climate through communication, problem solving and decision making.

Management of tasks: This involves accomplishing tasks effectively through planning, organizing and controlling.



To improve the state of the DCC management systems, a DCC manager can follow the following five steps process as shown in figure 6.1.

### Figure 6.1 - Five Steps Management Process.

## 6.2 Five Steps Management Process

### 1. Organization Climate

The primary task of the DCC manager/leader is to improve the organizational climate in order to make management of people and tasks more effective. To achieve this, the manager needs to use of participatory techniques to assess different dimension of the DCC organizational structure (See table 6.1).

### 2. Setting clear Vision and goals

The DCC managers/team leaders assisted by the team members needs to set clear goals and plans if they are to improve diabetes care in their clinics. This means clarifying what is important and ensuring that every team member knows the clinic's priorities.

DCC managers/team leaders can gain greater commitment of the facilities vision if they;

- Secure participation and share ownership of plans from start
- Set the example by acting on the vision.
- Be focused in keeping the vision
- Define accountability for key results
- Recognize and praise progress

### 3. Strengthen commitment to excellence

The DCC manager/team leader should provide continuous supportive supervision to ensure good quality services within the clinic. Quality control weeds out processes and activities that fall below the set standards. There is need for the team leader to design sound and quality programs geared toward improvement of services.

The team leader should;

- Learn from those who are doing the work
- Encourage initiative and resourcefulness
- Demonstrate management commitment by constantly seeking excellence in design, process and services
- Consistently seek quality solutions and not merely easy or cheap ones
- Improve the provision of care and support continuously.

#### **4. Building capacity through systems improvement and development**

The team leader needs to realize that there is a need to build the capacity of systems by;

Critically reviewing the tasks, mission and objectives of the DCC clinics

Focusing on increasing productivity

Promoting team work among the team members

#### **5. Empowering people**

The DCC team leader needs to empower the team members to;

Develop communication skills

Develop problem-solving techniques

Develop decision-making techniques

Update their knowledge in management of diabetes

Table 6.1 Six dimension and determinants of successful DCC Management Process

Dimensions	Practices
<b>Structure</b>	
The degree of the DCC clinic organization and the clarity of roles and responsibilities	Establish clear and specific objectives against which staff performance is measured Clarifying the responsibilities of each team member. Making sure that tasks and projects are thoroughly explained and understood when they are assigned
<b>Standards</b>	
The benchmarks to improve performance that exists	Establishing high standards for DCC staff performance. Demonstrating personal commitment to achieving goals. Providing staff with feedback on their performance
<b>Responsibility</b>	
Individuals sense of accountability of their actions	Encouraging DCC staff to initiate tasks/projects that they believe are important for diabetes care. Encouraging staff to identify their shortcomings and correct them Encouraging staff to be innovative
<b>Recognition</b>	
The feeling of being rewarded for a job well done	Recognizing staff for good performance more often than criticizing their poor performance Using recognition and praise to reward staff for excellent performance Relating the total reward system to excellence of job performance rather than to seniority, personal relationships, ethnicity, political affiliation etc.
<b>Support</b>	
The feeling of trust and mutual respect	Being supportive and helpful to staff in their day-to-day activities. Conducting team meetings in a way that fosters trust and respect
<b>Commitment</b>	
The sense of pride in belonging to a team	Communicating achievements and enthusiasm about the goals/direction of the team Involving staff in setting the goals of the team Encouraging DCC staff to participate in making important decisions

### 6.3: Leadership

This is a critical management skill and it refers to the ability to motivate a group of people towards a common goal.

**The following are qualities of a good leader:**

**i) Ability to communicate effectively:**

- Speak clearly.
- Use language that everyone understands.
- Vary your tone and pace.
- Move from the general to the specific.
- Use visual aids— charts, maps and diagrams.
- Establish eye contact.
- Be a good listener

**ii) Ability to understand the characteristics and needs of the team**

It is important for the team leader to identify strengths and weaknesses of each team member. This enables the leader to appropriately allocate roles and build capacity where necessary. It is essential to encourage activities that help the individuals in the team to become acquainted with one another's skills, knowledge, and abilities.

**iii) Ability to control the team**

This entails the balancing between getting the job done and keeping the team together.

The leader needs to always sets an excellent example. The leader must monitors the team, communicate with the members and direct appropriately.

**iv) Ability to representing the Group**

A team leader must represent the team at various fora. They need to accurately and responsibly communicate from and back to the team and portray the right impression of the team in general.

#### **Ability to Plan**

A good leader should be able to plan for the available resources to maximize the outputs of the team. This entails Analyzing, Designing, Developing, Implementing, monitoring and evaluating the DCC.



### **Ability to Delegate**

A leader must have the ability to assign duties with authority to competent team members.

### **6.4: Problem-Solving Technique**

As the head of the team, a leader may be faced by situations that alter the process of realizing the team's goals. He/she should have the ability to address the problems in the best way possible.

Problem-Solving has five "phases":

- identify the problem to establish whether the problem is real or perceived.
- Analyze to understand the causes of the problem, its effects and forces sustaining or restraining the problem. The leader can seek an expert opinion.
- Generate possible solutions using avenues such as consensus, voting, retreating etc while ensuring the team remains cohesive.
- Implementation of all agreed solutions.
- Evaluation /Feedback through assessing the effectiveness of the preferred solution worked, by evaluating its strengths/weaknesses and give feedback.

## ANNEX 1.

Below is the minimum staffing and equipment requirement at each level of health care for the appropriate management of diabetes mellitus.

Health Care Level	Personnel	Equipment
Primary (level 1-3)	Clinical Officer Nurse Laboratory technician Nutritionist / Dietician Diabetes educator Community Health worker CHEW	Clinical care guidelines/Diabetes Education Manual Urine strips for glucose/ketones/proteins Blood glucose meter with appropriate strips Sphygmomanometer with appropriate cuff sizes stethoscope Weight scale and height measure Monofilament computer
Secondary (level 4-5)	All above+ Physician (Internist) Diabetologist /cardiologist/ nephrologists Ophthalmologist Obstetrician Surgeon Pediatician Nutritionist / Dietician physio/occupational therapist Chiropracist	All above + turning fork and patellar hammer Ophthalmoscope Biochemistry analyzers for glucose, lipids renal Doplers ultra sound Functional glycosylated hemoglobin machines computer
Tertiary (Level 6)	All above+ Physician (Internist) Diabetologist /cardiologist/ nephrologists Ophthalmologist Obstetrician Surgeon Pediatician Nutritionist / Dietician Chiropracist	All above+ Fundal camera Retinal laser unit Theater facilities Cardiovascular diagnostic facilities Hem dialysis/peritoneal dialysis/renal transplant Footcare Diagnostic equipment Doplers

## ANNEX 2.

## Standard services offered in a DCC clinic at various levels of health care

PRIMARY LEVEL		
Initial visit	3 month visit	Annual visit
History and Diagnosis Physical Examination <ul style="list-style-type: none"> <li>• Height &amp; Weight (BMI)</li> <li>• Waist/Hip circumference</li> </ul> Blood pressure <ul style="list-style-type: none"> <li>• Detailed foot examination</li> </ul> Tooth and gum inspection <ul style="list-style-type: none"> <li>• Eye Examination</li> <li>- Visual acuity + Fundoscopy*</li> <li>• Biochemistry:               <ul style="list-style-type: none"> <li>- Blood Glucose*</li> <li>- Glycosylated haemoglobin*</li> <li>- lipids( TC, HDLC, LDLC, TG)*</li> </ul> </li> </ul> Creatinine, Sodium, Potassium* <ul style="list-style-type: none"> <li>- Urine: glucose, ketones, protein ,Urine micro-albumin</li> </ul> Education Nutrition advice Medication if needed	<ul style="list-style-type: none"> <li>• Relevant history</li> <li>• Weight</li> <li>• Blood pressure</li> <li>• Foot inspection</li> <li>• Biochemistry:               <ul style="list-style-type: none"> <li>-Blood Glucose</li> <li>-Glycosylated haemoglobin (Hb A1C)</li> <li>-Urine protein/Micro-albumin</li> </ul> </li> </ul> Education advice Nutritional advice Review therapy	History and examination – as at initial visit Biochemistry – as at initial visit
SECONDARY LEVEL		
All the above Eye examination ECG Biochemistry: Blood Glucose* Glycosylated haemoglobin* Lipids (TC, HDLC, LDLC, TG)* Creatinine, Sodium, Potassium*	All the above	As at initial visit
TERTIARY LEVEL		
All the above		
*If facilities are available- otherwise refer TC= total cholesterol, HDLC =high density lipoprotein, LDLC = low density lipoprotein, TG= triglycerides	All the above	All the above

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