

Role of a Diabetes Nurse Educator

- Education
- CGMS & Insulin Pump
- Research
- Foot Care
- Camps
- Training Programme

Outreach, Education and Research Activities

Foot-care Related Activity

Foot-care Related Activity

- Endocrine Physician
- Diabetes Educator
- Physio therapist
- Prosthetic & Orthotic technician
- PMR Physician
- Vascular Surgeon
- Integrated Diabetes Foot Clinic

Specialization in Nursing - Role of a Diabetes Nurse educator

Diabetes Mellitus is an emerging global health problem.

According to the recent estimates Diabetes Mellitus has reached an outstanding global prevalence of 343 million. The human impact of Diabetes includes devastating complications, economic hardships and reduction in the most creative production years of life. It is an enormous challenge for the society and health care system to organize treatment and management of people with Diabetes to reduce its serious impact on health of the individual. The Multidisciplinary approach as well as targeting physical activity, dietary modification and diabetes Education has 1 outcome in the treatment of Diabetes.

Diabetes education is the cornerstone of the treatment of Diabetes; an educator must pose with medical competency, technical skill and psychological expertise. A disease like Diabetes requires continuous self-care.

The **Diabetes Education Programme's** goal is to reduce the burden of Diabetes and pre-diabetes by facilitating the adoption of proven approaches to prevent the delay and onset of Diabetes and its complications. Some aspects of the role of the medical doctor are being increasingly supplemented and replaced by the diabetes nurse educator.

The first ever Diabetes Nurse Education programme in India, and indeed, one of the first diabetes nurse counselor programmes was initiated in the Department of Endocrinology, at the Christian Medical College, Vellore the year 2001. The concept was derived from an Australian model in 1999 in the Department of Endocrinology, Diabetes and metabolism and supported by Mrs Shirley David, the Acting Nursing Superintendent at that point of time. Ms. Mercy Jesudoss currently working as a Nurse Manager was a pioneer in Diabetes Nurse Education and started the programme in the Endocrinology Department.

The programme evolved gradually from with staffing of 1 diabetes educator in 2001 to the current team of 11 diabetes nurse educators.

There are several subdivisions of diabetes education in the endocrinology department, where sub-specialization has now become the norm.

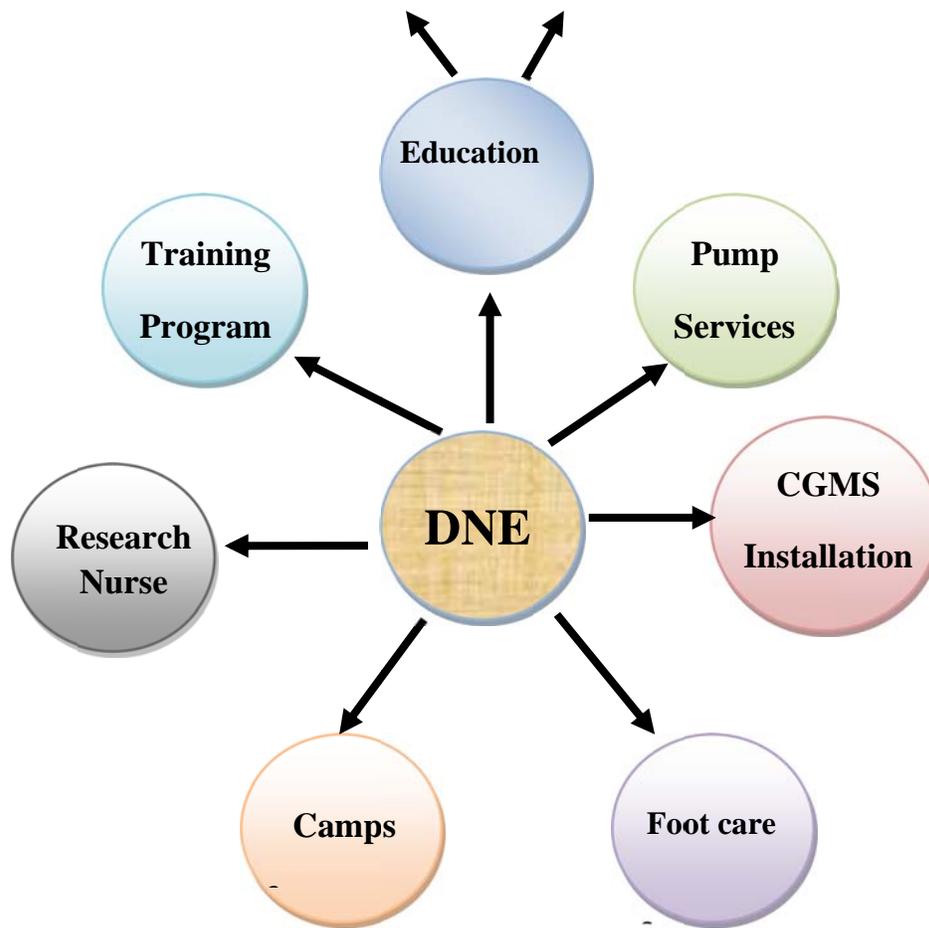
DIVISIONS OF ACTIVITY IN DIABETES NURSE EDUCATION

in ENDOCRINOLOGY CMC, Vellore.

- ♣ General Diabetes Education lifestyle modification, Insulin and Glucometer usage**
- ♣ Comprehensive Foot Care and Foot Wear Education**
- ♣ Insulin Pump and Continuous Glucose Monitoring Handling(CGMS)**
- ♣ Type 1 diabetes education and patient support groups**
- ♣ Basic Science Research: Hyperinsulinemic and Euglycaemic Clamp**
- ♣ Training of Nurse Educators in Diabetes for the nation with a 11- day intensive programme.**
- ♣ Outreach programmes into the community: School educational programmes, Camps, Jails. Teachers training programme on lifestyle modification.**
- ♣ World diabetes month events: Quizzes for public, nurses and doctors, exhibitions, Dance competitions to enhance exercise, Cookery competitions.**

Diabetes educators have become a necessary cost effective addition to the health care team. Patient education is now recognized to be an the most essential and major component in patient care. Education serves as a bridging link between the health care providers and the patient.

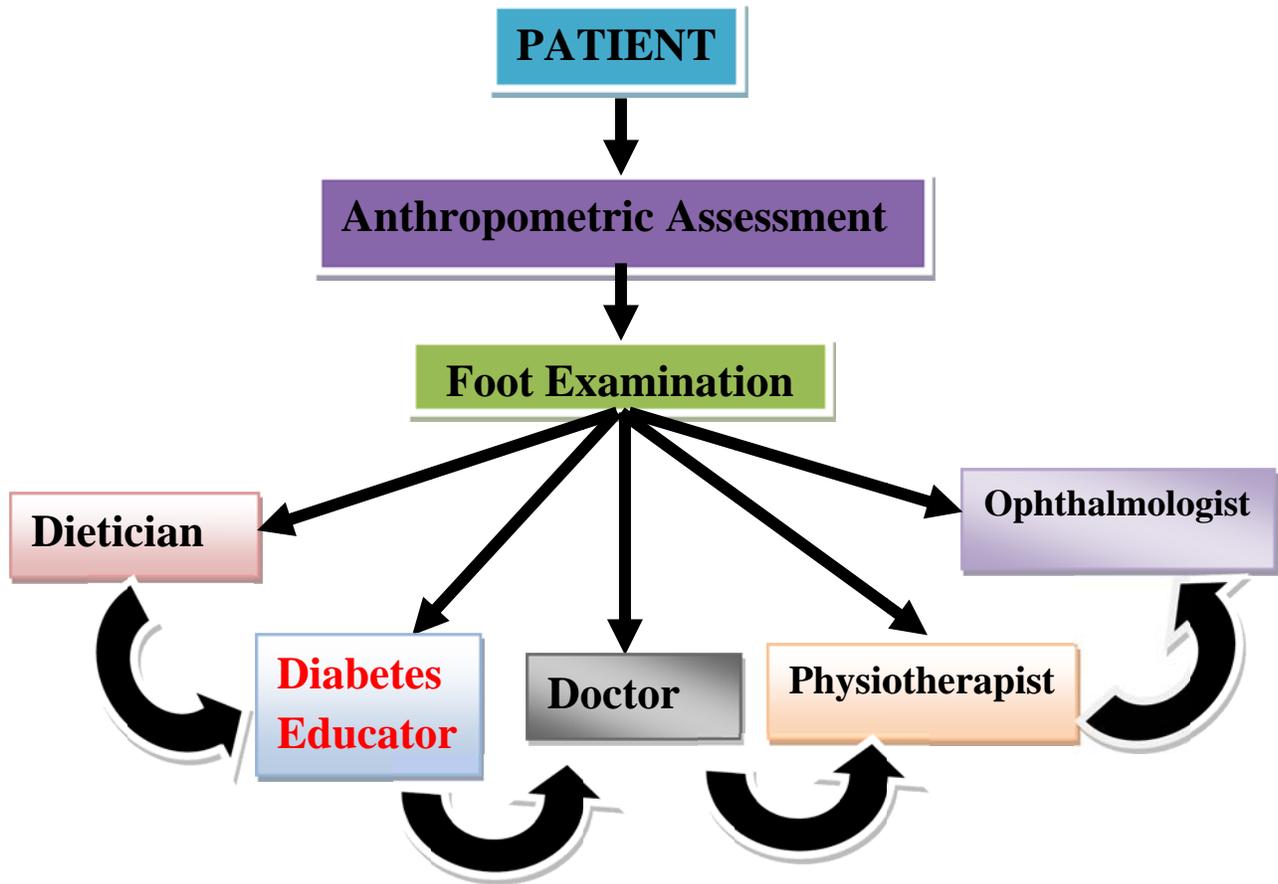
Roles Outpatient Inpatient



We have an integrated Diabetes clinic at CMC endocrine department where we do initial anthropometric assessment. Monofilament examination with 2g,4g, 10g and Biothesiometry assessment and durometer usage is performed on the footwear. Detailed foot examination is done by Diabetes educators who are foot care nurses where assessment of the foot for any Callosities, Ulcers; whether the patients are using appropriate foot wear and they also receive a foot care kit containing a small mirror – for inspection, scrubber – for debridement of fissures and a nail cutter. After this the patient is directed by the medical records officer to either the doctor or diabetes nurse educator.

The Diabetes Nurse Educator is the integral leader of the team and not the doctor.

The entire programme is now financially self sustaining.



Diabetes Nurse Educator: An educator increases the awareness and knowledge of the seriousness of Diabetes, its risk factors and effective strategies for preventing the complications associated with Diabetes and preventing Type 2 DM. Talk to them on the pathophysiology of Diabetes , Types of Diabetes , Glycemic targets , Diet , Exercise , Insulin administration , self-monitoring of blood glucose , maintaining log book, Dose adjustment, Self-care ,Foot care, Signs and symptoms of Hypoglycemia and hyperglycemia , complications and follow up. The diabetes nurse educator plays a vital role in dosage adjustment of insulin and patients communicate constantly with the educator in this regard, multiple times, in between the visits to the doctor. The team of 11 diabetes educators at CMC, Vellore council more than 30,000

patients a year in both the outpatient and inpatient services and some of these patients on multiple occasions.

CGMS - Continuous Glucose Monitoring System

Hyperglycemia promotes development of both long term complications and sub optimal wellbeing in client with Diabetes. Major barrier includes the risk for hypoglycemia. Glucometer reading obtained by finger pricks is the best single snap shots providing reading at selected time over 24hrs period. But the CGMS monitor is fixed sub-cutaneously .It reads the interstitial glucose and then the monitor's memory is transferred to a PC for analysis, more than 200 glucose values can be recorded over a 72 hour period. Decisions on insulin dose adjustment, hypoglycaemia and Somogyii effect can be made based on the management.

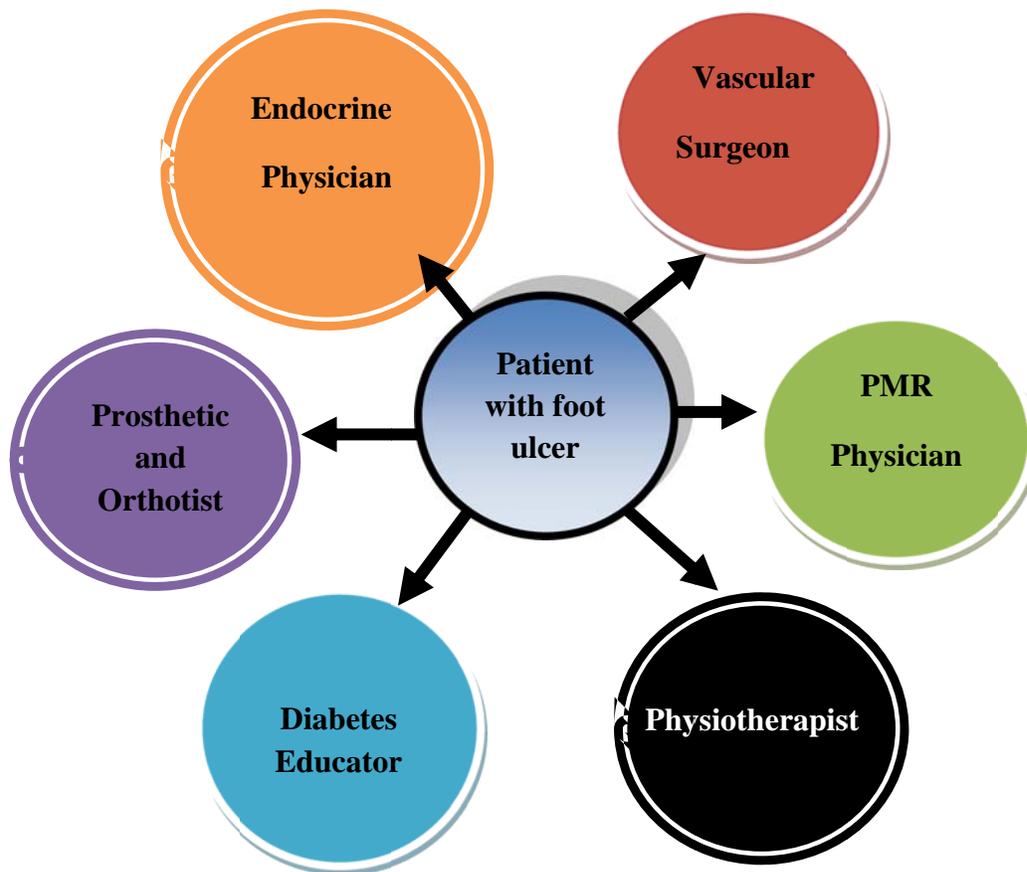
Insulin Pump- Continuous Subcutaneous Insulin Infusion

This is another device which the diabetes educator is capable of handling. The Pump is a device which continuously delivers sub cutaneous infusion of basal dose of insulin with an increase in meal time insulin is a more effective method is controlling blood glucose then a multiple injection schedule. The system consists of a highly specialized pump,an infusion set with a Teflon catheter that is inserted in to the subcutaneous tissue. The reservoir accommodates a volume of 3ml/300 U of insulin that it has to dispose of every 3rd day, including the infusion set.

It requires special expertise to teach a client on how to handle insulin pump, which the diabetes nurse educator provides. It actually takes about 10-15 days to really get hands on insulin pump therapy patients mostly done as an In Patient basis to start with.

Comprehensive Foot Care and Foot wear management

We have our integrated full-fledged foot clinic functioning since 2009, involving an Endocrinologist, PMR physician, Surgeon, Orthotics technician, physiotherapist and trained foot nurse. This became a necessity after the foot care. Our diabetes educators were trained by Mrs Alli Foster, the eminent podiatrist from the United Kingdom.



Foot problems are the leading cause of hospitalization for patient with diabetes. Foot ulcers in Diabetes mellitus precede 85% of non-traumatic lower extremity amputation. 15% develop foot ulcers in their life time. Majority of this can be prevented if early detection of this is performed

as a primary care maneuver. Approximately 3 to 4 % of individuals with diabetes have foot ulcers or Deep infections.

Responsibilities in the foot clinic:

- ♣ Detailed assessment with Monofilaments, Biothesiometry and durometer.
- ♣ Categorization and grading patients as either Low-risk foot, Moderate-risk foot and High-risk foot
- ♣ Ulcer Grading and management
- ♣ Comprehensive Debridement of ulcers by the diabetes nurse educator
- ♣ Callosity and corn removal
- ♣ Charcot's grading and educating on using appropriate foot orthotics
- ♣ Assessing for PVD (Peripheral vascular disease)
- ♣ Footwear:
 - Moulded Shoes –Extensive scarring of the sole of the feet
 - Rocker bottom sole and Aircast boot – for Fore foot problems
 - Ankle – foot orthosis – Immobilize foot and ankle
 - Patellar tendon bearing orthosis –Permanent destruction of the joints helps in supporting the body weight

- Use of silicon insoles, bunion caps, toe separators and metatarsal bars for various other foot problem

Adult young Diabetes clinic/ Type 1 clinic / Adult Gestational Diabetes Mellitus clinic

The diabetes nurse educator is the primary person and plays an important role in this clinic. Special focus on children and those in early adulthood, both individual and group education is given by the diabetes nurse educator involving all the aspects of diabetes education, focusing more on Insulin administration and maintaining log book.

They spend extra time with each patient and focus on multiple visits and individual counseling.

There is a monthly support group where Type 1 patients meet, this is coordinated by the diabetes nurse educators and videoconferencing is done with diabetes patients in the northern part of India and the United States of America.

Outreach:Camps and School health programmes

Regular outreach camps and awareness programs are conducted by the department on a fortnightly basis. It is an integrated approach where the Doctor, Educator, Dietitian, Physiotherapist would either visit schools or college or general public. We give a brief talk on all the aspects including good dietary modification, exercise.

Training programmes for School teachers have been initiated to help alter the lifestyle of children in schools and also change policies in physical activity in school and modify their canteens.

There are comprehensive world diabetes month programmes which are conducted as mentioned above.

Training Activities for Diabetes Nurse Education and Doctors Training:

In the year 2003, the Danish based World Diabetes Foundation provided a 1 Crore rupee grant for the department of endocrinology to train doctors, nurse educators and shoemakers across the country. This was subsequently followed by a grant from Project HOPE to support this programme. Today the diabetes nurse educator training programme is a comprehensive training programme for 11 days, which is intensive and runs 5 times a year. It is self sustaining, wherein nurses from both mission hospitals and the private sector are actively trained by the endocrinology department in all the skills that are required by a diabetes nurse educator. The training has lead to a number of diabetes educator run units across the country in charitable institutions, medical colleges and the private sector.

The diabetes educators are also actively involved in the training programme for doctors in Diabetes as well.

Research

Hyperinsulinemic Euglycemic Clamp techniques

Our nurses were trained when they were sent to Copenhagen in Denmark in 2008 and subsequently to the Albert Einstein University in New York in 2013 to gain expertise in this procedure. This is considered as the gold standard for quantifying Insulin sensitivity.

It has lead to a number of publications in the area, and is one of the foremost Clamp centres in Asia. The duration of the procedure is 6-7 hours during which the patient receives an Insulin infusion so as to acutely raise the plasma Insulin and then maintain at 100 micro units/ml.

Simultaneously a variable glucose infusion to maintain euglycemia is given. It thus gives us a measure of tissue sensitivity to Insulin. High levels of glucose infusion needed during the steady

state to maintain euglycemia mean tissue sensitivity to Insulin and low infusion rates signify resistance to the action of Insulin.

In addition to this the educators are trained in:

Indirect calorimetry usage for assessing Energy Expenditure

Actiheart usage for assessment of Resting Energy Expenditure

Cardiac Autonomic Neuropathy Assessment (CANS) with a comprehensive CANS device.
