A model for diabetes care at the secondary hospital
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I joined a secondary level hospital after I retired
   I was not prepared for what I would handle
For nearly 2 months I was the only doctor
   Nursing staff, pharmacist, physiotherapist & lab technician
I managed patients with my basic clinical skills & limited lab tests
There was an ultrasound machine but no one to use it
   I learnt basic ultrasound evaluation from internet sources
The lab needed to be standardized and quality control established
   Had to look at all abnormal blood smears reported
A number of diabetics come in with fever / foot infections/UTI/Resp infection
The usual range of plasma glucose in these patients: 350-450 mg/dl
Why does this happen?
Some basic facts & beliefs:

Little knowledge about diet. No diet sheet.
Patient’s get free medication from PHCs/GHQ ho.

At PHCs: RBS (glucometer) & BP checked.

Once sugars are controlled, patients feel they are cured of diabetes.

They stop medication till the next complication.

Those who regularly get their medicines are not compliant.

Even 1 episode of hypoglycemia: stop all meds except metformin.

Many stop medications & start on Ayurveda/Siddha on and off.

Diabetics come to hospital only for acute complications.

Alcohol addiction: A very common cause for poor control.
Knowledge vacuum in patients
Diet
Physical activity
Optimization of body weight
Need for lifelong treatment
Potential complications of poor control
Need for periodic monitoring and adjustment of dose
The fact that good control can prevent complications
Knowledge about precipitating factors, symptoms, prevention and management of hypoglycemia
How to manage a sick day
How to take care of feet to avoid ulceration
What medications to avoid (Steroids /NSAIDS/inappropriate antibiotics)
Lacunae in care

Clinical evaluation:
   No one has periodic eye evaluations
   Feet at risk of ulceration are not identified
   Knowledge about foot care: non-existent

Lab evaluation:
   HbA1C: unheard of
   Serum creatinine: seldom checked
   Lipid parameters: checked only if they have cardiac problems
Consequences:

Severe peripheral neuropathy: quite common
  Often the predisposing factor for foot ulcers
Retinopathy: rare but cataracts are common
In diabetics > 15 years duration, renal impairment is common
  Usually dry renal failure (? Interstitial ? Drug induced)
  Nephrotic syndrome: uncommon
Peripheral arterial disease: Occasional
Acute MI: 2-3 patients/month in emergency
A lot of elderly diabetics have associated co-morbidities
Obesity
Uncontrolled hypertension and cardiac failure
Recurrent urinary infections
Monilial balanoposthitis, vulvovaginitis
Recurrent skin & soft tissue infections
Pulmonary and extra-pulmonary Tb
Periarthritis of the shoulder, trigger finger
Osteoarthritis of the knees
Osteoporosis
Bronchial asthma/ allergic rhinitis/LRI
Existing state of affairs:
Patients want quick relief!
For treatment of painful disorders:
- over the counter/private practitioners/nursing homes
  - Diclofenac/aceclofenac/piroxicam
- Oral/Parenteral used freely

For treatment of asthma/skin/joint problems:
- Oral/parenteral steroids, over the counter/by practitioners

For febrile illness:
- no diagnosis/antibiotic mixtures/steroids/NSAIDS

Most of the dry renal failure we see: probably drug induced
Poor glycemic control often due to long-term oral steroid use
Sometimes stop steroids & come with hypocortisolemic crisis
Inappropriate antibiotic use: rampant
What are the strengths of the system?
Most of the diabetics know that they have diabetes
They can get free medications from PHCs & District hospitals
Imaging facilities available at low cost in Govt Institutions
System not in place for
  Periodic monitoring
  Visual assessment
  Identification of at risk feet
  Identification & management of risk factors for macrovascular disease
  Appropriate management of intercurrent problems
We decided we will make a beginning:

- start diabetes camps try to address lacunae
- AC/PC checked on usual medication
- Offer dietary advice and diet sheets free of cost
- Adjustment of medication to get better control
- Assess vision and fundus
- Identify at risk feet and teach foot care
- Offer a field monitoring service in the community
- Identify & properly manage intercurrent illness
- Avoidance of potentially harmful medications

20 patients/camp 2 weeks in a month

Total number at camps so far: 2500
What really happened?

A number of patients attended the camps
Those with cataracts: modify treatment, get good control & have surgery
Foot care practices improved
Some subjects opt for home monitoring
For intercurrent problems, they started coming to hospital
avoid potentially harmful medication

They listen to dietary advice but this is rarely practised
Glycemic control: mostly poor because of non-compliance
Started education programs through MPAs & FCVs
Patients who had benefited from good control talked to other diabetics
We called the panchayat presidents & village elders and spoke to them
This had a beneficial effect
We offered a program for a whole year for any willing diabetic
Patients pay 1/3\textsuperscript{rd}, a donor pays 1/3\textsuperscript{rd} & the trust pays 1/3\textsuperscript{rd}

What is offered?

Comprehensive clinical evaluation, funduscopy & foot examination
Peripheral vascular status & monofilament testing once in 6 months
Hemogram, Urine Protein/creatinine ratio, HbA1C, serum creatinine, lipid profile & ECG.

Dietary counselling & diet sheet
All physiotherapy needed would be given as part of the package
Foot care advice for all, special focus on those with at risk feet
Home monitoring by designated filed staff at defined intervals.
Reports reviewed by doctors
Those requiring minor dose adjustments would be informed.
Those who need major changes will come back to hospital.
Free meds can be availed from the PHCs or GHQ hospital. Any additional medication: they need to buy.

Review of home monitoring results once a month. Review at camp every 6 months with necessary tests.

The medications available in Govt sector are Glibenclamide, Gliclazide, Metformin, Enalapril, Atorvastatin, Ecosprin. Medicines would be supplied for 1 month at a time.
We now have about 300 diabetics who have enrolled in this program.
System in place for covering the lacunae in knowledge & awareness.
Patients can avail free medicines available from the Govt set up.
For intercurrent problems: we offer secondary level services.
Conservative treatment of cardiac failure.
Conservative treatment of mild CRF.
For problems which we cannot handle:
   provide ambulance service to a better centre
Those who need cataract surgery:
   tie up with a centre in Chennai for free service
Those requiring laser therapy:
   referral to Schell/Karigiri Hospital
Acute coronary event: Chest pain clinic at CMCH
Those requiring elective angiography angioplasty:
   cardiac camp (Hindu Mission Hospital)
Those requiring dialysis/renal replacement:
   referred to bigger centres
Patients find that they are not falling sick as often as they used to
Our approach to prevention of diabetes & complications
1. Education of mothers and school children on balanced diet, physical activity & optimizing body weight
2. Identification of overweight subjects with IFG, IGT and offer education to avoid or postpone onset of diabetes
3. Educate whole families with diabetics so that life-style practices are easy to manage
4. Secondary prevention of complications in diabetes
   a. Optimizing glycemic control
   b. identifying and treating hypertension & dylipidemia to prevent macrovascular disease
   c. identify and treat retinopathy to prevent blindness
   d. identify feet at risk of ulceration and educate to prevent loss of limbs
An integrated nodal delivery point for TCT activities
A novel community-based organization (CBO): ‘Annam’ in each village
Composition: about 15 members
- TCT trained Volunteers
- Health Committee Members
- Disability Self Help Group and Federation Members
- interested beneficiaries of TCT programs
- panchayat representatives
- local Government functionaries
- informal opinion leaders
New Family Care Women volunteers selected by the community coordinate the activities of the Annam
We serve a population of 1,60,000 in 35000 families in 315 villages
Those above age 40 are 40% : 64000
Of these about 20% are diabetics : 12800
2500 have attended our camps : 18% of all diabetics
300 subjects in our 1 year program (2.3 % of all the diabetics)
The most important thing : acceptance by the community
There is a lot more to be done
Our target: Good diabetes service Achieve 80% cover in the community
Educate FCVs/MPAs
  in primary prevention & secondary prevention
  reinforce patient and family education programs
  identify patients who need immediate attention
  get sick patients to hospital for care
  convey home-monitoring results to doctors by SMS/mobile phones
  get doctor’s opinions & convey to patients
All our patients have a unique hospital number linked to their mobile number
(If they forget the hospital number, we can still access their record)
All clinical details & lab results for each patient available on the hospital server
All home monitoring results are entered in the electronic record
These can be accessed by doctors on their desktop
For achieving very good diabetes control, the patient needs to know at least as much as the doctor!

Doctors caring for diabetics need to constantly learn from their patients! Beliefs, attitudes and impressions of patients determine how they accept care for chronic illness!

We need to strengthen systems for care for NCDs at the community level. For each defined geographic area, we need a group of committed doctors, nurses, paramedical personnel & social scientists.

We can use electronic medical records & mobile devices for accessing information. Government agencies and NGOs should undertake funding and efficient management of the system.

While patients will be willing to spend for their illness, we need to ensure that such spending does not impoverish families.
Thank you !