Non Communicable Diseases Control and Prevention Programme (NCDCP) in Kerala

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Causes of Death - Kerala

Principal causes of death – Kerala rural 2003 - 2005

Heart attack
Stroke
Cancer
Old age
Breathlessness
Suicide
Diabetes & Complication
Infection
Asthma
Accidents
Other heart disease
Kidney disease
Liver disease

Percent

CR Soman () Primary Health Care in Kerala - 1956-2006
## Socioeconomic classes and mortality rate for selected causes

<table>
<thead>
<tr>
<th>SES class</th>
<th>Heart attack</th>
<th>Stroke</th>
<th>Cancer</th>
<th>Suicide</th>
<th>Accidents</th>
<th>Infection</th>
<th>All cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>116.6</td>
<td>57.6</td>
<td>50.7</td>
<td>43.9</td>
<td>21.9</td>
<td>30.2</td>
<td>521.3</td>
</tr>
<tr>
<td>2</td>
<td>123.4</td>
<td>51.2</td>
<td>48.3</td>
<td>33.1</td>
<td>26.8</td>
<td>25.6</td>
<td>511.6</td>
</tr>
<tr>
<td>3</td>
<td>123.5</td>
<td>51.4</td>
<td>44.3</td>
<td>27.5</td>
<td>22.7</td>
<td>23.5</td>
<td>486.2</td>
</tr>
<tr>
<td>4</td>
<td>111.2</td>
<td>38.4</td>
<td>56.2</td>
<td>30.2</td>
<td>17.8</td>
<td>17.8</td>
<td>480.7</td>
</tr>
</tbody>
</table>

*Population registry for lifestyle diseases – ongoing studies*
## Treatment expenditure in relation to SES - Kerala

<table>
<thead>
<tr>
<th>SES group</th>
<th>Morbidity rate</th>
<th>Cost of treatment/episode</th>
<th>Percapita expenditure</th>
<th>Proportion of family income</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>85.1</td>
<td>701.9</td>
<td>1552.9</td>
<td>31.7</td>
</tr>
<tr>
<td>2</td>
<td>82.1</td>
<td>613.5</td>
<td>1309.7</td>
<td>18.1</td>
</tr>
<tr>
<td>3</td>
<td>78.4</td>
<td>886.9</td>
<td>1801.0</td>
<td>13</td>
</tr>
<tr>
<td>4</td>
<td>73.9</td>
<td>1686.1</td>
<td>3238.0</td>
<td>10.4</td>
</tr>
<tr>
<td>State</td>
<td>79.2</td>
<td>830.7</td>
<td>1722</td>
<td>13.9</td>
</tr>
</tbody>
</table>

* KSSP publication – Kerala study 2005-06
CVD: Impact on Households (Kerala, India)

- Catastrophic health expenditures (72.9%)
- Distress financing common (50%)
- 40% of CVD patients lost sources of income
- 82% did not have health insurance
- 13% could not continue medication due to cost factors
  - (source: Harikrishan, 2010)
**From PIP 2010-11**

**Trivandrum**

- 30,666 subjects for prevalence of risk factors
  - Smoking male - 25.5%
  - Alcohol use male – 24.37%
- Disease prevalence
  - Diabetes – 10.8%
  - Hypertension (reported) 15.4%

Conducting research – economic burden of CVD (Rs 15,00,000)
Modify Life style Changes – Health KIOSKs (Rs 78,61,000)
## Disease Profile of NCD – Kollam district

<table>
<thead>
<tr>
<th>Sl No</th>
<th>Disease Profile</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hyper tension</td>
<td>18286</td>
</tr>
<tr>
<td>2</td>
<td>Ischemic Heart Disease</td>
<td>8549</td>
</tr>
<tr>
<td>3</td>
<td>Cerebro Vascular Accident</td>
<td>1446</td>
</tr>
<tr>
<td>4</td>
<td>Accidental Injuries</td>
<td>5785</td>
</tr>
<tr>
<td></td>
<td>Other Neuro disorders</td>
<td>1592</td>
</tr>
<tr>
<td>5</td>
<td>Diabetes Type I</td>
<td>20061</td>
</tr>
<tr>
<td>6</td>
<td>Diabetes Type II</td>
<td>13306</td>
</tr>
<tr>
<td>7</td>
<td>Bronchitis</td>
<td>42635</td>
</tr>
<tr>
<td>8</td>
<td>Asthma</td>
<td>53895</td>
</tr>
<tr>
<td>9</td>
<td>Common Mental Disorders</td>
<td>203</td>
</tr>
<tr>
<td>10</td>
<td>Cancer</td>
<td>187</td>
</tr>
<tr>
<td>11</td>
<td>Snake bite</td>
<td>93</td>
</tr>
<tr>
<td>12</td>
<td>Others</td>
<td>83019</td>
</tr>
</tbody>
</table>
## Setting objectives, choice of strategies:

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Reduced hospitalisation/incidence of myocardial infarction, stroke and diabetic emergencies.</td>
<td>2. Primary care management/secondary prevention: maintain adequate control in hypertension &amp; diabetes and reduce eliminate complications &amp; OOPs at this stage.</td>
</tr>
<tr>
<td>3. Reduced out of pocket expenditure - on account of HT, diabetes or its complications.</td>
<td>3. Behaviour modification to ensure primary prevention of diabetes and hypertension.</td>
</tr>
<tr>
<td></td>
<td>4. Early detection, social protection and adequate management of common complications of these diseases</td>
</tr>
</tbody>
</table>
## Choice of indicators

### Outcome Indicators
1. Death rate due to cardiovascular disease, diabetes or stroke in the 30 to 60 and in the > 60 age group decreases - HMIS & CRS
2. Admissions for stroke and MI decrease - HMIS
3. Average OOP per OPD case on control - & % of IP cases who received cash less** care.

### Output Indicators
1. % of registered HTs and diabetics at least 70%* of what is expected.**
2. % of registered HTs and diabetics who were out of control - in last visit - anytime in last one year.
3. % of those in high risk group who adopted 5** positive health practices. (or risk reduction)
4. % of those who developed complications who were admitted within one hour in a center where they could get cashless service.
Strategy -1: Early detection of diabetes and hypertension in people > 30 years:

Activities:

I. Opportunity screening- in all those > 30 who attend a government health facility.- provides a card with date of screening, findings on all risk factors. (the main purpose of the card is to prevent duplication and double counting- also for risk factor identification.)

II. Screening Camps/Days in work-place: with issue of cards.

III. Screening in the community- with help of ASHA and SHGs for mobilisation and ANMs for taking blood pressure – with confirmation in the PHC by a doctor. (the level- 1 package) Held as screening camps/days

IV. Training of “those” who would be doing annual screening- with taking BP and measuring urine/blood sugar.

Process Indicator:

1. % of population at risk who were issued screened cards.
2. Number of camps held as percentage of number of camps needed – (sum of work-places and habitations)
3. Number of trained persons deployed for screening.
Strategy – 2: Primary Care / Secondary prevention: Reduce complications & OOPs at this stage: The CARE MANAGEMENT package

**Activity:**

- All those detected with HT and/or diabetes issued a card and arrangement for monthly check-up and drug dispensation at nearest level 2 care facility. Could be at work place clinic or at PHC or CHC or where patients opt for it— a private clinic.
- One annual check up by specialist mandatory. At the polyclinic? (or the NCD clinic). Annual check up on other lab tests as needed. (eye, renal, heart, blood lipids). More often if considered necessary
- De-faulting patients mobilized by ASHA.
- Self care at home supported by ASHA- urine checks, weight check

**Process Indicators:**

% of HT or diabetic persons who are attending the Care Clinic regularly.
% of defaulting/complying patients in an organisational unit—in an ASHA territory, sector or block.

Activity:

- Advocacy: for introduction and use of policy instruments and for workforce changes:
- Health communication for behaviour change and life-style modification: inter-personal by ASHAs
- Local Community level BCC.
- Health communication/BCC at the mass media level- building an enabling environment for change.
- The Five Modifications for Risk Factors reduction: Cessation of Smoking; Reduction of Obesity including diet; Exercise; Stress Reduction, Medical Insurance/RSBY cover;

Process Indicators:

- % of habitations where a local community level BCC was held.
- % of high risk members who were met and counselled on Five Modifications;
- % of risk reductions achieved. % with RSBY/insurance cover.

Activity:
Identification and admissions for acute myocardial infarction, or stroke or diabetic ketoacidosis within one hour of onset of symptoms.
Referral consultation and onset of treatment for complications- angina, TIA, hyperglycemia or recurrent hypoglycemia, visual problems. within one month of onset of the problem and their.
Medical management of acute MI, stroke, diabetic coma-( perhaps one could include surgical management also – or make that a level –IV package.)
Follow up care to prevent recurrent and to ensure rehabilitation in those with any of the above complications.
All admissions covered by an insurance package – whether in public or private, or it is free of cost at the public hospital.

Process Indicators:
Defining the Three Packages of Care:

**Level - 1**
- **Community Package: Screening & Follow up:**
  - *Trained worker*: BP, Blood sugar, BMI estimation (could have part of what is currently stated as level 2-follow up care) Also self care- urine checks, weight check etc.

**Level - 2**
- **Care Management Package: NCD Clinic/ Polyclinic:**
  - *Doctor and Nurse*: Ambulatory care with provision for day care admission: investigations for complications, lipid profile: follow up on routine visits with a check list for early detection of complications and follow up for those with complications.

**Level - 3**
- **Case Management Package; The Hospital**
  - *Specialist with support*: in patient care- the management of complications- medical only or medical and surgical.
Building in Standards of Care

Level-1

- screening at time of convenience; Patient safety, accuracy of measurements- calibration checks, waste disposal.

Level -2

- Waiting time less than half hour, without loss of days wage for the check up- except once a year, patient education information given in written form, no OOPs on fees or drugs or diagnostics for one visit per month, waste disposal

Level -3

- Admission within one hour of onset of symptoms. Diet, clean linen, sanitation, waste disposal, security. No Oops on fees, drugs or diagnostics, or bed charges for all.
- For BPL loss of wages would be covered.
Costing the three packages of care:

- Each level has
  - an HR cost: needs to be paid additionally if it is a PPP, or else the salary covers it.
  - a facility overheads cost- equipment, infrastructure, supervision
  - an operational cost: per patient seen.

- The Fund is kept at the district level- as a pooled amount and expended *against* each facility- not necessarily *at* each facility- especially the facility overheads.

- For case management- RSBY would contribute- has already fixed rates.
More on level – 1 – the Detection camps in Sub centres, PHCs, work places, communities

- Detection camp
  - Camps - blood pressure, blood/ urine sugar, BMI estimations.
  - Risk identification and counselling
  - Issue of screening card:
    - These would be done by a trained person- JPHN, nurse, or if we want to train up ASHA this could also be done.
    - Follow up: doctor initiated / prescribed drugs could be dispensed from the camps
  - S/C JHI & JPHN- responsible for organization of camps, record keeping & other matters related with patients.

Are this needed?
  - Medical officer, HI and LHI will be responsible for the detection camps.
  - At least one Medical Officer should attend the camp
  - A Case book will be maintained for each diagnosed case
The following persons identified by the field staff as per the screening list need to be prioritised for the camp.

- **Screening check list**
  - Symptoms suggestive of DM or HT
  - Family history of Diabetes or HT
  - Past history of Diagnosis or treatment for DM/HT
  - Past history of Gestational DM/HT in pregnancy
  - History of delivering a baby with birth weight > 4 kg
  - *Any one with Yes answer for any one of the above - should be made to attend detection camp*  
  - But all others are encouraged - we aim to ensure that above 30 everyone has one annual check up.
Drugs available at level 2 care facility.

<table>
<thead>
<tr>
<th>Anti HT</th>
<th>Anti Diabetic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Losartan 50</td>
<td>Metformin 500</td>
</tr>
<tr>
<td>Amlodipine 5</td>
<td>Glibenclamide 5</td>
</tr>
<tr>
<td>Hydrochlorothiazide 25</td>
<td>Glimipiride</td>
</tr>
<tr>
<td></td>
<td>Insulin</td>
</tr>
</tbody>
</table>
The level 2 facility would have the following tests.

This facility will have the following services:

- BMI calculation, Blood sugar estimation, Blood Pressure checking, Waist Hip ratio, Dietary & Lifestyle counseling: Plus on annual basis:
  - Lipid Profile, glycemic control
  - Urine for albumin.
  - ECG, ultrasound?
  - Fundus for retinopathy:

( equivalent to the polyclinic- and the NCD clinic to be raised to this level)
Fixed Day Weekly NCD Clinic- how does it relate to polyclinic- are both needed- will latter replace former?

- NCD clinic shall be organized in all health institutions (all types of hospitals, CHCs, PHCs and sub centres) once a week on a fixed day.
- This clinic shall be on Thursday in CHCs and PHCs and on Friday in all hospitals.
- Responsibility for the clinics will be with
  - MO, HI and LHI, in PHCs
  - MO, HS and LHS in CHCs and
- Superintendent and PP unit in the higher institutions.
Role of ASHAs

- Initial mobilization to screening camps - big question - if we are committed to screening all at least once a year - should not ASHA have BP skills, at least with digital BP apparatus.
- Motivate for compliance to treatment
- Motivate for regular follow ups
- Initiate and support Lifestyle modification activities - with focus on achievement of the five modifications.
- Organising with VHSCs one BCC event every six months.
Trainings

- Training for programme management – how to achieve outcomes.
- Training on care management- doctors and nurses
- Training for screeners- i.e level 1 care
- Training for ASHA & ANMs
- (Assume that training for case management is not needed or done by professional bodies).
IEC / BCC activities - At district and sub-district level

- Printing and distribution of posters, pamphlets
- Exhibitions along with Counseling and dietary sessions in colleges & offices
- Exhibitions during local festivals (Materials will be developed at state level)
- Monthly ‘life style day activities’ - in the field by JHIs with ASHAs – small meetings for health education in local institutions / community gatherings
- Sensitizing LSG officials & Local Opinion makers
Advocacy for Policy Instruments to promote life style changes:

- Strict and literal implementation of anti-tobacco rules.
- Work-place interventions: exercise spaces, walking to work, stress reduction techniques; better snacking options
- In community: promotion of better diet-cautions on fast foods; Childrens festivals for juvenile diabetics, patient–peer support groups
- Other systems of medicine: yoga exercises, naturopathy diets etc.
Monitoring and Supervision

- Based on Indicators: and activity targets for each of four levels- community level through ASHA, level 1 through trained worker/MO. Level 2 through the MOIC, and level 3 through Hospital superintendent.
- The State & district officers will supervise and monitor the implementation
- Review at PHC, Block, District level meetings
Reporting arrangements.

- Screening Camp register and reporting form
- Screening card/ NCD care card or booklet
- NCD Register in level 2 facility
- NCD register in level 3 facility.
- Name based tracking system built into local existing HMIS applications where district level customisation and use is possible.
Guidelines

- Specific and clear guidelines for the implementation of program
  - **State level:** Deputy DHS & State Planning Officer (NRHM)
  - **District level:** Deputy DMO & DPM
  - **CHC level:** Charge Medical Officer
  - **PHC level:** Medical Officer
  - **Urban areas:** MO in charge PP units
Why not include Anemia into this package?

- Testing for anemia at level 1
- Management of anemia at level 2 with follow-up at level 1
- Non-iron deficiency anemia and severe (<5 gmsHb%) at level 3
Why not include Epilepsy

- Screening for identification of Epilepsy – level 1
- Consultation for occasional seizures and routine drug dispensation – level 2
- Initial investigation to rule out symptomatic epilepsy – eg tumors, tuberculoma etc. and appropriate choice of anti-epileptic, also decision to stop drugs on cure and management of uncontrolled recurrent seizure – level 3

The cost effectiveness of the whole package would improve dramatically.
Thank You