## **Original Article**

## Evaluation of National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular disease and Stroke (NPCDCS) in Gandhinagar district, Gujarat

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#### Abstract:

**Introduction:** Program Monitoring and Evaluation (M & E) are important components of any program and are critical to sound strategic planning. NCDs are the leading causes of Morbidity and mortality. This research was aimed as evaluation of NPCDCS in Gandhinagar district. **Method:** Data were collected in form of reports and records from all centers (NCD cell, NCD cell clinic, CHC clinics) under NPCDCS in Gandhinagar district. Secondary data analysis was conducted for the financial year of 2015-2016. **Results:** At district level NCD cell, all the sanctioned post were filled. However, overall in the district 60.7% posts were vacant. Infrastructure at all levels of NPCDCS were adequately present. In financial year of 2015-16, total of 257 screening camps were organized. Total of 90399 people were screened during the camps and in OPD. Prevalence of diabetes and hypertension in Gandhinagar district in year 2015-16 were 9.9% and 9.1% respectively as per NPCDCS programme. Compliance among hypertensive patients was 72% and among diabetic was 70%. **Conclusion:** Human resources are adequately available at district level, but they are grossly lacking at sub-district level, which is the reason for poor outreach activities and OPD activities at sub-district level. NPCDCS program must ensure that benefit to the diagnosed patients should be available close to their home and also to ensure minimum drop out of put on treatment.

Key Words : Evaluation, NCD, NPCDCS

## Introduction:

Non-Communicable Diseases (NCDs) are the leading causes of morbidity and mortality being responsible for 63% deaths globally.<sup>[1]</sup> As per the World Health Organization (WHO) report, NCDs are surpassing communicable diseases as the most common causes of morbidity and premature mortality in India, both in urban and rural population, with considerable loss in potentiality productive years (age 35-64) of life.<sup>[2]</sup> The prevention of chronic disease in populations is a complex challenge that requires efforts from multiple stakeholders to reduce the biological & behaviour risk factors for NCDs.<sup>[3]</sup> Keeping in view, The Ministry of Health and Family Welfare (MOHFW), Government of India, launched the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular diseases and Stroke (NPCDCS) in 2010-11 with the objectives to prevent and control common NCDs through behaviour and lifestyle changes, and to provide early diagnosis and management of common NCDs.<sup>[4]</sup> However, little information is available about effectiveness of NPCDCS program at different levels. More valuable overarching program information can be obtained by evaluating the implementation of each program what activities occur, under which conditions, by whom, and with what level of effort.<sup>[5,6]</sup> This information can assist with future efforts, having better articulated the condition that needs to be created to achieve successful outcomes from the program implementation.<sup>[5]</sup> Success of any programme depends upon the monitoring and evaluation of that programme at various levels. At higher levels of health system (National, State) information on outcome and impact of programme is most important, while at lower levels (District, Block) the input, process and outcome indicators along with the data elements are required.<sup>[4]</sup> As effective implementation of all NCD prevention activities at the district level and below is the key to success for any programme.<sup>[7]</sup> The objective of this research was to evaluate the NPCDCS programme at district level.

## Method:

Study area: Gandhinagar district, Gujarat state, India

**Study design:** Analysis of secondary data generated by NPCDCS, Gandhinagar district.

Study period: April 2015 to March 2016

**Study population:** All the people enrolled under NPCDCS programme during financial year 2015-16 under the NPCDCS in Gandhinagar district.

**Sources of data:** Records, reports and registers from the in charge officer and staff of the NPCDCS centres.

**Data collection:** After getting administrative permission from programme in-charge of Gandhinagar district and ethical approval from institutional ethical committee, data collection were done. Organizational structure, Infrastructure (including human resources) of National programme for Prevention and Control of Cancer, Diabetes, Cardiovascular disease and Stroke from all four NPCDCS centers of the Gandhinagar district had been collected. De-identified data of all patients enrolled under the NPCDCS program during the financial year 2015-16 of all the NPCDCS centers of Gandhinagar

	Post	Sectioned	Filled N (%)
District NCD Cell	Program Officer	1	1 (100)
	Programme Coordinator	1	1(100)
	Finance Cum Logistic Consultant	1	1(100)
	Data Entry Operator	1	1(100)
	Total	4	4 (100)
	Medical Officer	1	0 (0.0)
	Nurse	2	0 (0.0)
District NCD Cell Clinic	Laboratory Technician	1	0 (0.0)
	Physiotherapist	1	0 (0.0)
	Counsellor	1	1 (100)
	Data Entry Operator	1	1(100)
	Total	7	2 (28.57)
Cancer Care Unit (CCU)	Medical Officer	1	1 (100)
	Nurse	4	0 (0.0)
CHC NCD Clinic	Medical Officer	8	4 (50)
	Nurse	8	3 (37.5)
	Laboratory Technician	8	0 (0.0)
	Counsellor	8	3 (37.5)
	Data Entry Operator	8	5 (62.5)
	Total	45	16 (35.55)
	Total	56	22 (39.29)

 Table 1: Human resources under NPCDCS program in Gandhinagar district (2015-16)

Activities	Male	Female	Total
Total screening during camps	27417	29106	56523
Total positive for diabetes among screened	1186 (4.32%)	1116 (3.8%)	2302 (4.07%)
Total positive for hypertension among screened	961 (3.51%)	924 (3.17%)	1885 (3.33%)

 Table 2: Outreach activities done under NPSDCS, Gandhinagar (2015-16)

Table 3: Proportion of Diabetes and Hypertension as per NPCDCS (2015-16)

	Male	Female	Total
Diabetes	4827 (11.72%)	4144 (8.42%)	8971(9.9%)
Currently on treatment	3452 (71.51%)	2833 (68.36%)	6285 (70.05%)
Hypertension	4363 (10.60%)	3911 (7.94%)	8274 (9.1%)
Currently on treatment	3124 (71.60%)	2847 (72.79%)	5971 (72.16%)
Cardiovascular disease treated at CCU	608	272	880
Total examined (in camps, OPD)	41165	49234	90390

## Figure 1: Trend of Diabetes during year 2015-16



Figure 2: Trend of Hypertension during year 2015-16



were also collected. All collected data were entered in to Microsoft Excel 2013. Double Data Entry and Data cleaning was done before analysis for quality control.

**Statistical methods:** Data were analyzed using Microsoft Excel & the Epi Info software. Percentages were calculated to find prevalence of diabetes and

hypertension. Line charts were prepared to show time trend for the diabetes and hypertension in the program.

## **Results:**

Table no 1 shows comparison of sanction post against filled post at the all levels under NPCDCS program in Gandhinagar district. Out of 56 post, 22 posts were filled and 34 posts were vacant (60.71%). At district level NCD cell, all the sectioned post were filled. At District NCD Cell clinic, post of Medical Officer (MO), Nurse, Laboratory Technician (LT) and Physiotherapist were vacant. At cancer care unit, post of all 4 nurses are vacant. At sub-district (CHC) level, half of the MO (4 out of 8) and all LT (8 out of 8) posts were vacant. So at administrate level (NCD cell), all posts are filled while at the program implementation level (NCD cell clinic, CHC NCD clinics), there was deficiency of staff where the actual need of the manpower.

# Structure and Infrastructure under NPCDCS at Gandhinagar (2015-16):

There was one NCD cell for the management of all the NCD centers of Gandhinagar district. Out Patient Department (OPD) was well functioned in the main OPD department of the Civil hospital Gandhinagar. Also, adequate numbers of the beds are available for the indoor patients at tertiary care level (district) in the civil hospital, Gandhinagar and at all Community Health Centre (CHC). Cardiac care unit (CCU) with 6-8 beds and equipped with ventilator and other necessary CCU equipment was available. Laboratory diagnostic facilities for the routine test such as lipid profile, complete blood count (CBC), random blood sugar (RBS) etc. were available. Facilities for special procedures like ECG, ECHO, CT-scan were available. Standard list of equipment, medicine, diagnostic kits and other consumables as per Indian Public Health Standards (2012) were available.<sup>[8]</sup>.

## Activities done under NPCDCS at Gandhinagar (2015-16)

#### Organization of screening camps:-

A total of 257 camps were organized during the financial year of 2015-16 under NPCDCS in Gandhinagar district. Diabetes and hypertension are two major diseases which were screened. Total 56523 patients were screen in all camps out of which 4.07% were positive for diabetes and 3.33% were positive for hypertension. All screening positive patients either for diabetes and/or hypertension were referred to NCD cell clinic/CHC clinic for the confirmation of the diagnosis. Details of camps were given in table 2.

(Table 3) In present study, prevalence of diabetes was 9.9% and hypertension were 9.9% and 9.1% respectively. Prevalence in male was more in both Diabetes and Hypertension as compared to females. Trends of diabetes and Hypertension in year 2015-16 were given in figures 1 and 2.

#### **Treatment Adherence:**

Around 28% of diagnosed hypertensive and 30% of diagnosed diabetic patients were not on treatment in present study. Treatment adherence between new cases and old cases of diabetes is not statistically significant in either male or females while it is statistically significant in case of hypertension (Table-4).

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## Table 4: Treatment adherence under NPCDCS atGandhinagar (2015-16)

	On	Without	p-value	
	treatment	treatment		
Total diagnosed diabetes				
New cases	885	373	0.83	
Old cases	5400	2313	0.05	
Male diagnose	ed diabetes			
New cases	490	181	0.37	
Old cases	2962	1194	0.37	
Female diagnosed diabetes				
New cases	395	192	0.58	
Old cases	2438	1119	0.50	
Total diagnosed diabetic				
Male	3452	1375	0.001*	
Female	2833	1311	0.001	
Total diagnosed hypertension				
New cases	1074	291	<0.001*	
Old cases	4897	2012		
Male diagnosed hypertension				
New cases	543	160	0.0003*	
Old cases	2581	1079		
Female diagnosed hypertension				
New cases	531	131	<0.001*	
Old cases	2316	933		

(\*statistically significant)

#### **Discussion**:

The objective of this research was to evaluate the NPCDCS programme at district level. There are many strategies to find out the prevalence of diabetes mellitus, hypertension and cardiovascular diseases (NCDs) in a population. These include surveys, national and central registries, school and hospital record based data in various age groups. This study has used NCD cell data records based data for assessing the prevalence of hypertension, diabetes, cardiovascular diseases in a population. A study done in Karnataka by Rao CR et al <sup>[9]</sup> found in his study that Compliance to hypertension treatment was found to be 82.2%, while 83.6% of individuals with type 2 diabetes mellitus were on regular medication. While Lasker A et al <sup>[10]</sup> from Delhi showed that the compliance in hypertension was very much lower 47.8% than the present study. In his study compliance

for hypertension in males and females were 45.8% and 48.8% respectively. Adherence for diabetic medication was 91.5% which is higher than the present study. This may be due to sampling variability. One of the reasons for the noncompliance for the chronic diseases may be lack of awareness about importance of anti-diabetic treatment and anti-hypertensive treatment. In early stage of diabetes and hypertension, patient is relatively asymptomatic so patients are reluctant to take daily medicine or the patients may have gone to private hospitals. Although Noncommunicable diseases are controlled with lifestyle modifications but still there is need of monitoring of treatment adherence in case of non-communicable diseases like diabetes and hypertension as patient has to take treatment lifelong. Policy makers should give emphasis in developing a surveillance system in NCD monitoring as developed in TB (DOTS and 99 DOTS). In this Information technology era, it can be possible digital monitoring of the treatment adherence in any public health important diseases.

## Limitation of Study:

This study collected data from NPCDCS program that is running the program either through OPD of CHC/district hospital or through camps in outreach areas. The data is not representative of actual population parameters as most of the data is only from Government set up and hospital based. So, the findings of the study (including prevalence) are not generalizable to the population level. However, longitudinal data of such time may give trend of disease burden in population, which may be useful for the policy makers.

## **Conclusion:**

The infrastructure and supplies of medicine were adequate at both district and sub district level under the NPCDCS program. Many hidden cases were detected due to NPCDCS program in early stages due to OPD and Camps organized regularly throughout the districts. This will lead to reduce burden on health system in long run, as complications can be substantially reduced by early detection and regular

treatment of this cases. Human resources are adequately available at district level, but they are grossly lacking at sub-district level, which is the reason for poor outreach activities and OPD activities at sub-district level. It is necessary to fill all required posts of NPCDCS as per the norms to ensure better implementation of the program. This study found that many around 28% of diagnosed hypertensive and 30% of diagnosed diabetic patients were not put on treatment. This may be due to lack of awareness or due to lack of facility close to home. NPCDCS program must ensure that benefit to the diagnosed patients should be available close to their home and also to ensure minimum drop out of put on treatment. There is also need to design strong monitoring and evaluation tool like TB and AIDS control program under NPCDCS to check the adherence to the drugs as chronic diseases like diabetes and hypertension requires lifelong treatment. Also, present program is not able to detect cancer cases as desired. The program need to add focus on early detection of oral cancer among males and breast and cervix cancer among females through awareness campaigns and diagnostic camps along with diabetes and hypertension screening camps and also among OPD patients. There is huge scope of improvement in this component of NPCDCS program.

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#### Conflict of Interest: Nil

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