



EVALUATION OF NATIONAL PROGRAM FOR PREVENTION AND CONTROL OF CANCER, DIABETES, CARDIOVASCULAR DISEASE AND STROKE IN BHOPAL DISTRICT.

Dr. Ankit Chandak	Pg Resident, Department Of Community Medicine, Gandhi Medical College, Bhopal, MP, India.
Dr. Madhav Bansal	Associate Professor, Dept. of Community Medicine, Gandhi Medical College, Bhopal.
Dr. Suryananth K B*	Pg Resident, Department Of Community Medicine, Gandhi Medical College, Bhopal, MP, India. *Corresponding Author
Dr. Manju Toppo	Professor, Department Of Community Medicine, Gandhi Medical College, Bhopal, MP, India.
Dr. Devendra Gour	Professor and Head, Dept. of Community Medicine, Gandhi Medical College, Bhopal.

ABSTRACT

Introduction: The programme was integrated with National Health Mission in 2013-14, with the focus of enabling opportunistic screening for prevalent non communicable illnesses at the district and community level via NCD clinics. The Government of Madhya Pradesh has started population-based screening in 2017. During the training, ANMs and ASHAs will be trained to conduct screenings. **Objectives:** To assess the knowledge and practices of MO, CHO, ANM and ASHA, availability of logistics and training and also assess the status of population based and opportunistic screening. **Methodology:** A cross-sectional study was conducted in 31 health facilities of Bhopal by multi-stage random sampling for 12 months from January 2022 to December 2022. A predesigned, pretested questionnaire containing knowledge and practices on NPCDCS were administered to 67 Health functionaries (MO, CHO, ANM and ASHA) in 31 facilities. Assessment of Population based and opportunistic screening was done on the basis of physical and digital records (secondary data). Checklists were used to assess availability of program related logistics. 6 FGDs of beneficiaries were conducted. **Results:** 10(76.9 %) out of 13 MOs were trained. 38.5 % of MOs and 17.7% of ANMs were fully aware regarding treatment protocol for diabetes. The correlation between knowledge and practice is moderate in case of CHOs and poor in case of ANMs and ASHAs. By ANOVA test, Knowledge score and practice score of medical officers, CHO, ANM the p value is 0.000167 & 0.00037. In FGD, 53% of beneficiaries responded that ASHA visited their house for NCD survey. **Conclusion:** Monitoring and supervision in the program were very poor at all levels. There was lack of utilization of services in the program. Refreshment training should be provided.

KEYWORDS : NCD, CHO, Risk factor score, Diabetes

INTRODUCTION

The Ministry of health and family welfare launched National Program for prevention and control of cancer, diabetes, cardiovascular diseases and stroke [NPCDCS] in October 2010. Initially the programme was limited to 100 districts across 21 states and expanded to other districts. (National Programme for Prevention & Control of Cancer, Diabetes, Cardiovascular Diseases & Stroke [NPCDCS] :: National Health Mission, n.d.) The programme was integrated with National Health Mission in 2013-14, with the focus of enabling opportunistic screening for prevalent non communicable illnesses at the district and community level via NCD clinics. There has been increase in setting up NCD clinics in CHCs and district hospitals. Every year 15 million people die from a NCD between the age of 30 and 69 years, with developing countries bearing 85% of burden of NCD related premature deaths. (Noncommunicable Diseases, n.d.) Age-adjusted mortality from cardiovascular diseases (CVD) has increased by 31% in last 25 years. (Gupta & Xavier, 2018) The Government of Madhya Pradesh has started population-based screening in 2017 for diabetes, hypertension and three most common cancer i.e. oral, cervical and breast cancer. (Training Module for Medical Officers for Prevention, Control and Population Level Screening of NCDs_1.Pdf, n.d.) The staff may be trained to provide basic counselling services to persons with NCDs. (Operational Guidelines of NPCDCS (Revised - 2013-17)_1.Pdf, n.d.) NCDs, Common cancers in target population (age 30 years and above,) will be conducted either through opportunistic and/or camp approach at different levels of health facilities or domiciliary screening at community level including in urban slums of large cities using the community level workers. CHOs were recruited by

government at the level of sub centre. During the training, ANMs and ASHAs will be trained to conduct screenings so that NCD services may be offered at the sub- centre level, and suitable referral links will be defined to them. (Operational Guidelines For Comprehensive Primary Health Care through Health and Wellness Centers.Pdf, n.d.) Evaluation of program provides denominator as it identifies the target population of the programme. To understand how effective an NCD screening program has been in a community, periodic monitoring and ongoing evaluation is a very important part. (Training Manual for NCD Programme Managers at State and District Level_0.Pdf, n.d.)

Objectives

- 1) To assess the knowledge and practices of Medical Officers, CHO, ANM and ASHA involved in NPCDCS.
- 2) To assess the availability of logistics and training of staffs at different levels.
- 3) To assess the status of population based and opportunistic screening for early detection of diabetes, hypertension and common cancer.

Methodology

Study design, setting and duration

An observational cross-sectional study on evaluation of NPCDCS was conducted in selected health facilities of Bhopal by multi-stage random sampling for 12 months from January 2022 to December 2022.

Sample size

N=31 health facilities in which 67 health functionaries [13 Medical officers (in charge of NCD program), 18 CHOs, 18

ANMs and 18 ASHAs.]

1) District hospital -Since there is only one district hospital it was selected for the study.

2) 2 CHCs - Two of the three CHCs in the district were randomly selected.

3) 4 UPHCs - Four of the eight Urban PHCs were randomly selected.

4) 6 Rural PHCs - Three PHCs were randomly selected from each of the selected 2 CHCs.

5) 18 SHCs – 3 SHCs were selected randomly from each selected PHC.

Study plan

After taking permission from institutional ethics committee (IEC), having IEC letter no. we have started the study in selected 31 health facilities of Bhopal like DH, 2CHCs, 4 UPHCs, 6 rural PHCs and 18 SHCs by multi-stage random sampling. After obtaining the consent from the health functionaries and beneficiaries.

- A predesigned, pretested questionnaire containing knowledge on NPCDCS were administered to 67 Health functionaries (MO, CHO, ANM and ASHA) in selected facilities.
- Structured Observation guide to assess practices of MO, CHO, ANM and ASHA.
- Checklist to assess availability of program related logistics.
- FGDs of beneficiaries.

Level of knowledge and practices were assessed using scores. Structured Observation Guide was used to assess their practices like BP and blood glucose check-up. 10 filled CBAC forms were randomly selected from the records of each of the selected ASHAs and compared with the data in the NCD portal to identify discrepancies. Assessment of Population based and opportunistic screening was done on the basis of physical and digital records (secondary data) available at the selected health facilities (NCD portal, NCD registers, VIA register). Assessment of logistics like medicines, availability of basic equipment, IEC materials and investigations done at facility was assessed with the help of checklist. Three FGDs were conducted in each block with beneficiaries i.e., total of 6 FGDs.

Statistical Analysis

The filled questionnaires were checked for completeness and findings were coded for analysis. Data were entered using Microsoft Excel 2021 and analysed using Epi Info version 7.2.5.0.(Downloads | Support | Epi Info™ | CDC, 2023) Descriptive analyses were performed means and standard deviations were calculated for quantitative data, frequency and proportions were calculated for qualitative data. Inferential statistics like Pearson correlation and one-way ANOVA tests were performed between two continuous variables and three continuous variables to determine the correlation and difference between knowledge and practices of health care workers respectively. A p-value less than 0.05 was considered statistically significant.

RESULTS

Out of 13 medical officers 10(76.9 %) were trained, but only 2(15.4%) had received refresher training. It is seen that 3 out of 13 medical officers (23%) who are designated for the program were not trained. 18(100%) CHOs were trained. Out of selected 18ANMs and 18ASHAs 14(77.8%) were trained and 22.2 % were not trained. The mean age of medical officers and CHO were 39 ± 5.1 and 33 ± 2.2 respectively. Nearly half of the Medical Officers (53.8%) were fully aware of the treatment

protocol of hypertension and the other half is at least partially aware. More than two-third and more than one-third (38.9%) of the ANMs and (72.2%) of the CHOs had no knowledge about the treatment protocol of hypertension respectively. Only 38.5 % of MOs and 17.7% of ANMs were fully aware regarding treatment protocol for diabetes. OPD cards of patients revealed that 69% of the MOs and 46% of MOs and were complying with the treatment protocol of hypertension and diabetes respectively. More than two-third of the ASHAs did not advise on any of the risk factors of NCDs. The mean score of medical officers, CHO, ANM and ASHA regarding risk factors were 0.88 ± 1.5 , 0.76 ± 0.19 , 0.56 ± 0.23 and 0.35 ± 0.23 respectively. Knowledge on warning signals of cancer is poor in majority of the ANMs and ASHA. The mean score of medical officers on warning signals of cancer was 5.5 ± 1.5 . 61.5% of MO responded change in bowel habits and difficulty in swallowing as warning signals of cancer .77.8% of CHO, 61.1% of ANM and 55.6% of ASHA were aware regarding thickening or lump in breast as warning signal. 46% of medical officer responded that cancer rescreening should be done every five years. The correlation between knowledge and practice is moderate in case of CHOs and poor in case of ANMs and ASHAs. On applying ANOVA test between the knowledge score and practice score of medical officers, CHO, ANM the p value is 0.000167 & 0.00037 respectively, which is less than 0.05 which means that there is statistically significant difference in knowledge and practice score of health care workers. 12(66.6%) CHOs, 9(50%) of ANMs and 10(55.5%) CHOs and 7(38.8%) ANMs were having adequate skills regarding BP measurement and blood sugar measurement respectively. 17(94.4%) ASHAs were aware of the responsibility of filling CBAC forms. Logistics for testing urine albumin, urine glucose and blood sugar were available and conducted in all the selected facilities. Testing ketone bodies were not available in 60% PHCs and 73% SHCs. Stock of three months were greater than 80% and less than 50% in the district hospital and majority of PHCs. The IEC material was available at most of the facilities but was not displayed at 40% of PHCs. Opportunistic screening for hypertension was twice as compared to diabetes in CHC, PHC and subcentres. Percentage of cases screened for oral, cervical and breast cancer from the CBAC forms filled were 8.78%, 20.41% and 19.18% respectively. In FGD, 53% of beneficiaries responded that ASHA visited their house for NCD survey to fill CBAC form and family folder.

Table 1: Distribution of health functionaries according to the Training status, knowledge regarding treatment protocol and NCD risk factors.

S. no.	Characteristics	MO(n=13)	CHO(n=18)	ANM(n=18)	ASHA(n=18)
1.	Training status				
	Trained	10(76.9)	18(100)	14(77.8)	14(77.8)
	Not trained	3(23.1)	0(0.0)	4(22.2)	4(22.2)
	Received refresher training	2(15.4)	5(27.8)	0(0.0)	0(0.0)
2.	Awareness regarding treatment protocol for hypertension				
	Fully aware	6(46.2)	3(16.7)	0(0.0)	NA
	Partially aware	7(53.8)	8(44.4)	5(27.8)	NA
3.	Awareness regarding treatment protocol for diabetes				
	Fully aware	5(38.5)	0.0	0.0	NA
	Partially aware	8(61.5)	6(33.3)	3(16.7)	NA
4.	Knowledge regarding risk factors of NCD				
	Smoking	12(92.3)	16(88.9)	13(72.2)	8(44.4)
	Unhealthy diet	12(92.3)	16(88.9)	16(88.9)	7(38.9)
	Harmful use of alcohol	13(100.0)	15(83.3)	10(55.6)	6(33.3)
	Tobacco use	10(76.9)	14(77.8)	9(50.0)	5(27.8)
	Stress	11(84.6)	15(83.3)	7(38.9)	8(44.4)

	Physical inactivity	12(92.3)	13(72.2)	10(55.6)	9(50.0)
	High blood cholesterol	10(76.9)	5(27.8)	3(16.7)	1(5.6)
	High blood sugar	12(92.3)	15(83.3)	13(72.2)	8(44.4)
5.	Knowledge scoring for risk factors of NCD				
	Poor (0-3)	0	1(5.55)	5(27.7)	11(61.1)
	Good (4-6)	4 (30.7)	6(33.3)	8(44.4)	5(27.7)
	Excellent (7-9)	9(69.2)	11(61.1)	5(27.7)	2(11.1)
6.	Knowledge on warning signals for cancer				
	Change in bowel or bladder habits	8(61.5)	7(38.9)	2(11.1)	1(5.6)
	a wound that does not heal	5(38.5)	6(33.3)	2(11.1)	0.0
	Unusual bleeding or discharge	12(92.3)	16(88.9)	10(55.6)	8(44.4)
	Thickening or lump in the breast or elsewhere	13(100.0)	14(77.8)	11(61.1)	10(55.6)
	Difficulty in swallowing	8(61.5)	11(61.1)	4(22.2)	3(16.7)
	Obvious change in wart or mole	3(23.1)	3(16.7)	0(0.0)	0.0
	Leukoplakia/erythroplakia	13(100.0)	14(77.8)	9(50.0)	8(44.4)
	hoarseness of voice	10(76.9)	8(44.4)	6(33.3)	6(33.3)

*MO- Medical officer, CHO- Community Health officer

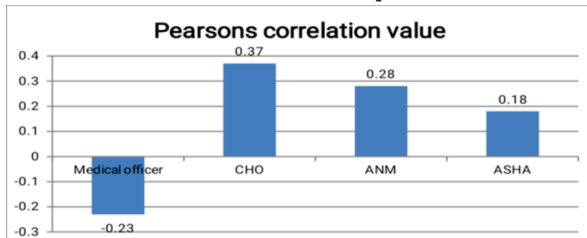


Fig 1: Correlation between knowledge and practices score of health care workers

Table 2: Distribution of health facilities according to the logistics and equipments for implementation of the program

S.no.	Characteristics	DH(n=1)	CHC(n=2)	PHC(n=10)	SC(n=18)
1.	Availability of logistics for investigations				
	Urine albumin /protein test	1(100.0)	2(100.0)	10(100.0)	18(100.0)
	Urine glucose	1(100.0)	2(100.0)	10(100.0)	18(100.0)
	Urine ketone bodies	1(100.0)	2(100.0)	4(40.0)	5(27.0)
	Blood sugar	1(100.0)	2(100.0)	10(100.0)	18(100.0)
	Troponin	0(0)	0(0)	NA	NA
	Lipid profile	1(100.0)	1(50.0)	3(30.0)	NA
	Serum creatinine	1(100.0)	1(50.0)	3(30.0)	NA
2.	Availability of basic equipment for managing major NCD				
	BP instrument	1(100.0)	2(100.0)	10(100.0)	18(100.0)
	Oxygen cylinder	1(100.0)	2(100.0)	7(70.0)	NA
	Weighing machine	1(100.0)	2(100.0)	10(100.0)	18(100.0)
	Stethoscope	1(100.0)	2(100.0)	8(80.0)	18(100.0)
	Measuring tape	1(100.0)	1(50.0)	2(20.0)	11(61.1)
	ECG Machine	1(100.0)	1(50.0)	0.0(0)	NA
	Lancet	1(100.0)	2(100.0)	9(90.0)	13(72.2)
	Stadiometer	1(100.0)	1(50.0)	5(50.0)	11(61.1)
	Glucometer	1(100.0)	2(100.0)	10(100.0)	18(100.0)

*DH- District hospital, CHC- Community health centre, PHC-

Primary health centre, SC- Sub centre

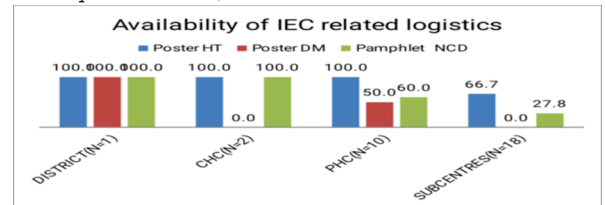


Fig 2: Facility wise distribution of availability of IEC related logistics

DISCUSSION

The present study was conducted to evaluate the implementation of the National Program for Prevention and Control of Cancer, Diabetes, Cardiovascular disease and Stroke (NPCDCS) in Bhopal District. This study was conducted during 2021-22. As far as human resource is concerned all the health workers at various levels were available and none of the posts were vacant. Population covered by the health facilities is more than the norm with each sub health centre covering a mean population of 7363 ± 2142 on average amounting to higher workload on the health functionaries. 24% of the medical officers, 25-28% of ANM and ASHAs were not trained. However, all the CHOs were trained. In a study conducted by Kashyap et al (Kashyap & M S, 2019) in Belagavi taluka of Belagavi district, Karnataka in 2017, 69% of the ANMs were trained about two years after the inception of the program in the district. In the present study, the higher proportion of ANMs have been trained (77.8%). Training & sensitization regarding the programme were also inadequate in a study conducted by Jaisani et al(Jaisani et al., 2013) in Surendranagar district of Gujarat in 2015. Treatment protocol for hypertension was being followed by 69.2% of MOs in the present study. 36% of the private practitioners were following the State approved hypertension treatment protocol as per the study conducted by Krishna et al(Krishna et al., 2020) in 2020 in Bhopal district. Knowledge of all the medical officers about risk factors was good but this knowledge was not adequately put into practice for advising lifestyle changes to patients. Wellapuli et al(Wellappuli & Gunawardana, 2015) conducted a study in Sri Lanka on 465 medical officers in 2014 found that only 43.7% of MOs possessed a 'good' level of knowledge regarding NCD prevention. Knowledge of majority of CHOs (94.4%) about the risk factors was good. But knowledge of 27% of ANM and 60% ASHAs was poor. Nebhinani and Saini et al(Nebhinani & Saini, 2020) in 2020 undertaken at selected health centres of Jodhpur found that nearly 24% and 35% of HWs had average knowledge regarding HTN/ diabetes and breast and cervical cancer respectively. The overall knowledge about prevention of NCDs was not satisfactory among the health care workers in the present study in spite of the three-fourth of the health care workers having undergone training on the program. This was also seen in a study done among Community Health Workers (CHWs) in South Africa done by Tsolekile et al(n.d.) in which, knowledge of the health workers was not satisfactory, even immediately after the training. In our study, all the MOs were aware of the warning signals of breast and oral cancer. Bajaj et al(Bajaj et al., 2021) in India in 2020 among 106 junior residents(n=106) in which only 63 (59.4%) participants had satisfactory knowledge about the warning signs of breast cancer. All the facilities from district hospital to sub health centre had greater than 80% of the recommended 3 months stock. Basic equipments required for screening diabetes and hypertension were available at all the facilities. This was also seen in a study done by Jayanna et al(Jayanna et al., 2019) during 2017-18 in urban parts of Mysore city. Monitoring and supervision of program was very weak at all level. Manoj Kumar Pati et al(Pati et al., 2020) study reveals similar findings.

CONCLUSION

One of the important preventive components of the program

i.e. diet and lifestyle education to the patients was satisfactorily done by the CHOs. Allocating human resources like more medical officers, so that they will be having limited patient load then they will be able to do behavior change communication to the patients. IEC materials were inadequate at peripheral level. Referral cards were not available at any facility weakening the referral linkage between the health facilities and contributing to high loss to follow up in the study, which can have serious public health consequences. Monitoring and supervision in the program were very poor at all levels. There was lack of utilization of services in the program. So, a greater community education and awareness campaigns were needed to sensitize the community regarding risk factors, screening and treatment adherence to NCDs, ultimately contributing to better public health outcomes. Population based screening should be done in camp mode at regular intervals to increase coverage of screening and Opportunistic screening should be strengthened at health facilities.

All the Medical officers were aware about the diagnostic criteria for diagnosing hypertension and diabetes. But 30% of Medical Officers were not complying with it. Appropriate referral, particularly for diabetes was not being carried out properly. This is due to the inefficiency of the health care worker, and also the unavailability of logistics like keto sticks and referral cards. Strategies such as the upgradation of the quality of care by stringent training and proper availability of the resources should be ensured and supervised. Addressing these operational challenges can help that patients receive prompt, reliable and appropriate treatment. Opportunistic screening was weak at district hospital and CHCs. Refreshment training should be provided. Quality of data in CBAC forms should be improved by monitoring and supervision.

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