

Health system preparedness in noncommunicable diseases: Findings from two states Odisha and Kerala in India

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ABSTRACT

Introduction: “Non-communicable diseases (NCDs) are the raging reality of today’s world and have moved up the priority list of most countries worldwide including India. The government of India has launched programs such as National Programme for Prevention and Control of Cancer, Cardiovascular disease, and Stroke, but little is known about preparedness of health system to address NCDs. **Methods:** A qualitative study was conducted in the states of Odisha and Kerala to document the government stakeholder perspectives of health system preparedness for NCDs. **Results:** The study revealed that both the states have a NCD preparedness structure but need strengthening at various levels. The present human resource is inadequate, over-burdened, and requires specific skills. The lack of workforce adversely affects the service delivery mechanism. The study highlighted that there is a gap in the timely release of funds and also lack of evidence-based application if the information that is made available. **Conclusion:** There is a clear need to fill the gaps and strengthen the identified areas at various levels to address the increasing NCD burden. There is also a need to more in-depth and large-scale studies on such issues which act as external monitoring mechanisms thereby assisting the policy makers and program managers in with relevant and scientific evidence to bring reforms in the health system.

Keywords: Health systems, noncommunicable diseases, World Health Organization framework

Introduction

The National Health Policy 2017 of India recognizes the need to halt and reverse the growing incidence.^[1] Noncommunicable diseases (NCDs) are the leading cause of mortality and morbidity worldwide.^[2] Among NCDs the 57 million deaths that occurred worldwide in 2008, 36 million of the deaths were principally due to cardiovascular disease, diabetes, cancer, and chronic respiratory disease.^[3] NCDs hit hardest at the low- and middle-income countries (LMICs) and place a tremendous demand on health systems.^[4] NCDs also account for more than 50% of total premature mortality (i.e., deaths in those under 60 years of

age) in most LMICs.^[1] In India, NCDs account for 53% of the deaths.^[5] Unless the NCD epidemic is aggressively confronted, the mounting impact of NCDs will continue unabated.

NCDs are best addressed through comprehensive and sustainable approaches, which integrate population-wide health promotion and preventive measures.^[6] Response to NCDs will also require training of health workers and an effective surveillance and monitoring system.^[7] Such a multifaceted response demands a well-functioning health system. However, health systems in LMICs such as India have been largely structured around infectious diseases and maternal and child health.^[8]

In response to the rising NCD epidemic, Government of India launched National Programme for Prevention and Control of

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Cancer, Diabetes, Cardiovascular Diseases, and Stroke. The program is implemented in 100 districts and is expanding to cover the entire country. Although the program envisages universal coverage under the umbrella of National Health Mission,^[9] health system in India has not yet geared up to meet the demand of rising NCDs burden.^[10] Even though a great amount of money is being pumped into the NCD program, there seems to be scarcity of data showing its actual usage. While planning for the delivery of NCD-related services, it would be essential to be cognizant of the existing capacity of the health system. There is limited evidence on the structure and governance of NCD program within the context of overall health systems.^[1]

The present study aims to understand the evolving health system response in terms of institutional structures and arrangements, finance processes, and coordination across different sectors by applying a conceptual framework developed by the World Health Organization (WHO). The WHO proposes a conceptual framework to understand and monitor the health system performance by dividing it under broad heads called as health system building blocks namely service delivery, health workforce, health information systems, access to essential medicines, financing, and governance.

Methods

Study area and participants

A total of 13 in-depth interviews (IDI) were conducted with key stakeholders at the state and district level who were part of NCD program in the state of Odisha (10) and Kerala (3). These experts included well-recognized middle and senior level policy makers and program implementers.

Data collection and sampling

Purposive sampling was employed to select respondents for IDI. This was done to focus on people who have appropriate experience as well as background and insight into the NCD program [Table 1]. An open-ended questionnaire was used as the

Table 1: Background characteristics of respondents

	Designation	Qualification
District level		
Koraput	ADMO-PH	MBBS
	Program assistant-NCD cell	-
	DAM	B. Com, CA (inter)
	MO	MBBS
Bolangir	ADMO-PH	M.S. ophthalmology
	DPM	MBA
Khorda	MO-PHC	MBBS
Wayanad	District Nodal Person	MBBS
Calicut	District Nodal Person	MBBS
State level		
Bhubaneswar	State Nodal Officer-NCD	MBBS
Kerala	State Nodal Officer-NCD	MBBS

ADMO: Additional District Medical Officer; PH: Public Health; DAM: District Accounts Manager; MO: Medical Officer; DPM: District Program Manager; PHC: Primary Health Center; NCD: Noncommunicable diseases

study tool. The tool was devised after rigorous literature review followed by consultation with a panel of experts. Questions for IDI were broadly divided into six topics with related subquestions on:

- Service delivery
- Availability of medicines
- Health workforce
- Management information system (MIS)
- Financing and governance of NCD program.

Data analysis

An inductive analysis based on grounded theory was performed to analyze the data. Inductive analysis aid in understanding of meaning in complex data through the development of categories from the raw data (“data reduction”). The interviews were transcribed in English. Transcriptions were coded in three steps (open coding, axial coding, and selective coding). In open coding, the data were scrutinized line by line to identify the codes expressed by the participants. Related codes were labeled and grouped into categories, and the categories were conceptualized by specifying the relationship between them during the axial coding. At the selective coding level, a core category was identified that was related to all other categories. The analysis was done continuously as new insights were made, which helped in understanding the findings. We coded transcribed interviews using Atlas.ti, a computer-assisted qualitative data analytic software package. An internal memorandum summarizing the analysis of each theme and its subthemes was created. To ensure consistency across the memos, a standard format was followed for each memo, and each report was carefully reviewed. Written consent was obtained from all respondents. Ethical Approval for conducting was obtained from PHFI Institutional Ethical Committee before the conduct of the study.

Conceptual framework

As a performance assessment tool, a framework is useful in clearly outlining the objectives of the study. Governance and leadership is a central building block for health systems. The architecture of governance may influence the efficiency and effectiveness of a health system’s activities by ensuring the best use of resources and reducing duplication and redundancy in the system. In the present study, we analyzed the six building blocks of the health system. The building blocks are defined as:

Service delivery

A service delivery framework is a set of principles, standards, policies, and constraints used to guide the design, development, deployment, and operation of NCD-related services delivered by a service provider.

Management information system

MIS refers to a system that integrates data collection, processing, reporting, and use of the information necessary for improving health service effectiveness and efficiency through better management at all levels of health services.

Financing

Financing refers to government revenue from both internal and external sources, including funds from donor support or development bank loans and agreements. The availability and timing of funds release is also captured here.

Governance structure

We conceptualize the governance structure as the roles and responsibilities, interrelationships, and architecture of the institutional structures within Ministries of Health that are involved in oversight, management, and planning for NCD program. We examine the status, nature, roles and responsibilities of multi-sectoral coordination mechanisms, coalitions, and partnerships both within and outside government.

Results

Service delivery and health workforce

Almost all the respondents in both the states mentioned that screening of NCDs particularly hypertension and diabetes is done at the health facilities in the districts. More than one-third of the respondents (72%; $n = 8$) mentioned that patients diagnosed with NCDs are referred to higher centers for treatment. Contrary to Odisha, patients are initially screened at the sub-center and referred to the primary health center for treatment in Kerala. Respondents in Odisha mentioned that NCD clinics and screening camps are organized for screening of Cancer. One of the respondents stated:

“We are conducting camps for cancers, i.e., breast cancer, cervical cancer, and oral cancer. Especially we are conducting camps for females that is for cervical cancer and breast cancer separately-” State Nodal officer, Kerala.

Almost all the respondents mentioned that there is a lack of adequate workforce in NCD program in both the states. It includes lack of doctors, counselors, physiotherapists, and laboratory technicians. Only a few respondents mentioned that adequate workforce is available for NCD program. A respondent mentioned that in a district in Odisha 26% of sanctioned posts for physicians are vacant and among the in-position physicians majority of them are on a contractual basis. The lack of regular training of health workforce was another factor stated by the majority of respondents which hinders smooth implementation of NCD program. A respondent quoted:

“There should be at least specialized people because one physiotherapist cannot handle the NCD program in Community Health Centre (CHC)...In a big CHC like us, there should be more health workforce, and there should be a special training program for all the health workers-” Program Officer, NCD-Odisha.

The respondent stated that the recruitment process for the NCD program is transparent. The positions are created at the state

level and the recruitment is done at the district level. However, a respondent mentioned that there is no policy for recruitment of human resources for NCD program at state level.

Management information system

Findings of the present study indicate that about one-third of the respondents mentioned that the data collation in both the states is done electronically. About half of the respondents mentioned that data are collected in standardized monitoring format. However, one-third of the respondents mentioned that there is no monitoring mechanism to ensure the quality of data. A respondent mentioned that the data are not used for evidence-based policy and decision making. A respondent quoted:

“See. for now quality control is being ignored... why because the program has not started in full-fledged manner...once it starts in a full-fledged manner and we have an output, then we can take a decision if data is of quality or non-quality-” District official, Odisha.

Financing

A few respondents mentioned that the funds flow for NCD program is from the state with limited flexibility with the district. A respondent mentioned that funds for the NCD program are released under the flexi pool of the National Health Mission. A respondent mentioned that there are fixed allocated funds for NCD program in program implementation plan. About one-third of respondent mentioned that there is lack of funds for NCD program. A respondent quoted:

“Since there is no existing system, funds do not reach at the grass-root level. there is no funding-” Medical officer, Odisha.

Access to medicines

About half of the respondents mentioned that there is availability of medicines for diabetes and hypertension at the health centers. A few respondents mentioned about unavailability of treatment for cancer patients at district level. A respondent stated:

“Initially there was directly supply from Government of India. Then everything is given to Kerala health services, there is a gap. From state government, we are not getting it regularly. At the state level, there are not getting tenders. There is a delay. For some medicines there is stock out issues. For some, we are purchasing we have budget but are not enough-” State Official, Kerala.

Respondents mentioned that procurement for medicines is done at the state level and regular indent is raised by the district. A respondent stated that the essential drug list has been modified. Apart from the non-availability of medicines, there is a shortage of instruments that are required for the screening and confirmation of the NCDs in Kerala. A respondent mentioned:

“Yes there is a gap, we have shortage of diagnostic laboratories. We do the initial screening at subcenters with glucometer but in PHC, doctor has to confirm the test. He has to rely on glucometer again for confirmation.”

Governance

Respondents in both the states stated that Governance structure in NCD program consists of NCD unit under the Department of Public Health. The unit operates under the supervision of the state and district nodal officer at the state and district level, respectively.

A respondent stated that the current structure is centralized. A few respondents stated that the Governance structure should be decentralized. About two-third respondents stated that interdepartmental coordination of NCDs program exists with several other programs. School health department, department of police and legislation and department of excise are the few departments where interdepartment coordination exists as stated by majority of respondents. A respondent quoted:

“We have selected PWD, revenue, women and child department, police department. For police department exclusively we keep it for a day for them. They come to PHC level.”

However, more than half of the respondents stated that such a coordination is lacking with mental health program. Respondent mentioned that coordination with mental health program will aid in treatment at primary care units and referral to higher centers.

“Yes, actually mental health is quite a big challenge. They is no mental health clinic separately...as there is no psychiatrist available in our district... They should set up a special mental health clinic and should at least train the doctors... so at least they can give some primary treatment and refer them to tertiary center or higher center-” District NCD official, Odisha.

A respondent in Kerala mentioned that NCD program works closely with the Revised National Tuberculosis Control Programme (RNTCP) program in providing tobacco cessation counseling services. He quoted:

“With the help of TB clinics we are running tobacco cessation clinics. We have counselors we are providing nicotine gums free of cost only in three districts. It is a part of NCDs. We have cooperation with RNTCP program in treatment of NCDs-” District official, Kerala.

Discussion

The present study aims to understand the health system response and preparedness to NCDs. The widespread presence of NCD program in both the states shows that health ministry is increasingly recognizing the importance of addressing NCDs. A number of countries have established special units or departments specifically for NCDs, giving a clear institutional

identity to control and prevention of NCDs within Ministry of Health.^[11] Similarly, in India, NCD program is implemented through NCD cells at state and district levels under the Ministry of Health.^[9] Our findings suggest that though preventive and curative care was provided at health facilities but only a few facilities provided integrated care in both the states. Providing an integrated care at all level of health facilities can improve efficiency, which is especially important given the limited resources in the country.

Findings of the present study indicate that few basic drugs for hypertension and diabetes were available at the health centers. However, drugs for cancer were unavailable. Similar findings have been observed in the study conducted by Mendis *et al.* in 2012 in different LMICs where none of the health facilities in the surveyed countries had all the essential medicines NCDs.^[12] Improvement in the supply of drugs for NCDs at low-level health facilities will hopefully lead to a virtuous cycle of increased the use of preventive services and fewer complications requiring care at high level.

The study findings revealed that the service delivery system of NCDs in Odisha is functional. Curative services were reported to function better in the district headquarters but not at the primary care centers. On the other hand, in Kerala, screening for hypertension and diabetes is done at the subcenter level. Although it is clear that ideally NCD control program must be implemented through the health system based on primary health care,^[13] there are many caveats in primary health care system which needs to be addressed. Our findings depict that lack of workforce and weak referral system were the few barriers which effects delivery of NCD related health services. The data from the WHO also suggest India’s health workforce to be inadequate as a whole and not just for NCDs.^[14] Similar evidence has been observed in other developing countries.^[15] Consistent to the findings of the study by Kar *et al.*, our findings indicate attrition of health workforce due to financial delays.^[16] This is a major concern which could adversely affect the functioning of NCD program.

In addition to lack of human resources, our study suggests that the human resource available for the NCD program lack appropriate skills in the management of NCDs. A study by Thakur *et al.* provides similar insights on the lack of skilled workforce in NCDs in India.^[17] Furthermore, a large proportion of health workers were trained before the epidemiological transition toward a mix of communicable and NCDs. Thus, it is apparent that health workers have limited knowledge to offer preventive services for NCDs.

The study revealed lack of monitoring and supervision in the collection of NCD-related morbidity and mortality data. Our findings suggest that surveillance for chronic diseases does not seem to be integrated successfully into state and national health information systems. This shows that there is insufficient investment in health information systems. Moreover, the tendency has been to focus on gathering data for the coverage of specific services and surveillance for NCDs often for the

purpose of ensuring accountability. The limited available health workforce is burdened possibly at the expense of good monitoring and reporting for general health assessments. The similar inconsistency of management systems for supervision and reporting has been observed in other LMICs.^[18] The lack of reliable systematic data in NCDs make the tracking of trends and evidence-based policymaking more difficult. In addition to improving data collection on disease burden, it is necessary to monitor the impact of NCDs-related interventions on practices of health-care providers.

Limited funding for essential NCD interventions hinders effective implementation of NCD program in many LMICs.^[19] Findings of our study indicate lack of funds in the NCD program. NCD program needs to be prioritized while allocating government budgets.

Partnerships, inside and outside of health systems, play a key role in the success of NCD prevention and control.^[20] Our findings indicate that intersectoral coordination exists between different departments. However, the effectiveness and impact of coordination and partnerships on accelerating progress toward NCD prevention needs to be explored.

Our study identified three key strengths of the health system that should be harnessed. First, the many knowledgeable and experienced health-care workers employed at hospitals could provide support and supervision for health-care workers at smaller facilities. Second, Odisha can implement the Kerala model in which health facilities provide some form of outreach services and screening services for NCDs. Finally, health officials consistently reported a desire to provide such services, with most suggesting that care for NCDs could be provided at their facilities if mechanisms for training, support, supervision, and consistent provision of basic supplies were in place. The study is conducted among key officials in two states; the sample might not be representative of the entire country. Hence, the results should be interpreted in light of this limitation.

Conclusion

Clearly a multifaceted health system strengthening approach is needed to enable health facilities in India to provide high-quality primary care for the increasing burden of NCDs. These efforts should focus on three major targets: provision of basic diagnostic equipment, and first-line drug therapy for NCDs to all health centers and dispensaries; strengthening of management systems for NCDs to provide regular training, supervision, and reporting; and ensuring sufficient knowledge and experience related to NCDs among health workforce.

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Conflicts of interest

There are no conflicts of interest.

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