



Enhancing Healthcare: The Role and Impact of NCD Corners in Bangladesh

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Abstract

Non-communicable diseases (NCDs) contribute to 73.2% of all deaths in Bangladesh, posing a significant public health burden. To address this, the Non-Communicable Diseases Control (NCDC) program, initiated in 2012, established NCD corners at subdistrict hospitals and community clinics to facilitate awareness, risk screening, early detection, treatment, and referrals for hypertension, diabetes mellitus, bronchial asthma, and chronic obstructive pulmonary disease. This cross-sectional study, conducted from May 15 to June 7, 2022, assessed the operational effectiveness of these NCD corners across five subdistrict hospitals in four districts. Data spanning January 2016 to April 2022 were analyzed using a modified WHO STEPS surveillance approach, applying standard WHO case definitions. Healthcare workers were interviewed using semi-structured questionnaires to evaluate system attributes such as stability, simplicity, acceptability, timeliness, representativeness, and flexibility.

Findings indicate that NCD corners provide structured and accessible care, supported by standardized case definitions that facilitate easy implementation by healthcare providers. Community-based screenings effectively channel patients to these centers, improving early intervention. However, financial limitations constrain flexibility, while workforce shortages affect data quality and service delivery. Despite high acceptance among healthcare providers and patients, long-term sustainability depends on consistent funding and policy support.

To enhance the effectiveness of NCD corners, this study recommends the implementation of standardized guidelines, structured reporting mechanisms, sufficient staffing, logistical support, and continuous training programs. Strengthening these centers will contribute to sustainable NCD management and improved healthcare outcomes in Bangladesh.

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Introduction

Non-Communicable diseases (NCDs) are the major ongoing public health problems and become the leading cause of death and disability globally. NCDs caused 60% of all deaths which rises to 74% from the year 2000 to 2019 globally [1]. About 8.5 million people die due to NCDs in South East Asian Regions (SEAR). This has comprised 62% of all deaths. Around 48% of total deaths due to NCDs in this region are below 70 years, which can be preventable [2].

Bangladesh is currently facing a double burden of non-communicable diseases (NCDs) and communicable diseases, with rising trends of NCDs. This situation has added great pressure and posed major challenges already to the country's low-resourced health system. While the primary health care approach has offered a common platform to effectively address NCDs through preventive and curative interventions, its potential is not fully established in Bangladesh. According to the World Health Organization, NCDs cause 67% of total death in Bangladesh. Approximately 14.4 million people are hypertensive and 15.5 million people are pre-hypertensive in Bangladesh. The prevalence is more in women, especially in rural areas [3]. Approximately 6.1 million people are diabetic and 14.1 million people are pre-diabetic in Bangladesh [4]. Among the top ten causes of Disability Adjusted Life in Year (DALY) in Bangladesh, the highest causes are Ischaemic Heart Diseases (32%), Hypertension (18%), and Diabetes (35%) [5].

Presently, the country's health system has multi-tiers from the community level to the central level. The primary level is the Upazila or sub-district level. Primary health care services have been provided through union sub-centers and community clinics. There is a 50-bed health complex (UHC) situated in every Upazila. Health care providers of this level are physicians, nurses, and other associated health professionals. For ensuring primary health care services at the doorstep of rural communities, there are 13,500 community clinics (CCs) to cover around 6,000 populations/CC. These CCs are run by community healthcare providers and other supporting healthcare staff. In the year 2012, the Non-Communicable Diseases Control (NCDC) program of Bangladesh established 300 NCD corners periodically in UHCs and provided physicians and the workforce with

imaging and laboratory support. 'NCD corners' are based on the Package of Essential Non-Communicable (PEN) Disease Interventions for Primary Health Care in Low-Resource Settings for addressing major non-communicable diseases. It was piloted at UHC and community clinics in the 3rd sector program. NCD corners were established for the prevention of NCDs through public awareness, screening of the risk factors of NCDs, and early detection, treatment, and referral. The primary health care providers identify cases from the community through household visits and refer them to community clinics and UHCs. Among 300 NCD corners, 70 UHCs were selected for the NCD management model in the year 2017, to have a separate structure. An ideal structural design along with funding support for the NCD management model has been provided to 66 UHCs of 70 UHCs that are selected for the NCD management model. The structural design includes two separate rooms for the physician, other staff, and medicine distribution, and a front place for sitting arrangements for the patient for waiting and health education. A dedicated physician, nursing staff, and other supporting staff will be working manpower of NCD corners and NCD management models. There are basic NCD management guidelines regarding Hypertension (HTN), Diabetes (DM), Headache and referral slips, register books, and other logistics such as ECG machine, height, and weight machine, glucometer, stethoscope, sphygmomanometer, and essential medicines to treat hypertension and diabetes are supplied to each NCD management models and NCD corners. After completion of screening for Hypertension & diabetes at 30 Upazilas, a total of 200 UHCs are chosen as the NCD management model recently. Every NCD corner and management model has to report monthly to the NCDC program. Health care providers such as Health inspectors (HI), Assistant Health inspectors (AHI), Family welfare assistants (FWA), Community volunteers, etc. do household visits for health education and counseling regarding risk behaviors. If anyone is found to have risk behaviors and other non-modifiable risk factors then advised to visit a community clinic for screening. If the patient has high blood pressure or increased blood sugar level, he will be referred to UHC with a referral slip at the NCD management model or NCD corner. There the senior staff nurse or SACHMO will again check blood pressure and blood sugar level and keep the record. If the patient has high blood pressure or high blood sugar then be referred to a dedicated physician for

treatment and advice. The patient who has more complications will be referred to the district hospital.

Though there are national guidelines for NCD surveillance that have been developed but are not yet systematically offered at the union level and all Upazilas. While the government is planning to expand the NCD corners to NCD management models at the Upazila level, till now, there is very little information is available to explain the current situation. It is important to find out how these NCD corners are functioning, what are the challenges and gaps along the implementation process and service delivery, and how these NCD corners could be strengthened and institutionalized at the primary healthcare level.

A. Stakeholders Involved in NCD Corners of Upazila Health Complexes

Stakeholders	Name of Organizations
Implementers	The Upazila Health Complexes The Community Clinics
Decision Makers	The Non-Communicable Disease Control (NCDC) Program The Community Base Health Care (CBHC) The Lifestyle, Health Education and Promotion Bureau The Management Information System (MIS) The Director-General of Health Service (DGHS) The Ministry of Health and Family Welfare (MO-HFW)
Participants	The health care Providers of the NCD corners The Patients and attendants

Description of the NCD Corner

Public Health Importance of Non-Communicable Disease

The global burden of non-communicable diseases (NCDs) continues to increase, accounting for 73.4% (41 million) of all deaths in 2017 with the greatest burden occurring in developing countries with significant health, social and economic consequences. In Bangladesh, NCDs are estimated to account for 73.2% of all deaths in 2017. Four main groups of NCDS – CVD (36.1%), cancers (11.2%), chronic respiratory diseases (9.3%), and diabetes mellitus (5.8%) – are responsible for majority of these NCD related deaths.

The Sustainable Development Goals 3.4 targets to reduce by one-third premature mortality from NCDs and promote mental health and well-being. This is further supplemented by the Global Action Plan for the Prevention and Control of NCDs 2013-2020 with 9 voluntary global targets to be attained by 2025 with

2010 as the reference year. Bangladesh has incorporated all 9 targets in its 3-year multisectoral action plan for 2018-2025.

The key to controlling the global epidemics of NCDs is primary prevention based on comprehensive population wide programmes. This requires the identification and surveillance of the most common NCD risk factors identified by the World Health Organization (WHO) which are shared between most common NCDs: tobacco use, harmful use of alcohol, unhealthy diet (low fruits and vegetables consumption, high salt intake), physical inactivity, overweight and obesity, raised blood pressure, raised blood glucose and cholesterol.

Purpose and Operation of the NCD Corner

Objectives of the NCD Corners

General Objectives

To combat NCDs through the system at institutional and Primary Health Care Service delivery levels

Specific Objectives

To establish a dedicated NCD corner at Upazila (subdistrict) health complexes (UHC) to address NCDs, especially hypertension, diabetes, dyslipidemia, and chronic obstructive diseases (COPD)

To provide public awareness, screening, early detection, treatment, basic medication supply, and referral.

To conduct screening of the risk factors of NCDs and NCDs at the population level for the detection of hypertension, diabetes mellitus, high cholesterol, and COPD

To provide the essential medicines and investigations for the treatment and prevention of diabetes, hypertension, and heart diseases.

To design an 'NCD Resource Centre /cell' for health education and skills development of the NCD patients through providing training about risk factors, lifestyle, inhalers technique, insulin injection, etc.

Planned Uses of the Data from the NCD Corner

To strengthen the NCD surveillance system and institutionalize the NCD Corners at PHC level for monitoring and evaluation of NCDs and their risk factors, morbidity, and mortality statistics by cause in alignment with MIS and DGHS. Data were collected from different sources like community and service delivery sites on morbidity, mortality, and risk factors.

Case Definition of NCDs

WHO STEPS surveillance approach and indicators are followed and modified according to country context.

Patients' ages range from 18 to above 69 years old, attending 'NCD Corner' with various physical complaints and also referred from the community during household visits by different community health workers with at least one of the following:

- High blood pressure
- High blood sugar
- High blood cholesterol level
- Asthma or chronic respiratory diseases
- Having a positive family history of any Non-Communicable diseases like HTN, DM, CVD, etc.
- Having behavioral risk factors like tobacco consumption, physical inactivity, obesity, alcohol consumption, intake of an unhealthy diet, less fruit and vegetable consumption, etc.

There are two guideline books for Hypertension and Diabetes management that contain case definitions for these two diseases and their behavioral risk factors.

Hypertension: If any patient's Blood pressure was 130/80 then he/she was diagnosed as a Hypertensive patient.

Diabetes: If Random blood sugar was 11.1 mmol or more then he/she was diagnosed as a Diabetic patient.

For other NCDs like COPD, asthma, neurodevelopmental diseases, and cancers, there were no guidelines or SOP to detect patients. Health care workers were detecting any suspected cases of the NCDs using standard case definitions.

Legal Authority for Data Collection

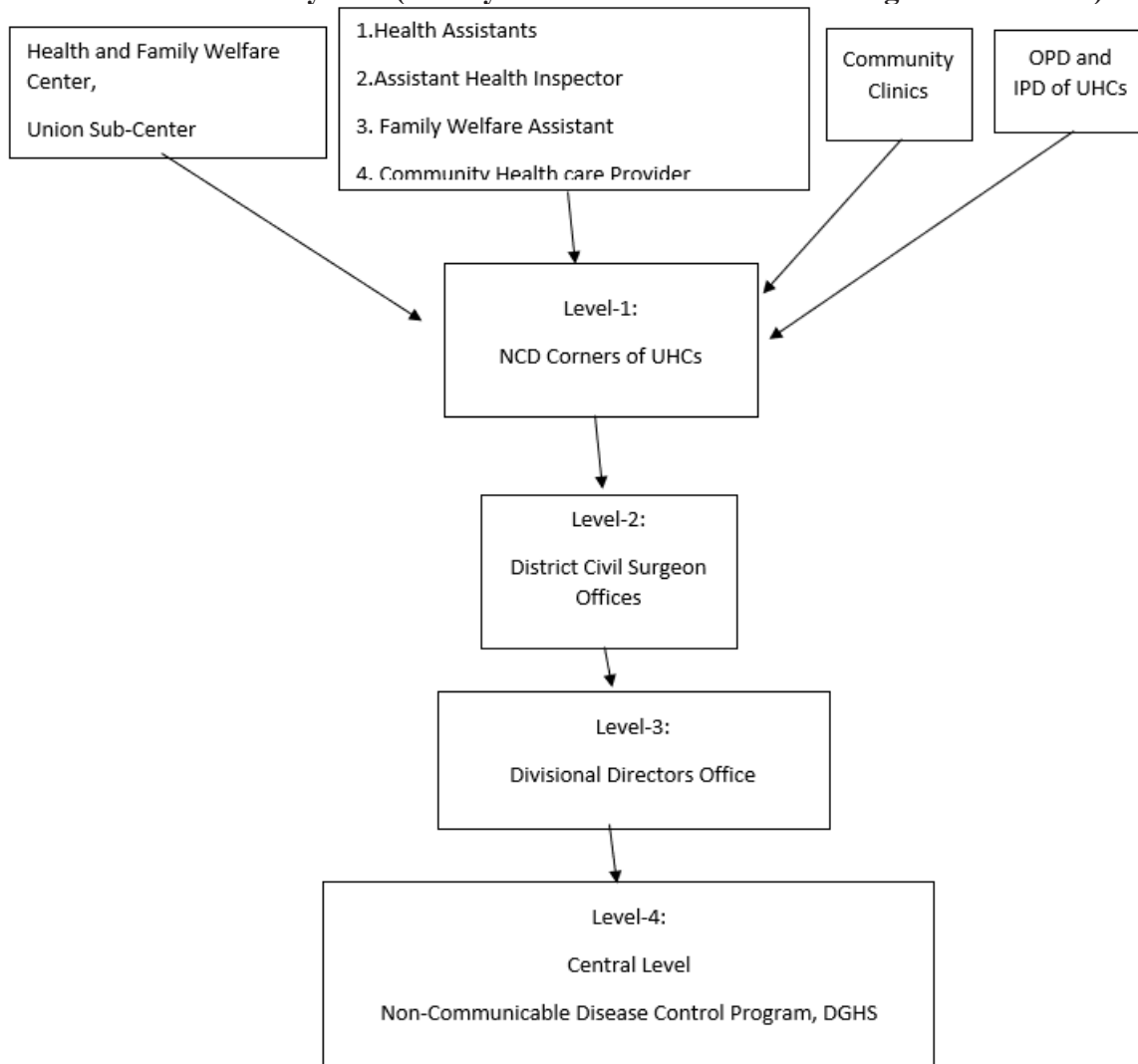
- Upazial Health and Family Planning Officers of UHCs
- Civil Surgeons of districts
- Divisional Directors of the divisions
- Deputy Program Manager-1, NCDC program
- Program Manager-1, NCDC program
- Line Director, NCDC Program
- The Director-General of Health Service (DGHS)
- The Ministry of Health and Family Welfare (MOHFW)

Organizations having the NCD corners for the NCD surveillance

Based on World Health Organizations (WHO) recommended Package of Essential Non-Communicable (PEN) Diseases Intervention for Primary Health Care in Low Resource settings and willingness to participate, readiness to conduct the surveillance (physical patient infrastructure and equipment), existing staffs, populations (i.e., out-patient attendance) and minimum system requirements for the Information Man

agement System, 300 UHCs were selected to establish NCD Corner.

Flow chart of the system (Kindly take the flow chart form original document)



Component of the system

Population under Surveillance

Patients from the community, community clinics and Upazila Health Complexes and the age range from 18 years to >69years.

Surveillance period

From 2013 to ongoing

Data Collection Method and Data Management

There is a supplied register book from the NCDC program containing columns of 18 variables regarding behavioural risk factors, physical measurement, and NCDs like hypertension, cardiovascular disease, asthma, COPD, diabetes, and cancer, and information is taken by face-to-face interviews and physical measurements. Information is also collected from reports submitted to the NCDC program on-demand during the Mujib Centennial.

Information about behavioural risk factors, physical measurement, and NCDs like hypertension, cardiovascular disease, asthma, COPD, diabetes, and cancer are collected from the supplied register book, and cumulated data are collected from previously submitted reports to the NCDC program. All these data are then edited,

analysed, and stored in the NCDC program.

Ethical Implications

All patient's data are collected from the register book and kept anonymous to provide confidentiality and protect patients' right to privacy.

Resources to Operate NCD Surveillance

Funding Sources

- Non-Communicable Disease Control Program
- Health Services Division, Ministry of Health & Family Welfare
- Community-Based Health Care (CBHC)
- Health Service Management (HSM)
- Management of Information System (MIS)
- Health Engineering Department (HED)

Personnel Requirements

- Medical Officer, NCD corner=1
- SSN=1
- SACMO=1
- MLSS=1

Evaluation Design

The evaluation design was prepared by following the updated guidelines for Evaluating Public Health Surveillance System published by the United States Centers for Disease Control and Prevention.

Goal of NCD Corner Evaluation

To evaluate the NCD corners of Upazila Health Complexes of Bangladesh from January 2016 to April 2022.

Objectives of NCD Corner Evaluation

- To measure the proportion of functionally active (stability, simplicity, acceptability, representativeness, and flexibility) NCD corners of Bangladesh from January 2016 to April 2022.
- To assess the data quality of NCD corners of Bangladesh from January 2016 to April 2022.
- To find out the timeliness of reporting of the NCD corners sending their reports to the NCDC program of Bangladesh from January 2016 to April 2022.
- To assess the level of usefulness of the NCD corners.

Study Design

We conducted a descriptive study based on "MMWR, CDC's, 2001, an updated guideline for evaluating public health surveillance" (4).

Study Period

The study period was from January 2016 to April 2022.

Study Location

Upazila health complex (UHC) of Dhaka, Narshingdi, Gaibandha, Comilla and Bagerhat. We selected 5 Upazilas from 4 districts according to their performance from good to bad and one for piloting.

Time of Data Collection

From 15th May 2022 to 7th June 2022.

Study Population

Stakeholders like Line directors, Program Manager-1, Deputy Program Manager-1, Civil surgeons of respected districts, UHFPOs of the selected UHCs, medical officers, SACMO, statisticians, CHCPs of Community clinics of central, districts, and the Upazila level to assess factors related to functionality, data quality, timeliness, and usefulness of the NCD corners.

Data Collection Instruments

We prepared a semi-structured questionnaire for a face-to-face interview. We put open-ended questions to know about the strengths and weaknesses of the reporting system. Interviewed key stakeholders, focal persons, and statisticians to assess factors related to functionality, data quality, timeliness, and usefulness.

Type of Interview

Face-to-face and telephonic interviews.

Data Collection and Analysis

Data were collected using a semi-structured questionnaire adapted from updated CDC guidelines for evaluating public health surveillance systems through key stakeholder interviews and record reviews. Both quantitative and qualitative data were analyzed.

We used Microsoft excel and epi-info software for data cleaning and analysis. Multiple data sources for data collection, i.e. the Operation Plan, Guidelines for Hypertension and Diabetes management, face-to-face interviews with the stakeholders, and NCD Corner data

collected in April 2021 during the Birth Centenary of Bangabandhu Sheikh Mujibur Rahman.

Assessment of the Attributes with findings

Simplicity

The CDC Guidelines suggest that surveillance systems should be as simple as possible (in their structure and ease of operation) while still meeting their objectives. To assess simplicity, semi-structured questionnaires were used for NCD corner physicians, SACMO, SSN, CHCP and statisticians individually of five UHCs. Respondent's knowledge, understanding and views on current case definition and objectives of NCDs and NCD corners as well as their views on the relevance, acceptability and use of the system.

With respect to the simplicity of the current NCD corners, the evaluation concludes that the NCD corners are simple in design and case definitions are present only for Hypertension and Diabetes, but no case definitions present for Bronchial Asthma, COPD, Cancer and other NCDs. 3/4(75%) physicians and 8/11 (60%) SACMO, SSN and CHCP can describe the case definition completely and screen patients Community clinics to UHC. All the physicians, SACMO, SSN and CHCPs agreed the epi-data form for collection of data were understandable but 11/14(86%) of them find problem due to manual entry and heavy patient load. As data is collected on paper only so method of transferring, entry, editing, storing and backing up data are difficult to manage. 75% (3/4) physicians and 60% (3/5) statisticians got training from the NCDC program.

In case network outage, personnel cannot entry data in their convenient time. The data entry is done by statisticians and provided by the SACMO or SSN of the NCD corner.so there is no chance of duplication of data, no case data is sent so confidentiality is ethically supported.

Stability

According to the CDC Guidelines, "stability refers to the reliability (i.e. the ability to collect, manage, and provide data properly without failure) and availability (the ability to be operational when it is needed) of the public health surveillance system". NCD corner has started in 2013.At this stage, both attributes of stability can be assessed. It was evaluated by interview

of all different stakeholders of five sites by using semi-structured questionnaire that how the activities are going on, presence of dedicated and adequate space and equipment, workforce availability, and their distribution, referral system and, any interruption in surveillance activities occurred or not, if any interruption of surveillance activities or data then how many times and for how long were also assessed by observation and asking questions.

Each of five UHCs, we found a dedicated space for NCD corners but none of them are adequate space for waiting room and sitting arrangement for the patients. Among the five UHCs, all of them have adequate BP machine and stethoscopes.2/5(40%) of them have supplied glucometer with strips,2/5(40%) have only supplied glucometer, no available strips and 1/5 have no supplied glucometers by the NCDC program. 3/5(60%) UHCs have supplied ECG machines by NCDC program. 3/5 (60%) UHCs have height-weight machines. 4/5 (80%) UHCs have dedicated physicians with proper roster for duty and 3/5 (60%) have SACMO and 2/5 (40%) have SSN to measure the BP, blood sugar and height-weight.

Active referral system is present in all five UHCs from CCs. Referral form is available in 4/5 (80%) CCs. No disruption is identified in surveillance activities since started as NCD corners are funded by the Government.

Acceptability

According to the CDC guidelines acceptability "reflects the willingness of persons and organizations to participate in the surveillance system and ability of the system to assurance of privacy & confidentiality". We assessed participation rate of 5 NCD corners from January , 2016 to April,2022. Acceptability of the NCD corners stakeholders were assessed using questions concerning ease of use of screening form and percentage patient's refusal, changes of personnel since beginning of surveillance to till now, burden on time during their regular responsibility and also regarding assurance of privacy and confidentiality of data.

We found 80% of Fakirhat UHC, Gobindaganj UHC and Dhamrai UHC and 60% of Belabo UHC and Barura UHC personnels were available during these sites visit. Among them, 4 (80%) UHFPOs and 1(20%) RMO responded. 1(20%) NCD physician was available

in Belabo UHC due to leave. All the stakeholders were same in the workforce that joined at the beginning of NCD corner of all sites. No patients were refused to be enrolled and the epi data form is fully understandable but 16/19 (84%) find difficulty to filling it up due to huge patient load within limited time. 84% of respondents (n=19) did training regarding NCD corners. Of them 80% UHFPOs, 60% NCD physicians and 40% of statisticians, SACMO and senior staff nurse in each site. Based on the dataset of five UHCs from January,2016 to April,2022 the acceptance rate was higher in Belabo UHC (92%) and Fakirhat UHC (88%) other than three. The screening system is acceptable to the stakeholders but 80% implementing stakeholders are not satisfied with the reporting system.

Data Quality

According to the CDC guidelines data quality “reflects the completeness and validity of the data recorded in the public health surveillance system”. Data quality was evaluated by assessing the completeness, validity and variables included in the NCD corner. Completeness was assessed by determining the percentage of missing values with recorded data on these variables consisted of the followings:

- Name of institute/hospital
- Name of Upazilla and District
- Date
- OPD reg no
- NCD corner reg no
- Name of patient
- Demographic data= residence address, husband/father’s name, age, and gender
- BMI data= Height, weight, and waist circumference
- Disease name=CVD/HTN/Asthma/COPD/DM/Cancer
- Behavioral risk factors= Any form of tobacco consumption, excess salt intake, inadequate physical activity, alcohol consumption, high blood cholesterol level, high blood sugar level, overweight.
- Treatment/Advice/Follow-up
- Admission/refer

50 screening forms were randomly selected to check the completeness. The period of the sample frame was from January 2016 to April 2018. Blank response of any one of the mentioned variables in screening form considered as incomplete.

Data completeness was measured from screening form five sites by percentage of missing values between January2016 to April 2022. High quality of data is generated. Highest missing value is seen in treatment/follow up variable and lowest missing value seen in name of the patient.

Table 1: Percentage of missing values in dataset of NCD corners

Variable	Missing variables
Name	10%
Date	16%
Address	36%
Age	20%
Gender	14%
Height	60%
Weight	60%
Waist circumference	80%
NCD	28%
Risk factor	60%
Admission/Referral	84%
Treatment/follow up	92%

Flexibility

According to the CDC guidelines, “a flexible public health system can adapt to changing information needs, or operating conditions with little additional time, personnel, or allocated funds or ability of the system to respond to new demands for information. Flexibility was assessed retrospectively, that is observing the system whether it has responded to a new demand or the laboratories are capable if new specimens add to the surveillance system.

There are no changes in funding source since the NCD corners started. The case definition for screening hypertensive patients. The current case definitions take 13/80 mm of Hg as hypertensive patients. Among 4/5 (80%) are following this case definition to screen hypertensive patients. The NCD corners are not integrated with any other systems. Each NCD corner submit an online summary report monthly to the NCDC program. No definite format is found for reporting and reports were not submitted to the DHIS2 database. No intervention is taken according to reports. There is no deadline of reporting fixed by the NCDC program.

Representativeness

According to CDC Guidelines “a public health surveillance system that is representative accurately describes the occurrence of a health-related event over time and its distribution in the population by place and person”.

As mentioned by the stakeholders, the NCD corners can catch only NCDs in community among who were above 18 years old irrespective of gender, religion and socio-economic status.

Only 40% NCD corners performs diagnostic tests like RBS by supplied glucometers.

Active referral system is present in all NCD corners.

Timeliness

There is no well-structured reporting format for reporting and also there is no fixed schedule to report at NCDC program. According to the stakeholders, most of the time they report on demand from the NCDC program. There is also lack of proper feedback or communication with the NCDC program. Lastly, they reported about the NCD corners update during the Birth centenary of Bangabandhu. Medicines and logistics are supplied only on demand. As there no proper and timely reporting from NCDC corners so no intervention was found to be suggested by the NCDC program.

Sensitivity and Predictive Value Positive

According to the CDC Guidelines, “the sensitivity of a surveillance system can be considered on the level of case reporting, sensitivity refers to the proportion of cases of a disease (or other health-related event) detected by the surveillance system” and “predictive value positive (PVP) is defined as is the proportion of reported cases that actually have the health-related event under surveillance”.

Sensitivity and PVP were not assessed as there is no supplementary data from another system and the surveillance system by default only screens NCD patients. Resource and time were also limited for assessing this attribute.

Usefulness

The CDC Guidelines suggest that a surveillance system can be useful in:

- Prevention and control of adverse health-related

events;

- improving understanding of the public health implications of such events;
- discovering that an adverse health-related event previously thought to be unimportant is actually important; and
- development of performance measures, including health indicators, used in needs assessments and accountability systems

The NCD corners are very helpful to determine the magnitude of morbidity and mortality of NCDs. The high priority areas can be identified to allocate proper resources like manpower, logistics and medicines.

Discussion

We found the NCD corners are simple, useful, acceptable and representative. But timeliness and report completeness of the screening forms are not satisfactory. Also, there is lack of communication between NCD corners and the NCDC program. We also found lack of adequate budget and supervision and also missed variables from the screening forms. Overall, our findings show the NCD corners are not working at satisfactory level to achieve the intended objectives of the NCD surveillance for public health action. Stakeholders' thoughts that NCD corners can provide more active referral services. Also, there is lack of proper guideline and SOP, trained human resources and also inadequate laboratory support and logistics. The reporting system is not also organized.

Table 2: Shows the findings of Surveillance Attributes and Indicators:

Surveillance indicators/attributes	Findings	Ratings
Communication and reporting system	Unsatisfactory	34%
Availability of guideline, SOP, registers, documentation and formats	Satisfactory	60%
Case detection	Very satisfactory	80%
Emergency preparedness	Unsatisfactory	32%
Data analysis and interpretation	Very unsatisfactory	10%
Supervision and feedback	Unsatisfactory	35%
Acceptability	Satisfactory	65%
Flexibility	Unsatisfactory	31%
Sensitivity	Unsatisfactory	33%
Representativeness	Satisfactory	55%
Simplicity	Satisfactory	62%
Data quality	Unsatisfactory	32%
Stability	Satisfactory	62%
Timeliness	Unsatisfactory	33%
Usefulness	Satisfactory	65%

Conclusions

The NCD corners at primary health care settings are one of the appreciable and timely initiatives taken by the Government of Bangladesh. At this stage they play little role to provide prevention and management service for common NCDs. The reporting system should be dedicated, formative and needs to include in DHIS2 database to identify the current status and magnitude of NCDs. Monitoring and supervision of the NCD corners should be done periodically. The diseases that are currently screened need to expand. Adequate and trained manpower as well as logistics, proper laboratory support and medicine supply need to be ensured. Proper initiatives should be taken timely by collecting, analyzing and disseminating. The findings need to be taken into consideration to strengthen and to create a well performing surveillance system.

Recommendations

- A dedicated and well-designed Guideline or SOP is needed to develop for screening, diagnosis and management of NCD risk factors and NCDs at NCD Corner.
- A dedicated and sufficient manpower including physicians and other health staffs with a designated area with proper and sufficient instruments and laboratory support is needed for NCD corners.
- Provision of training of Physicians and other staffs of union health facilities, community clinics and NCD corners of UHCs.
- Need to improve the specific web-based reporting directly to the DHIS2 from community clinics.
- A structured format is needed to develop to ensure universal and timely reporting for the UHCs.
- A yearly analysis of the data should be done by the NCDC program to identify the risk factors, diseases and their zonal distribution.
- Time of reporting should be added during reporting so that the timeliness of reporting can be known and assess.

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