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SPECIAL ARTICLE

The Role of the Ward Health System in COVID-19 Pandemic Response in Nigeria: A Case Study of Edo State

Alenoghena IO[1], Omuemu VO[2]

[1]Department of Community Health, Ambrose Alli University, Ekpoma, Edo State.
[2]Department of Community Health, College of Medical Sciences, University of Benin, Benin City, Edo State, Nigeria.

Keywords

COVID-19 Pandemic;

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ABSTRACT

Background: Preventive measures remain the hallmark of effective containment of epidemics such as the recent Coronavirus Disease 2019 (COVID-19) pandemic. These measures are best applied using existing framework for healthcare delivery and epidemic response such as the ward health system (WHS). The structure of the WHS is interrelated to that of the Integrated Disease Surveillance and Response (IDSR) system for effective surveillance and outbreak response in the community. This paper examines the established pattern in disease prevention and the role of the WHS system in COVID-19 pandemic response in Edo State, Nigeria.

Discussion: Disease prevention seeks to avert the occurrence of disease, arrest its progress, and reduce its consequences once it is established. The various taskforce and committees that were formed in response to the COVID-19 pandemic in Edo State were not integrated with existing local government Epidemic Preparedness and Response committees and the Rapid Response Teams. They also had no links with the already established ward development and village development committees in the communities.

Conclusion: There is an existing framework for disease prevention and control based on the WHS in Edo State, however, this system was not integrated into the COVID-19 pandemic response activities. Incorporating and strengthening partnerships with the existing WHS framework would be key for effective pandemic response in the future.

Correspondence to:
Dr. I. O. Alenoghena
Email: alendoc@yahoo.com

INTRODUCTION

On the 31st of December 2019, cases of pneumonia of unknown microbial aetiology in Wuhan City, Hubei Province of China were reported to the World Health Organization (WHO). This disease, which was later designated as Coronavirus Disease 2019 (COVID-19), was declared a public health emergency on 30th January 2020 and further characterized as a pandemic on the 11th of March 2020 in order to emphasize the gravity of the situation and to urge all countries to take action in detecting and preventing its spread.[1] Transmission of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), the virus that causes COVID-19 is from person to person, mainly through respiratory droplets produced when an infected person coughs or sneezes. Other routes have also been implicated in the transmission of coronaviruses, including contact with contaminated fomites and inhalation of aerosols, produced during aerosol-generating procedures.[2,3] COVID-19 disease can be contained and

controlled using standard preventive measures such as hand hygiene, use of face masks and vaccination.[4]

The scope of disease prevention can be illustrated using the model of disease causation based on the concept of the epidemiologic triad which sees the emergence of disease as a function of three linked factors – agent, host and environment. The agent is the factor whose presence is necessary for the occurrence of disease, for example, a virus such as the SARS-CoV-2 causing COVID-19 disease. The host is the individual who is exposed to the agent and gets the disease while the environment refers to the physical, chemical, and biological components that impact on health, as well as cultural, social, economic and political factors. [5]

Therefore, development of appropriate, practical, and effective public health measures to control or prevent diseases usually requires assessment of all three components and modifying the host's interactions with the agent and the broader environment. Likewise, approaches to prevention can be classified into four levels based on the different phases of disease development (natural history of the disease. (Figure 1). This involves classification of disease progression into: pre-pathogenesis phase (which is made up of primordial and primary prevention) and pathogenesis phase (secondary and tertiary prevention).[5,6]

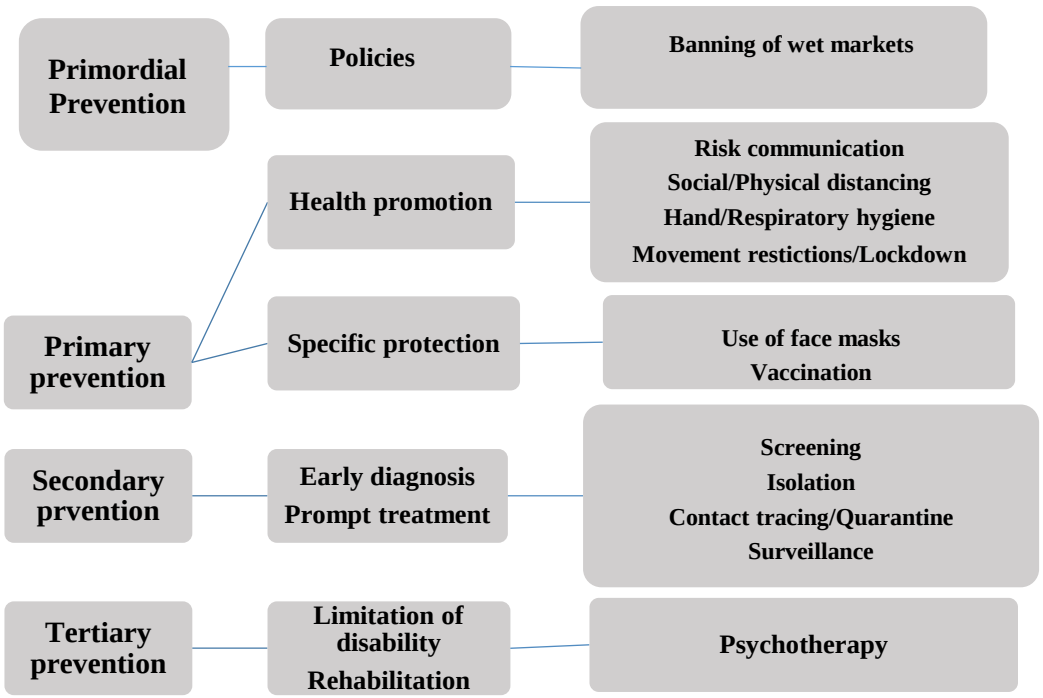

Figure 1: Levels of prevention of COVID-19

Primordial prevention depicts prevention "in its purest form" and aims to inhibit the emergence and establishment of environmental, economic, social and cultural determinants of lifestyle that are known to increase the risk of disease. Primordial prevention focuses on the underlying conditions leading to disease causation.[7] Although primordial prevention was originally applied to non-communicable diseases e.g. coronary heart disease, [5] lessons from its effectiveness may be used to initiate government policies, which may be tailored towards preventing risk factors of communicable diseases that could assume pandemic proportions. It may therefore be applied to government policies with respect to man-animal contact based on perceived dangers inherent in such interaction. An example is the possibility of government policy to outlaw the wet market at Huanan, South China for the prevention of diseases such as COVID-19 amongst others.[5,6,8]

Primary prevention seeks to prevent the onset of specific diseases via risk reduction by altering behaviours or exposures that can lead to disease or by enhancing host resistance to the effects of exposure to a disease agent.[9,10] It seeks to reduce the incidence of a disease and other departures from good health by controlling causes and risk factors. It includes health promotion and specific protection.[6] Health promotion activities for COVID-19 include: hand hygiene, social distancing, respiratory hygiene, restrictions of movements and mass gatherings as well as lockdown at various stages.[11]

Health promotion also involves risk communication and community engagement (RCCE), environmental modification, lifestyle and behavioural changes or nutritional intervention. Risk communication and community engagement also includes prevention of "infodemics" and rumour management. [9] Moreover, effective risk communication uses community engagement strategies to involve communities in the response and develops acceptable and beneficial interventions to stop further amplification of the outbreak and to ensure that individuals and groups take protective measures.

Specific protection includes the use of personal protective equipment (such as face masks) and vaccination. The use of face masks in the community may primarily serve as a means of source control. This measure is particularly relevant in epidemic situations when the number of asymptomatic but infectious persons in the community can be assumed to be high.

Vaccination is the most effective medical intervention ever recorded in human history. Vaccines save millions of lives each year and they work by preparing the body's natural defense to recognize and fight the targeted aetiological agent. They are very important tools which have become game changers in the control of COVID-19. There was no vaccine for COVID-19 until December 2020 when the WHO gave Emergency Use Authorisation for the Pfizer/BioNtech vaccine. [12]

Currently, at least ten COVID-19 vaccines have obtained Emergency Use Listing (EUL) from the World Health Organization and have been rolled out across the globe. [13]

Secondary prevention includes early diagnosis and prompt treatment. Early recognition of new cases through screening is the cornerstone of prevention of transmission. This leads to early and prompt interventions such as isolation of all

suspected/confirmed cases of COVID-19 and implementing recommended infection prevention and control procedures according to local protocols. This stage of disease prevention also involves contact tracing and quarantine of contacts.

Quarantine is the most effective method in reducing both the number of infections and deaths. It has been much more effective in countries which initiated strict quarantine rules right from the beginning. Quarantine has been reported to reduce the number of infected at rates from 81% to 44% and in the number of dead from 61% to 31%.[14] The WHO recommends that contacts of patients with laboratory-confirmed COVID-19 be quarantined for 14 days from the last time they were exposed to the patient. Active monitoring of people who are quarantined is one of the important points for controlling the epidemic in the community. There are several mandatory mobile phone applications that control the compliance of people to quarantine in countries such as China, Japan and Korea.[11] Molecular testing is required to confirm the diagnosis of COVID-19, thus it is imperative to increase the coverage of population testing in order to improve case detection and ensure effective control.[11] Tertiary prevention seeks to reduce the impact of established disease by eliminating or reducing disability; minimizing suffering; and maximizing potential years of quality life. It aims to reduce the number and/or impact of complications. This can be achieved by limitation of disability and rehabilitation.[5]

Existing Framework for Community Prevention and Control of Diseases in Edo State

The ability of countries and regions to tackle the COVID-19 pandemic head-on is hinged on the robustness of its health system. The building blocks of successful health system in developing countries including Nigeria, remain the primary health care (PHC) system.[15] The goal of the Nigerian national health policy is to bring comprehensive care to the homes of individuals and families, leading to sound health and productivity and this is achieved using the ward health system (WHS).[16] In line with this, the various components of primary health care are currently delivered to individuals and households in all communities in Edo State using the WHS for healthcare delivery (Figure 2).[17] The mandate of the WHS is to operate from the ward, which is designated as the administrative or electoral division of an area such as a city, town or county or Local Government Area (LGA). It is the smallest political structure; with population range of 10,000 to 30,000 people and with about ten (10) wards per LGA, each represented by an elected councillor.[18] Therefore, the WHS serves as the operational base for community mobilization. Although, settlements in various communities are well spelt out in rural LGAs, the WHS provides a viable alternative for subdividing the urban and semi-urban LGAs into such units; where social integration diminishes the importance of village settlement. [17]

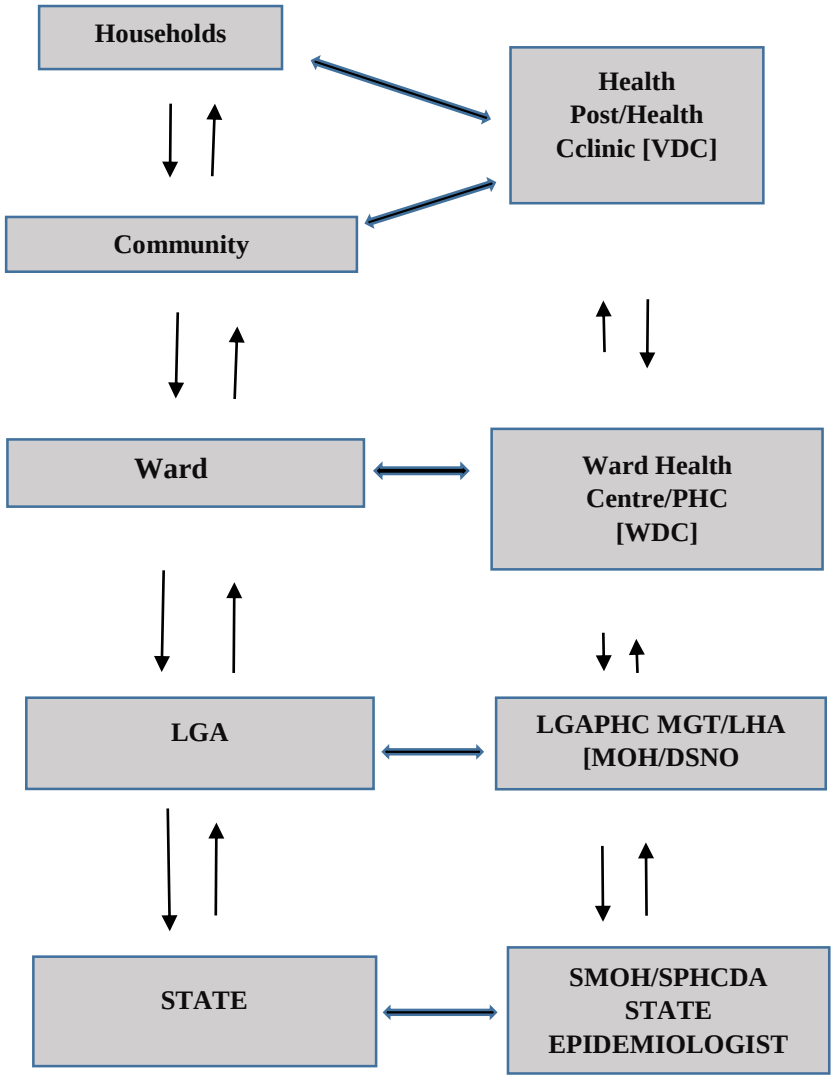

Figure 2: Algorithm for flow of information in PHC delivery using the Ward Health System

The main rationale for selecting a ward as an operational area for delivering PHC interventions is to mobilize political commitment to health service delivery as a requisite for community participation and social development. In order to operationalize primary health care delivery, there is a ward development committee (WDC) for every ward. The membership of this committee includes: Ward/Clan head as patron; an elected chairman; secretary; chairmen of village/community development committees; school headmaster; senior agricultural extension worker/community health officer; representative of occupational groups like the village health worker (VHW), or traditional birth attendant (TBA), non-governmental organizations (NGOs,) religious groups, women and youth groups, chairmen of patent medicine and store dealers as well as traditional healers.[17, 18]

The functions of the WDC include: identification of health and social needs of the ward and planning solutions. This involves planning for adequate response for diseases outbreaks; mobilization of resources (human and material); supervision of the monitoring and evaluation (M & E) of health

activities in the ward; mobilization for community participation in all health and health-related programmes (including COVID-19); liaison with government, non-governmental organizations and other partners in the implementation of health programmes; forwarding plans from villages and the wards to Local Government Area Primary Health Care (LGA/PHC) management committee and providing feedback; supervision and support to community health extension workers (CHEWs) and TBAs or VHWs; support the establishment of health facilities and overseeing their functions at ward level.[17] The presence of these committees will engender functional community mobilisation using appropriate Information Education Communication (IEC) or Behavioural Change Communication (BCC) strategies. Moreover, the Village Development Committee (VDC) is a replication of the design of the WDC at the village/community level. Its patron is the village or community head and the chairman is a respectable person in the community. Its membership includes representative of religious groups, women's groups, youths, NGOs, VHW/TBAs, professional groups and patent medicine dealers. [17] All these, work together to ensure that there is community participation in PHC implementation.

These committees also engender better coordination of disease surveillance and response within the wards and LGAs.[19] In Edo State, disease surveillance is carried out in line with the Nigerian guideline for Integrated Disease Surveillance and Response, which rests squarely on the PHC structure at the community level.[20] Whereas the flow of authority and command, based on hierarchy is from the State Ministry of Health/State Primary Health Care Development Agency (SMOH/SPHCDA) through the Local Government Area Primary Health Care (LGAPHC) management committee to the WDC, information based on epidemic response is in the reverse.[14]

The primary health care workers at the community level play a critical role in galvanizing the whole process. Hence, the response strategy to all epidemics/pandemics should be primarily geared towards strengthening and/or re-activating the village and ward structures in the LGAs. Effective outbreak responses should be hinged on improving community ownership of communication interventions and primary health care delivery.[21] This should involve integration of the political, cultural and religious stakeholders within the communities in planning, implementation and evaluation of health interventions. Nonetheless, the prevention and control of endemic and epidemic diseases; which is one of the service components of primary health care also entail the stages of preparedness planning for health emergencies.[22]

The Integrated Disease Surveillance and Response (IDSR) provides the principal mechanism by which infectious disease outbreaks can be detected and responded to when fully integrated with existing community structures.[23] Community outbreak responses basically include active surveillance, early detection, isolation and case management, contact tracing and prevention of onward spread. It is also noteworthy to state that outbreak response is better when a multi-pronged strategy is adopted; because of the multifactorial pattern of spread of most diseases.[17] All in all, epidemic response at the community level remains the melting point in terms of prevention and control of diseases. It is typically able to integrate

with the external support to provide the necessary ingredients of an epidemic cycle; which ranges from prevention, preparedness, readiness, response and recovery from the disease.[24] Furthermore, the success of every national response strategy, including varying levels of contact tracing and self-isolation or quarantine; promotion of public health measures, including hand washing, respiratory etiquette and social distancing is hinged on an organised primary health care system at the community level.[14]

Outbreak Response to COVID-19: Neglecting the Existing Structures

Edo State recorded its index case of COVID-19 on the 23rd of March, 2020. Between that date and 18th July, 2022, it had tested 140,506 persons; with 7,741 confirmed cases, 7,384 recoveries and 321 deaths across the state. In addition, 230,364 and 137,311 persons have been partially and fully vaccinated, respectively with AstraZeneca, Moderna, Johnson & Johnson and Pfizer vaccines.[25] The Incident Management Unit of the State Public Health Emergency Operation Centre (EOC) was activated shortly after identification of the index case of COVID-19. This action was in line with the national action plan for control of epidemic/pandemic diseases in Nigeria.[26] Although, the mandate of the incident management unit of the EOC is to organize and plan outbreak response to an epidemic/pandemic; it is expected that this should be carried out without altering or disrupting the already established epidemic outbreak response structure at various levels of care.[22] Furthermore, once the incident management unit is activated, it is expected to strengthen surveillance and case detection at all the levels during outbreak response. The EOC typically comprises multiple pillars; which include coordination; surveillance and epidemiology; case management; laboratory; infection control and prevention; risk communication; logistics and research.[27] Whereas the EOC at every level is the central location for coordinating operational information and resources for strategic management of public health emergencies and events, its overarching role must get to grass-roots during epidemics/pandemic for effectiveness.[27]

The Edo State Task Force Committee on COVID-19 Management was inaugurated on the 15th of March, 2020. In the same vein, task force committees were equally inaugurated across the 18 LGAs on the 25th of March 2020.[28] These committees, although without clear technical functions were inaugurated and charged with the responsibilities of providing the needed political and cultural support in the control of COVID-19 disease across Edo State. The State Technical Committee (STC) on control of COVID-19 disease was also constituted shortly after the inauguration of the state taskforce on control of COVID-19. The STC is primarily charged with the supervision of risk communication; human resources; logistics; safety and security; as well as incident management in the control of COVID-19.[28] Moreover, the STC committee is also expected to monitor facility-based screening and community mobile-based screening for COVID 19. However, this function was poorly implemented in Edo State because of the inability of the state team to integrate the existing community structures across the 18 LGAs in the state. Whereas, the state task force on COVID-19 was made up of the risk communication unit; security agencies; officials of the Nigerian Centre for Disease Control (NCDC)

and NGOs/bilateral agencies, the local government taskforce was made up of representative from all the political wards (the councillors); the medical officer of health and representatives of the traditional rulers in the LGA and the LGA chairman who heads the committee. The state taskforce on COVID-19 monitored the training of HCWs across the 18 LGAs of the state; decontamination of homes/offices of confirmed cases; translation of IEC materials into several Edo languages and provision of personal protective equipment (PPE) to health care workers and security agencies in the state.[15] Although, the state task force and the technical committee on control of COVID-19 appear to be a direct reflection of the epidemic response strategy of the NCDC at the state and local government level their failures to achieve the desired mandate may be based on their inability to harness the strength of already established health committee at the Local Government and community level.[24]

The existing epidemic response committees at Federal, State and Local Government level, which ought to have been properly integrated into the newly constituted pandemic response committees include: the Epidemic Preparedness and Response (EPR) committees at the national, state and local government levels. These committees, at the national and state levels are typically made up of the Honourable Minister of Health/Commissioner for Health; the Director of Public Health; Director of Hospital Services; Director of Nursing Services; the Director of Disease Control, Federal Ministry of Health (FMOH)/State Epidemiologist; Director of finance and representation of partner agencies. These committees were meant to plan and coordinate epidemic response activities. They were to meet regularly and monitor epidemic interventions. [20,23]

The membership of the epidemic preparedness and response committee at the LGA level include the following: LGA chairman, Supervisory Councillor for health, medical officer of health (MOH), disease surveillance officer (DSNO), public health nurse, pharmacist, environmental health officer, laboratory scientist and veterinary expert. The committee also has representatives from the NGOs, community and private sector. This committee typically coordinates the LGA epidemic response activities. It supervises all activities concerning resource mobilization and utilization before and during an epidemic/pandemic.[20]

Beyond the EPR committee, within the context of epidemic preparedness and response is the Rapid Response Team (RRT), which handles the core technical aspects in the prevention and control of epidemic/pandemic prone diseases.[20] This committee is made up of the Director of public health at the state level; the state epidemiologist, medical laboratory scientists; public health nurse, environmental health officer; the state DSNO and representative of partners. Furthermore, at the LGA level, the RRT is made up of the medical officer of health, a public health nurse, laboratory technician, clinician, environmental health officer, immunization officer, DSNO and partners. [20] Again, during the recent response to the COVID-19 pandemic, these committees were not properly incorporated into the activities of the taskforce and command centres.

Historically, attempts have been made at the federal level to achieve a harmony in terms of

national epidemic response to diseases. This led to the creation of the Nigeria Centre for Disease Control in 2011.[23,29] It was however formed through the amalgamation of the Epidemiology Division of the Federal Ministry of Health, Avian Influenza project and the Field Epidemiology and Laboratory Training Programme (NFELTP).[29] The NCDC has consolidated on its mandate at the federal level with establishment of an Incident Coordination Centre (ICC); its partnership with foreign agencies and the success story of its response to Ebola Virus Disease (EVD) in 2014.[29,30] This organizational feat was also displayed in the pre-outbreak preparedness for the COVID-19 pandemic; with the notification of the virus on the 7th of January, 2020 and the subsequent establishment of a multi-sectoral National Coronavirus Preparedness Group (NCPG). on the 26th of January, 2020.[26] The NCPG was subsequently transformed into the National Emergency Operation Centre, during the COVID-19 outbreak. It is still disturbing to note that the mandate of NCDC has not reached the grass-roots, with the failure of states and local governments across the country to replicate its kind, thus resulting in an overall reduction in the effectiveness of epidemic response at these levels.[23] Indeed, the poor integration of existing structures into the work plan could be observed in the COVID-19 preparedness and response in public health action/interventions in Nigeria, January-May 2020.[26] Although this work plan proposed strengthening the three existing molecular laboratory in the country at the time, interim protocols and guidelines for management of COVID-19 and infection prevention and control, there was no mention of strengthening or re-activation of epidemic preparedness and response committees or the rapid response team at the state or local government level.[26]

Lessons Learnt

The state taskforce and local government taskforce that were inaugurated at various times during the onset of the COVID 19 pandemic in Edo State,[28] though with ambitious roles in pandemic control, were not properly integrated with existing epidemic outbreak response committees within the local government and communities. A structural problem which may have resulted in a relative gap in the overall epidemic response. Much more disturbing was that the membership of the LGA COVID-19 committees were people without any pedigree in participation in health care delivery at the community level. This has probably resulted in less community participation, poor data management and failure to pass the right information across. Strengthening of existing health committees at the local government and ward level, with functional collaboration with the surveillance officers therefore remains one of the most strategic steps in epidemic/pandemic preparedness, especially in developing countries like Nigeria.[31] The need for strengthening of these committees and data reporting by the surveillance officers have been reported in South Sudan and Indonesia.[31,32] The WHS which is an integral part of the health system should have been adequately integrated into the response activities of the COVID 19 pandemic in Edo State. The apparent failure of the state to re-activate or strengthen the WDC and the VDCs which are the active ingredients of the WHS may have resulted in poor community participation, which has been shown to

contribute to poor health outcomes including vaccine hesitancy in similar settings.[15]

Conclusion

The existing framework for disease prevention and control in Edo State reveals the implementation of the ward health system, however, this was not adequately integrated into the current COVID-19 pandemic response in the state.

The Way Forward

Epidemic/pandemic outbreak responses should not undermine the existing epidemic response structure for states and local governments. The state government should as a matter of urgency reactivate and strengthen the existing health committees of the WHS, to enable them promote optimal community participation in health care delivery as well disease outbreak responses. Furthermore, the State and Local Government should carefully re-organize already constituted EPR committees as well as the RRT and link them with all the state components for optimal health outcome. In addition, the NCDC should carefully incorporate existing grass-roots committees at the Local and State level into its organ and structure for efficiency.

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