

# **SUMMER PROJECT REPORT (PART I)**

**Literature review on the impact of Diabetes control programme in Kerala**

**By**

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**AIM:** Literature review on the status of Diabetes Control Programme in Kerala

**OBJECTIVES:**

To study and interpret the implementation of Diabetes Control programme in Kerala

To identify the impact of the Diabetes Control programme in Kerala

To give recommendations to reduce diabetes in the state of Kerala.

**METHODOLOGY:**

Secondary data collected from (1) systemic review of key literature from articles, policy documents and journals (2) relevant websites and survey reports (NFHS-4, NHM Kerala, Rural Health Statistics , IDSP NCD Survey, WHO Reports, IDF Atlas).

**INTRODUCTION:** According to American Diabetes Association, Diabetes is a metabolic disorder characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both which leads over time to serious damage to the heart, blood vessels, eyes, kidneys and nerves. It is one the major global health challenges of the 21st century. The International Diabetes Federation estimated that in the year 2019, approximately 463 million adults (20-79 years) were living with diabetes and it is expected to rise in the coming years.

### **Global Burden of Diabetes :**

Diabetes is a global health problem that has posed serious problems in both the developed and the developing countries. In the year 2000 the prevalence of diabetes attributed to 171 million and India topped the world with the highest number of people with diabetes followed by China and the United States respectively(as per WHO report on global prevalence of diabetes)

In 2014, 1.5 million deaths occurred due to diabetes that constituted 4% of all deaths due to non communicable diseases (as per WHO global status report on non communicable diseases, 2014).

**Table 1 shows list of countries with the highest numbers of estimated cases of diabetes for the year 2000 (Source: WHO report on global prevalence of diabetes)**

| <b>RANKING</b> | <b>COUNTRY</b>     | <b>People with Diabetes<br/>(millions)</b> |
|----------------|--------------------|--------------------------------------------|
| 1              | India              | 31.7                                       |
| 2              | China              | 20.8                                       |
| 3              | U.S.               | 17.7                                       |
| 4              | Indonesia          | 8.4                                        |
| 5              | Japan              | 6.8                                        |
| 6              | Pakistan           | 5.2                                        |
| 7              | Russian Federation | 4.6                                        |
| 8              | Brazil             | 4.6                                        |
| 9              | Italy              | 4.3                                        |
| 10             | Bangladesh         | 3.2                                        |

## **India Scenario:**

- As per WHO Diabetes Countries Profile, India, 2016, prevalence of diabetes in India contributed to 7.8% and the number of deaths due to diabetes constituted up to 2.2 lakh of the population.
- Envisaging the magnitude of non communicable disease, Government of India, initiated a state based Integrated Disease Surveillance Project –Non Communicable Disease risk factor survey Phase-I in 2007-2008 in seven states of India having high risk of non communicable diseases (Andhra Pradesh, Kerala, Madhya Pradesh, Maharashtra, Mizoram, Tamil Nadu and Uttarakhand). for each 10 years age group (15-24 through 55-64) by sex and place of residence based on physical measurements, demographic and behavioral information..6% rise in Kerala was reported to have history of raised blood sugar as compared to other states.
- India currently faces an uncertain future in relation to the potential burden that diabetes may impose upon the country, with changing lifestyles and expanding living standards the prevalence of diabetes and other non communicable disease is expected to increase in the coming years.

## **Kerala scenario:**

- According to the report on the National Family Health Survey 4, 2015-2016 prevalence of diabetes in Kerala is as high as 32.9% compared to the national average of 20.5%.
- As reported by Department Health and Family Welfare, Kerala 27% of adult males and 19% of adult females are diabetic .This high prevalence of diabetes has contributed to Kerala state being called as the *Diabetic capital of India*.

**Table 2 shows the prevalence of diabetes in Kerala compared to India  
(Source: Fact Sheet NFHS 4, 2015-2016)**

| <b>INDICATORS</b>                                          | <b>INDIA</b> |              |              | <b>KERALA</b> |              |              |
|------------------------------------------------------------|--------------|--------------|--------------|---------------|--------------|--------------|
|                                                            | <b>Urban</b> | <b>Rural</b> | <b>Total</b> | <b>Urban</b>  | <b>Rural</b> | <b>Total</b> |
| <b>Blood Sugar level among Adults (age 15-49 years)</b>    |              |              |              |               |              |              |
| <b>Women</b>                                               |              |              |              |               |              |              |
| <b>1. Blood sugar level – high (&gt;140mg/dl) (%)</b>      | 6.9          | 5.2          | 5.8          | 8.4           | 9.0          | 8.7          |
| <b>2. Blood sugar level – very high (&gt;160mg/dl) (%)</b> | 3.6          | 2.3          | 2.8          | 4.8           | 4.8          | 4.8          |
| <b>Men</b>                                                 |              |              |              |               |              |              |
| <b>3. Blood sugar level – high (&gt;140mg/dl) (%)</b>      | 8.8          | 7.4          | 8.0          | 13.7          | 12.6         | 13.1         |
| <b>4. Blood sugar level – very high (&gt;160mg/dl) (%)</b> | 4.4          | 3.5          | 3.9          | 4.7           | 7.7          | 6.3          |

## **Background:**

- Non communicable disease burden has posed a serious threat to the lives of people. Considering the high burden of non communicable diseases and related risk factors the Government of India launched **National Programme for Prevention and Control of Diabetes, Cardiovascular Disease and Stroke** (NPCDCS) under National Health Mission. The programme was implemented in pilot phase in Kerala in Thiruvananthapuram district in the year 2008 and in the year 2010 it was implemented across 5 districts having high burden of NCDs. The main objectives of the programme was health promotion through behavior change, outreach camps for opportunistic screening, setting up of NCD clinics, capacity building , early diagnosis and cost effective treatment. The programme screened up to 1.3 crore people in 2011-2012 and 4 lakh new diabetes cases were detected.
- Given the high burden of people in the state suffering from renal diseases following diabetic nephropathy and stroke, uncontrolled hypertension the state decided to move its focus from screening and early diagnosis and started to make efforts to secondary level care because of the huge demand for curative services.
- Despite identifying NCD control as priority of the state, centre funding for scheme under NHM has been paltry, this resulted in the need for the state to formulate its own strategy to ensure structured NCD control programme. Moreover, as public health is a state subject the primary responsibility to provide quality health care to the people lies with the State

➤ To supplement the efforts of the state and to extend the benefit of the programme to the entire population the State Health Department and the Government of Kerala jointly launched **Amrutham Arogyam** programme to prevent lifestyle diseases in the year 2013 to address the long standing issue of Non communicable diseases and the associated risk factors across all the 14 districts of Kerala. Under the programme when 1.34 crore people were screened and clinics were started family health centers and sub centers for diagnosing lifestyle diseases.

➤ The objectives of the programme lie in 4 levels:

❖ Primordial level: Reduction of risk factors in the population

❖ Primary level : Health education for the population on healthy diet, exercise and ill effects of addiction

❖ Secondary level- Screening for the population above 30 years of age for non communicable diseases and free supply of medicines for all detected with NCDs

❖ Tertiary level- Early management and treatment of complication

## **KEY FINDINGS:**

- The study conducted by Indian Council of Medical Research estimated that 19.4% people have diabetes in Kerala. In addition to this there is also a high burden of risk factors and complications associated with diabetes also increases the risk for high blood pressure, stroke and complications like diabetic nephropathy and diabetic foot. Diabetes can be successfully managed and complications prevented, when detected early, which is not happening in Kerala at that level .
- The prevalence of diabetes mellitus can be attributed to modern lifestyle of urban population compared to the traditional lifestyle of rural population. Other factors that contribute to diabetes include unhealthy diet, sedentary lifestyle, high consumption of alcohol, lack of physical activity and air pollution. It is also significantly associated with high percentage of body fat, and those who indulged in risk behaviors like abnormal consumption of tobacco.
- Some other issues like health education, prevention and early treatment are ignored by most persons involved patients, caregivers and administrators. Focus on the preventive strategy is not adequate. Also globalization in market has brought processed foods and diets high in total energy, fats, salt and sugar into millions of homes. Poor levels of awareness about the long term consequences of diabetes are among the issues that need immediate attention.

Non communicable life style diseases pose a huge threat to the nation's public health system both in terms of morbidity, mortality and economic burden it imposes. In order to address one of the most common public health challenges and the introduction of the centrally sponsored **National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCPDCS)** in the year 2010. The programme was implemented in the 5 districts of Kerala but there were certain gaps that were found in the programme:

- According to DLHS-4 (2012-2013) a total of 24.7% diabetes cases were reported in the 18 and above age group. According to DLHS-4 (2012-2013) a total of 24.7% there was a need to shift paradigm from screening stage and to invest more in secondary level care of those with lifestyle diseases because of increasing burden of disease and demand for curative services.

- According to the annual report by Department of Health and Family welfare, 2013-2014 under NPCPDCS there was establishment of only 5 NCD clinics at the district level and no NCD clinic at the community health centre and sub centre was reported. Due to less number of NCD clinics low detection rates were found in terms of screening of NCDs.
- Fund allocation under National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) (under NHM) in the year 2014-2015 was 545 (amount in lakhs) which was further reduced to 217 (amount in lakhs) in the year. The reduced funding also somehow caused roadblocks in the successful implementation of programme.
- Even though the programme emphasised on the free drug distribution but the studies have reflected the lack of provision of drugs .

The State of Kerala felt the need to develop of a structured framework at a broader level which resulted in the initiation of a state run Non Communicable Diseases Control programme- **Amrutham Arogyam** in the year 2013. The programme was pilot tested in several districts and after successful implementation all the districts in Kerala were covered under the programme.

**Benefits of the programme:**

- The programme extended its coverage across all districts and the services were rendered through all the district and general hospitals, sub district hospitals, community health centres, primary health centres and even the 5400 sub centres which cater to a population of five thousand.
- 9.01 lakh new diabetes cases were subjected to screening and approximately 27 lakh diabetes patients have been registered and are availing the benefits of the programme at the Amrutham Arogyam clinics (as per the National Health Mission, Government of Kerala).

- The Amrutham Arogyam clinics have been providing successful screening and treatment for diabetic foot and diabetic retinopathy as a part of secondary care.
- All NCD clinics including sub centre clinics are being provided with glucometres, BP apparatus and weighing machines for screening and special equipments like Non Mydriatic Cameras, Biothesiometers, and Hand held Dopplers based on their service provision.
- Provision was made for free drug distribution for the entire population by using state NCD funds. In the year 2013-2014 state NCD funds of 4 crore were used for procuring drugs for the distribution of drugs including insulin for the treatment of diabetes.

## **DISCUSSION:**

Amrutham Arogyam programme have been successfully implemented in the state of Kerala and has addressed the gaps in the NPCDCS in terms of extending early screening, diagnosis, prevention and free drug delivery across all districts and health care delivery systems but still the recent studies in Kerala have suggested that not much impact was seen in terms of overall picture of reduction in diabetes disease burden in Kerala.

## **CONCLUSION:**

As Kerala has the highest number of Diabetes cases and the prevalence in this state is the highest, the state has to ensure community participation, build infrastructure and bring in due legislation to overcome issues related to diabetes. Also it becomes necessary to address the issues and loopholes.

## **RECOMMENDATIONS:**

- There is a need to provide fair amount of resources for the programme so that the requirement for infrastructure and manpower can be fulfilled.
- For the purpose of providing more infrastructure and manpower fund allocation needs to be increased for successful implementation of the programme.
- Secondary care is required to scale up for the programme apart from screening and early diagnosis for the management of high burden of risk factors associated with diabetes
- Greater provision to provide medicines at affordable prices in the pharmacies need to be made across all districts of Kerala to reduce financial burden of drugs on patients.

# **REPORT ON ONLINE COURSE (PART II)**

## **HEALTH SYSTEMS STRENGTHENING**

*THE UNIVERSITY OF MELBOURNE, THE NOSSAL INSTITUTE FOR GLOBAL  
HEALTH AND UNICEF*

## **COURSE DESCRIPTION**

The course is eight weeks long. Within each week, three to four activities are designed to impart skills and knowledge needed to for the better understanding of the health systems strengthening framework. The course introduces us to the health system concepts, structure, functions, and how various approaches work to make us understand the complexity of health systems and how the systems thinking can be applied to health systems strengthening .

## **OBJECTIVES OF THE COURSE**

- To develop knowledge and skills in health systems strengthening (HSS) so as to improve health outcomes for disadvantaged women and children.
- To apply complex systems thinking in the design and implementation of interventions used in the health systems strengthening.
- To evaluate health systems strengthening interventions for their evidence base, sustainability and capacity to support universal health coverage

## **COURSE COVERAGE:**

### **WEEK 1: INTRODUCTION TO HEALTH SYSTEMS STRENGTHENING**

It covers the meaning and the basic concepts related to health system strengthening. It gives us a guide to think about health systems and health system strengthening since the Alma-Ata Conference in 1978 which aims to achieve “Health for all by the year 2000” (WHO, 1981), right up to the focus on universal health coverage. It makes us understand how conceptual framework help us to make health systems working better and introduces us to the main frameworks including World Health Organization’s (WHO’s) health system building blocks .It presents the concepts of system complexity and their role in health system performance such as path dependency, feedback loops, tipping points and emergent behavior. It explores the kinds of interventions that have helped to reinforce the availability of comprehensive primary health care close to communities.

## **WEEK 2: EQUITY IN HEALTH SYSTEM STRENGTHENING**

It covers the meaning of equity and examines ways in which equity is measured and reported. It identifies and characterizes inequity and describes how health systems can be shaped to address and account for inequity. It explores how the health system approach can be used to undertake equity analysis. It shares case studies from a variety of settings to make us think how the frameworks and lessons can be applied to our own context.

## **WEEK 3: HEALTH SYSTEMS STRENGTHENING ACTIONS AT DIFFERENT LEVELS OF THE HEALTH SYSTEM**

It covers how the health system strengthening efforts can be applied to the national, sub national and community levels of the health system. It looks into the national planning process in the health system. It focuses on the health systems strengthening at the sub national or district level. It focuses on the community level health systems and community engagement. It helps us to understand the roles of community and frontline health workers, and how relevant tools and approaches to improve community-based health systems can be adapted to work in different contexts.

## **WEEK 4: HEALTH FINANCING**

It covers the four functions of health financing: collection, pooling, purchasing and payment. It makes us understand the role of government revenues in funding health care. It also talks about the way we can do a fiscal space analysis to assess where additional funds might be available and finally it gives us information about the data sources and modeling tools used in health financing, and identify their strengths and gaps.

## **WEEK 5: HUMAN RESOURCES FOR HEALTH**

It covers the human resources that are a part of health systems. It addresses the differences in levels of unemployment among health professionals in different countries. It describes how health systems differ in the way they define the professional categories that make up the health workforce. It discusses about how the management of the health workforce is implicated in how well it performs

## **WEEK 6: SUPPLY CHAIN MANAGEMENT**

It covers one of the most fundamental elements of the health system i.e. Supply Chain Management, the way they contribute to health system strengthening, and systems-wide and issues-based approaches to strengthening procurement and supply chain management at national, sub national, and community levels. It discusses the challenges and potential solutions of greater integration of supply chain management within existing health systems and factors that influence the resilience of health systems in emergency settings, fragile states and in countries that have differing capacities of their health systems.

## **WEEK 7: QUALITY OF CARE**

It covers where and how quality of care fits in health systems strengthening, examines the definitions of quality and review WHO 2015 framework for quality of maternal and newborn care in facilities. It discusses the importance of multi sectoral involvement in the provision of quality care. It provides us with the understanding of the components of quality care provision. It informs us regarding the regulatory approaches that are designed to ensure consistency and quality at the national level. Examples include accreditation processes and social franchising. Finally it looks into the ways to ensure that the quality improvement systems are benefiting the disadvantaged and vulnerable populations.

## **WEEK 8: MANAGING A MIXED HEALTH SYSTEM**

It introduces us to the mixed health systems. It discusses the role of private sector in improving population health. It makes us understand the types of private providers serving the population and the kinds of services they provide. It gives us an overview on the type of engagement with different civil society organisations and stakeholders we need to select in a given setting.

### **KEY LEARNINGS FROM THE COURSE:**

- Using your knowledge and skills in health systems strengthening to improve outcomes for disadvantaged populations.
- Applying complex systems thinking in the design and implementation of health systems strengthening interventions.
- Applying health system interventions for their evidence base, sustainability and capacity to support universal health coverage.
- Using evidence and analysis of inequity to drive interventions to strengthen health systems.

- Strengthening health systems through action in areas such as health policy, financing, human resources, supply chain management, quality of care and private sector engagement.
- Learning about concept of universal health coverage, primary health care approach and widely used frameworks for health systems strengthening, including the World Bank and WHO frameworks, and understanding the health systems as a complex adaptive system.
- Addressing the complex health system determinants of weak supply chains.
- Learning about community level systems and the different ways communities can engage with health systems to affect accountability, transparency and their right to health.
- Identifying inequities in service delivery and health outcomes and the link between quality of care and health systems strengthening.
- Learning about the principal components of health care financing and role of government in funding health care.
- Management of health workforce.
- Influence of mixed health systems on health services in low- and middle-income countries.

THANK YOU