2. **Literature Review:**

2.1 **Hyacinthe Tchewonpi Kankeu, Priyanka Saksena, KeXu and David B Evans (2013)**

Non-communicable diseases (NCDs) were previously considered to only affect high-income countries. In this paper, we examine both the costs of obtaining medical care and the costs associated with being unable to work, while discussing the methodological issues of particular studies. In particular, in the treatment of diabetes, insulin – when required – represents an important source of spending for patients and their families. The costs associated with lost income-earning opportunities are also significant for many households. NCDs impose a substantial financial burden on many households, including the poor in low-income countries. The financial costs of obtaining care also impose insurmountable barriers to access for some people, which illustrates the urgency of improving financial risk protection in health in LMIC settings and ensuring that NCDs are taken into account in these systems.

2.2 **Ajay Mahal, Anup Karan, Michael Engelgau, The Economic Implications of Non-Communicable Disease for India (2010):**

In 2004, 4.8 million (59.4 percent) of the estimated 8.1 million Indian deaths were due to NCDs. With India’s population aging over time and a higher incidence of NCDs in older age groups, and with evidence emerging that the India’s poor are at heightened risk of acquiring NCDs owing to high rates of smoking and tobacco use. The share of NCDs in out of pocket health expenses incurred by households increased over time, from 31.6 percent in 1995-96 to 47.3 percent in 2004. In 2004, assuming that all care-givers and sick individuals above the age of 15 years were productive yielded an annual income loss from NCDs of one trillion rupees. More than one-third of all income losses were due to CVD and hypertension.

2.3 **The Global Economic Burden of Non-communicable Diseases (2011):** The health community and the business community are both concerned about the burden of NCDs and its likely growth in coming decades. If the report is correct in its assessment of the economic threat posed by NCDs, then the evidence it has marshaled, will be useful to the world’s economic leaders – top government officials, including finance ministers and their economic advisors – who control large amounts of spending at the national level and who have the power to react to the tremendous economic threat posed by NCDs. NCDs matter significantly at the national level, treatment expenses can be high and the loss of labour due to chronic disease can make
a substantial dent in a country’s productive capacity. A large portion of health spending is appropriately viewed as investment – one that yields a handsome rate of return.

2.4 K Srinath Reddy, Prevention and Control of Non-Communicable Diseases: Status and Strategies (2003): This paper formed part of a series of background papers prepared for the India Health Study, “Changing the Indian Health System: Current Issues, Future Directions” by Rajiv L. Misra, Rachel Chatterjee, and Sujatha Rao. The India Health Study, prepared under the team leadership of Rajiv Misra, former Health Secretary, Government of India, This paper examines the socio-economic impact and burden of NCDs and discusses various strategies for the prevention and control of such diseases in India.

2.5 Rachel Nugent, Benefits and Costs of the Non-Communicable Disease Targets for the Post-2015 Development Agenda (2015): The post-2015 target of reducing premature deaths from non-communicable diseases (NCDs) by one-third by 2030 is ambitious, but can come close to being reached with increased coverage – especially in low-and middle-income countries (LMICs) – of a handful of cost-effective interventions that will avert 5.02 million premature deaths from NCDs in 2030, equivalent to a 28.5% reduction in projected NCD mortality. The average benefit-cost ratio is 9:1 at a global cost of $8.5 billion per year. The intervention benefits and costs and benefit per dollar are shown. These interventions are consistently demonstrated to be cost-effective in HIC and LMIC settings, 1-4 and are standard in high-income countries (HICs).

2.6 Sudeep Chand, Silent Killer, Economic Opportunity: Rethinking Non-Communicable Disease 2012: NCDs have their place alongside economic risks such as infectious diseases, illicit trade, migration, terrorism, food insecurity the United Nations, World Bank and World Economic Forum are taking a closer look also clear that inadequate governance of externalities is the norm. Achieving the goals of the WHO Framework Convention on Tobacco Control is a must. The absence of low-cost palliative care also represents a shocking failure to relieve pain and protect human rights. Health system reform will be a major challenge in an era of financial austerity
and beyond. NCDs, simply because they cause so much collective disability, must take their place on the international stage, as they already do in our lives.

2.7 **Addressing the Social Determinants of Non communicable Diseases, 2013:** NCDs are an enormous and growing strain on health systems worldwide and exact social and economic costs at national and household levels. LMICs face daunting NCD burdens, the health sector, however, cannot meet the challenge alone. Multisector responses that tackle the underlying, overlapping and interacting social determinants of NCDs will be required. WHO’s ‘Global Action Plan for the Prevention and Control of NCDs 2013–2020’, the GMF and various other strategies already point the way forward for whole-of-government and whole-of-society responses.

2.8 **Economics of Non-Communicable Diseases in India Executive Summary, 2014:** NCDs are a large and growing challenge for India’s future economic growth and its population’s well-being. Business leaders and the government feel the threat of NCDs, and the country has already moved to address it via public policy initiatives (e.g. NPCDCS). This document attempts to provide information on NCDs and related interventions, highlight areas for improvement, and identify where India gets a favorable ROI in healthy living. Because data shows that returns can be particularly high for prevention programmes (whose benefits are seen in the long run), elected officials must take a concerted long-term view so that the economic benefits can be seized in the future.

2.9 **Joy Kumar Chakma, Sanjay Gupta, Lifestyle and Non-Communicable Diseases: A double edged sword for future India, 2014:** According to WHO Report 2004, they account for almost 60% of deaths and 47% of global burden of disease. Epidemics of NCDs are presently emerging or accelerating in most developing countries. In India, 53% of the deaths in 2008 were due to NCDs (WHO) and cardiovascular disease (CVDs) alone account for 24 percent of all deaths. As of 2005, India experienced the “highest loss in potentially productive years of life” worldwide and the leading cause of death was cardiovascular disease; mostly affecting people aged 35-64 years. This review discusses the current scenario of NCDs with their impact on health and socioeconomic development, the threat posed by the rising trends of disease burden along with socio-demographic transition and the challenges needs to be addressed for the prevention and control of NCDs.
2.10 Oyinlola Oyebode Utz J. Pape, Anthony A. Laverty, John T. Lee, Nandita Bhan, Christopher Millett, Rural, Urban and Migrant Differences in Non-Communicable Disease Risk-Factors in Middle Income Countries: A Cross-Sectional Study of WHO-SAGE Data, 2015: Understanding how urbanisation and rural-urban migration influence risk-factors for non-communicable disease (NCD) are crucial for developing effective preventative strategies globally. WHO Study on global Ageing and adult health (SAGE), surveyed 2007-2010. Risk ratios (RR), for each risk-factor were calculated using logistic regression in country-specific and all country pooled analysis, adjusted for age, sex and survey design. These were not consistently worse than those seen in rural dwellers.

2.11 Uma Iyer, Nitya Elayath, Pallavi Desai, comparative prevalence of non-communicable diseases in the adult population of Vadodara and Godhra in Gujarat and determinants of diabetes mellitus in the population, 2011: Anthropometric data, medical history, lifestyle and dietary practices were elicited using standard procedures. Overweight and obesity were comparable in both the cities (Overweight: 24% v/s 25%, Obesity: 48% and 42%). Predictor variables identified were family history of diabetes, high BMI, waist circumference, hypertension, physical inactivity, smoking, alcohol, tobacco abuse, low intake of fruits and vegetables and low intake of green leafy vegetables. Majority of the subjects (79%) had 2-5 risk factors.