

Non-communicable disease (ncd) list



**ASSIGN
BUSTER**

Consequences:

NCDs are the new emerging threat to modern world as they continuously increase disease burden silently. Previously, they were thought to be the diseases of affluent and most of the world prevalence was confined to the high income countries. They have gradually spread their dark hand to low and middle income countries (LMIC's) (World Bank, 2011). This is the most threatening news as because these LMIC's are already burdened with varieties of problem such as communicable diseases. NCDs are called as chronic diseases and these cannot be totally cured rather can be kept within normal range (Stenberg & Chisholm, 2012). Most of the NCDs has repeating attack history and need continue treatment. And all these lead to impoverishment of a low income country and catastrophic cost effect cannot be overcome then (WHO, 2013). For 10% increase in NCD mortality, 0.5% economic reduction occur globally (WHO, 2013). As a result, rapidly increasing burden of NCDs in LMICs is affecting comparatively more than richer countries (World Bank, 2011). And not only financial, as well as social condition of LMICs is also lagging behind day by day due to these NCDs. NCDs give rise to various consequences such as: economical, social, health related impact on health system and psychosocial/mental consequences.

Economical :

NCDs place a heavy economical burden on individuals and society. They also impose huge costs on health services, particularly since NCDs frequently lead to ongoing disability and need for long-term care (Meiro-Lorenzo, Villafana & Harrit, 2011). The overall economic and social cost of NCDs vastly

exceeds their direct and indirect medical costs. Direct medical cost includes drugs, hospital treatment fees, physician's fees, lab tests etc while indirect cost comprises of disability, premature retirement, premature mortality, income loss of informal caregivers etc (WHO, 2014). Reduced labour supply, reduced income due to increased absenteeism of sick people, reduced tax revenue, increased cost of public health and social welfare expenditure also indirectly increase the economic burden of NCDs (Thakur, Prinja, Garg, Mendis & Menabde, 2011). NCDs cause a huge cost in richer countries i. e. average \$153 billion for the first year after diagnosis of cancer and \$54 billion of indirect cost for diabetes in USA in 2000 (PAHO, 2009). In four upper middle income countries (Brazil, Argentina, Mexico and Colombia) total cost of four important NCDs i. e. cardiovascular disease (CVD), chronic obstructive pulmonary disease (COPD), cancer and diabetes will be \$13. 54 billion for the time period of 2006-2015 (PAHO, 2009). From the study by Abegunde, Mathers, Adam, Ortegón & Strong in 2007, it was found that approximately total USD 7 billion would be spent for overall NCD laboratory tests, drugs in five ASEAN countries (Myanmar, Indonesia, Philippines, Thailand and Vietnam) excluding other conservative treatment & rehabilitation cost of cancer and COPD. In 2005, the total cost of four main NCDs was almost \$1 billion in China and India (Abegunde et al, 2007).

Diabetes:

Estimated cost to treat diabetes and its complications will be at least up to USD 490 billion by 2030 (IDF, 2009) globally. In USA, approximately 174 billion was spent as direct cost because of diabetes treatment (ADA, 2007). 50% of it was due to hospital admission for the disease itself or for

management of complications (ADA, 2007). And as indirect cost absenteeism, reduced productivity during work, unemployment from diabetes related disability and lost due to early productivity were responsible for \$2. 6, \$20. 0, \$7. 9 and \$26. 9 respectively (ADA, 2007). On the other hand, these costs vary significantly in low income countries. The study by Ramachandran et al., (2007) showed that poorer households spend more money in diabetic treatment than the richer ones. Many studies showed that a low income Indian family spend 25% of its family income usually while it is only 10% in a family of USA (WHO, 2014). In LMICs' major portion of medical cost is spent for prevention and treatment of life-threatening diabetes complications where in rich countries medical expenditure goes to treat the primary disease (IDF, 2009). Sometimes indirect cost becomes major loss of a household as NCDs are chronic in nature. In India, each diabetic affected household averagely face 60. 54% of indirect cost just due to loss of income of patient and 39. 46% due to loss of income of caregivers (Grover, Avasthi, Bhansali, Chakrabarti & Kulhara, 2005). From a study Afroz found that annual average treatment cost of diabetes for a person in Bangladesh is US \$ 314 (direct cost is \$ 283) (2012). And annual economic burden for diabetic patient management in Bangladesh is approximately US \$ 2973. 5 million (Afroz, 2012).

Cardio Vascular Disease (CVD):

CVD is responsible for highest death worldwide. And treatment cost of CVD is enormously high even in the rich income countries. For the year of 2007, in USA estimated total cost of heart disease and stroke treatment was USD 286 billion (AHA, 2010). In European Union (EU), average €69 billion is spent

annually for treatment of CVDs (Leal, Luengo-Fernández, Gray, Peterson & Rayner, 2005). Long duration of conservative treatment and continuous treatment expenditure leads many households to go under poverty line each year. Evidence from a Chinese study done in 2009 revealed that 71% patients who suffered acute stroke, had to face catastrophic health expenditure, out of them 37% went under poverty line (Heeley et al., 2009).

Cancer:

Cancer has spread rapidly worldwide in recent years and treatment cost has posed a huge economic burden for the affected countries (PAHO, 2009). Premature death and disability resulting from cancer only toll about \$895 billion annually worldwide (ACS, 2010). Lung cancer being the leading cancer globally to make economic burden, costs \$188 billion annually, where colon and breast cancer are responsible for \$99 billion and \$88 billion of cost respectively (ACS, 2010). In USA, for lung cancer diagnosis and conservative treatment approximately \$31 billion is needed annually (PAHO, 2009). And it is \$18 billion and \$17 billion respectively for prostate and breast cancer (PAHO, 2009). Though it was thought that cancer is a disease exclusively for developed countries before, it is increasing in an alarming rate in LMICs as well. As these poor countries were not prepared for this huge economic burden, now are suffering to face the challenge (Farmer et al, 2010).

Chronic Obstructive Pulmonary Disease (COPD):

COPD is one of the four main NCDs causing chronic mortality, morbidity and other impact like economical and social hazards each year globally (Barnes & Kleine, 2004). Direct and indirect cost both play major role in producing this

economical burden in developed countries, as well as in developing countries (Barnes & Kleine, 2004). In 2005 total direct and indirect cost of COPD management in USA was USD 38.8 billion, where USD 21.8 billion was direct (Foster, Miller, Marton, Caloyeras, Russell & Menzin, 2006). From a large scale confronting survey conducted in seven rich income countries, it was found that in Canada total cost of COPD per patient is CA\$3195.97 while one third of it is due to indirect cost (Wouters, 2003). In Netherland, total direct cost of COPD is approximately € 614 and indirect cost is € 410 per patient (Wouters, 2003).

Impact in health system:

As low income countries are already burdened with infectious diseases, health systems and infrastructures are loaded with huge amount of activities regarding combating these diseases. Now NCDs are gradually increasing in LMICs, this new burden is automatically creating drastic effect in limited resources and existing poor structured health system (WHO, 2013). Usually health system of a country is produced for managing acute diseases and infections. But if it has to control and manage NCDs also, it requires a two way, comprehensive approach which includes medical management for already diseased person or high risk people, as well as strategies and interventions for controlling risk factors (The NCD Alliance, ...). High risk patients or chronic diseased people need several level based cares regularly, including continued monitoring and diagnosed based infrastructures, good referral system, co ordination between different levels of care and most importantly trained adequate number of health workforce (The NCD Alliance, ...). All these requirements are not easy to provide for a poor country where

other problems are already threaten it continuously. So impact of NCDs on health system cannot be denied anymore.

Social:

In 2007, one study was conducted in 23 main developing countries where NCDs prevalence is greater than other LMICs in the world (Abegunde et al., 2007). Due to four main NCDs in these 23 countries, total disability adjusted life years (DALY) in 2005 was 50% among all other causes of DALYs and it will be 55% and 59% respectively by 2015 and 2030 (Abegunde et al., 2007). CVD and Diabetes together will contribute 13% and 14% respectively in 2015 and 2030 (Abegunde et al., 2007). .