
dmai

Addressing the Rapidly Increasing Burden of Noncommunicable Diseases in India

This Draft **Approach Paper** outlines the challenges of the rapidly emerging Non Communicable Diseases in India and possible directional approaches and interventions that have been identified by the World Health Organisation, Country Office, India.

These are for members' consideration and views with special reference to the specific policy interventions that may be suggested to the Government for catalysing implementation of the suggested directional interventions and any other.

Summary

Average life expectancy at birth of the Indian people has increased from 57 years in 1990 to 65 years in 2009. This means that India has been able to gain eight years by means of increasing economic prosperity and through other interventions aimed at reducing morbidity and mortality-presumably in the fields of mother and child health and the fight against communicable diseases.

In the meantime, however, Noncommunicable diseases (NCDs) like cancer, diabetes, cardiovascular diseases, stroke, chronic respiratory diseases, etc. have achieved the status of dominant causes of death (about eight out of ten adult deaths in urban areas and six out of ten deaths in rural areas, for example, are now due to NCDs). This is usually explained by urbanization and modernization, changing lifestyles and an extension of risk factors such as physical inactivity, unhealthy diet, stress plus the major harmful effects of tobacco and toxic substances, including alcohol.

Dealing with NCDs obviously costs money. In situations of poor health care coverage in particular, out-of-pocket expenditure associated with the acute and long-term effects of NCDs can have catastrophic results. A recent World Bank study in India has shown that 25% of families with a member with CVD experience major expenditures, and 10% are in fact driven into poverty. The situation is particularly serious with cancer; almost 50% of households with a member with cancer experience catastrophic expenses and 25% are driven to poverty. Also poor coverage is most likely one of the reasons why premature mortality in the population under sixty years affected by NCDs in India is relatively high compared to other countries.

In summary, a policy framework for prevention and control of NCDs in India is a clear need. Effective strategies in this field include population services (e.g. awareness generation activities, media-based health promotion, etc.) and personal services (e.g. early diagnosis, surgical treatment whenever needed, etc.). Regular NCDs surveillance shall enable a better understanding of the magnitude and precise distribution of NCDs country-wide and help plan evidence-based interventions; affordable, quality medicines shall in turn enable the pharmacological treatment of the highest possible number of people. Both are necessary. Universal coverage by a strengthened health system shall ensure that those in need of a health service will have the financial, human resources, staff and other means needed for that, thus minimizing the risks that out-of-pocket expenditures would force them into poverty. Finally, many factors like the easy availability of tobacco, the presence of excess sugar, salt and trans-fat in the diet, the scarcity of suitable spaces for physical activity, etc. call for a mechanism to also involve other relevant sectors in the fight against NCDs.

Background

Noncommunicable diseases (NCD) are rapidly emerging as the most important cause of morbidity and mortality globally. The major NCDs accounting for the highest burden of ill health are cardiovascular diseases (including stroke), diabetes, cancers, chronic pulmonary diseases, mental disorders and their risk factors (tobacco consumption, inappropriate alcohol consumption, low intake of fruits and vegetables, physical inactivity, raised blood pressure and glucose, overweight and obesity). These threats have increased dramatically with recent global changes such as globalization and urbanization, and related demographic, economic and technological developments. Urbanization, employment patterns, social trends and mass communication work together to create an environment that restricts choices and shapes the behaviours that influence health, including quality of diet and level of physical activity. In extremely low income countries, many NCDs are linked to infections. These include rheumatic heart disease, cervical cancer, liver cancer and stomach cancer.

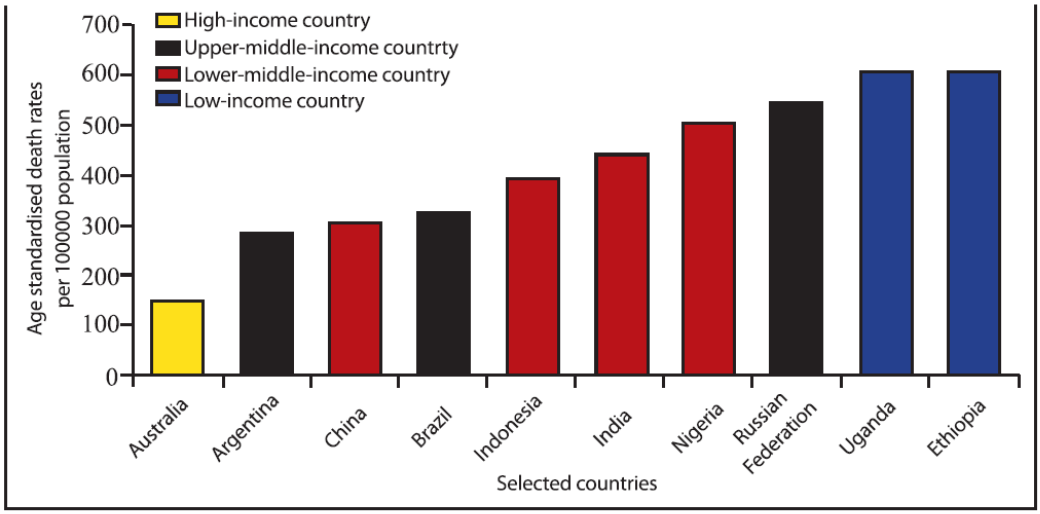


Fig. 1: NCD related death rates in people aged 15-69 years by World Bank income groups (2)

The importance of NCDs arises from the following:

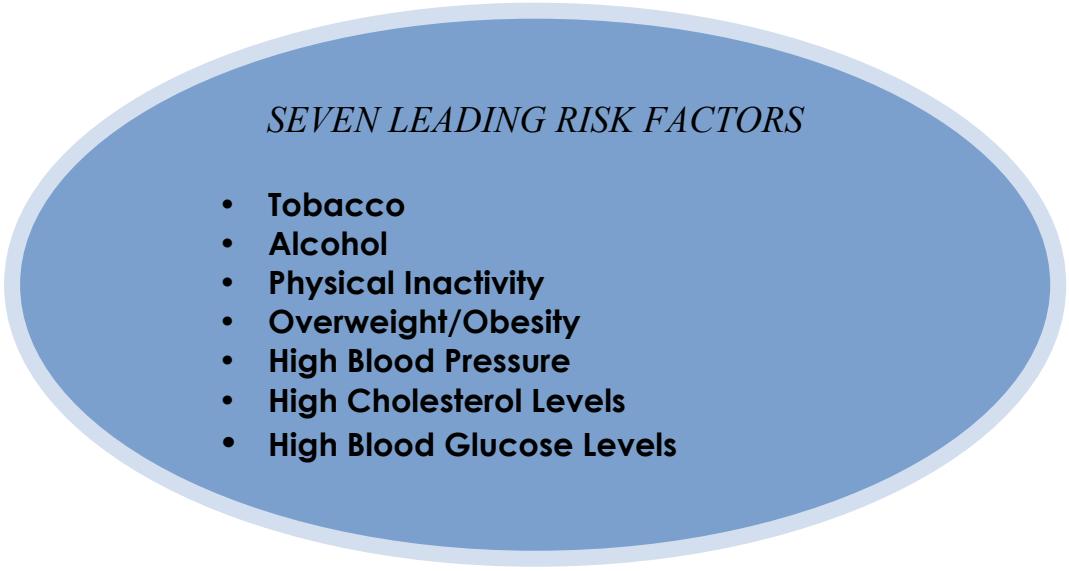
- They are the most frequent cause of death in most countries and account for nearly two thirds of all deaths globally. If current trends continue, NCD deaths will increase by 15 percent over the next decade, reaching 44 million a year.
- NCDs kill people at a younger age in low and middle –income countries – on an average 10 years younger than in high –income countries.
- The World Economic Forum identifies NCDs as a top threat to the global economy.

- In a single decade, developing countries are expected to lose 84 billion dollars of productivity from the death and disability caused by NCDs.
- NCDs affect the poor and underprivileged sections of the populations within countries and across the world most due to their vulnerability to the risk factors and determinants and poor access to health care.

Risk Factors for NCDs

The underlying socioeconomic, cultural, political and environmental determinants for NCDs include **Globalization, urbanization and population aging.**

The risk factors for NCDs are classified in terms of their amenability to interventions as modifiable risk factors and non-modifiable risk factors. The most modifiable risk factors are tobacco use, excessive alcohol use, unhealthy diet and physical inactivity. These risk factors result in elevation of levels of intermediate risk factors such as high blood pressures, overweight and obesity, raised cholesterol and raised blood glucose which in turn are associated with the NCDs.



…NCDs refer to many conditions which are chronic lifestyle related and are likely to continue progressively unless intervened…

The Indian Scenario

- The 2004 estimates indicate that NCDs contributed to half of the total mortality with causes of death by cardiovascular diseases.
- They are rapidly gaining importance in the rural areas, in both genders, amongst young adult population, in the poor and marginalized sections of the society and the Empowered Action Group (EAG) States.
- The prevalence of risk factors and determinants of NCDS is high across all age groups (beginning from childhood), in the socio-economically weaker sections and urban and urban slum populations as well.
- NCDs and their risk factors are posing a huge impact on the economy and productivity of the country by reducing healthy populations. They affect individuals, their families, society and the country as a whole through increased expenditure incurred on treatment, loss of wages and employment, premature deaths and disabilities, loan repayment etc.

Socioeconomic burden in India

1. In India the economic impact of deaths due to cardiovascular diseases (CVDs), stroke and diabetes was estimated at 8.7 billion dollars in 2005, with a projected rise of 54 billion dollars by 2015.
2. In India, the estimated annual income loss on account of NCDs was estimated annual income loss on account of NCDs was estimated to be INR258 billion to 1 trillion in 2004. Of this, 32% was attributable to CVDs, 18% to chronic respiratory diseases and 15% to diabetes.
3. It is believed that if non-communicable diseases (NCDs) were completely eliminated, the estimated GDP in a year would have been 4-10 percent higher.

The burden of suffering and economic loss caused by NCDs is an affront to our conscience. The salient features of the Cause of Death Survey (2001-03) conducted by the Registrar General of India were:

1. Noncommunicable diseases are the leading cause of deaths in the country, constituting 42% of all deaths. Injuries and ill-defined causes constitute 10% of deaths each. However, majority of ill-defined causes are at older age (70 or higher years) and most of ill-defined deaths are likely to be from NCDs.

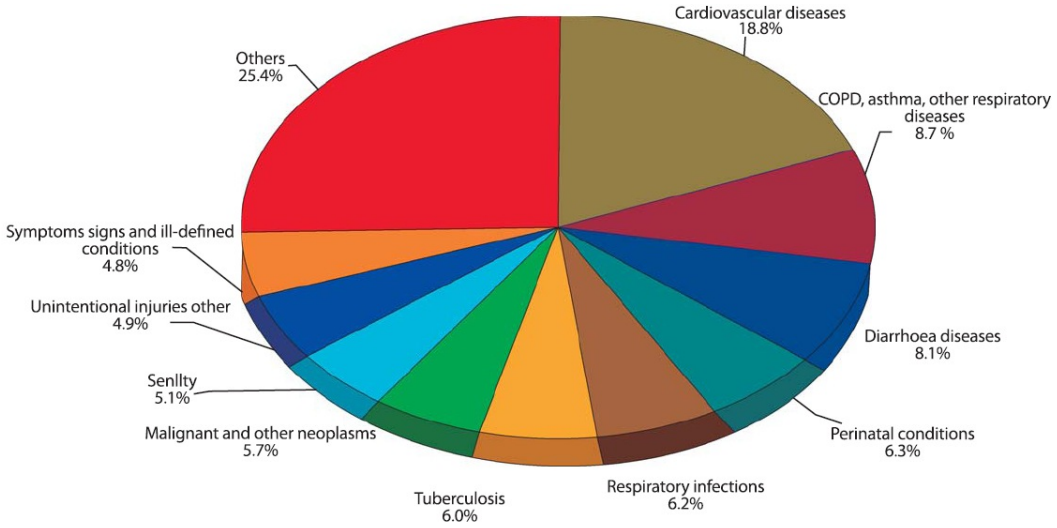


Fig. 4: Distribution of major causes of deaths in India, 2001-2003 (9)

2. Non-EAG States have a higher proportion of mortality due to NCDs (50%) vis-avis the EAG States and Assam (33%). The mortality due to injuries is also more in proportion in these states.
3. Urban areas have a lower number of deaths from communicable diseases, maternal, prenatal and nutritional conditions but a higher proportion from NCDs (56%). Their proportion is less in rural areas (40%). Injuries constitute about the same proportion in both rural and urban areas
4. Among the top ten causes of adult (25-69years) deaths in urban areas in 2001-03, eight are due to NCDs, with heart diseases, cancer, chronic obstructive lung diseases ranking as first, second and fourth respectively. Similarly, the problem in rural areas is not different as six out of top ten causes of deaths are due to NCDs with heart diseases, chronic obstructive lung diseases, cancer, and digestive diseases ranking as first, second, fourth and fifth respectively. About one third of deaths (33%) in urban areas and one fourth of deaths (23%) in rural India are due to heart diseases only.
5. Notable differences by gender are seen in the case of diarrhoeal diseases with 10% of deaths in women against 7% of deaths in me, tuberculosis with 5% of deaths in women vis-à-vis 7% deaths in men, and cardiovascular diseases with 17% deaths in women versus 20% deaths in men.

NCDs as a Developmental agenda

Having an NCD in a family with lower or even middle socio economic status imposes a heavy burden on them owing to high cost of drugs, therapeutic procedures, other hospital expenses and wage losses.

In 2004, CVDs were estimated to have caused 1.4 - 2.0 million households to suffer catastrophic expenditure and 0.6 - 0.8 million individuals were pushed below poverty. Similarly cancers are likely to have caused 0.6 – 0.8 million individuals were pushed below poverty. Similarly cancers are likely to have caused 0.6 million individuals suffering catastrophic health expenditure and 0.4 million people falling into poverty.

Poverty means that there is less purchasing power in the homes to begin with. This low purchasing power results in comprising the choices that is made at the household level. This result in major health damaging behaviours such as tobacco use, harmful use of alcohol, inadequate consumption of fruits and vegetable and marginalized groups of people.

Poor people keep postponing seeking health care as chronic NCDs are often asymptomatic for long periods or cause symptoms which are not perceived as dangerous (headache, chest pain, etc.). Even if they have to seek care, they choose poorly trained, often unqualified, healthcare providers resulting often misdiagnosis and mistreatment. Poor access to preventive and screening/diagnostic services result in these diseases being diagnosed at a much latter stage.

Poorly nourished women give birth to small babies who in turn are more likely to suffer from metabolic syndromes and diabetes, thus setting up an intergenerational cycle. These considerations put NCDs firmly on the forefront as a developmental issue.

Addressing NCD Challenges: Critical need

The social determinants of health are driving the health outcomes at individual and societal levels. While we may not succeed in preventing the acquisition of NCD risk factors but, should work towards reducing their health outcomes by slowing down the path from risk to disease. This calls for strengthening capacity for intervening through the health system approach and a multi-sectoral approach.

1. Multi-sectoral cooperation and partnerships

- Recognizing the role of upstream determinants of NCDs such as poverty, education and social and cultural make-up
- Formulation of NCD control policies in the government such as health, education, agriculture, food processing, rural development, urban planning, transport, women and child development, commerce, environment and information and communication.
- A centralised coordination mechanism in the form of inter ministerial group should be put in place under the leadership of the highest policy seat or Prime Minister at the national level, and similarly at state and local level, which could implement and monitor programmes through an agreed framework.
- At central and state level, a body comprising public health professionals from various disciplines who would be able to contribute to evidence based polices, developing cost-effective programmes and strategies for uptake by the involved sectors is required.
- Some important areas to focus are tobacco control, promoting healthy food habits, improving urban planning, promoting public transport system, control of environmental pollution and poverty alleviation.
- Other supporting legislations include: comprehensive tobacco / ban on misleading advertisement of junk foods and targeting children, food safety, food labelling and ban of trans-fats.

2. Augmenting infrastructure

- Infrastructure is required for equitable delivery of health services (essential drugs, equipments etc.) as per Indian Public Health Standards. According to the national Commission on macro-economics and health, the principal challenge for India is to build a sustainable health care system. Standardization of health care and accreditation of services are necessary to improve quality of care at both public and private sector. Developing a

referral chain is critical to ensuring follow-up and rehabilitation of individuals with NCDs.

3. Investing in healthcare workforce

- The critical shortage of trained personnel for handling NCDs need to be addressed, including non-physician health care workers. It requires re-positioning of existing training centres, creation of new ones, attracting applicants and paving a career path for them. The trained workforce should be able to involve community participation in the awareness, early detection, referral and management of patients with NCDs.

4. Financing options for universal health care

- It has been realized that managing NCDs requires a huge financial involvement for the public health system to bear at present. Utilizing the public private partnership model is an option towards efficient delivery of affordable health acre through sharing of resources and infrastructure maintenance.

		India	United States	Global average
1	**% GDP**	**4.1**	**15.7**	**9.7**
2	Govt % of (1)	26.2	45.4	59.6
3	Private as % of (1)	73.8	54.5	40.4
4	**(2) as % of total govt spending**	**3.7**	**19.5**	**15.4**
5	Out-of-pocket % of (3)	89.9	22.6	43.9
6	Private insurance % of (3)	2.1	63.5	45.0
7	**Per capita USD**	**40**	**7,285**	**802**

Comparative healthcare spending, 2007

5. Strengthening health information system and surveillance

- A robust surveillance system provides timely, accurate and relevant health information for formulating and evaluating evidence based policies. A common set of core indicators is for each component of the surveillance system that monitors exposure (risk factors and determinants), outcomes (morbidity and mortality) and health-system responses (interventions and capacity). This would translate to informed decisions on resource allocation to improve equity and quality of health services in the country.

6. Monitoring, evaluation and feedback

- In the present scenario, this component needs to augmented rapidly and substantially. It requires a set of simple, achievable, and measurable indicators and targets for both processes and outcomes of programmes and schemes. These measures will improve accountability, programme delivery, resource allocation and distribution, equity in health care delivery, fine-tuning the programmes and widening of stakeholdership. Such evaluations undertaken at the pilot phase and thereafter should become an integral component of the programme.

7. Investing in research

- The theme of the World Health Organization (WHO) 2012 report is aptly titled "***No health without research"***. It remains the cornerstone in developing and implementing health policies. A systematic review of research literature originating from 90 countries ha s identified the deficiency of research related to health system, health policies and quality of care in India that area critical to evidence based policies and programmes. Research in this arena is critical to address the complex array of social, financial, behavioural and organizational barriers that impede the application of high quality NCD care to the population. Some of rthe key research areas in NCDs include: effects and cost innovative ways of reducing NCD risk through health policy and system; methods for ensuring integration of chronic diseases with health system; health system financing strategies for NCDs; and best methods of applying existing knowledge for development, implementation and evaluation of NCD programme. Translational research is a need to develop multi-pronged approaches that address the patient, provider, health care system, public health and public policy.

Recommendations

Chronic Diseases

Policy changes at the government level are the quickest way to improve population health including chronic diseases. Policy framework for prevention, control and universal coverage of NCDs in India is a clear need along with a multisectoral response to the problem of NCDs

Recommendations:

Surveillance - To establish a proper surveillance system for Non Communicable diseases.

Intervention

- Systematic collection, analysis and interpretation of data
- Population health behaviour monitored

These data are used to inform the public and decision-makers for planning and evaluating prevention and control programmes and designing health policy and legislation.

- Policy changes at the government level - **Population-based educational intervention** reduced NCDs mortality by 60-80% over the next twenty years. The decline in NCDs mortality due to population based measures for risk factor control initiated by changes in policies on smoking, salt and fat control strategies, substitution of vegetable oils for animal fats and physical activity promotion.
- Strengthening public healthcare financing and primary, secondary and tertiary care.

WHO has categorised prevention into -

- Population-based primordial
- Individual-based primary and
- Patient-based secondary prevention

In short, of the two approaches to prevention, the **Population Approach** is used to address the behavioural risk factors at the community level and its success depends on surveillance, population-wide education, partnerships with community organizations, assurance of health services, environmental change and policy and legislative initiatives. This approach addresses a selected list of modifiable risk factors such as diet, smoking and tobacco use, sedentary lifestyle, and availability of screening and diagnostic services.

The high risk **Individual-Based Prevention Approach** should assess risk factors to determine individual risk. Medical interventions are often required. Secondary prevention strategies, on the other hand, comprise mainly medical interventions in addition to therapeutic lifestyle changes and cardiac rehabilitation.

Recommendation:

Primordial Measures:

- Improving Socio-economic status and literacy
- Adequate healthcare financing
- Extending public healthcare insurance schemes
- Smoking control policies
- Development planning to increase physical activity
- School based interventions: This could be in several forms including abstract approach to promoting Yoga, Physical Activity and Balance food among the school children.
- Promoting programes on Healthy Lifestyle Management at Workplace interventions
- Environmental change in policy favouring green revolution

Primary Prevention:

- Customising medical education curriculum
- Hospital, clinic and primary care centre based health education to reduce and manage risk factors
- Expansion, promotion and education for NCDs screening and risk factor analysis.
- Clear guidelines on health screening for risk factors and adequate support for these activities. Health/wellness check must include 10-year NCDs risk assessment. This should also be a part of a physical examination or done at

intervals during other patient-physician interactions. CHD risk assessment charts are universally available.

- These ventures are currently commercially driven, unfocused, improperly targeted and lacks equitable need based access.

Secondary Prevention:

- Facilities and human resources for optimum Chronic Disease (CD) care
- Promoting evidence based clinical practice in CD Management
- Cost-effective efficient solutions to providing secondary care

Recommendation:

Support for Indian Medical device industry: Generic Measures

- Horizontal integration – preventive & curative strategies, public education, medical education and clinical research
- Integration of various programmes.
- Integration of central and state health departments
- Partnership with community organisations/ CSOs and other NGOs with similar interests Target setting with monitoring progress.
- Creation of mobile units with tele-video link to the hub serving multiple functions: Health education, CD and risk factors screening, surveillance, monitoring and data collection to mention but a few.

In India, we have more than two dozen national programmes for control of communicable and non-communicable diseases and maternal and child health. The existing Indian national health programs are directed towards communicable diseases and maternal and child health. Although national program for control of cardiovascular diseases and diabetes has been initiated as a pilot it has not been scaled as yet. It is a priority that the program must be spread widely and scope and funding substantially increased. National Rural Health Mission of government of India should also focus on improvement of healthcare systems for non-communicable diseases and chronic care.

Recommendation:

Specific Targeted Actions

- **Salt :** High levels of salt in the diet are linked with high blood pressure which, in turn, can lead to stroke and coronary heart disease. High levels of salt in processed food have a major impact on the total amount consumed by the population.
- Progress towards a low-salt diet needs to be accelerated as a matter of urgency.
- **Saturated fats:** Reducing general consumption of saturated fat is crucial to preventing CVD. low-fat products are not recommended for children under 2 years, but are fine thereafter.
- **Trans fats:** Industrially-produced trans fatty acids (**IPTFAs**) constitute a significant health hazard. In some countries and regions (for instance, Denmark, Austria and New York), IPTFAs have been successfully banned.
- Ensure all groups in the population are protected from the harmful effects of IPTFAs.
- **Marketing and promotions aimed at children and young people**: Ensure children and young people under 16 are protected from all forms of marketing, advertising and promotions (including product placements) which encourage an unhealthy diet
- **Product labelling:** Clear labelling which describes the content of food and drink products is important because it helps consumers to make informed choices. It may also be an important means of encouraging manufacturers and retailers to reformulate processed foods high in saturated fats, salt and added sugars. Evidence shows that simple traffic light labelling consistently works better than more complex schemes.
- **Health impact assessment:** Policies in a wide variety of areas can have a positive or negative impact on CD risk factors and frequently the consequences are unintended. The government departments should assess the impact of policies on the health of the population. Well-developed tools and techniques exist for achieving this.
- **Physically active travel:** Ensure government funding supports physically active modes of travel.

Intervention – Promotion and Advocacy

- Healthy Food and Balance diets
- Physical Activity
- Healthy Lifestyle management

These advocacy and awareness programs need to take place at School, workplace and community on regular intervals.

Recommendation:

***Clinical Research* - No venture is complete unless there is a clear focus on learning from research initiatives.**

- **Clinical Research** - With cardiovascular disease (CVD) emerging as a major cause of mortality, clinical research in CD is becoming increasingly important. There are several favourable factors that offer robust growth of clinical research infrastructure in India: well-established system of government, a large investment in medical education infrastructure, growing interest in building capacity in clinical research, the presence of regulatory mechanisms governing clinical research, a large pharmaceutical industry, and a highly developed information technology and data processing infrastructure.

Recommendations:

Infrastructure

- **Formation of an apex committee** to integrate activities of various ministries and activities. Priority agenda for this committee should be to formulate guidelines for implementing agenda to modify the social determinants of health, effective implementation of national NCDs control programme, change the medical education curriculum with focus on chronic diseases and improving public health financing and develop low-cost insurance schemes.
- **Establishment of Regional CVD, Stroke, Diabetes networks** leading on strategies & prevention.
- **Healthy School-aged Children Initiative**. Investing in children's future.
- **Establishment of National Cardiovascular Research Institute** preferably in a PPP mode; integrating Basic Science, T1 and T2 Translational research, and Clinical trials.
- **Strategic Partnership, Infrastructure, & Capacity Building:** To strengthen partnership and integration with regional, provincial, and national initiatives in NCDs.
- **Interventions and Health Disparities:** To develop new knowledge, applications, and delivery models to support population health approaches for NCDs risk reduction and behaviour change across the prevention continuum; and, to develop appropriate interventions to eliminate cardiovascular health disparities among priority populations.
- **Knowledge Translation & Knowledge Transfer Network:** To establish systems to support the effective and timely incorporation of evidence-based information into the practices of health professionals in such a way as to

affect optimal health outcomes and maximize the potential of the health system.

Leverage the strengths of IT sector and technology: Usage of mobile technologies will impact many stakeholders

- Patients who delay care because they're too busy to wait in a doctor's office
- Physicians who don't have enough time to spend with patients
- Reaching to the individual patient residing in the most difficult areas.
- Device and equipment companies that want to monitor the performance of their devices
- Pharmaceutical companies that want to ensure patients are taking the medicines they need.
- Hospitals that don't have the capital to build more beds.

- **Establishment of a national regulatory agency** to enforce already existing tobacco control legislation (*e.g.*, the Tobacco Control Act and the World Health Organization's Framework Convention on Tobacco Control).
- **Mobile health units:** The facilities required and provided by each mobile unit could include:
  - Ambulances
  - 3-4 paramedical staff (including drivers)
  - Computers
  - BP-measurement
  - Glucose monitoring
  - Cholesterol/lipid monitoring
  - Basic blood and urine investigations
  - Essential cardiac medications
  - Communication to hospitals/physicians via cell-phone and internet
  - Access to internet for information and protocols, Emergency cardiac drugs, protocols and automated defibrillators (AEDs)
  - Telemedicine facility

Recommendation:

Human Resources & Capacity Building

- **Human Resources:** Availability, training and commitment of HR work force are of paramount importance in success or failure of any initiative. This fact becomes even more critical when one realises that we have significant and absolute lack of adequately trained workforce in health.

- **Scientists and technicians:** There is a need to train fresh minds and to support fully trained researchers in their carer progression. It is equally important to engage allied medical workforce especially nursing and paramedical staff in clinical research by providing necessary support.
- **Diet Protocol & Dietary Recommendations:** More than a half century of evidence from epidemiological, experimental, and clinical trials has pinpointed a positive correlation between lifestyle and dietary factors as they relate to blood lipid levels, blood pressure, and CHD.

Rajendra Pratap Gupta
President & Director

Disease Management Association of India (www.dmai.org.in)
Mobile: India + 91 9223344303 / +91 9223344542
USA + 1515-966-6557 / 1515-450-8036
UAE + 971-553121829 Fax: +91 11 4582 33 55
Email: President@dmai.org.in office@rajendragupta.in