Chapter 3

KEY ISSUES & CHALLENGES

Key Messages

- Sri Lanka is in the midst of a health transition in an epidemiological point of view.
- Although in Sri Lanka there is the evidence base for the formulation of policies, plans and programmes there is still room for improving it.
- Rapidly increasing incidence trauma, increased pressure from the society for better care and commitment by international agencies provide better opportunities to uplift the health services.
- Sri Lanka still needs a model health community to recognize the most cost-effective way to combat the NCD.
- The challenges are to systemize the knowledge sharing and management as well as using information for concrete and concerted actions.

This chapter defines some of the key challenges besetting the health system in Sri Lanka. The discussion is focused primarily on issues that pertain to and have implications on chronic NCD and trauma. The key challenges and issues are in five areas of concern:

> "The Sri Lankan health sector has been a successful model of "good outcome at low costs" in the 20th century. According to the World Health Report 2002, the Sri Lankan life expectancy at birth for the entire population is 68.8, which ranks at the 7th place among 73 countries with GDP per capita below US$1,000. The success so far achieved is commendable; however, a failure would loom unless actions are taken to face the rapidly changing scenario of a health transition."[1]

- Strengthening service delivery system to face the triple disease burden;
- Broadening the evidence base for NCD prevention and control;
- Promoting concerted actions towards safer communities and durable trauma system;
- Operationalising health promoting settings; and
- Improving the system of generating, managing and using NCD-related information.

3.1 STRENGTHENING SERVICE DELIVERY SYSTEM TO FACE THE TRIPLE DISEASE BURDEN

3.1.1 TRIPLE BURDEN OF DISEASES

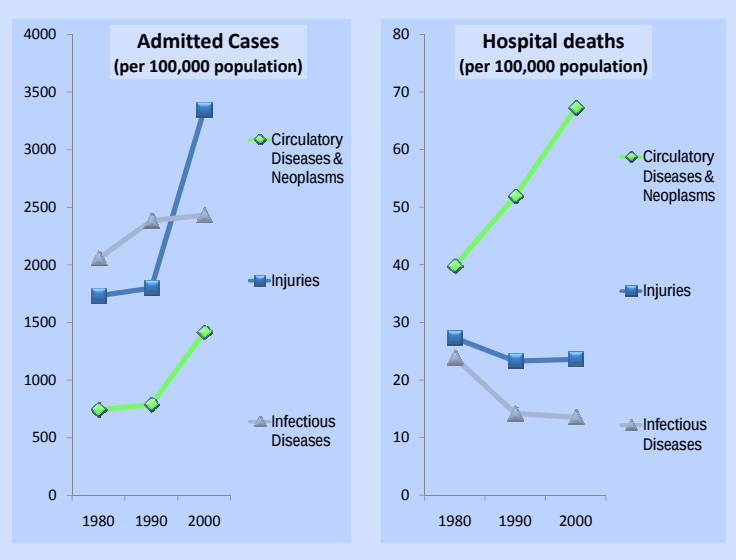


FIGURE 3- 1: TRIPLE BURDEN OF DISEASES – COMMUNICABLE DISEASES, CHRONIC NCD, TRAUMA & OTHER INJURIES

The Sri Lankan disease burden may be classified into three groups of problems [1]: a) Continuing problems/ unfinished agenda that include communicable and MCH-related diseases; b) Emerging problems such as road traffic accidents, injuries, violence and homicides; and c) Evolving problems- heart disease, cancer and mental disorders. **(Figure 3-1)**

[1] Annual Health Bulletin, 2002

The burden of NCDs has created a need for a set of integrated actions to be implemented vigorously including behavioural and lifestyle change.

3.1.2 BURDEN ON THE POOR, BURDEN ON THE HEALTH SYSTEM

In the world, poorer people and poorer countries are more affected by NCD than the rich. In 2005, for example, 4 of 5 deaths resulting from chronic diseases were in low and middle income countries. In most areas, except in the least developed countries, the people who are more likely to develop chronic diseases are the poor members of the society.

In Sri Lanka, both chronic and acute NCD are number 1 priorities in different ways. Whereas trauma is the number 1 cause of hospitalization since 1995, ischemic heart disease and cerebrovascular disease contribute to 18% and 7.1% of hospital deaths respectively. The medical and surgical expenses for these conditions are immense. Therefore, if the current rapid increase of lifestyle-related disease is left unchecked, it will have a significant impact on health of the population, and the social and economic development of the country.

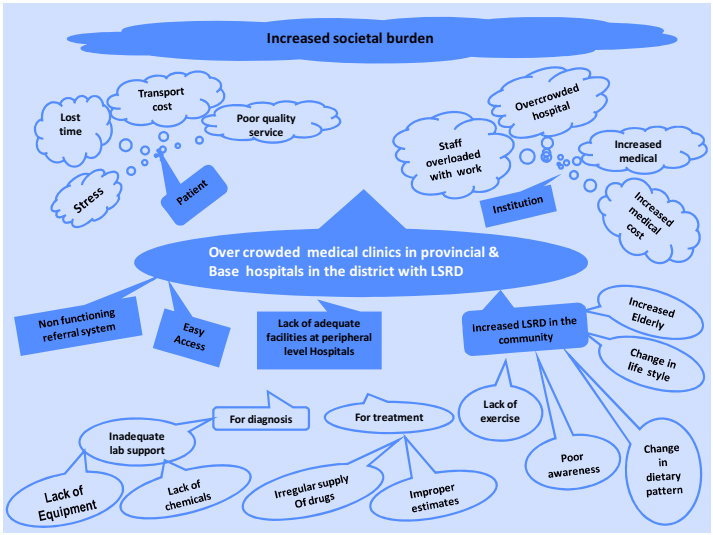


FIGURE 3- 2: PROBLEM ANALYSIS OF OVERCROWDING IN MEDICAL CLINICS IN KULIYAPITIYA BH, KURUNEGALA DISTRCIT[1]

The government health sector consists of Primary Medical Care Units, Divisional Hospitals, District General Hospitals/ District Base Hospitals and Teaching Hospitals/ Provincial Hospitals[2]. It plays a major role in providing healthcare to people. The burden of disease on the system and the patients are reflected in the analysis of causes and effects of overcrowding in medical clinics in Base Hospital Kuliyapitiya, Kurunegala **(Figure 3-2)**. Overcrowding is mainly due to:

[1] Rajamanthirei, 2006

[2] The MoH recategorised the health institutions into 4 levels: Primary Medical Care Units (formerly the Central Dispensaries and Maternity Homes); Divisional Hospitals (formerly the Peripheral Units and Rural Hospitals); District General and District Base Hospitals (formerly the Base Hospitals and District Hospitals); and provincial and teaching hospitals.

- Lack of adequate facilities at peripheral hospitals;
- Increased number of chronic or lifestyle-related diseases in the community;
- Easy access to the Base Hospital; and
- Non-functioning referral system.

In diagnosing diseases and patient management, there is a lack of proper equipments and chemicals resulting in inadequate laboratory support. Irregular supply of drugs and improper estimates directly affect the adequacy and the quality of the treatment.

Not only the facilities, but also the lifestyle of the community has a direct impact on overcrowding. Lack of exercise, poor awareness, changed dietary pattern, lifestyle changes and the increased number of elderly in the community are some of the important factors that give rise to the increased number of chronic diseases in the community. Absence of clear referral policies at peripheral levels does not help in decongesting the Base Hospital. Altogether these affect the patient and the institution. The patient has to face lot of stress, waste time, endure the cost of transport and above all receive a poor quality service. Hospitals are overcrowded with extra load of work for the staff and the cost of medical care is increased as a whole.

3.1.3 REVITALISING THE HEALTH SYSTEM

The triple burden of continuing, emerging and evolving problems in Sri Lanka pose a new challenge that has to be met by a revitalised healthcare delivery system which employs three functional arms that are equally important**. (Figure 3-3)**

- Preventive,
- Curative, and
- Welfare.

A. PREVENTIVE ARM

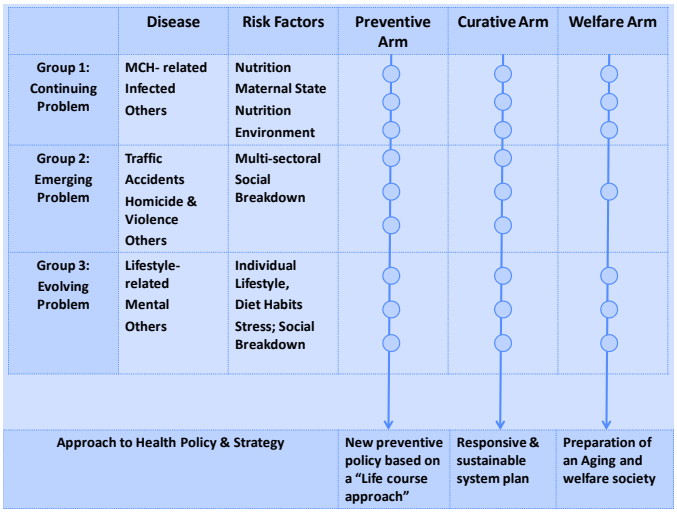


FIGURE 3- 3: INTEGRATED APPROACH TO A COMPREHENSIVE HEALTH SYSTEM

Prevention has to be addressed by tackling the risk factors from fetal stage to old age. This is the "Life- Course Approach". Chronic diseases

are influenced by behaviours and lifestyle. The major burden of disease is created by risk factors such as alcohol, tobacco, overweight etc. There is a specific window period for the exposure of these risk factors in early life to cause degenerative diseases at later age. Therefore, preventive interventions for different age groups should be explored.

B. CURATIVE ARM

Attempts were made to review and redefine the functions at primary, secondary and tertiary care facilities at the district level. It could be integrated to an emergency healthcare network, a rehabilitative community support network and a primary care network.

C. WELFARE ARM

This is vital to maintain a healthy society for the aged and disabled people. Rehabilitation and social care need to be associated with curative care services and community base programmes.

3.2 BROADENING THE EVIDENCE BASE FOR NCD PREVENTION & MANAGEMENT

In Sri Lanka, the evidence base for the formulation of policies, plans and programmes do exist. At least 37 studies have been done at the Post Graduate Institute of Medicine. The Kandy Society of Medicine and the Diabetic Research Unit of the University of Colombo, Faculty of Medicine, with financial support from the WHO, have published a compilation of about 3,000 bibliographic entries on NCDs based on materials from the Sri Lanka Medical Association Library and from an internet search. At least two annotated bibliographies have been prepared for specific 5-year periods. Given all these materials, the challenge begins with at least making them accessible to key stakeholders or their staff and then putting them in a form that will facilitate searches by key words, authors or titles.

There is room for improving the evidence base, too. What is the impact of low birth weight and other early life factors on chronic NCDs? What interventions work to reduce risk factors among the general population and among specific groups? What are the best ways of addressing the underlying determinants of the risk factors? What are the policy instruments that can be used to support programmes aimed at changing behaviours of people in different settings such as schools, workplaces or the community? What lessons can be learned from experiences of other stakeholders in having a bill crafted, deliberated and passed? What insights can be gained from enforcement of existing laws so that future legislations can be better drafted? These are but a few examples of the gaps in the evidence base.

Under the leadership of the NCD Directorate, the MoH will be formulating a national action plan for the prevention and management of NCDs to tackle the NCD problems, risk factors and determinants as well as to mobilize support from various stakeholders. Moreover, it will be launching a social marketing campaign.

3.3 CONCERTED ACTIONS TOWARDS SAFER COMMUNITIES & DURABLE TRAUMA SYSTEM

Among the NCDs, injuries and violence have imposed a heavy burden on the populace as well as on the health system. The burden can be measured in terms of physical, emotional and economic units; and it can be in terms of morbidity, mortality or disability. However, an accurate assessment of the burden of injuries and violence can hardly be performed because the basic infrastructure for systematically generating, managing and using information has yet to be in place.

In response to the alarming increase in injuries, the government set up a National Committee on the Prevention of Injuries (NCPI), a multi-agency body, and formulated the National Policy Framework on Injury Prevention in Sri Lanka. The NCPI identified some deficiencies regarding the current status of injury prevention in the country and they are:

- Absence of collaborative actions;
- Poor enforcement of laws;
- Poor access to injury information;
- Absence of proper surveillance of injury prevention; and
- Poor community awareness and participation in the prevention of injuries.

Dr. Anil Jasinghe, the Deputy Director of Accident Service of the NHSL, assessed the strengths, weaknesses, opportunities and threats relevant to the emergency medical services in Sri Lanka (Table 3- 1). The strengths include equitable distribution of government healthcare institutions and skilled human resources for health at all levels of care vis-à-vis the private medical care providers and institutions; access to free health services; and good network roads, transportation and communication facilities.

TABLE 3- 1: SWOT OF EMERGENCY MEDICAL SERVICES IN SRI LANKA[1]

S: Strengths	W: Weaknesses
• Reasonably equitable geographical distribution of health care institutions of all levels of care • Reasonably equitably distributed skilled manpower including medical staff • Well spread road network • Availability of communication facilities in most of the health care institutions • Free access to state health care • Private medical care providers and institutions	• Lack of a system of pre-hospital care • Provision of trauma care through casualty surgical units even in tertiary care hospitals • Lack of networking • Lack of a well functioning forward and backward referral system • Low "affinity" towards treatment of trauma victims: "buck passing" • Poor infrastructure/facilities available for emergency care • Lack of medical specialisation on emergency care • Lack of adequate legislation on emergency care • Poor political commitment
O: Opportunities	**T: Threats**
• Ever increasing incidence of trauma: increased burden of disease	• Bureaucratic red tapes • Trade unionism: resistance to flexible systems

[1] Jasinghe, 2005-2006

- Increasing pressure from civil society for better emergency care
- Increased commitment on the part of international agencies e.g. WHO

Despite the strengths, there are some drawbacks such as the lack of a pre-hospital care system, lack of networking, lack of a well-functioning referral system, lack of specialists on trauma care, and lack of adequate legislation to protect the patients, responders and other healthcare providers. Poor infrastructure/facilities and political commitment are few other weaknesses identified.

On the other hand, rapidly increasing incidence of trauma, increased pressure from the society for better care and commitment by international agencies provide better opportunities to uplift the services. Bureaucratic red tapes and resistance to adapt to the new challenges and demands of health transition remain important threats to the quality of emergency medical services.

Considering all of the above, the Dr. Jasinghe suggested the establishment of an integrated trauma care system in Sri Lanka, establishment of a system of pre-hospital care, and enactment of legislation to cover emergency services.

The "Consultative Workshop on Pre-Hospital Trauma Care", organized by the St. John Ambulance in July 2005, highlighted the need for the government to enunciate a common vision and formulate policies, guidelines and plans to guide stakeholders from within or from outside Sri Lanka.

In Sri Lanka, there is a need to develop an injury surveillance system because injuries, despite the fact that most can easily be prevented, are the leading cause of hospital admissions and often affect the active population. The current health information system does not identify the gravity of injuries; it cannot be used to paint the correct picture[1]. Specifically, it's beset with problems: poor recording of essential information at the time of data collection (e.g. in an RTA victim, road user, type of accident etc.); external cause coding and multiple condition coding are not practiced in Sri Lanka; data collected at the first contact are not compiled properly; incomplete diagnosis statements; and writing abbreviations (e.g. LAMA).

[1] Senanayake, November 2005

3.4 PROMOTING HEALTHY SETTINGS

Recognizing that the most cost-effective way to combat the NCD epidemic is through primary prevention, the NCD Directorate has identified the need for social marketing of a healthy lifestyle package[1]. The relevant issues were described in the Health Master Plan: "Emphasis should be given to the promotion of a healthy lifestyle throughout one's whole life. Specific school health programmes and programmes for youth have to be considered as long-term effective measures to prevent major NCDs. Primary prevention, moreover, could be directed first to patients' families that are more at risk and their change will also help the patients. More aggressive preventive measures need to be implemented for other diseases/conditions, such as diabetes, accidents and suicides."

In 2005, the Kurunegala district envisioned to reduce the avoidable morbidity and premature mortality related to major NCDs by establishing a lifestyle-related diseases (LSRD) prevention programme among its staff in the Base Hospital Kuliyapitiya and MOH Areas. With financial assistance from the HSDP, a third of the hospital and almost all of the MOH staff were trained. The commitment and momentum among the staff remain. However, the LSRD prevention programme has not yet taken roots and HSDP support was available. More importantly, the programme has to evolve from lifestyles to wellbeing and from predominantly training to one that enables people to increase control over, and to improve, their health. Aside from reducing the risk factors, the programme needs to address the underlying determinants. It needs to engage in primordial prevention that will be beneficial for the staff and patients of the base hospital and MOHs as well as for the general population.

The WHO has advocated for a "Health Promoting Hospital" or healthy settings. To date, Sri Lanka still needs a model so that the government and local authorities may appreciate the major savings in health care costs that can be realized by the avoidance of mass behaviours such as smoking and by achieving positive changes in food consumption patterns, among other things.

[1] Somatunga, 2005

3.5 IMPROVING THE SYSTEM OF GENERATING, MANAGING & USING EVIDENCE

The mechanisms for generating some of the information related to NCDs do exist. A couple years ago, the MoH commissioned a survey of risk factors in selected districts. Occasionally, the academe conducts prevalence studies. Routinely, data are collected by the private sector (e.g. Diabetic Association) and government agencies such as the Police department. The members of the NCPI intermittently exchange information. Where lie the challenge? The challenges are in systematizing the knowledge sharing and management as well as in becoming more proactive in using the information for concrete and concerted actions.

When it comes to cancer, the National Cancer Control Programme of the MOH maintains a registry[1]. Cancer is unique in more ways than one. Unlike diabetes and hypertension, for example, malignancies have at least 150 major classes that do not have common causative factors and do not have common ways of management. Furthermore, the overall priorities for cancer control is expected to change from time to time as people's tastes and habits change, as the environment and society change. Therefore, a cancer registry must regularly generate quality and timely information. However, it is not in reality. The cancer data that are collected through the MoH are not up to date mainly because of resource constraints. The latest publication of information generated through the cancer registry was in 1995. The manuscript for the year 2000 is available but the NCCP has no funds for its printing. The data collection has a 4-year backlog. The current data set allows for analysis of patterns by age, gender, ethnicity, disease categories and geo-political subdivisions up to the level of districts. There is a need to enhance the capacity of the NCCP in generating the evidence for better targeting and assessment of preventive and clinical interventions. There is a need to support the linking of the hospital-based cancer registry with the pathological-based cancer surveillance system as well as the training of registrars of death to improve the quality of death registration with the end view of incorporating mortality data into the population-based cancer registry.

The routine information system of the MoH does not capture the true picture of NCD in the country[2]. In government hospitals, the Inpatient Morbidity and Mortality Registry (IMMR) provides data about admissions only. Every time a patient is admitted, a new record is made. As such, the health provider is not provided with complete evidence on the patient's history particularly for the same health event. Hospital statistics cannot be used to calculate epidemiological information. At the outpatient department, there is hardly an information system. The public health information system is also insufficient to capture the trends in risk factors and determinants at the community level.

Hence, with regards to the role of the MoH in generating, managing and using NCD-related evidence, the challenge is fundamental. It has yet to

[1] Ariyaratne, 2005

[2] Senanayake, *op. cit.*

develop a system that can regularly generate information sufficient enough to give an accurate picture or at least an impression of the situation in the country, that can be sustained to monitor the changing patterns through decades, and that can be installed, operated and maintained throughout the country. First and foremost, the MoH needs to play active role in building consensus among key stakeholders on the minimum data set that will satisfactorily respond to the information needs of the intended principal users.

Chapter 4

EBM STUDY ON NCD

Key Messages

- The EBM Study aims to enhance the capacities of the health system and communities in the prevention and management of NCDs throughout the course of life. They worked to develop methods of generating evidence on NCDs, formulate action plans for pilot projects and build capacity by TOT programmes, forums , workshops symposiums etc.
- An initial implementation of a trauma system was formulated.
- Pilot implementation of a programme on healthy lifestyles tok place in the Kurunegala District.
- It is expected to strengthen the existing system for generating, managing and using NCD information.

4.1 PURPOSE & OUTPUT OF THE NCD COMPONENT

4.1.1 COMPONENT PURPOSE

Through Component 3, the EBM Study enhanced the capacities of the health system and the communities in the prevention and management of NCDs throughout the life course (**Figure 4-1**). Towards this goal, a 4-pronged strategy responsive to specific MoH priorities was adopted. It sought to:

- Broaden the evidence base through, among others, the documentation of best practices in reduction of the use of alcohol and tobacco as well as in promoting healthy diet and physical activity;
- Support the initial implementation of a trauma system and formulation of a strategy for safe communities;
- Pilot test interventions in promoting healthy lifestyles in 4 settings, particularly, the hospitals, schools, workplaces, and a village; and
- Transform the district information system so that it can generate, manage and use information on priority chronic conditions.

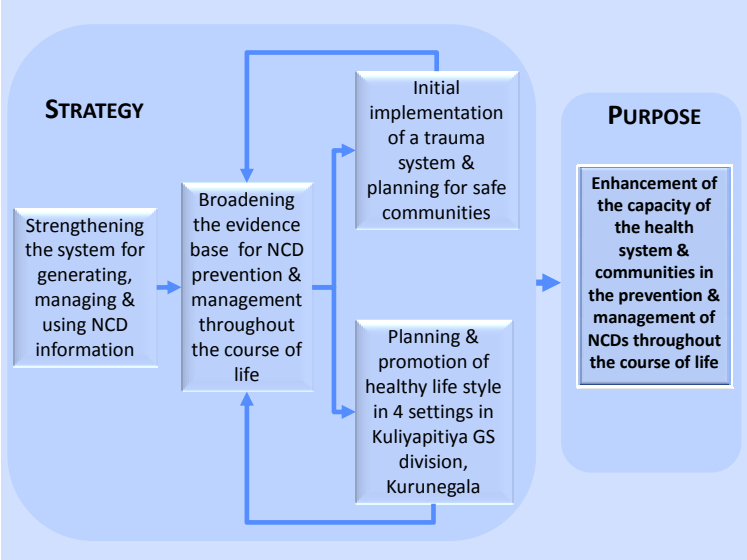


FIGURE 4- 1: SUBCOMPONENTS OF A STRATEGY TO ENHANCE CAPACITIES IN NCD PREVENTION & MANAGEMENT

The subcomponents run parallel and were managed independently. Evidences were generated to support the various ongoing initiatives and planned activities of the MoH. Evidence, regarding cost-effective approaches to reduce risk factors and address the determinants in Sri Lanka, were used during the pilot implementation and for the formulation of the post-EBM Study action plans. Case studies on local injury prevention programmes were valuable in discussion options for developing safe communities. The existing information systems (i.e. Cancer Registry and

MoH routine information system) were strengthened so that it could generate NCD information on a longer term even after the completion of the EBM Study.

4.1.2 OUTPUTS BY SPECIFIC AREAS OF INTEREST

A. EVIDENCE BASE

Component 3 generated the following evidence that were submitted to the MoH as an input for planning on NCD prevention and management:

- Case studies on outstanding or potential interventions or practices (e.g. safe community injury prevention programmes);
- Cost-effective approaches to reducing underlying risk factors;
- The relationship between early life factors (birth weight) and some chronic NCDs; and
- NCD-related studies, circulars and other policy documents.

To ascertain the true picture of cancer in the country, the EBM Study supported the publication of the year 2000 data on cancer, assisted in completing the data collection for year 2005 and analyzed the trends from 1985 to 2005.

The strengths, weaknesses, opportunities, and threats of existing mechanisms to manage NCD information were reviewed. The findings and recommendations were used to develop a trauma surveillance system in the southern part of the Western Province and to transform a district information system in Polonnaruwa. To improve the health information system in a district, a minimum data set was defined and options in transforming the existing system were evaluated.

B. MECHANISM OF DEVELOPMENT

Component 3 supported the development of at least two mechanisms for generating evidence on NCD: a trauma surveillance system and a district-wide information system. It strengthened the existing cancer registry, as well. A trauma system was initiated in strategic sites in the Western Province.

C. ACTION PLANS

During the second year of the EBM Study, the following were formulated through a participatory process:

- Promoting Health Life Style in Kurunegala District;
- NCD Surveillance and Prevention in Polonnaruwa District; and,
- Improving Trauma Care in Sri Lanka.

D. CAPACITY DEVELOPMENT & LEADERSHIP

Some of the activities that were directly or indirectly aimed at capacity building were:

- Orientation on NCD and the Life Course Approach during forums, symposiums, workshops, meetings and other appropriate occasions;

- Training of trainers and trauma teams on basic and advanced trauma life support; and
- Training of the resource pool in Kurunegala district on behavioural change communication, development of communication materials, life skills and others.

4.2 ACTIVITIES TO DELIVER THE OUTPUTS

Broadening the Evidence Base for NCD Prevention and Management throughout the Course of Life

- Output:
  The evidence base for NCD prevention and management is broadened.

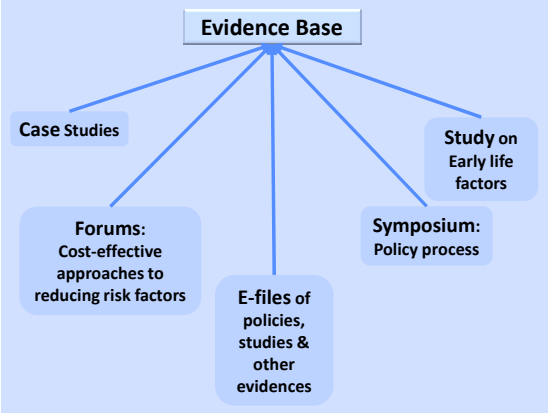


FIGURE 4- 2: ACTIVITIES TO BROADEN THE EVIDENCE BASE

4.2.1 SUBCOMPONENT: EVIDENCE BASE

A. ACTIVITY: WRITING CASE STUDIES ON OUTSTANDING OR POTENTIAL INTERVENTIONS OR PRACTICES

The EBM Study documented the experiences of some organisations and individuals who have undertaken interventions for the prevention and management of chronic NCD and trauma (Annexure 1).

B. ACTIVITY: ORGANISING FORUMS ON COST-EFFECTIVE APPROACHES TO REDUCING RISK FACTORS & ADDRESSING DETERMINANTS

A forum was organised on diet and physical activity and another one on reducing the use of tobacco and alcohol. Afterwards, some participants were invited to a series of roundtable discussions to brainstorm on the problem tree prepared by officials from the Kurunegala district as well as on the key communication messages and monitoring indicators.

C. ACTIVITY: PRODUCING AND DISSEMINATING DIGITAL DISCS OF NCD-RELATED STUDIES, POLICIES AND OTHER EVIDENCE

The EBM Study prepared annotated bibliographies of NCD-related studies done at the Post Graduate Institute of Medicine as well as of journals published from year 2000 and are available at the Sri Lanka Medical Association (Annexure 2). It digitalized relevant circulars, manuals and other policy documents. The e-file contains existing bibliographies and the soon-to-be-published Bibliography prepared by the Kandy Society of Medicine and the Diabetes Research Unit of the Faculty of Medicine University of Colombo. The evidences generated through the activities of the EBM Study Component 3 were also included in the electronic compilation.

D. ACTIVITY: STUDYING THE RELATIONSHIP BETWEEN EARLY LIFE FACTORS &SOME CHRONIC NCDS

The objective of the study was to determine the relationship between early life factors and NCD such as ischemic heart disease, hypertension, diabetes mellitus and hyperlipidaemia among people who were born at the Castle Street Hospital from 1950-1965. For details, **refer to section 3.4.**

E. ACTIVITY: ORGANIZING A SYMPOSIUM ON EFFECTIVE POLICY PROCESS - INTERNATIONAL AND NATIONAL PERSPECTIVES

A round table meeting on "Is there a need to redefine the roles of the primary healthcare workers" was held on the 27th of February 2007 at the Eye Hospital Auditorium with participation representing the MoH, Epidemiology Unit, Health Education Bureau, Family Health Bureau, NHSL, RDHS Office Polonnaruwa, WHO, and JICA EBM Study. A broad discussion took place between the participants regarding the updating of the roles of the primary healthcare workers to suit the current health problems faced by the country, in other words, the increasing prevalence of non-communicable diseases. The lessons learnt so far from the pilot project in Polonnaruwa was also taken into consideration in this discussion. The discussion concluded with:

- The current health system should be changed;
- The change should include NCD as well as other aspects;
- The change should be a gradual procedure;
- There is a need to set up a mechanism for the change by a high powered committee;
- There is need to redefine the structure, roles, functions and define changes that are required; and
- There should be a steering committee and a task force.

4.2.2 SUBCOMPONENT: TRAUMA SYSTEM

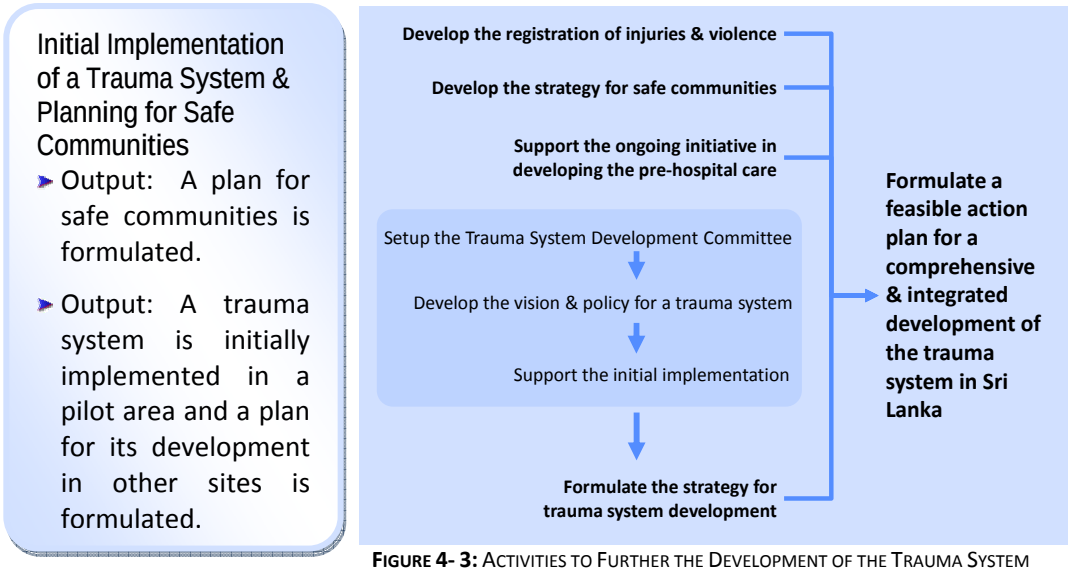


FIGURE 4- 3: ACTIVITIES TO FURTHER THE DEVELOPMENT OF THE TRAUMA SYSTEM

A. ACTIVITY: DEVELOPING THE REGISTRATION OF INJURIES AND VIOLENCE

A one-day forum was organized to review the strengths, weaknesses, opportunities, and threats of existing mechanisms for generating and managing information on injuries and violence. The WHO Regional Adviser on Disability and Injury Prevention provided technical guidance to the participants and to the MoH. The major output of the forum was a set of recommendations for the development of the injury and violence registry. The recommendations were then considered in the development of the Trauma Surveillance for Sri Lanka.

B. ACTIVITY: DEVELOPING THE STRATEGY FOR SAFE COMMUNITIES

To facilitate the setting up of a network for safe communities in the pilot area, the EBM Study conducted a survey of the stakeholders. For this purpose, a data collection instrument has been designed and was submitted to the Trauma Secretariat for comments and suggestions.

C. ACTIVITY: SUPPORTING THE ONGOING INITIATIVE IN DEVELOPING PRE-HOSPITAL CARE

The St John Ambulance and the Medical Teams International organized consultation meetings in 2005 and 2006, respectively, regarding pre-hospital care in Sri Lanka. The Colombo Municipal Council is the first local authority to establish a system for pre-hospital care. The EBM Study participated in meetings organized by these institutions to ensure that the developmental plans for pre-hospital care will be synergistic with those for the trauma system in hospitals and vice versa.

D. ACTIVITY: FORMULATING THE STRATEGY FOR THE DEVELOPMENT OF A TRAUMA SYSTEM

The MoH established the Trauma Secretariat in September 2006 to provide a leading role in developing a trauma system in the country. The Trauma System Development Committee (TSDC) was also set up to provide technical guidance to the Trauma Secretariat. Through its subcommittees, the TSDC performs its advisory role. Four pilot hospitals were selected to initially implement a trauma system. Hospital Trauma Committees have been set up in two of the pilot areas. Doctors and nurses from the pilot hospitals have attended a course on Primary Trauma Care. A non-governmental organisation called AmeriCares committed to providing an initial package of essential medicines, supplies and other logistics. Towards the middle of 2007, the lessons from the initial implementation were analysed. The lessons learned from the initial implementation of a trauma system in pilot hospitals and the experiences of existing PCU/ETU were the core input towards the formulation of a strategy for scaling up province-wide and then nationwide.

E. ACTIVITY: FORMULATING A FEASIBLE ACTION PLAN

Based on the aforementioned activities, a feasible 2-year action plan was drafted with the assistance from the EBM Study. The draft was reviewed by representatives of stakeholders in a workshop. It was submitted to the MoH for appropriate action.

4.2.3 SUBCOMPONENT: HEALTHY LIFESTYLE

Planning and Promotion of Healthy Life style in 4 Settings in Kuliyapitiya Division (Kurunegala District)

- Output: A plan for promoting healthy lifestyles in Kurunegala district is formulated
- Output: A programme for promoting healthy lifestyles is established in Kuliyapitiya

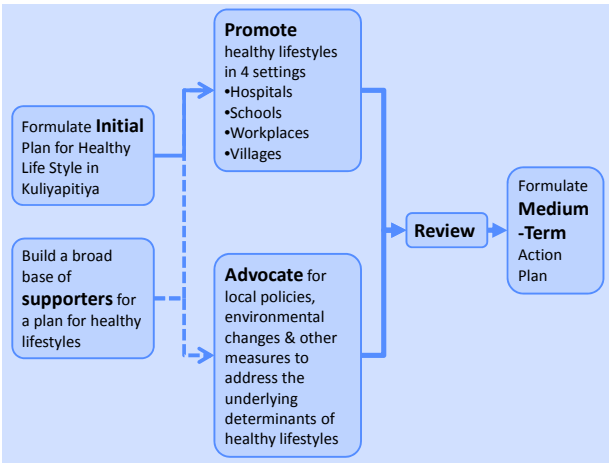


FIGURE 4- 4: ACTIVITIES TO PROMOTE HEALTHY LIFE STYLE

A. Activity: Formulating a Plan for Healthy Lifestyles in Kurunegala

Officials from the RDHS and the MOH Kuliyapitiya took part in the preliminary formulation of a Plan for Healthy Lifestyles in Kurunegala. A series of workshops clarified the basic concepts on NCD and their risk factors. Various approaches to chronic NCD prevention and management were discussed. Afterwards, the overall vision and mission were defined. An implementation plan for each of the 4 settings was agreed upon, containing the objectives, timeline and budget. These were then presented to the members of the Healthy Lifestyle Steering Committee for their review. Subsequently, each of the settings developed its own list of activities.

B. Activity: Building a Broad Base of Supporters for the Plan for Healthy Lifestyles

While the plan was being formulated, a parallel activity was being undertaken that was aimed at building a broad base of supporters. Even before the Steering Committee was established, the RDHS Kurunegala had organised a district-wide advocacy meeting, where the government and private sector participated and health officials from the MoH and the local hospital served as resource persons. Another round of meetings was done specially for the education sector. At the MOH, consultative meetings were attended by Mahimpitiya village leaders, religious persons, representatives of local societies and health personnel. The Healthy Lifestyle Steering Committee was formed from among these participants. All these meetings adopted participatory and consultative approaches. The participants' observations, opinions and priorities were written on the board for everybody to discuss.

C. Activity: Promoting Behavioural Change Among Target Groups

In coordination with the MoH office, training programmes were conducted to develop a pool of local resources in the areas of Behavioural Change Communication and Life Skills Development. The target groups also participated in programmes on healthy diet, exercise, stress management, and reducing the use of alcohol and tobacco. The overall goal of these training programmes was to carry out behavioural change interventions in every setting. A Health Week was held in March 2007. The weeklong activities culminated at the Town Hall with representatives from all the settings participating. Debates, quiz', exhibitions and cooking demonstrations were organised.

D. Activity: Advocating for Local Policies, Environmental Changes and Other Measures That Will Address the Underlying Determinants of Healthy Lifestyles

Promoting healthy lifestyles may require changes in public policies and the psycho-social environment. There will be different types of policy

instruments and levels of applicability. A Provincial Advocacy on LSRD Prevention for Local Politicians was held on the 3rd and 4th of august 2007. Since the commencement of the Healthy Lifestyles programme in Kuliyapitiya, there had been a lot of constrains from the local politicians in implementation. Therefore, a programme to create awareness among the local politicians is thought by many as a very timely endeavour. By this it is also hoped that fund allocation to healthcare from the Provincial Council budget will be facilitated. This programme is mainly consisted of a 'compact version' of the Training of trainers programmes held for the four settings. These set of lectures will be accompanied by a screening programme for the participants, which will make them aware of their own NCD status.

E. ACTIVITY: REVIEWING THE PROGRESS

The RDHS Kurunegala and the EBM Study have joined to develop a monitoring and evaluation instrument. A programme was organised in most of the settings to establish the baseline levels of behavioural and biological risk factors as well as some socio-economic determinants. At the completion of the pilot project a review was carried out to evaluate the progress and to identify the room for further improvement. The programme was reviewed to evaluate the effect of the TOT programmes on the trainers as well as to evaluate the impact of the TOT on the respective communities and of the follow up of the high risk patients. Self-administered questionnaires were employed for the TOT participants, high risk patients identified at screening and Steering Committee members comprising of leaders from each setting. Focus group discussions with the trainers and the steering committee members were also held in this regard.

4.2.4 SUBCOMPONENT: INFORMATION SYSTEM

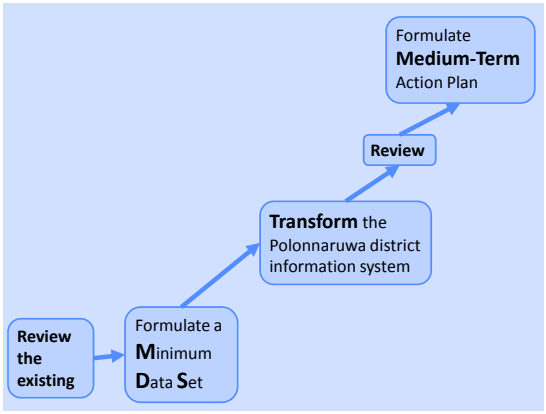


FIGURE 4- 5: ACTIVITIES TO TRANSFORM THE EXISTING INFORMATION SYSTEM

Strengthening the System for Generating, Managing and Using NCD Information

- Output: The existing health system at the Polonnaruwa District is transformed to generate information that will be used for the prevention and management of NCDs.
- Output: The national cancer registry is updated.

The active participation of several stakeholders was required in strengthening the existing information system. For this reason, they were represented in the Chronic NCD Information Group (NCD Info Group). The NCD Info Group provided technical leadership in the development of information systems related to chronic non-

communicable diseases. It was composed of representatives from relevant agencies of the MoH, PDHS, RDHS and hospitals.

A. Activity: Review of Existing Mechanisms of Generating, Managing and using NCD Information

The following existing systems were considered: Polonnaruwa district information system; notification system for communicable diseases; and a proposed reporting system for chronic renal failure. Through a review of literature, a long list of indicators of chronic NCD was developed. A workshop was organised to solicit the feedback from the major stakeholders.

B. Activity: Formulating the Minimum Data Set

Before any intervention aimed at changing the existing information system is carried out, it is best to come up first with a strategic framework that will outline fundamental principles, overall goals and directions. Towards this end, a workshop was organised with the participation of a number of stakeholders. Consensus was built among the participants around the concept of a minimum data set that will be sufficient to provide the evidence needed by priority groups of users. The Chronic NCD Info Group further deliberated on the workshop recommendations.

C. Activity: Transforming the Polonnaruwa District Information System

For the past two years, the RDHS Polonnaruwa and the MoH Information Directorate have been collaborating to strengthen the district information system by introducing a single record for each patient that will be retrieved every time he uses the health system. Besides this paper-based patient chart, computer software has been developed for scheduling of appointments at clinics, for management of drug supplies and the MOH areas. The EBM Study capitalized on these developments.

To initiate the transformation of the district information system, the NCD Directorate served as resource for a seminar on NCD with emphasis on the common risk factors – tobacco and alcohol use, unhealthy diet and physical inactivity. A cross-section of the primary care staff participated in the seminar. On another occasion, the provincial MO/NCD trained the PHI on healthy lifestyles. Training sessions on the Chronic NCD Surveillance System were conducted by the MoH Information Unit and the Polonnaruwa Visiting Physician.

Forms and registers were also designed, reviewed and revised. A Patient Data Record was developed that was issued by the hospitals, kept by the patients, filled up every time the patients seek medical consultation or is admitted, and also filled up by the PHI for his health promotion and monitoring activities.

A week prior to pre-testing the Chronic NCD Surveillance System, meetings with hospital committees were organised to ensure that all

systems are ready for the launching. An internal circular was issued by the RDHS Office Kurunegala informing the health staff about the new system and their roles and responsibilities.

Chronic NCD system was implemented in 3 hospitals in the Polonnaruwa district and covered all MOH areas. The Regional Epidemiologist was appointed as the district coordinator and supervisor and sub-coordinators were appointed to the each of the hospitals. Flow of the information was defined. The system was operated at two levels- hospital level and field level. At the hospital level, hospital notification was done and the forms were transferred to the MOH where the field level was involved. At the field, investigations were carried out by the PHIs. Back flow of the data was defined and the analysis of the data was carried out at the RDHS level.

At the end of the pilot period a review was conducted. Self-administered and interviewer-administered questionnaires and focal group discussions (FGDs) were used as tools. Focal group discussions were conducted by the experts from the Planning Unit of the MoH. At the review it was revealed that majority of them had accepted the usefulness of the programme, had a positive effect on their overall job performance and want to continue the programme. Strengths and the weaknesses of the programme were also identified.

A planning workshop was organized with the participation of representatives of all staff members involved in the programme, health officers of the district and health officers from the ministry level. The objective of the workshop was to develop a plan to move forwards from the initial implementation according to strengths and the weaknesses identified.

D. ACTIVITY: REVIEW

Officials from the Planning Unit of the MoH monitored and assessed the interventions in Polonnaruwa. The results of the assessment were used to develop an action plan for implementation from 2008 to 2012.

E. ACTIVITY: STRENGTHENING THE CANCER REGISTRY

At the outset, the EBM Study assisted the National Cancer Control Programme (NCCP) in having the year 2000 cancer data printed. Local research assistants were then hired to fast-track data collection for 2005 and for the other backlogs. Data entry was completed. To get a better picture of the trends in cancers, a preliminary analysis was performed for the 1990 -2005 data.

4.3 IMPLEMENTATION ARRANGEMENT

The NCD Counterpart Team steers the overall direction of Component 3. It is composed of the Deputy-Director General (DDG) for Medical Services, DDG for Public Health Services, the Director for Information, Director for NCD, Chief Epidemiologist, Director for the National Cancer Control Programme (NCCP), and Deputy Director for Accident Services of the National Hospital of Sri Lanka (NHSL). As the designated NCD Component Focal Point, the Director for Information and the Director of Planning were the principal counterparts of the EBM Study Team who coordinated the activities of the component.

Subcomponent focal points have been identified to provide leadership and facilitate coordination **(Table 4- 1)**. To implement the subcomponents, the following structures were set up:

- Healthy Lifestyle Steering Committee (health and other sectors in Kuliyapitiya);
- District and Hospital Information Committee (Polonnaruwa);
- Chronic NCD Information Group (MoH);
- Trauma Secretariat (MoH);
- Trauma System Development Committee (MoH and other sectors);
- Hospital Trauma System Committee and Trauma Teams;
- Technical Advisory Group on Diet and Physical Activity; and
- Technical Advisory Group on Stress and Life Competencies.

TABLE 4- 1: FOCAL POINTS FOR EBM STUDY ON NCD

Subcomponent Title	Subcomponent Focal Point
Broadening the Evidence Base for NCD Prevention and Management throughout the Course of Life	• Director, NCD • Director, Information • Director, Planning
Planning for Safe Communities and Initial Implementation of a Trauma System	• NHSL Deputy Director for Accident Services • PDHS (Western Province)
Planning and Social Marketing of Healthy Lifestyles in Kuliyapitiya BH and MOH Areas	• PDHS (North Western Province) • RDHS (Kurunegala) • Director, Health Education Bureau
Strengthening the System for Generating, Managing and Using NCD Information	• Director, Information • Director, Planning • Chief Epidemiologist • Director, NCCP • PDHS (North Central Province) • RDHS (Polonnaruwa)

Chapter 5

CHRONIC NCD BURDEN

Key Messages

- Although Chronic NCD accounted for less than half (43%) of the total disease burden in 1998, they will exert a heavy burden (73%) by 2020.
- The common chronic NCDs under consideration are cardiovascular diseases, diabetes, mental disorders and cancers.
- The common risk factors for NCD are obesity, hypertension, protienuria, impaired glucose tolerance and stress response.
- Diet, physical activity, use of tobacco and misuse of alcohol are common behavioural risk factors.
- Tobacco and alcohol use are two silent killers with many health hazards that rob the lives of many.

5.1 TRENDS IN PRIORITY DISEASES

5.1.1 GLOBAL AND REGIONAL TRENDS

Chronic NCDs are becoming a pandemic. They were responsible for 6 of 10 deaths globally **(Table 5- 1).** Although they accounted for less than half (43%) of the total disease burden in 1998, they will exert a heavy burden (73%) by 2020.

TABLE 5- 1: CONTRIBUTION OF CHRONIC NCD TO MORTALITY AND DISEASE BURDEN

	Global	SEAR
Per cent of deaths	60	51.6
Per cent of burden of disease, 1998	43	37.9
Per cent of burden of disease, 2020	73	

A comparison of the statistics across the six WHO regions revealed that chronic NCD are the most common cause of deaths in all of the regions except in Africa, where it ranked second (**Figure 5- 1**). In the European region, chronic NCDs are responsible for over 75% of the deaths. In the South East Asian Region (SEAR), the burden of chronic NCD is much more than that of other conditions as they were liable for more than 50% of the deaths.

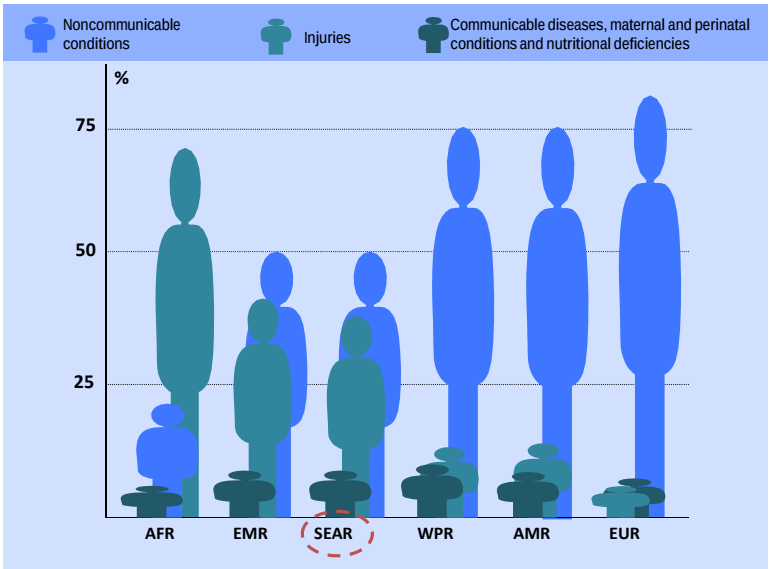


FIGURE 5- 1: DEATHS, BY BROAD CAUSE GROUP AND WHO REGION, 2000[1]

The contribution of the SEAR to the global NCD burden is significant – 22% in total mortality and 25% in disease burden. In other words, every 4th and 5th NCD cases or deaths are in the SEAR. Also, every 5th case of diabetes is in this region and this figure is expected to rise to 27% by the year 2025.
A recent publication revealed that chronic NCDs were responsible for 3 of 4 deaths in lower middle income countries as well as in Sri Lanka **(Figure 5-2)**. This is higher than the global level. About a third of the deaths were

[1]WHO, 2002

actually due to cardio-vascular diseases (*CVD*). *Cancers and chronic respiratory* diseases came in 2nd and 3rd, respectively. While only 1% of the deaths in low income countries resulted from diabetes, Sri Lanka had 4% of its deaths due to this disease.

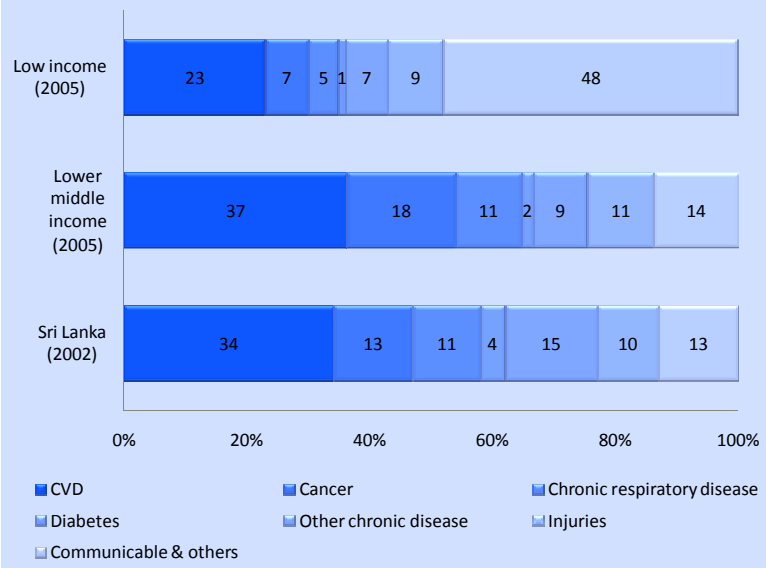


FIGURE 5- 2: NCD IN SRI LANKA AND OTHER GROUPS OF COUNTRIES[1]

5.1.2 TRENDS IN SRI LANKA

A. HOSPITAL MORBIDITY & MORTALITY

During the last two decades of the 20th century, hospitals in Sri Lanka have witnessed increasing trends in hospital admissions due to circulatory diseases, neoplasms and injuries (**Figure 5-3**) on one hand while admissions due to infectious diseases have not increased significantly from 1990 to 2000. While hospitals deaths due to infectious diseases and injuries have been declining, those resulting from the other chronic NCD continue to rise. The leading causes of hospital deaths are ischeamic heart diseases (17%) and cerebrovascular diseases (9%). Eight per cent of the population died of pulmonary heart disease.

[1] WHO, 2005

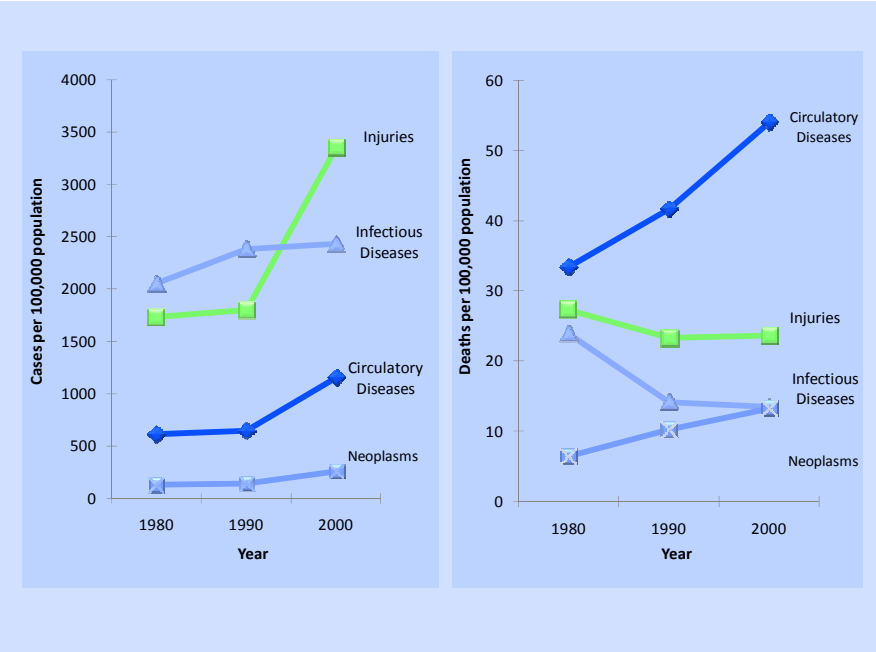


FIGURE 5- 3: TRENDS IN HOSPITAL MORBIDITY & MORTALITY, SRI LANKA, 1980-2000[1]

B. CARDIOVASCULAR DISEASE

Ischaemic heart disease (IHD) remains the leading cause of hospital deaths in Sri Lanka which recorded as 12.5% of the total deaths occurring in public sector hospitals in 2003. The highest number of deaths occurs in the 65 and above age group and is mainly affecting the males **(Figure 5-4).** The age-standardized death rate for IHD in Sri Lanka is comparable to those for the United States and Great Britain **(Figure 5-5)**.

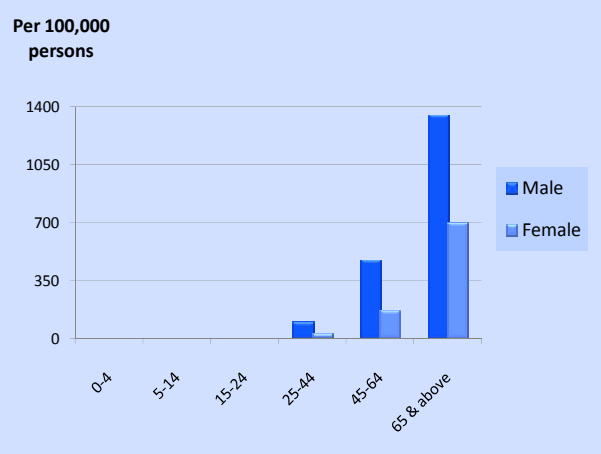


FIGURE 5- 4: AGE AND SEX SPECIFIC DEATH RATE FOR IHD IN SRI LANKA FOR 1997[2]

In the region of South East Asia, 20.1% of cardiovascular system related deaths occur in Sri Lanka. This is the third highest in the region **(Figure 5-6)**. Hypertension is the second most prevalent chronic NCD and is found at a higher frequency amongst females (females-19.3%; males-18.8%). It is most prevalent in the Uva province where 24.6% females and 21.2% males are affected and is followed by Western, Southern and North Central respectively. It is being projected that hypertension would be the leading cause of hospital admissions for chronic NCD in Sri Lanka in the years to come **(Figure 5-7)**.

[1] Annual Health Bulletin, 2003
[2] Ibid

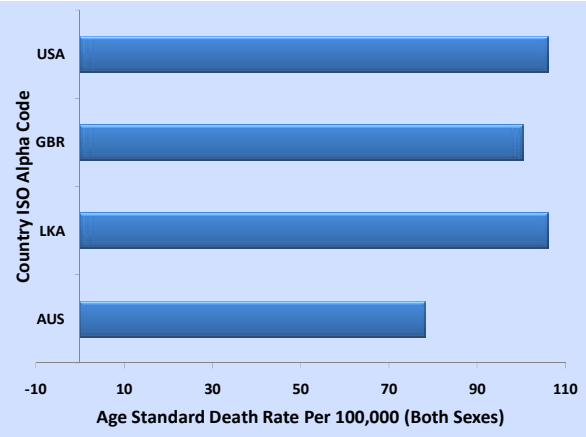


FIGURE 5- 5: DEATHS DUE TO ISCHAEMIC HEART DISEASE IN SRI LANKA ARE COMPARABLE TO THAT OF DEVELOPED COUNTRIES[1]

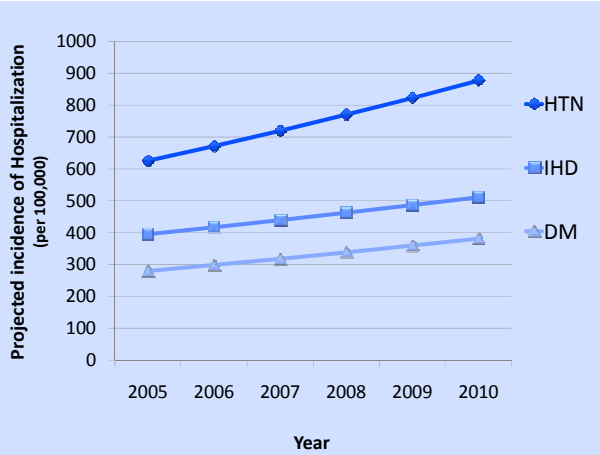


FIGURE 5- 7: HOSPITALIZATION TRENDS DUE TO SELECTED NON COMMUNICABLE DISEASES IN SRI LANKA, 2005 – 2010[2]

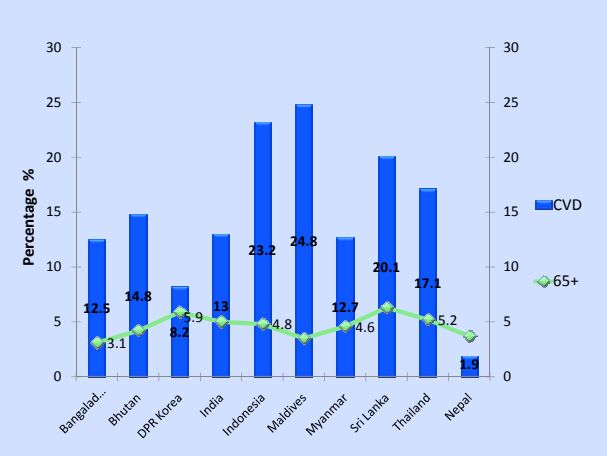


FIGURE 5- 6: CARDIOVASCULAR DEATHS AND THE ELDERLY POPULATION IN THE REGION OF SOUTH EAST ASIA

C. DIABETES

As a whole, 5.2% of the population is having diabetes in Sri Lanka **(Figure 5-8)**. The highest prevalence of diabetes mellitus is seen in the age group of 55-59years (8.6%). 7.1% of the diabetic population is among the age group of 50-54. The age group of 60-64 has a prevalence of 6.6% while 6.2% is in 45-49 years. 5.5% of the adults in the 40-44 age group has diabetes. The least number is 1% in the age group of 30-34. Roughly equal amount of males and females are having diabetes in Southern and Uva provinces. North Central province has a prevalence of 7.3% males and 6.7% of females.

[1]WHO, Wijewardene, Mohideen, & Mendis, 2005

[2]Premaratne, Amarasinghe, & Wickramasinghe, 2005 Jun

Western province has the highest rate of prevalence, which is 18.3% males and 16.8% females. The impaired fasting prevalence is also high in both males and females in Western province accounting up to 16% and 16.3% respectively.

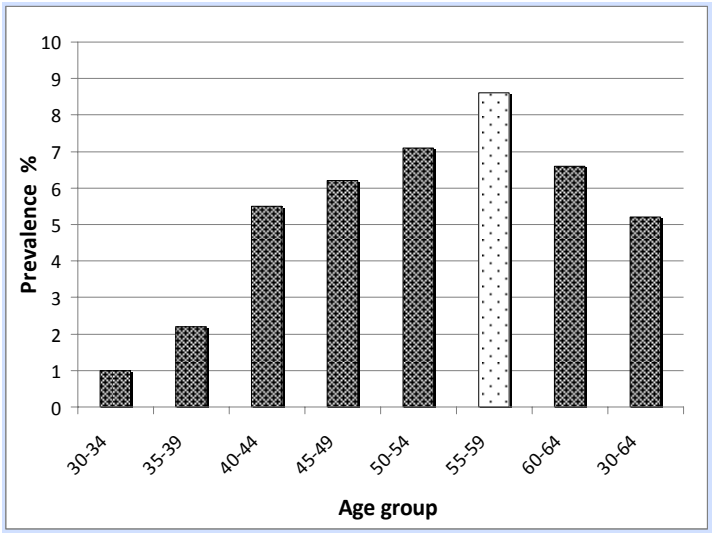


FIGURE 5- 8: PREVALENCE OF DIABETES, SRI LANKA[1]

D. MENTAL DISORDERS

According to the data published by Medical statistics unit in the year 2003 there had been 40697 reported cases of mental disorders in Sri Lanka[2]. Mental disorders include

- Dementia
- Mental and behavioural disorders due to psychoactive substances
- Schizophrenia, schizotypal and Delusional disorders
- Mood disorders
- Neurotic, stress related Somatoform disorders
- Mental retardation related disorders
- Behavioural and emotional disorders in childhood and adolescence
- Other unspecified mental disorders

The highest number of mental disorders was reported from the mental hospitals in Angoda, Mulleriyawa and Hendala (6658). Second highest number was reported from Kurunegala district and Galle had the third highest number of cases.

Schizophrenia, schizotypal and Delusional disorders were the commonest group of disorders and there were 12686 reported cases in 2003. Most of them were reported from the three mental hospitals. (4100). Galle and Kurunegala Districts accounted for the second and third highest numbers respectively.

[1]WHO global info base (info.who.int)
[2]Medical Statistics Unit,2007

There were 9119 reported cases of mental and behavioural disorders due to alcohol and 2028 cases due to other psychoactive substance use. Most of the alcohol related cases were reported from the Gampaha district. Kurunegala and Colombo had the second and third highest numbers. Most of the mental and behavioural disorders due to other psychoactive substances were reported from Colombo district. Kurunegala district accounted for the second highest number.

Neurotic, stress related and somatoform disorders were commonest in Jaffna district (236) whereas the second and third highest numbers were reported from Kurunegala and Kandy.

Most of the Behavioural and emotional disorders in childhood and adolescence were reported from Kurunegala and the second highest number was from Kandy. Batticoloa had the third highest number.

E. POISONING

According to the Medical Statistics Unit 52540 cases of poisoning were reported in the year 2005[1]. These cases included poisoning by drugs, medicaments and biological substances, organophosphate and carbamate, other pesticides and other toxic substances. Most of the cases were from Kurunegala district (6509) and Anuradhapura had the second highest number with 4078 cases. There were 3718 cases reported from Colombo district and it was the third highest.

The highest number of toxic effects due to Organophosphate and Carbamate were reported from Kurunegala district. (2141). Second and third highest numbers were from Badulla and Nuwaraeliya districts respectively. Toxic effects of other pesticides were most common in Kurunegala. Badulla and Kandy were in the second and third places of the list.

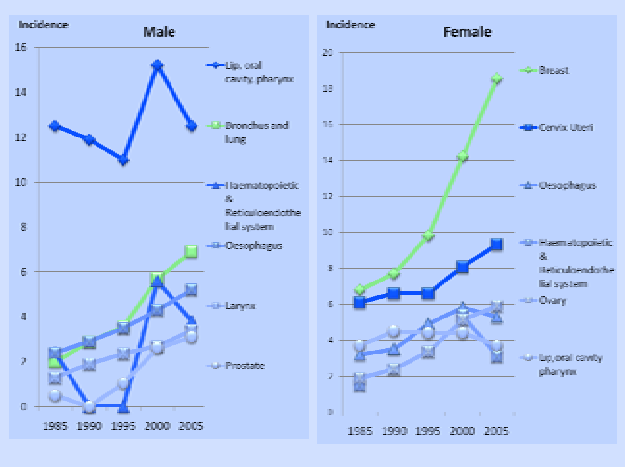


FIGURE 5- 9: INCIDENCE OF THE SIX MOST FREQUENT CANCERS AMONG MALES & FEMALES, 1985-2005[2]

F. CANCER

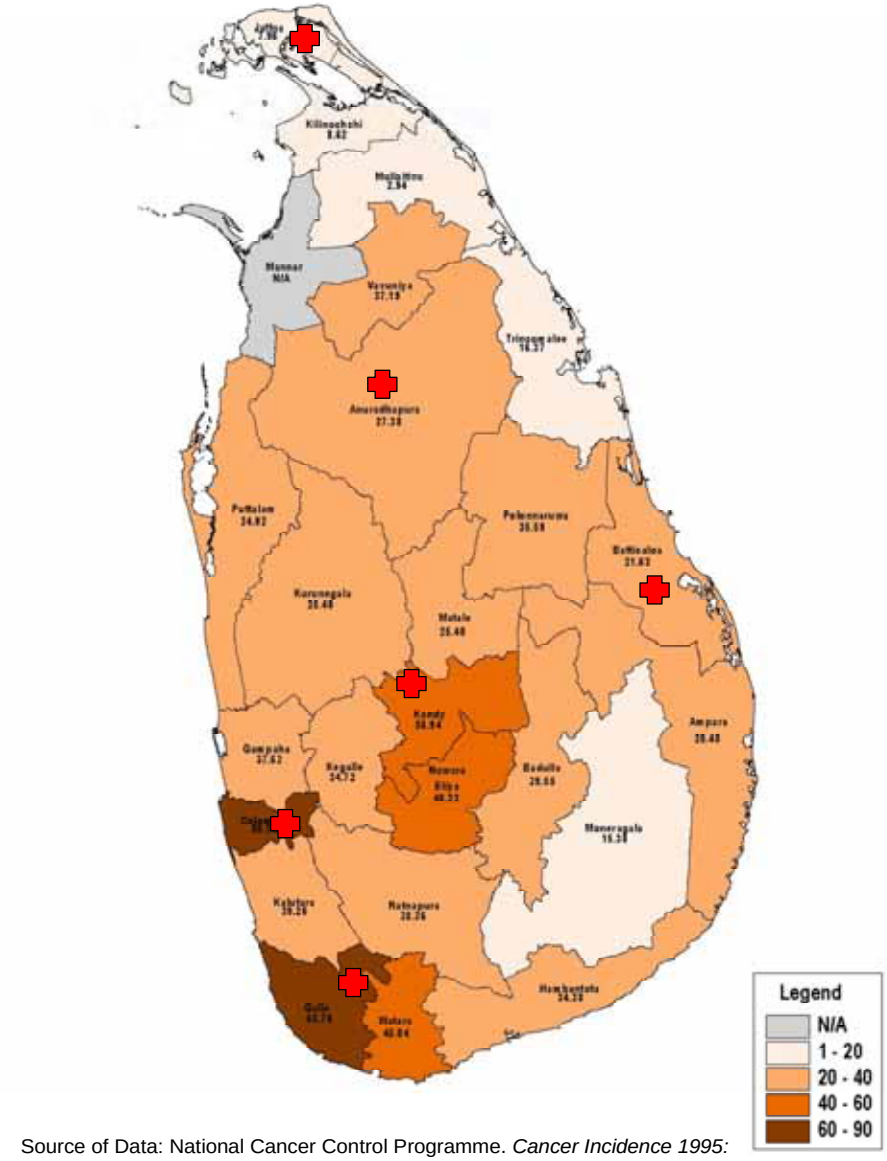
Among the chronic NCDs, cancer has remained a priority. The number of cancer cases diagnosed every year has been increasing. **Figure 5-9** are the results of a preliminary analysis of the available data

The national incidence rate for cancer was 40.47 in 1995. The four districts that had rates higher than the national level were Colombo (88.36), Galle (63.76), Kandy (58.94) and Matara (45.04). Nuwara-Eliya has an incidence rate of 40.23. Districts where the treatment centres are situated (indicated by a red cross in **(Figure 5- 10)** do not necessarily have high incidence of cancers.

[1] Medical Statistics Unit, 2007

[2] National Cancer Control Programme

Cancer Incidence by District, 1995



Source of Data: National Cancer Control Programme. *Cancer Incidence 1995: Sri Lanka.* Cancer Institute Maharagama, 2002.

FIGURE 5- 10: CANCER INCIDENCE (1995) AND TREATMENT CENTRES (2006)