Asia-Pacific
Economic Cooperation

Framework on Community Based Intervention to Control NCD Risk Factors

APEC Health Working Group
2014

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PREFACE

Non-Communicable Diseases have shown alarming pictures of morbidity, disability and mortality globally including in APEC Economies. It contributes about 60% of global deaths due to cardiovascular diseases, cancer, chronic respiratory disease and diabetes. Recently the increasing NCD's prevalence has also been identified as an obstacle to the National economy growth development due to the high cost in providing services. In the year 2000 WHO proposed a major re-orientation from curative approaches to focus addressing the common risk factors of the four major NCDs, i.e. cardiovascular diseases, cancers, chronic respiratory diseases and diabetes. Some of these risk factors are beyond the health sector. Therefore, it is very important to prevent and control NCDs and its risk factors using multisectoral approach.

In many economies, lack of personnel is one of the most important constraints to strengthen the delivery of comprehensive health services that include preventive, promotive, curative and rehabilitative services. In order to overcome this situation, the Political Declaration of The High Level Meeting of the General Assembly on the prevention and control of Non-Communicable Diseases in 2011 stated to: "Engage non-health actors and key stakeholders, where appropriate, including the private sector and civil society, in collaborative partnerships to promote health and to reduce non-communicable disease risk factors, including through building community capacity in promoting healthy diets and lifestyles".

Community may have different roles, it can be as a setting for intervention, as the target of change, as an agent and as a resource with a high degree of ownership and participation. Regardless of its role, community can be empowered to prevent and control Non-Communicable Diseases risk factors through Community Based Intervention.

In this particular aspect, APEC Economies take a concrete action to support WHO Global Action Plan and UN General Assembly Political Declaration 2011 to empower community through Community Based Intervention (CBI) while strengthening and reorienting the primary health care system. This framework aims to better understand community based intervention in different settings anzd also enables to identify approaches and challenges based on experience from several APEC Economies.

We gratefully acknowledge the support provided by APEC Experts and APEC Economies in developing a common Framework on Community Based Intervention to control Non-Communicable Disease risk factors. Through this framework we would like to encourage APEC Economies to implement community-based approaches to reduce the population risk factors and NCD's burden.

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ABBREVIATIONS

AADE	:	American Association for Diabetes Educators
ACBS	:	Asthma Call-back Survey
AHIP	:	America's Health Insurance Plans
APEC	:	Asia-Pacific Economic Cooperation
BRFSS	:	Behavioral Risk Factor Surveillance System
CBI	:	Community Based Intervention
CCM	:	Chronic Care Model
CDC	:	Center od Disease Control
CSR	:	Corporate Social Responsibility
DALYs	:	Daily Activity Living Years
DM	:	Diabetes Mellitus
GCU meter	:	Glucosa Unit meter
HAP	:	Household Air Pollution
ICCC	:	Innovative Care of Chronic Conditions
IEC	:	Information, Education and Counselling
KRW	:	Korean Won
LGU	:	Local Government Unit
NCD	:	Non-Communicable Disease
NCD-RF	:	Non-Communicable Disease Risk Factor
NCHS	:	National Center for Health Statistics
MMWR	:	Morbidity and Mortality Weekly Report
PEN	:	Package Essential for NCDs
PHC	:	Primary Health Center
PPHF	:	Prevention and Public Health Funds
REACH	:	Racial and Ethnic Approaches to Community Health
RSM	:	Strategic route Map
WEAT	:	Web-Enabled Analysis Tool
WHO	:	World Health Organization
WHO STEPS	:	World Health Organization STEPwise approach for Surveillance
RSCM-FKUI	:	Cipto Mangunkusumo Hospital- Medical Faculty of Indonesia University

CHAPTER 1
INTRODUCTION

The Global Status Report on Non Communicable Diseases (WHO, 2010) reported that 36 million (63%) of deaths occurred in the world were due to NCDs, principally cardiovascular diseases, diabetes, cancer and chronic respiratory diseases. Nearly 29 million (80%) occurred in low and middle-income countries. The prevalence of NCDs and deaths related to it are estimated to increase substantially in the future, especially in low and middle-income countries, due to population growth and ageing. This change is also accompanied by economic transition and the resulting changes in behavioral, occupational and environmental risk factors of NCDs. Deaths caused by NCDs are predicted to increase 15% globally between 2010 and 2020 (up to 44 million deaths). It is estimated that there will be no increase in the NCDs death rate in Europe, while NCDs will cause around 3.9 million deaths in Africa by 2020. South-East Asia (10.4 million deaths) and the Western Pacific (12.3 million deaths) are the regions that are projected to have the highest total number of NCD deaths in 2020.[1] Approximately 1.24 million people die every year on the world's road.[2] Mental, neurological and substance use disorders account for 13% of the total global burden of disease in the year 2004. Depression alone accounts for 4.3% of the global burden of disease and is among the largest single causes of disability worldwide [11 % of all years lived with disability globally], particularly for women.[3]

Global status report on NCD 2010 estimated that the incidence of 12.7 million new cancer cases in 2008 will rise to 21.4 million by 2030, with nearly two-third of all cancer diagnoses occurring in low-middle income country. The global prevalence of diabetes in 2008 was estimated to be 10% in adults aged 25 and over, it was highest in the Eastern Mediterranean Region and the Region of the Americas (11% for both sexes) and lowest in the WHO European and Western Pacific Regions (9% for both sexes). Globally, the overall prevalence of raised blood pressure in adults aged 25 and over was around 40% in 2008. However, because of population growth and ageing, the number of people with hypertension rose from 600 million in 1980 to nearly 1 billion in 2008, it was highest in the African Region (46% for both sexes) and lowest in the WHO Region of the Americas (35% for both sexes, 39% men, 32% women). In all WHO regions, men have slightly higher prevalence of raised blood pressure than women, but this difference was only statistically significant in the Region of the Americas and the European Region.

An estimated 205 million men and 297 million women over the age of 20 were obese in 2008 – a total of more than half a billion adults worldwide. The prevalence of overweight and obesity were highest in the WHO Region of the Americas (62% for overweight in both sexes, and 26% for obesity) and lowest in the WHO Region for South-East Asia (14% overweight in both sexes and 3% for obesity). In the WHO European Region, the Eastern Mediterranean and the Region for the Americas, over 50% of women were overweight. In all WHO regions, women were more likely to be obese than men.

It has been observed that APEC economies suffer from a triple burden.[4]

1. The continuing high incidence of emerging and re-emerging infectious diseases such as influenza, malaria, HIV/AIDS, and tuberculosis, especially in developing economies has high human and financial costs. At the same time, healthcare-associated infections often occur at significantly higher rates resulting in higher cost.
2. The rapid and widespread increase of non-communicable diseases (NCDs) such as cancer, diabetes, cardiovascular and respiratory diseases, are now the leading cause of morbidity and death in most APEC economies. Among the NCDs, CVD and cancer have the major contribution to deaths:
   - Cardiovascular disease accounts for about one third of all deaths in Asia, with mortality rates that is on average 70% higher than in OECD countries.
   - Cancer caused an estimated 13% of total deaths in Asian economies in 2008—almost half of all worldwide cancer deaths.
3. The population is aging rapidly resulting in increased expenditures for NCD ongoing care and public pension systems.

Analysis of The Global Economic Burden of NCDs by the World Economic Forum and Harvard School Public Health[5] in 2011 estimated that the direct and indirect costs of ill health for the five major NCDs are as follows:

- Cancer: an estimated US$ 290 billion in 2010 rising to US$ 458 billion in 2030
- Cardiovascular disease: an estimated US$ 863 billion in 2010 rising to US$ 1.04 trillion in 2030
- Chronic Obstructive Pulmonary Disease (COPD): an estimated US$ 2.1 trillion in 2010 rising to US$ 4.8 trillion in 2030
- Diabetes an estimated US$ 500 billion in 2010 rising to US$ 745 billion in 2030
- Mental illness: an estimated US$ 2.5 trillion in 2010 rising to US$ 6.5 trillion in 2030
- Road traffic injuries: an estimated over US$100 billion a year, 1-2% of GNP in low and middle income countries (Global status report on Road safety 2013).

Recent evidence shows that NCDs are also affecting populations at younger ages, particularly in low and middle-income countries. This is driven by an earlier and hence longer exposure to risk factors such as urbanization, persisting poverty, lack of access to health care, and the "globalization" of behavioral risk factors such as high-sugar diet and lack of exercise.[6] In APEC economies with limited resources this will lead to longer periods of ill-health, increased number of premature deaths, and greater loss of productivity that will affect for economic growth.

Realizing the burden of NCDs on individuals, family and society as a whole and its impact on a country's economic development, in 2000 WHO proposed a major re-orientation from curative approaches to focus addressing the common risk factors of the four major NCDs, i.e. cardiovascular diseases, cancers, chronic respiratory diseases and diabetes.[7] All of these diseases are preventable. Up to 80% of heart disease, stroke, type 2 diabetes and over a third of cancers can be prevented by eliminating shared risk factors, mainly tobacco use, unhealthy diet, physical inactivity and harmful alcohol consumption.

To further develop more concrete action, WHO developed "The Action Plan for Global Strategy for the Prevention and Control of NCDs in 2008-2013", which was revised to The Global Action Plan for Prevention and Control of NCDs in 2013-2020. One important objective of the Global Action is to reduce modifiable risk factors for NCDs and underlying social determinants through creation of health-promoting environments, while at the same time strengthen and orient health systems to address the prevention and control of NCDs.

This is further emphasized by UN General assembly 2011 that stated among others in the 66/2 point 54 of the Political Declaration of The High Level Meeting of the General Assembly[8] on the prevention and control of Non-Communicable Diseases: "Engage non-health actors and key stakeholders, where appropriate, including the private sector and civil society, in collaborative partnerships to promote health and to reduce non-communicable disease risk factors, including through building community capacity in promoting healthy diets and lifestyles".

This CBI framework would propose to support the WHO Global Action Plan and UN General Assembly Political Declaration 2011 in this particular aspect to empower community through Community Based Intervention while strengthening and reorienting the primary health care system.

Community Based Intervention (CBI) can be defined as an integrated and comprehensive intervention that is not limited to medical/clinical care settings. It uses multiple interventions and targeting change among individuals, groups and organizations. It often incorporates strategies to create policy and environmental changes that need mutisectoral participation, thus it is beyond health sector only.[9]

Several APEC Economies have developed and implemented CBIs to address NCDs risk factors. The role of the community in health intervention projects can be seen as fourfold: community as setting for interventions, community as target of change, community as agent with developmental capacity, and community as resource with a high degree of ownership and participation.[9] Since CBIs are very much influenced by the local context, including social and cultural norms and the readiness and capacity of the community, the model that they developed varies.

This frameworks aims to enable stakeholders such as policy makers, politician, the community, academics and the private sector to better understand community based interventions in different settings. It also enables to identify approaches and challenges based on experience from these economies.

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CHAPTER 2
THE PUBLIC HEALTH PERSPECTIVES OF MAJOR NCDs

The rapidly growing burden of NCDs needs to be tackled in a comprehensive intervention program comprising of promotive, preventive, curative and rehabilitative aspects. Currently, the main focus of health service provision for NCDs in most economies is hospital-centered for acute care, and medical technology is driven towards high technology equipment to diagnose and cure rather than to prevent the diseases.[1] This approach is very expensive, creating an ethical dilemma in accessing the high-tech services and will not contribute to significant reduction of the NCD burden. On the other hand, health promotion and preventive measures will contribute to decrease the burden of the disease and health expenditures.

A substantial proportion of NCDs can be prevented as it is related to unhealthy individual behavior and environments. The degree of a person's risk for developing NCDs is dependent on the interaction between the individual's life style and the wider environment. Therefore, to prevent and control NCDs there is a need to approach NCDs from the public health perspectives that emphasize prevention and promotion aspects. It is well acknowledged that NCDs consists of many diseases ranging from chronic diseases such as cancer, cardiovascular, respiratory diseases, diabetes, mental health and others to more acute condition such as injury. To allow more effective intervention, global experts agreed to focus on major NCDs that have common risk factors and impose a high burden to society, individuals and family.

Following WHO recommendations, efforts are directed towards prevention and control of major NCDs i.e. cardiovascular diseases, cancer, chronic respiratory diseases, and diabetes. In addition, experts in APEC economies proposed to include mental health and injuries into the major NCDs list to be addressed. These are the major NCDs and their risk factors that will be addressed throughout the rest of the framework.

2.1 Major NCDs Risk Factors

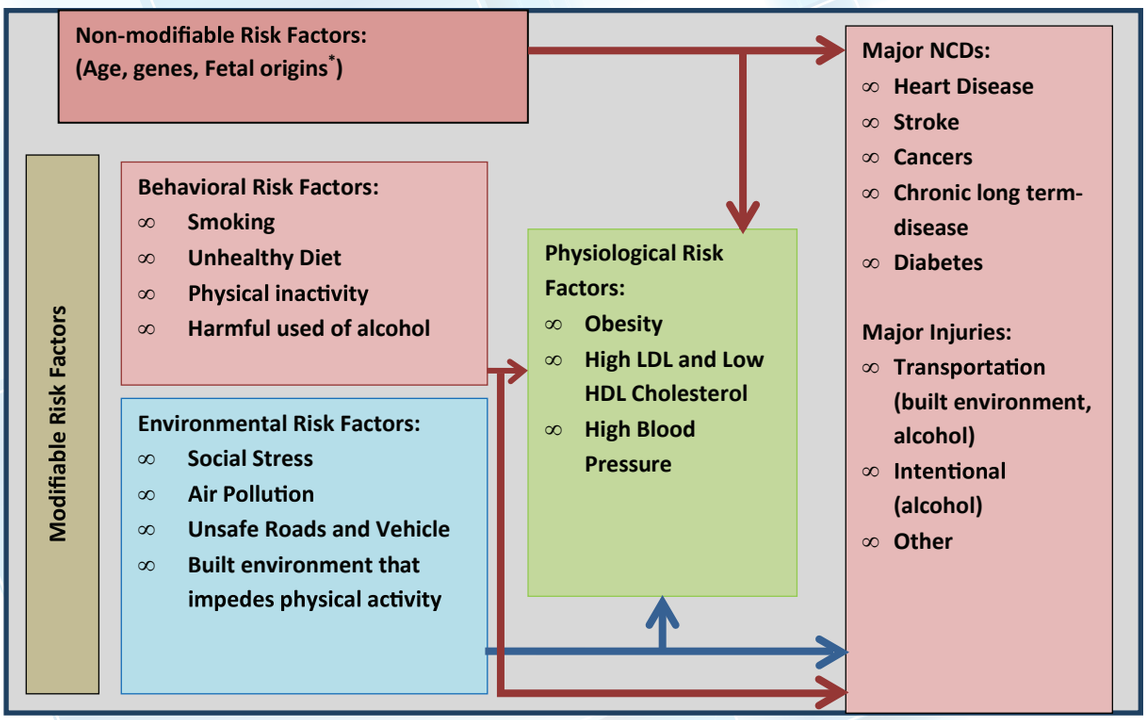
There are two types of risk factors that are associated with NCDs:

a. Non-modifiable Risk Factors: risk factors that cannot be induced or controlled by intervention. For example: age, genes, fetal origins (Fetal origins linked to the mother's health and nutrition that increase the risk of NCDs later in life are not modifiable from the affected individual's point of view but maternal health and nutrition can be improved over time and this risk factor can be reduced)

b. Modifiable Risk Factors: there are three groups of modifiable risk factors that can be reduced or controlled by intervention, thereby reducing the probability of disease:
   - Behavioral risk factors: smoking, unhealthy diet, physical inactivity and harmful use of alcohol
   - Environmental risk factors: air pollution, unsafe roads and vehicles, the physical and policy environment that impedes physical activity, social stress
   - Physiological risk factors: obesity, high LDL and low HDL cholesterol, high blood pressure.

Figure 2.1

Relationship between Key Risk Factors for Major NCDs and Injuries[1]



Adapted with modification from *Global Health 2035: a world converging within a generation*. USA, The Lancet. 2013.

According WHO Global Health Status Report 2010 are the following impact of modifiable NCDs risk factors[2].

Tobacco: Globally, almost 6 million people die from tobacco use each year (direct tobacco use and second-hand smoke), and this number is predicted to increase to 7.5 million by 2020, contributing about 10% of all causes of death. Smoking is estimated to cause about 71% of lung cancer, 42% of chronic respiratory disease and nearly 10% of cardiovascular disease. The highest incidence of smoking among men is in lower-middle-income countries; however with regards to population smoking prevalence is highest among upper-middle-income countries.

Physical inactivity: Physical inactivity increases the risk of all causes of mortality by 20% to 30%, or about 3.2 million deaths each year. Regular physical activity reduces the risk of cardiovascular disease including high blood pressure, diabetes, breast and colon cancer, and depression.

Harmful alcohol consumption: This aspect leads to 2.3 million deaths each year, accounting for about 3.8% of all deaths in the world. While adult per capita consumption is highest in high-income countries, it is nearly as high in the populations of upper-middle-income countries.

Unhealthy diet: Unhealthy diet is another factor that is rising quickly in lower-resource settings. Available data suggest that fat intake has been rising rapidly in lower-middle-income countries since the 1980s. Communities have started consuming much higher levels of salt leading to higher risk to have high blood pressure and cardiovascular diseases. Adequate consumption of fruit and vegetables reduces the risk of cardiovascular diseases, stomach cancer and colorectal cancer.

Elevated blood pressure levels: This factor is estimated to cause 7.5 million deaths each year and its prevalence is equivalent across all income groups, though it is generally lowest in high-income groups.

Overweight and obesity: The highest prevalence of overweight is in upper-middle-income groups but it also at very high levels in some lower-middle income groups. At least 2.8 million people die each year as a result of being overweight or obese. Risks of heart disease, strokes and diabetes increase steadily with increasing body mass index (BMI). High BMI also increases the risk of certain cancers.

High cholesterol is estimated to cause 2.6 million deaths annually and the highest prevalence is in high-income countries.

Air pollution: Household air pollution (HAP) caused by smoke from cooking and heating with solid fuel is the most widespread risk factors for NCDs in the developing world, impacting nearly 100 percent of the poorest 3 billion people. The link between HAP and NCDs is well established. HAP causes lung cancer and chronic lung diseases and is the leading risk factor for these diseases among non-smoking women in developing countries. HAP increases the risk of delivering low birth weight babies who are then at increased risk of developing NCDs later in their lives.[3] In- and outdoor air pollutants may cause chronic obstructive pulmonary diseases.

Unsafe roads and vehicles: It is estimated that 1.24 million deaths globally are due to traffic injuries. The key risk factors are speeding, drunk-driving, not wearing helmets, not using seat belts and child restraints, and unsafe roads. Trafic accidents are estimated to be the eighth leading cause of death globally with an impact similar to death caused by many communicable diseases. This situation is increasing in low middle income countries where rates are twice those of high income countries, due to rapid increases in vehicles plying on the roads without concomitant investment in road safety strategy and land use planning[4].

Social stress: Determinants of mental health and mental disorders include not only individual attributes such as the ability to manage one's thoughts, emotions, behaviors and interactions with others, but also social, cultural, economic, political and environmental factors such as national policies, social protection, living standards, working conditions, and community social supports. Exposure to adversity at a young age is an established preventable risk factor for mental disorders. In addition extreme stressors, such as natural disasters, isolated, repeated or continuing conflict and civil unrest or ongoing family and domestic violence, may have serious health and mental health consequences. Persons with major depression and schizophrenia have a 40% to 60% greater chance of dying prematurely than the general population, owing to physical health problems that are often left unattended and suicide. Suicide is the second most common cause of death among young people worldwide.[5]

Reduction and control of modifiable risk factors and wider determinants remain the cornerstone of action in prevention and control of NCDs. The modifiable risk factors can be reduced if there is increased public awareness to create healthy lifestyles. There are several common modifiable risk factors that are interrelated and contribute in causing

major NCDs – and in the converse provide a strategic opportunity for NCD prevention.

Table 2.1
Major NCDs and Its Risk Factors[6]

NCDs / Risk Factors	Cancers	Cardiovascular Diseases	Diabetes	Chronic Respiratory Diseases	Mental Illness	Injuries
Physical inactivity	X	X	X		X	X
Unhealthy diet	X	X	X			
Tobacco use	X	X	X	X		
Alcohol use	X	X		X	X	
Environmental pollutants	X	X		X		
Deaths %	12.9 2	9.0	1.9	6.9	2.1	9.8
% of DALYs	5.2	9.9	1.3	3.9	13.0 1	2.3

As described in table 2.1 major NCDs have common risk factors i.e. physical inactivity, unhealthy diet, tobacco use, harmful alcohol use and environmental pollutants. Cancer and cardiovascular diseases are affected by the five risk factors and have largest proportion of mortality. However mental illness and injuries are conditions that caused significant disability as shown by the largest proportion of DALYs (13% and 12.3% respectively).

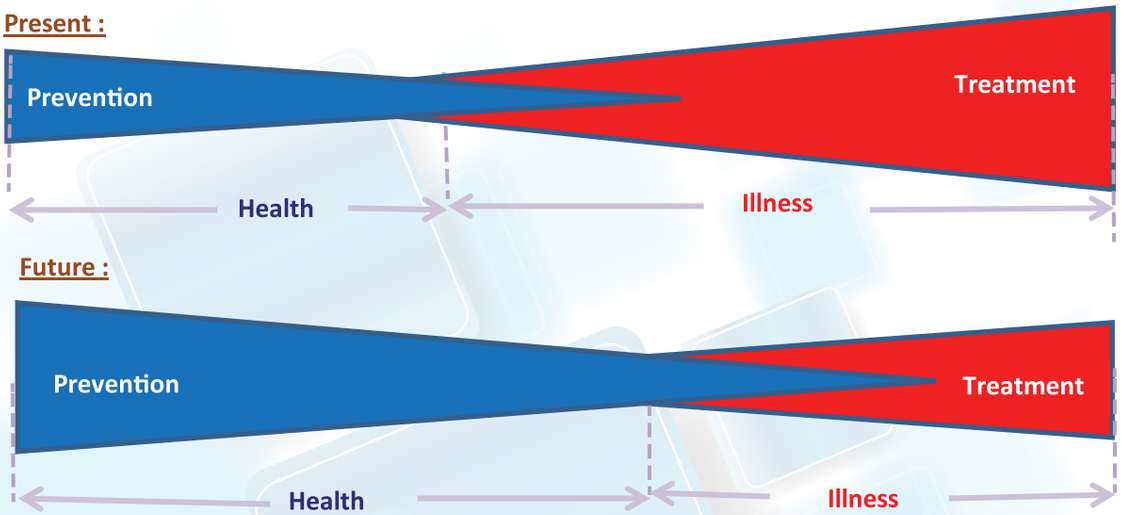
2.2 Paradigm shift in prevention and control of Major NCDs

For better prevention and control of NCDs, a public health approach is required that focuses on population and risk factors rather than on individual symptoms or diseases. From the perspective of medical ethics, it is imperative that physiological risk factors - when manifest and detected in an individual - are addressed appropriately. This is very much in line with the overall objective of prevention and control of NCDs[7]. Treatment of NCDs is naturally in the domain of health services but an effective prevention requires a multi-sector approach, as NCDs occur from a complex combination of genetic, behavioral,

and environmental factors. WHO recommends low-cost solutions to reduce the common modifiable risk factors (mainly tobacco use, unhealthy diet and physical inactivity, and harmful alcohol consumption), and monitoring NCDs and their risk factors. The above Table 2.1. shows that reducing tobacco use will reduce the incidences of cardiovascular diseases, diabetes, cancer and chronic respiratory diseases. For that reason, from a public health perspective there needs to be a paradigm shift (Figure 2.2) from strengthening curative interventions towards improving prevention and control of NCDs risk factors.

Figure 2.2

Paradigm Shift: Moving Towards Healthy Life Style Promotion and NCD Prevention[8]



These preventive interventions may vary across economies or settings. They depend upon specific risk factors exposures; demographic and epidemiological profiles; level of a economy's resources including institutional capacity for implementation, distribution of resources (human as well as capital); types of intervention and the policy framework. Thus, the government has an opportunity to develop and implement a framework in controlling NCDs risk factors based on local needs and capacities by introducing and facilitating community based interventions.

2.3 Multi-sectoral approach and policy development

It is acknowledged that in major health problems, health inequities arise from the societal conditions in which people are born, grow, live, work and age, referred to as social determinants of health. These include early years' experiences, education, social and economic status, employment and decent work, housing and environment, and

effective systems of preventing and treating ill health. Action on these determinants, both for vulnerable groups and the entire population, is essential to create inclusive, equitable, economically productive and healthy societies.[9]

The First high-level roundtable of the World Conference on Social Determinants for Health (2011) pointed out that:

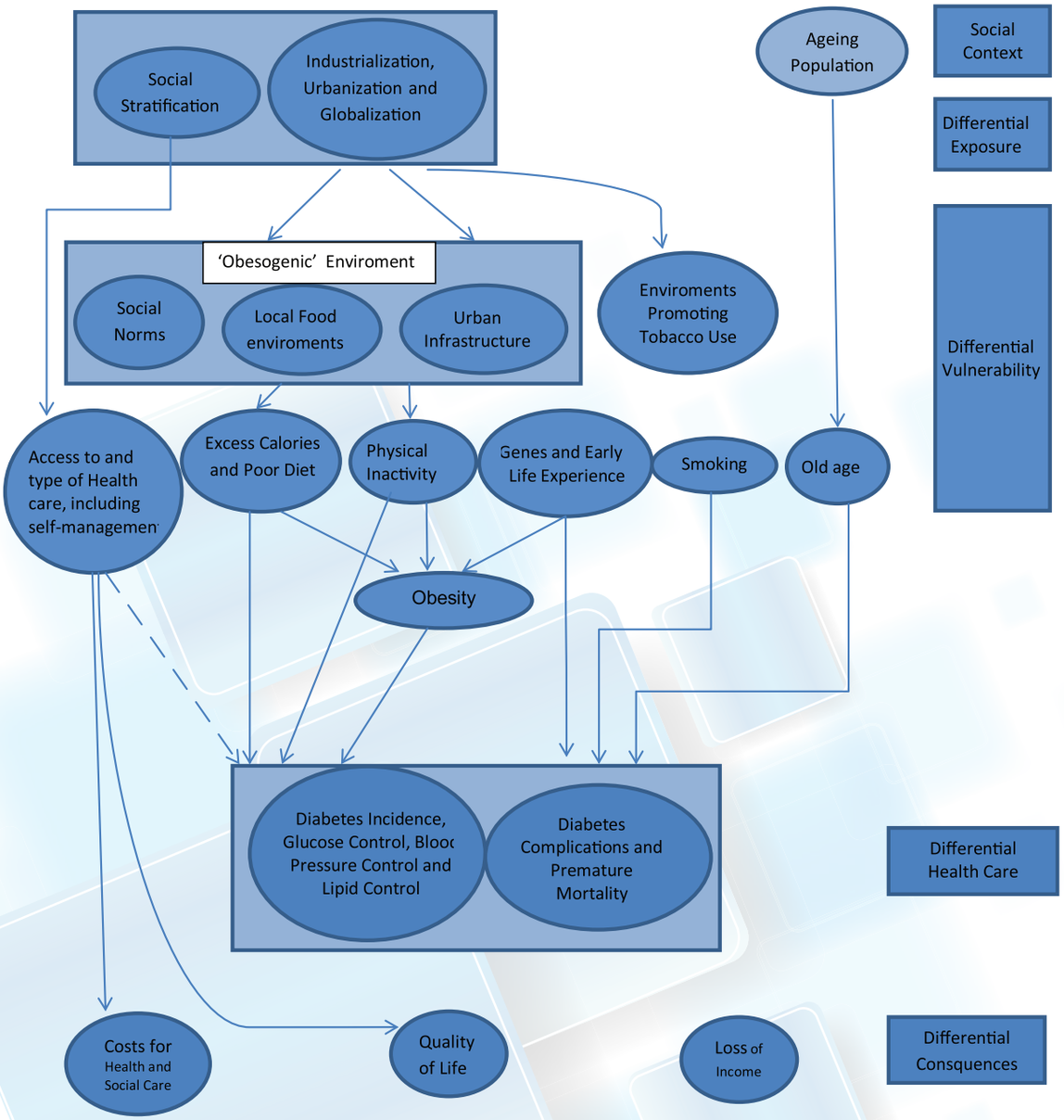
- Health is also central to achieving inclusive and sustainable development and addressing social determinants is key.
- There is a need for awareness, action and accountability.
- The answer to addressing social determinants of health does not lie only in the health sector.
- Better partnership is necessary, including in the culture of United Nations organizations.
- In hard economic times, there is the need to push even harder for good health outcomes in order to free up financing for other areas.

nnot be achieved without addressing social determinants f health.

The above statement does also apply to NCDs risk factors that are very much influenced by the social determinants of health. As a logical consequence, health sector should work together with other non-health sector to address the NCD risk factors.

The following figure 2.3 shows an example of the social determinants of health in diabetes. It clearly shows that tackling diabetes cannot merely be done by health sector, and even more by health professionals only.

Figure 2.3 Overview of diabetes-related pathways[10]



Source: David Whiting, Nigel Unwin and Gojka Roglic, Diabetes: Equity and Social Determinants in Equity, Social Determinants and Public Health Programmes, WHO, 2010.

Many of the determinants of NCDs lie outside the health sector, thus adressing them is a cross cutting issue that requires a multi-sector approach, undertaken not only by the government alone, but also the community, industry and the private sector. For example, availability and accessibility of fruits and vegetables is in the domain of the Ministry of Agriculture, Ministry of Trade, Ministry of Transportation and local government. A smoke-free environment requires development of policy and its enforcement, and building community awareness so that the community can apply social pressure.

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CHAPTER 3
COMMUNITY BASED INTERVENTION IN PREVENTION AND CONTROL OF NCDs AND THEIR RISK FACTORS

1.1 The Community Based Intervention Concept

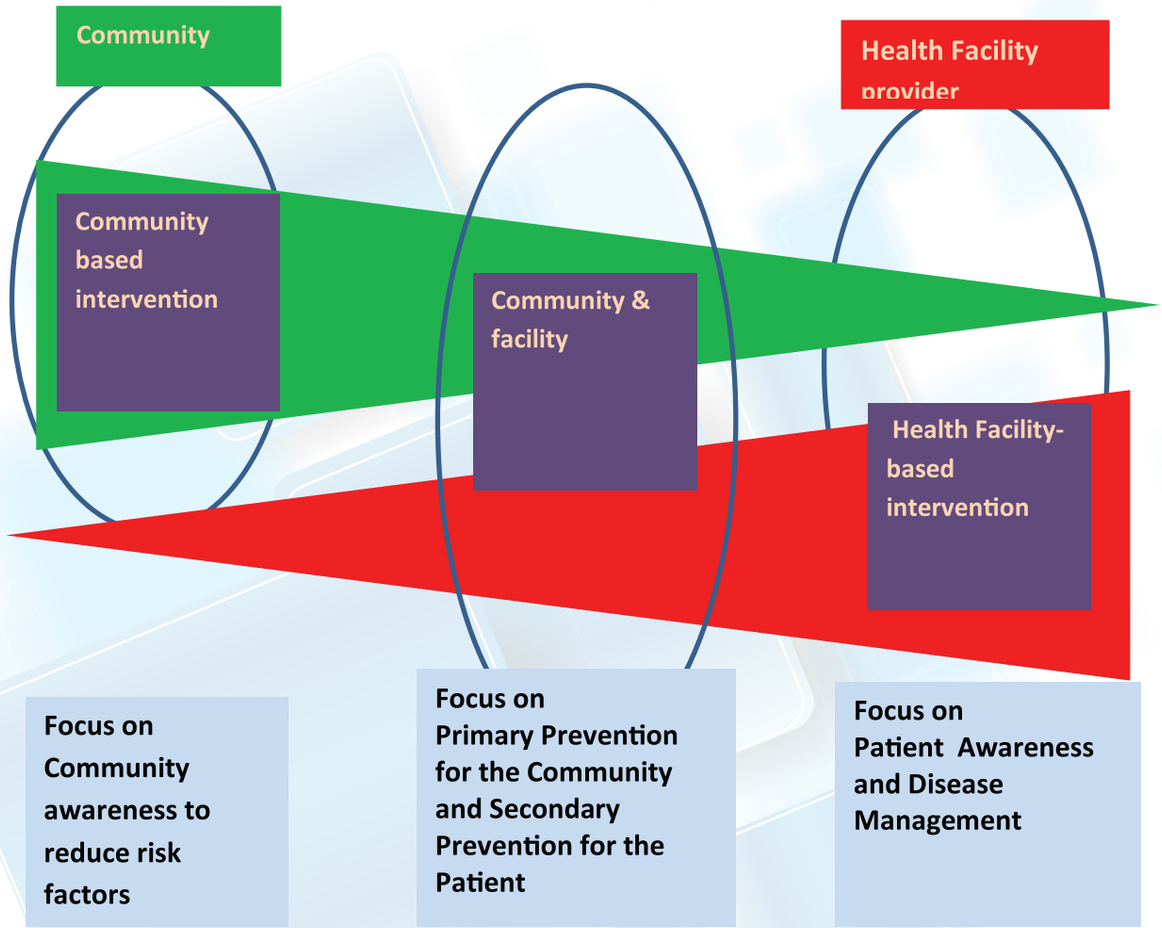
A community can be defined in different ways according to a variety of contexts, such as in the context of location, network of interests or a social system. In the context of location, a community can be defined as a village, town, neighborhood area, residential units, school, work place or any other distinct setting or place. Community also can be described as a group of people who have the same interest such as voluntary association, club, self-help group, campaign, educational or professional organization, union, or any other group sharing a distinct interest. On a wider scale, a community can be designated as a social system, for instance government sector, regional authorities, private sectors, and other parts of social system in the country[1]. Therefore, the term community has broader meanings compared to the traditional concept that interprets the term in a narrow geographical defined way by limiting it to a small-scale local community. For the rest of the discussion in this section we will use the broader sense of community as stated above.

Community-based interventions in public health can involve the community in different roles such as: the community as a setting for intervention, the community as target of change, the community as agent with developmental capacity, and the community as resource with a high degree of ownership and participation[2]. This concept basically follows up the health promotion framework i.e. improving capacity of individual or group in understanding health, active community participation, creation of supportive environment and policy implementation, and re-orientation of health services[3].

Community-based intervention (CBI) is one of the prevention strategies to improve health status of the community in addition to health facility-based intervention which is directed more on the curative and rehabilitative dimensions. Experience in different settings and context of community-based intervention has shown some positive results in improving the health status of the community. A pilot study in Depok, Indonesia showed that the community

health behaviors and health status were improved after about five years implementation of a community-based intervention (see Annex 1). Another example in India also showed improvement in health status among the target group in a school setting[4]. The CBI is beneficial in health interventions specifically in determining local needs and aspirations, promoting health and reducing health inequality, improving health service and quality of care, and strengthening local accountability[5].

Figure 3.1
Spectrum of community based intervention approaches for NCD prevention



As described in figure 3.1, health intervention in CBI is directed towards empowering the community and enabling them to take a bigger role in primary prevention on NCDs risk factors. Meanwhile, in health facility-based intervention the health providers focus more on high risk groups especially in improving patient awareness and disease management.

Table 3.1
Community-based vs. Health Facility-based Intervention for NCD Prevention and Control Program

	Community-based	Health Facility-based
Focus of intervention	Primary prevention	- Secondary prevention - Curative - Rehabilitative
Population target	General population	High risk population
Setting	Public places, school, workplace, residential area, religious groups, clubs, etc	Health care institution
Approaches	Active community participation; community empowerment; health education and counseling; risk factors monitoring; Changes in the physical and policy environment	Adequate health services including the availability of qualified personnel and equipment, appropriate medicines and its quantity, provision of risk factors monitoring and counseling. Guideline development and implementation
Community roles	Can be as a setting, agent, target resources or a combination of the above	Mainly as a target

In the model where the community is more prominent, the relationship between community and health providers is crucial to create an effective health intervention. They have to work in a synergistic and integrated manner not merely focus on medical care settings but systematically involve community leaders, social networks, health promoters and educators to improve the health status of the community. It also needs multiple approaches addressing behavioral change among individuals, groups, and organizations, and creating supportive environment and policy implementation.

A community-based intervention program requires more active participation of the community including commitment of politicians, community leaders, skilled health volunteers accompanied by intensive support from the health provider and local authorities. The health volunteers need to be trained to enable them to have sufficient knowledge and skills to create community demand in reducing NCDs risk factors, for example, smoke free household environment, community sport facility, etc.

Meanwhile, a health facility-based approach is commonly focused more on the individual

as a target for curative and rehabilitative interventions. In this case, availability and quality of human resources in the health facility, sufficient health technology and funding are the factors towards provision of adequate health services. In the beginning health facility staff initiate the process and if the target individual or community gains benefit, the community will have a sense of ownership of the activities. Therefore in the long run the facility based approach may move towards full community based intervention where the community will play the major roles and health facility become the faclilitator.

The choice of approach in initiating CBI whether community-based or facility-based is determined by the characteristics of setting, community need and resources, as well as commitment of the community and health provider.

1.2 Guiding Principles of CBI Implementation for NCD Risk Factors Prevention

Reducing common risk factors of major NCDs is essential to avoid and reduce excessive health spending due to expensive NCD diagnosis and medical treatment as well as to maintain economic productivity and quality of life among the general population. Community-based intervention (CBI) has the potential to become the vehicle in reducing common risk factors. The following paragraphs describe the main principles of CBI implementation.

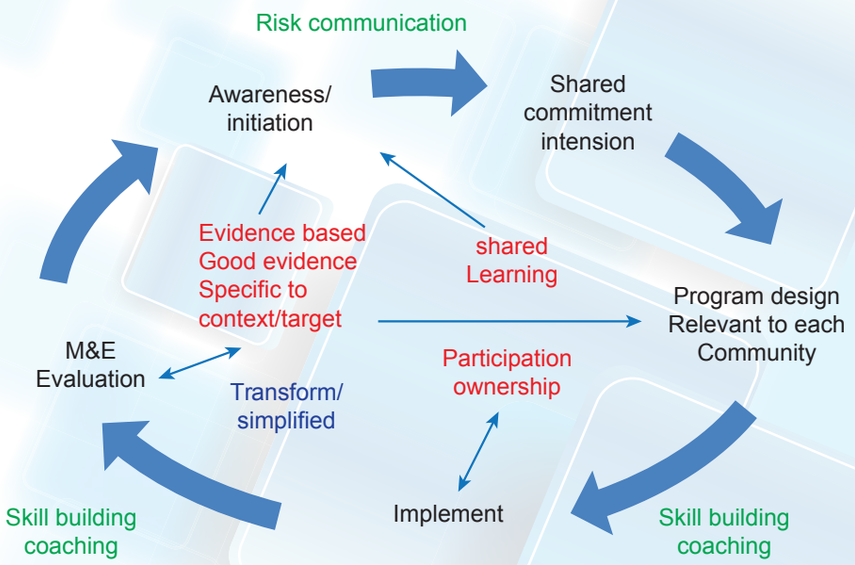
Application of the CBI approach is diverse and relatively complex as it implicates multi-players, multi-disciplines and multi-methods of health intervention activities. Key components of CBI are community empowerment, community engagement and context-based implementation. This consists of the following principles:

- Goals and realistic targets need to be clearly defined and identified.
- Community readiness and potential resources including the important roles of health volunteers or community leaders, availability of health professionals, financing mechanism, and local community target groups need to be identified. The role of volunteers and community leaders is vital to maintain and to increase community participation in the CBI and to develop strong collaboration among stakeholders.
- Stimulate and initiate community awareness in practicing healthy behaviour to prevent, reduce and monitor NCD risk factors. These can be done by multi-methods of risk communication supported by adequate evidence-based information. Encourage community commitment to address NCD risk factors issues including prevention, early detection and risk factors monitoring.
- Develop proper perception of the stakeholders on NCD risk factors, ownership and sustainability of CBI activities
- Active and mutual collaboration and integration across sectors, disciplines and levels of government authorities.

- Community empowerment to maintain active networking among the community groups focusing on the NCD risk factors prevention. This includes capacity building for the community health volunteers to implement the activities effectively.
- On-going monitoring and evaluation by the community and local health authorities as well as organizations or professionals involved in the CBI activities for NCD risk factor prevention. Monitoring and evaluation includes process, output and outcome dimensions. Results of monitoring and evaluation should be fed back to the community and health providers to improve and correct the activities.

The following figure shows an example of the Thailand experience in implementing the principles.

Figure 3.2
Key steps and components for CBI



One project / programs / comprehensive plan

1.3 Stages of CBI Implementation

There are five stages in community-based intervention:

1. Exploration and Planning
2. Installation
3. Initial implementation
4. Full Operation with transformation
5. Sustainability or Termination

These five stages are meant to help organizations and programs stay on track and recognize and solve common implementation problems in a timely and effective manner. These stages can apply to the community-based intervention in its totality or in case of a multi-level CBI to its individual activities/projects. In such a case different activities might be implemented at different level. Detail explanation of the five CBI implementation stages are in the following:

Exploration and planning stage is a process of synchronizing between community needs, community readiness, evidence-based practices and health providers need in making decision of approaches and activities of CBI and whether to continue to the next stage or to delay the CBI implementation. Several methods used in this stage include needs assessment, social marketing, advocacy, mapping, health survey, situation analysis, discussions and observation. In general, two main aspects in this stage are 1) involvement of potential and proper stakeholders or contributors and 2) appropriate method used during the exploration. Taking into account these two main aspects will be able to produce effective planning program for CBI implementation.

Next stage is the **program installation** following up decision from the first stage to implement the CBI. This stage refers to accessing existing resources and – if included – involving the health system to implement the CBI. The resources include funding schemes, human resources strategies, potential community settings, leaders and health volunteers. The existing health system should be able to provide policy and regulation supporting the CBI activities implementation and sustainability.

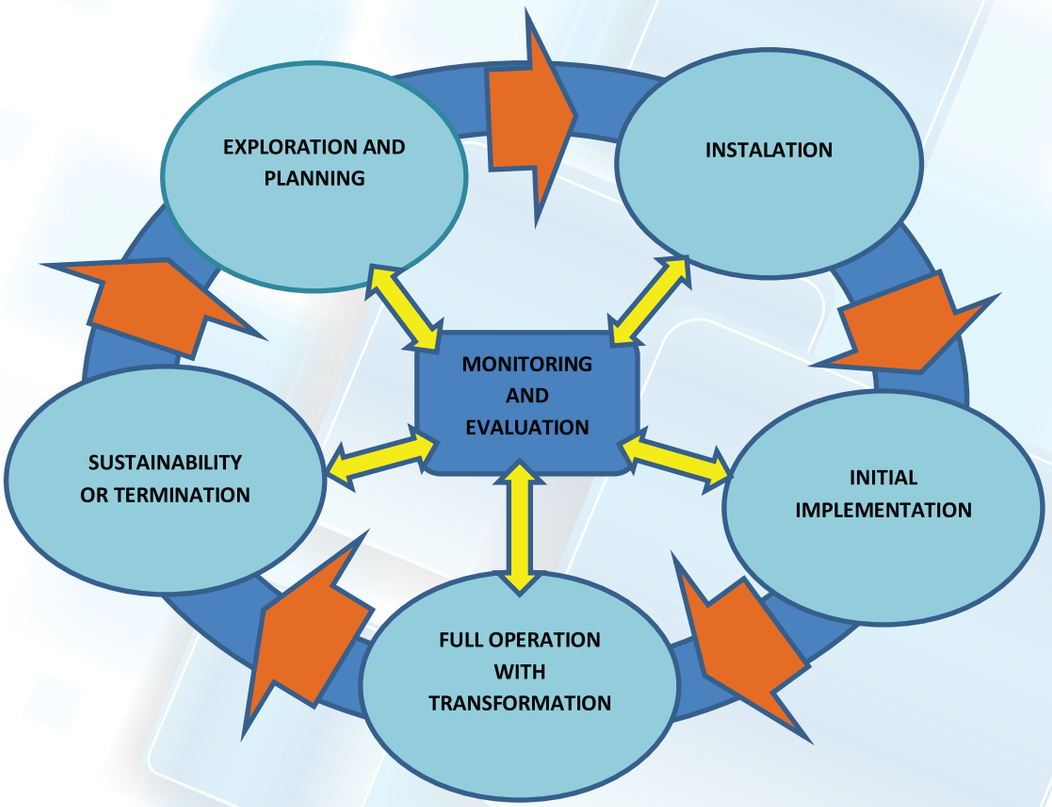
The program installation is followed by the **initial implementation** of CBI, which refers to having the first experience or practice in the implementation process. Experience in the initial implementation creates important lessons for a successful full operation stage and it will show the complexity and challenges of the process. Understanding different roles of stakeholders, communication and coordination skills are important aspects to having a more positive experience in the initial implementation. This stage may need certain changes in organizational capacity and culture after intensive training and practice over time.

After the initial implementation, the community and all players will be ready for the **full implementation.** In this stage, integrated and full support from the participating stakeholders is required for a successful implementation. Some effective practices in this stage are well build communication, coordination, and management during the process

between the community and health providers and other related stakeholders. In addition, re-organization, re-programming or improvement plans and innovation may be conducted during this stage for the next activities.

The last stage of CBI approach can be described as either **sustainability or termination** of the program. This stage commonly occurs after a certain period of program implementation, which can be after two to four years. As an implication of the monitoring and evaluation process throughout all stages, the CBI activities might be continued or terminated. The activities can be sustained when certain key points are met such as community commitment, strong community demand and capacity, feedback and program improvement based on comprehensive and effective monitoring and evaluation. However, the activities may be terminated or remain less successful if any of those key points are weak.

Figure 3.3
Community Based Intervention Implementation stages



1.4 Monitoring and Evaluation

Monitoring and evaluation of CBI for NCD prevention is part of the CBI key principles that influence the progress and success of CBI implementation. The difference between monitoring and evaluation mainly relates to the different purpose and time-line used. Monitoring is a more circumscriptive activity and can be described as: to watch, keep track of, or check, usually for a special purpose and generally related to the progress of specific activity. Meanwhile, to evaluate can be defined as: to determine the significance, worth, or condition of the program, usually by careful appraisal and study; it should be undertaken as part of the operational phase of the CBI and not be limited to the end of a program.

3.4.1 Monitoring of CBI for NCD Risk Factors prevention and control program

Monitoring is a continuous process of measuring performance of a health service or health intervention. In program management, monitoring means continuous oversight of the implementation of an activity that seeks to ensure that input deliveries, work schedules, targeted outputs, and other required actions are proceeding according to plan[2]. Findings from the monitoring process will allow the program manager to take corrective action if necessary.

Monitoring can be performed predominantly using quantitative methods. In quantitative methods, program monitoring commonly measures the input and/or effort associated with the on-going operations of a specific aspect of the project or program. It is concerned with the organization or project performance related to management control questions: Who is getting what, from whom, how long, how often, at what cost?

Three monitoring domains can be identified: planned inputs; work schedules; and targeted outputs. For monitoring planned inputs a number of sources can be used such as meetings held; IEC materials distributed; training provided; and measures of community participation levels. To monitor work schedules the timeline of work broken into discrete set of activities can be used. Monitoring program outputs can involve information such as the number of targeted stakeholders contacted; funds raised; services started, etc[2].

The mechanism in monitoring often involves an iterative loop within all the stages of CBI. In summary, monitoring and control involve:

- Valid indicators to measure program or activities performance;
- Use of information on process or activities in the implementation related to the selected indicators;
- Develop valid and accurate instruments, personnel and timing.
- Conduct corrective actions to address deviations.

3.4.2 Evaluation of CBI for NCD Risk Factors prevention and control program

An effective CBI implementation needs an appropriate evaluation process. Evaluation in the context of CBIs is an evolving process, not a static, one-time action with a clear beginning and end. The research goals and methods of an effective evaluation can therefore change in response to refinements in the target outcomes and strategies of a comprehensive community initiative.

Comprehensive CBI evaluations use a variety of approaches to collect and analyze data from many sources and to disseminate findings to diverse audiences, including practitioners, community members, funders, policy makers, and other researchers[16]. Effective CBI evaluations make it possible for community stakeholders to use the information to continuously improve programs and policies.

Evaluation of CBI also provides a unique learning opportunity. This can be achieved by strengthening collaboration and building relationships between researchers and community stakeholders; by engaging stakeholders and building their capacity to participate in the evaluation process; and by incorporating knowledge about how communities and people change from a variety of research fields.

Corresponding to the goal, objectives and strategies of a CBI program, its evaluation can be divided into process, impact and outcome evaluation.

Process evaluation is used during the life cycle of the program from planning through the end stage of activities. This includes participant satisfaction, quality of materials, quality of service delivery, resources, etc.

Impact evaluation is used at the completion of specific activities.

Outcome evaluation includes a demonstration of reductions in incidence/ prevalence of health conditions, changes in mortality, improvements in quality of life, long-term changes in behaviour (e.g. smoking rates)[2].

Since CBI substantially relies on the legal and policy framework, it is important to enrich the monitoring and evaluation with **policy evaluation**. Policy evaluation applies evaluation principles and methods to examine the content, implementation or impact of a policy. Here, evaluation is the activity through which we develop an understanding of the merit, worth, and utility of a policy[7].

Community engagement needs to be embedded in the policy development and decision making process. This is to ensure that the health intervention does not merely consider the provider's point of view, but involves needs and resources from the perspective of community or the patient as an individual[6].

In addition, a CBI also needs to be supported by well managed information systems that enable the monitoring and evaluation process run effectively by providing valid, timely and accurate information as well as integrated and applicable data templates. The information system includes activity of recording and reporting at all stages. It consists management of information from the inputs, process, outputs and outcome dimensions as mentioned in the previous paragraphs. All contributors and players in the CBI activities need to have sufficient understanding of the data in term of its quality and benefit.

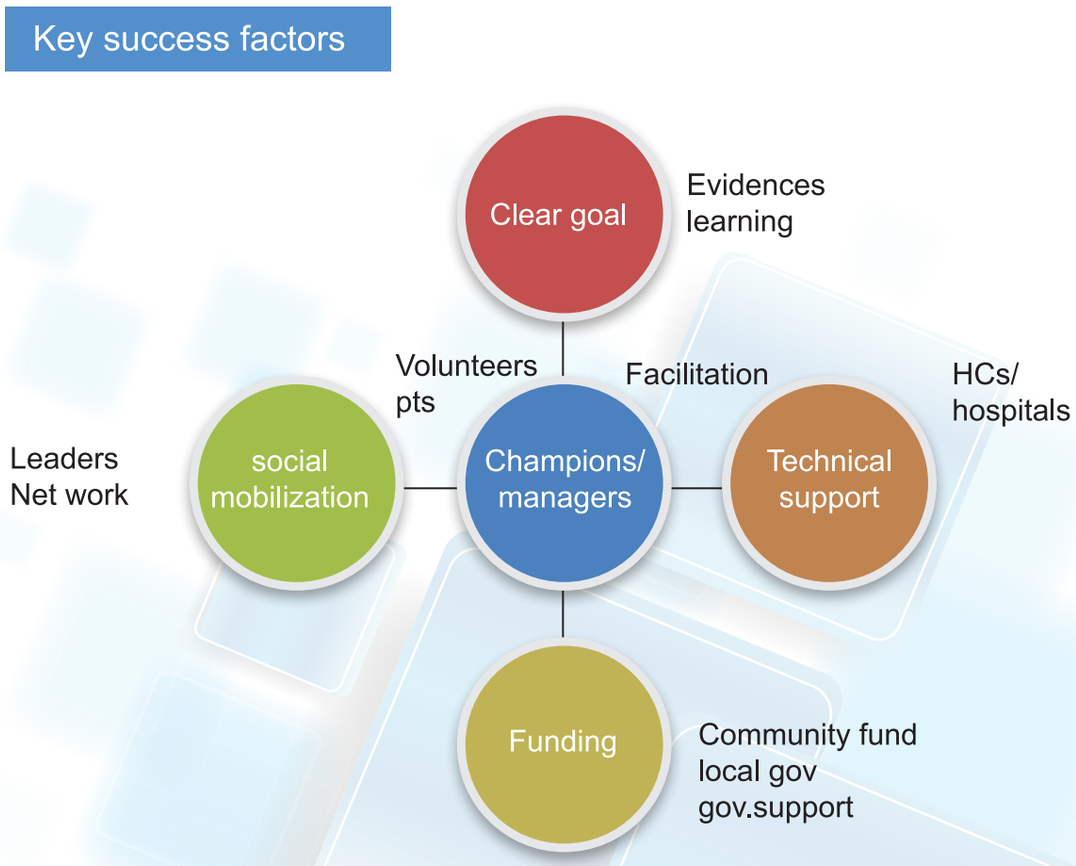
1.5 Key Success Factors

There are several key success factors which were identified in CBI implementation:

- Strong leadership (politicians, stakeholders, health authorities) and management to facilitate the process
- Clear project goals based on evidence
- Adequate technical support and monitoring by health providers
- Availability of funding, local government may provide seeding money followed by community voluntary contribution and other resources.
- Strong social mobilization led by community leaders, network and active health volunteers.
- Strong capacity of the community and health provider
- Community empowerment for NCDs prevention and control.

The following figure displays Thailand experience of the key success factors in CBI and its relationship

Figure 3.4
CBI Key Success Factors (Thailand experiences)



Experience in implementing the CBI for NCD prevention and control varies in different economies. The practice will depend on the economy needs/ local specificity and availability of resources and NCD issues priority. Table 3.2 provides a summary of experiences in five economies.

Table 3.2.

Experiences of implementation of CBI activities for NCD Risk Factors prevention and control in Indonesia, Philippines, Russia, Thailand and United States.

CBI activities	Indonesia	Philippines	Russia	Thailand	United States
Project name	Posbindu PTM (integrated health post for NCD)	Phillipine PEN	Federal Law "On protection of public health from exposure to environmental tobacco smoke and the consequences of tobacco consumption" (FL-15 issued in February, 2013) – *reflects of the WHO FCTC articles* "Conception on the decrease of alcohol overuse and prevention of alcoholisms in population of the Russian Federation in 2010-2020" "The Conception Of Public Health Development In The Russian Federation up to 2020"	Multiple programs with different names but the same concept; CBI program; *Tambon* health management; Healthy *Tambon* by Thai life style (*Sukkaparbdee- withee-thai*)	Million Heart
NCD issues priority	Prevention of common risk factors of major NCDs	- Prevention of the 4 common risk factors though health promotion - Strengthen prevention, early detection, screening, diagnosis, managerial, rehabilitation, and palliative/ hospital care for NCDs	Reduce Tobacco & Alcohol, salt consumption, increase physical activety in the community	Comprehensive management for primary prevention of majors risk factors and screening	Lowering CVD risk among community and clinic patients

Strengths/key success factors	• Active health volunteers in creating the demand from community • Strong commitment from local leader/government city major/ governor) • Good communication between community and health providers • Valid evidence based information on NCD risk factors issues used in the advocacy process to the local government • Strong and intensive support from central government in health sectors	Pertinent Policies to support, its implementation are in place: 1. National policy or strenghtening the prevention and control of chronic lifestyle related NCDs. 2. Implementing guidelines on the institutionalization of Philippine package of essential NCD interventions (PhilPEN) on the integrated management of hypertantion and diabetes for primary health care. 3. Implementing guidelines on the Department of Health complete treatement pack to ensure sustainable access to essential drugs and medicine for marginal sectors. Its implementation is supported by the health benefit packages of the national health insurance corporation (Phil health) namely primary care benefit package 1 and 2	Tobacco free environment, Public (target groups) education and informing, health care providers/specialists education Decrease in the prevalence of NCD RF and their burden on public health	Success depends on: • the quality of the process of community participation / ownership • Depth and quality of technical support - Continuity of programs implementation and funding • The context and social asset of communities. The key success factors are: • champion /manager in the community and social mobilization • creating the common goal of stake holders, • funding and appropriate technical support	Combines and aligns community and clinic based efforts
Key player	Community (health volunteers and community leaders) with intensive supervision by the health professional	Health provider in all levels of care	Government, industry, business, local authorities educational and health care providers	Health personnel in the sub-district level with community health volunteers and community leaders	Both community leadership and clinic leadership

Target group	General population (school age, productive age, elderly)		General population (government, authorities, business/industry, public)	The productive age and elderly and some for school children	Community and clinic based populations
Setting	Residential area, workplace, school, religious related activities		Industry/business, mass media, educational and health care facilities	Residential community area and school	Community and clinic sites
Financing	Community and local government		Government, local authorities	Budget from health facilities, local government and Tambon health fund.	National and local combination
Equipment	Provided by the local health office with the support from central government in the initiation stage		Monitoring of NCD RF levels	Provided by local health facilities and some from local government.	Use existing from clinic and public health community resources

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CHAPTER 4
CHALLENGES IN COMMUNITY BASED INTERVENTIONS IMPLEMENTATION ON NCD RISK FACTORS PREVENTION AND CONTROL

Experiences in different economies have shown many challenges in implementing community-based intervention strategies on NCD risk factors prevention and control, i.e. availability of resources, functioning management information system, defined roles of community, government and other stakeholders. Resources in health facilities are crucial to enable creating effective CBI implementation including human resources, supporting tools and equipment related to NCD risk factors prevention and control. For the community, access to screening and diagnostic methods and tools for most NCDs show fast growing demand, particularly for more affordable, accessible and feasible methods with acceptable accuracy and validity. With regards to health facilities, the availability of effective and affordable treatment methods still pose a major challenge, especially in developing economies, as most of NCDs diagnostic tools and treatment requires use of technology that is relatively expensive.

An effective CBI strategies to NCD RF prevention and control needs an appropriate management information system which is an important part in the planning, monitoring and evaluation process. For NCD RF related data, several methods of data-base information or recording systems have been used worldwide to provide valid NCD RF facts and figures. These include NCD RF surveillance system, NCD RF survey, MONICA, CINDI, BRFS, cancer registry and others. The implementation of the information systems and its achievement vary in different economies. Low resource economies tend to have different challenges and more complicated issues regarding their information systems because of limited existing data-base system to build on. Particularly in CBI for NCD risk factors, another challenging issues is the difficulty in maintaining data quality when the information is collected by community members. Meanwhile, for health facility-based interventions, the available patient information is mostly limited to the clinical parameters and often excludes behaviour risk factors. In addition, evaluation and monitoring templates might differ among health facilities, leading to difficulties in describing progress or achievement at the national or state level.

In most CBI strategies to NCD RF prevention and control approaches, one of the key success factors are active health volunteers to motivate and encourage the community to practice healthy behavior and controlling risk factors. In some cases, the capacity and roles of health volunteers are still limited which lead to constraints in transferring health messages to the community. In addition, the number of health volunteers changes frequently over the year which leads to insufficient number of active health volunteers creating the need to have more frequent training and strengthening community network.

Usually, as community awareness about NCD risk factors is low, CBIs to NCD RF prevention and control need sufficient contribution from the local Government to initiate the CBI activities. For example, strong government support i.e political will and commitment from policy and decision makers to prioritize NCD issues and to allocate adequate funding for the NCD prevention and control program including the CBI strategies to NCD RF prevention and control. In some economies, lack of support from local governments leads to a lack of skilled health volunteers and less sustained activities.

Implementation of CBIs also needs collaboration with related non-government organizations (NGOs) such as womens' associations, health clubs, health professional associations as well as other non-health institutions. These will strengthen the community to create healthy environment and social network for healthy life style. To some extent, it is difficult to maintain relationship or partnerships among stakeholders when there is a gap of understanding about CBI. Maintenance of this long term partnership is very critical to the sustainability of CBI activities to NCD RF prevention and control.

In general, all the challenges mentioned above are essential to achieve sustainability. Stronger roles of community leaders and health volunteers are some of the key components of sustainability. Meanwhile support from local authorities and existing health systems are important aspects for sustainability in the health facility based actions. Some hurdles may appear in the process of enabling and encouraging community leaders and volunteers, which depend upon capacity of health workers to initiate, communicate and approach the community. In the meantime, more complicated measures are needed to advocate the local Government and authorities to include NCD RF prevention and control program in the existing health system. The following table summarizes experiences in addressing challenges faced by some economies in the region.

Table 4.1

Challenges in Implementing Community Based and Facility Based Intervention For NCDs Prevention in Three Economies

Indonesia	Philippines	Thailand
• Insufficient local government support • Difficulties in having active health volunteers • No single "prescription" – models should be adapted to local context • Changing the curative paradigm • Redefine the role of traditional and alternative medicines • Sustainability	• Still many local health personnel not trained • Many Regional Health Units did not implement WHO- Package Essential for NCDs (PEN) after the training • Lack of funds in Local Government Units to procure PEN equipment (GCU meter, strips, etc) and reproduce PEN tools at the LGU level • Lack of monitoring/ evaluation • Duplication in the reporting forms/systems • Philhealth operational issues (access and utilization of funds) • Resistance/hesitation from clinicians to adopt the PEN, due to conflicting provisions in the PEN and Clinical Practice Guidelines on the management of NCDs.	• Urbanization and migration • Programs fragmentation • Difficulty of integration of programs to be more effective • Stability of policy and program implementation • Issues of balance food and energy used / physical activity - difficult

Table 4.2

Main challenges and alternative solutions in Implementing Community Based Intervention For NCD Prevention

Domain	Challenges	Alternative solutions
Health facility resources	• Limited availability of simple screening tools for NCD risk factors	• Advocacy to local government and health authorities to ensure initial investment of simple screening tools • Advocacy to get support from private sectors or related stakeholders (CSR, industries, etc) • Encourage industries to create more simple and affordable screening tools
	• Limited number of health workers to use the tools and supervise the activities	• More intensive capacity building activities to health workers and selected health volunteers • Build in the skills to use the tools in the nursing school curiculla
	• Limited financial support for community activities	• Local government provide funding to support community activities • Develop potential community funding (self funding) scheme • Advocacy by the community leader to gain support from local government and private sectors or related stakeholders (CSR, industries, etc)
Management Information System	• Community based surveillance system is limited due to inadequate capacity of community and supervisor in data recording and management	• Develop integrated data based system accross health facilities • Capacity building for data management and recording • Provide focal point for NCD and NCD risk factors data management and surveillance in the PHC • Develop and collect simple indicators of NCD risk factors only from the community based activities

	• In population based survey, data collection is expensive, limited to several markers and availability of medical consumables and laboratory reagents	• Develop more cost effective methodologies for population-based survey
Community Participation	• Availability and commitment of health volunteers • Limited role and capacity of health volunteers in maintaining the activities • Lack of ownership • Lack of being empowered	• Intensive communication between health provider and community members (local government and private policy makers/authorities, stakeholders, public) • Develop reward system scheme for health volunteers to gain motivation, commitment and participation. • Intensive and routine training (certified) for health volunteers • Involve all the community leaders and health volunteers in all stages of CBI activities.
Local Authorities/ Government	• Lack of understanding of the impact of NCD risk factors to the health status of the population and its consequences on financial burden to the government and society. • Difficulties in Changing the health paradigm from curative to health promotion and prevention by controlling NCDs risk factor • Lack of political will, political commitment resulting in insufficient funding for NCDs prevention and control program.	• Provide complete and comprehensive evidence to strengthen advocacy process to the stakeholders (multi disciplines research, assessment, review, etc) • Conduct effective and intensive advocacy to the local government including health and non health sectors.
Others stakeholders (professional organization, educational, NGOs, private entities)	• Maintain collaboration and partnership among stakeholders • Availability of effective leadership	• Develop and initiate collaboration activities • Conduct effective and intensive advocacy to the related stakeholders (professional organization, NGOs, private entities)
Sustainability	• Dependence on active participation of community leaders and health volunteers, and availability of continuous funding	• Intensive communication between health care providers and community • Develop reward system scheme for health volunteers to gain motivation, commitment and participation.

Table 4.3

Summary of Challenges and their alternative solutions in Implementing Health Facility Based Intervention For NCD Prevention

Health facility-Based, Domain	Challenge	Alternative solutions
Health facility resources	• Develop guidelines working together with professional association, especially with clinician • Limited availability of health personnel to conduct the activities due to high work load of other programs • Availability of drugs and equipment for diagnosis, treatment and laboratory equipment. • Funding support for capacity building of health personnel	• Policy development to provide regulation on prevention and control of NCD in health facilities • Capacity buildings of health facility staff • Ensure availability of drugs for effective treatment, simple diagnosis and laboratory equipment in primary care facilities • Strengthen collaboration with private sectors and professional organizations for funding and technical supports
Management Information System	• Health facility database is not yet integrated accross levels of services., • Health facility data do not include risk factor • Standard evaluation and monitoring template are not available yet	• Develop integrated database system • Capacity building for data management and recording • Provide focal point for NCD and NCD risk factors data management and surveillance in the health facilities
Community Participation	• Limited Community awareness and their role since they are the receiver of the intervention/ target and therefore act more passive role	• Develop community (family) program or activities organized by the health facilities (treatment compliance, training, education, health related events, etc.)

Local Authorities/ Government	• Lack of understanding of the importance of NCD risk factors leading to program fragmentation/ less comprehensive community intervention • Lack of political will and political commitment • Lack of funding	• Provide complete and comprehensive evidence to strengthen advocacy process to the stakeholders (multi disciplines research, assessment, review, etc) • Conduct effective and intensive advocacy to the local government including health and non health sectors
Others stakeholders (professional organization, NGOs, private entities, non health sectors in Government, industry	• Develop and maintain collaboration and partnership among stakeholders • Availability of effective leadership	• Develop and initiate collaboration activities • Conduct effective and intensive advocacy to the related stakeholders (professional organization, NGOs, private entities)
Sustainability	• Depend on local government and health facility policy and sufficient funding	• Intensive and continuous advocacy between health providers and community

CHAPTER 5
CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The morbidity and mortality of Non Communicable Diseases are increasing globally and also in APEC economies, imposing a high burden both to the society and to individuals and their families through increased health spending and loss of productivity. This occurs while communicable diseases are still an unfinished health issue in many APEC economies.

Non-Communicable diseases (NCDs) - mainly cardiovascular diseases, cancer, chronic respiratory diseases and diabetes are the world biggest killers and very expensive to treat, while mental health and injuries impose an additional high burden to society. Most of these diseases are preventable through reduction of their risk factors and enabling health systems to respond more effectively and equitably to the health care needs of the population.

These main NCDs share common risk factors i.e. tobacco use, physical inactivity, unhealthy diet, harmful use of alcohol, and environmental risk factors such as air pollution. Therefore, reduction of these common risk factors is necessary to reduce the prevalence of major NCDs. Many of these risk factors are beyond the direct influence of the health sector so that in developing a successful program to control NCDs, a strong collaboration between health and non-health sectors is mandatory.

Accordingly, the 66th Session of the UNITED NATIONS GENERAL ASSEMBLY 2011 included in the Political Declaration of the high-level meeting of the General Assembly on the prevention and control of non-communicable diseases (RESOLUTION 66/2 point 54) the following recommendation: “Engage non-health actors and key stakeholders, where appropriate, including the private sector and civil society, in collaborative partnerships to promote health and to reduce non-communicable disease risk factors, including through building community capacity in promoting healthy diets and lifestyles”:

One of the approaches to prevent and control NCDs is to empower communities via Community Based Interventions to reduce these risk factors. Communities can take the role as setting for interventions, as target of change, as agent with developmental capacity, and as resource with a high degree of ownership and participation.

Community Based Intervention (CBI) can thus be defined as an integrated and comprehensive intervention that is not limited to medical/clinical care settings. It uses multiple interventions and targeting change among individuals, groups and organizations. It often incorporate strategies to create policy and environmental changes that need mutisectoral participation.

Learning from the implementation of CBI in APEC economies (Indonesia, Philippines, Russia, Thailand and United States), the expert delegates come to the following conclusion:

a. Community Based Interventions (CBI) have the potential to reduce the common risk factors of NCDs by increasing the capacity and awareness of the community, patients, families and health workers to improve their health and enable them to build up social pressure leading up to the development of healthy local policies.
b. There is no single recipe to implement CBIs since they are very much influenced by the local context, including social and cultural norms and the readiness and capacity of the community.
c. CBI is one of the effective tools to promote equitable access to health services particularly for marginalized and vulnerable populations

5.2 Recommendations

5.2.1 For APEC Economies

a. Disseminate the CBI framework to stakeholders in each respective economy
b . Adopt and adapt the CBI framework to institutionalize CBIs into national policy and/or legislation and to pilot CBI implementation
c. Develop and sustain multi-sector collaborative actions and strengthen local communities and their health systems.
d. Utilize existing community assets and structures to implement CBI
e. Mobilize multi-sector resources to implement and sustain CBI
f. Use standardized Monitoring and Evaluation tools.

5.2.2 For APEC Secretariat

a. Establish an APEC NCD CBI alliance to further the CBI agenda and increase cooperation across APEC economies. Initially Indonesia will serve as the Chair of the Alliance with Chile as the Co-chair
b. Facilitate exchange of experts and experiences among member economies
c. Provide financial and technical support to member economies to strengthen capacity in developing and implementing CBI
d. Circulate and adapt the Framework into APEC economies context
e. Promote the use of standardized Monitoring and Evaluation tools alongside the planning and implementation of CBIs to allow comparisons across APEC.

Annex 1

Indonesia's Experience in Implementing CBI Strategy To Prevent and Control NCD Risk factors

Background

World Health Organization (WHO) Headquarter and Regional offices in collaboration with other member economies have developed an intervention program to control risk factors of major NCDs (cardiovascular diseases, diabetes mellitus, and some cancer) through an integrated community based program, as well as building regional network for the program. In 2001-2002, SEARO had selected three countries (Indonesia, India, and Bangladesh) to carry out pilot studies of NCD intervention program. In Indonesia, Depok municipality had been selected as "Demonstration Area" to develop NCD control program based on several considerations. Depok is one of the fast growing city in Indonesia, that has already started to apply decentralisation approach in local government system. Area characteristic of Depok varies, part of it is urban areas including exclusive residential areas but also has slum areas, educational area, industrial and trading areas. The other part of Depok is rural, which include villages, farm and poultry areas. Depok has heterogeneous community with a variety of social, cultural and economic condition. As the closest city from Jakarta the capital city of Indonesia, Depok is very vulnerable to psychosocial problems as a result of modern life style, including non-communicable diseases problems.

NCD risk factors surveillance in Abadijaya village in 2001 showed that the prevalence of NCD was relatively high in comparison with national figure. The study revealed that 12.7 % of population had diabetes mellitus, 24.9% suffered from stress, 25.6% had hypertension. Several NCD risk factors that had been found from the study were 53.7% had high LDL cholesterol, and only 35.3% had high HDL cholesterol, 37.8% were overweight, and smoking prevalence was 36.7% among males and 2.9% among females. Numerous intervention programs had been accomplished. However, NCD risk factors base line survey in 2002 (after 8 months of intervention program) showed that the community still had the same NCD risk factors. As a result of two workshops (on 22nd to 26th of April 2002 in Thailand, and on 27th to 31st of January 2003 in India), WHO agreed to extend the study involving larger sample size (approximately 2000 respondents) and longer time to approximately 3 years (year 2003 to 2005). It focused more on comprehensive and sustainable activities based on community based intervention.

NCD risk factors surveillance activity using WHO STEPS approach had been conducted in February 2003 (sample size: 1806 respondents) funded by WHO SEARO, WHO Head

Quarter, and Endocrine Unit of RSCM-FKUI hospital in Jakarta. The surveillance activity had been followed by the implementation of Community Based Intervention on prevention and control of NCD risk factors program in Depok starting from April 2004 and completed on May 2006, funded by WHO Country Office. Monitoring and evaluation had been done on June-July 2006, which include STEPS survey and health facility based survey ("Posbindu PTM, PHC, Health Office, and other related institutions), and financially supported by WHO Kobe Center and also Endocrine Unit of RSCM-FKUI hospital in Jakarta.

The implementation of pilot study in Depok had shown an improvement in certain NCD risk factors figures such as blood pressure, cholesterol and body mass index (see in the box below). This positive outcome of the CBI pilot study had been continued by replication in four districts (Cilegon, Padang Panjang, Bengkulu) and was used as the evidence based to include the CBI concept into the national policy and strategy of NCD prevention and control program.

Achievement of implementing CBI for NCD risk factors prevention in Depok (Indonesia)

- **Mean value of BMI significantly decreased for both men and women. The mean value declined from 24,3 in 2003 to 23.4 in 2006. The mean value of BMI declined from 23.9 in 2003 to 23.0 in 2006 among men, and from 24.9 in 2003 to 23.9 in 2006 among women.**
- **The prevalence of raised blood pressure (SBP >= 140 and/or DBP >=90) considerably decreased from 9% in 2003 to 4.5% in 2006**
- **The prevalence of raised total cholesterol (>=5.2mmo/L) reduced considerably from 31.6% in 2003 to 19.6% in 2006 for both sexes; and it declined from 29.7% to 20.9% for men, and from 34% to 18.9% for women.**

Meanwhile, the NCD risk factors surveillance in Indonesia has been continuously done as part of national health survey in every three years in 2004, 2007, 2010 and 2013. The current national health survey in 2013 shows prevalence of hypertension was slightly decrease from 31.7% in 2007 to 25.8% in 2013 but the prevalence of DM (interview based) increase from 1.1% in 2007 to 2.1% in 2013. Prevalence of stroke was increasing from 8.3 per 1000 population in 2007 to 12.1 per 1000 population in 2013. Prevalence of central obesity increased from 18.8% in 2007 to 26.6% in 2013.

The community-based intervention for NCD risk factors prevention in Indonesia has been initiated under the local name of 'Posbindu PTM' which means an Integrated health post

or activities for Non Communicable Diseases risk factors monitoring and prevention. It is a manifestation of community participation to support *promotion and preventive programs of early detection for common risk factors of major NCD* (such as overweight, hypercholesterolemia, hypertension, hyperglycemia, unhealthy diet, and smoking). Programs in the Integrated Health Post for NCD include *risk factors monitoring activities, and increasing knowledge of the community regarding NCD risk factors* through counselling and education.

The main goal of implementation of Integrated Health Post for NCD ('Posbindu PTM') is to enable the community to have early detection of NCDs risk factors and to look for treatment and to control it as soon as possible.

This activity makes services more accessible and cheaper to the community because it can be conducted in neighbourhood area or workplace. The quality of physical measurement can be enhance because it is supervised by health workers who had been trained by the local health office.

Strengths

- Encourage communication between local health workers and health volunteers
- Active participation of health volunteers
- Strong support from local health authority and local government
- Active role of existing city forum which involves community member from different groups (government, university, local NGOs, private sectors, etc).

Key player

Community in collaboration with the local health authority and health professionals.

Target group

- Adolescents (in school and university settings)
- Workers
- Household (aged 18 years and above).

Setting

1. Residential areas
2. Work places
3. Public places
4. Religious place (Church, Mosque, Temple, etc)
5. School and University
6. Traditional market.

Activities

The activities are organized by the community (well trained health volunteers) who provide services for the members, facilitated by the local government office (village office), and technically supervised by local health office and public health centre, and other supporting organisations. Management and funding for the activities is based on community agreement ('RembugWarga').

Five main activities in 'Posbindu PTM' are:

1. Anthropometric measurement (weight and height) for Body Mass Index examination
2. Blood pressure measurement
3. Blood glucose and cholesterol measurement.
4. Health counselling and education (diet, stop smoking, stress, physical activity, other health aspect)
5. Physical activities or exercise.

Schedule for each activity is arranged by the community and clinical recommendation from the health personnel. It is recommended that:

1. BMI and blood pressure measurement: every month or in the minimum of once in 3 months.
2. Blood glucose and cholesterol measurement: once a year for individual without any NCD risk factors and every 3 months for individual with any of NCD risk factors.
3. Counseling and education: can be done at anytime as needed.

Challenges

- Insufficient local government support
- Difficulties in having active health volunteers
- No single "prescription" – models should be adapted to local context
- Changing the curative paradigm
- Sustainability.

Annex 2
Community Based Non Communicable Disease Prevention and Control in KOREA

Background

- Among the 10 causes of deaths, diseases related to chronic diseases (NCDs) include malignant neoplasm (cancer), cerebrovascular diseases, ischemic heart diseases, diabetes, chronic low respiratory track disease and hypertensive diseases, so the risks of chronic diseases are very high In Korea
- The total cost for NCD, including costs for cancer, was 11 trillion KRW(10.7 billion $) in 2008. Outpatient care cost 3.2 trillion KRW(3 billion $) and inpatient care 4.5 trillion KRW(4.3 billion $).
- The total cost for NCD accounts for 34.5% of the total health care costs, 33 trillion KRW (31.2 billion $). Meanwhile, hypertension cost 2 trillion KRW(6%) and diabetes 1.1 trillion KRW(3.2%).
- The annual increase of health care cost of hypertension is 16%, and diabetes is 14%. This rate is higher than the average increase of health care cost.

Proceedings

- The Korean government has been implementing national NCD management programs since year 2000. The program started a few public health centers to run hypertension and diabetes prevention programs at the pilot project, and expanded the program to all public health centers in 2003.
- In 2005, the management of major NCD including hypertension, diabetes, heart disease, and stroke was included as a major target in the New Health Plan 2010.
- In 2006, the government established the National Cardio Cerebro-Vascular Disease Policy, and the cardio cerebro-vascular disease high-risk group (hypertension and diabetes) registry program piloted in one Metropolitan City in 2007, and now gradually expanding.

Development of Community based NCD prevention and control model

- South Korea developed its own model with the theoretical background of the U.S. chronic disease management model, Chronic Care Model (CCM) and WHO Innovative Care of Chronic Conditions (ICCC).
- Since 2007, through a demonstration project, Community-Based NCD (hypertension/diabetes) primary care model have been implemented in 19 districts.

The Community based NCD prevention and control model consists of:

- patients awareness rate improvement through regular health examination,
- disease management through the registry and regular visit to the physician,
- health education for health promotion and consultation on patients' self care need and health promotional activity for the population.

Overview of Community based NCD prevention and control program

1. Strategy
    - Comprehensive care such as primary prevention (community Health education and life style change), secondary prevention (hypertension & diabetic patient registry and treatment and health promotion)
    - Strengthening Community based management
        - Establishment of cooperation system of public and private sectors and reinforcement of private role
        - Sharing information with public and private sectors such as hypertension, diabetic patient management program information
        - NCD self- care education program development and infusion to population.
    - Organizing the community based team and technical supporting system
    - The quality of medical service improvement
        - Hypertension·diabetes registry program development and distribution
        - Development and infusion evidence based 'Standard Practice Guideline' to the physicians.
    - Improve NCD high risk Group Control
        - Information system establishment and operation for improvement of management rate
        - Accessibility improvement through medical expenses incentive for patient aged 65 and over
    - Strengthening community health education
        - Operating a everyday education program of hypertension/diabetes at health centers and hospitals
        - Implementing health education for community multi-use facility and workplace.
        - Implementing client-centered sectional education by developing various education modules
    - Constructing Information System
        - Web based network
        - Link Clinic, health center, education and registry center(include call center, Local and Central Authorities.)

2. Community Based Intervention
   - Medical expenses incentive for patient aged 65 and over(USD50$ per year)
   - Integrated services of the medical care and education, consultation, and management service
   - Implementation systemic education program
   - Operating supporting center: Call center

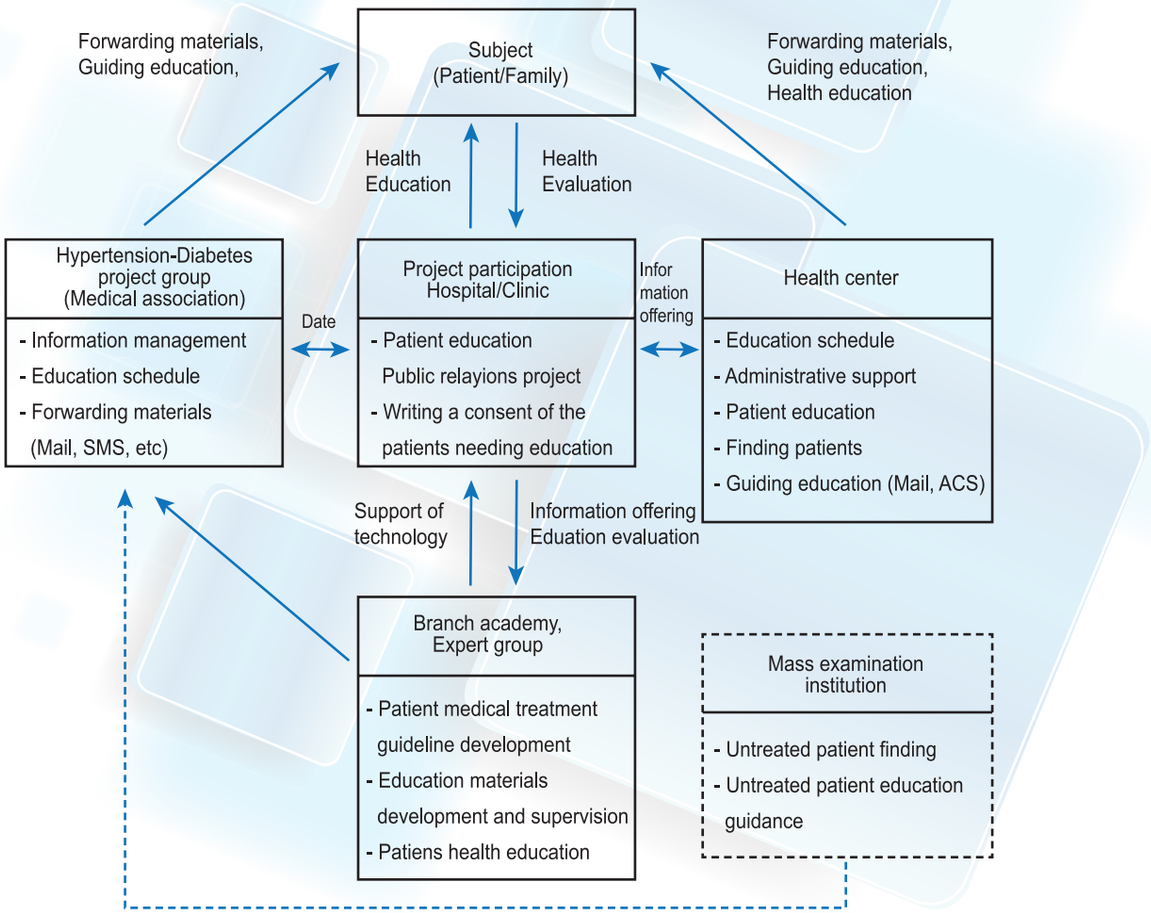
3. Public/Private Coordination

   The public/private cooperation system is based on the fact that over 90% of patients are treated at private clinic and very few patients are educated at public health center.

   Register the patient and to guide the patient primary care and health education mainly by the private sector and could share the role to operate administrative support and information system by the public sector in the community.

4. Integrated Services in Education, Consulting, Treatment.

Figure 1. Network Model for Integrated Service



5. Systemic Education Program

   A systematic education program reflecting patient's demand introduced to improve education through evaluating patient education evaluation information. Service contents are as follows:

   - Step-by-step education program introduced for continuous management of the patient
   - Education, pursuing management by patient health behavior change evaluation
   - Education completed result notification for hospital/clinic and patient

6. Registry and Supporting Services
   - Patients over 65 were asked to register for the data processing program to get incentives.
   - Patients under 64 and over 30 were asked to enter the data processing program only if they wanted. Through the data processing program, care- related program implemented and statistical information were allowed using computerization.
   - Consistent treatment rate and control rate improvement by providing comprehensive and effective consultation service based on the registered hypertension/diabetes patient
   - In the support center, call centers were operated.

7. Trainer Training Program

   Operating regular trainer training program for staffs of NCD registration center education and consultation.

8. Outcome
   - Increase in sustaining hypertension and diabetic registered patients' treatment rates
   - For the 2007 registered hypertension patients, the day of medication(for 1 year) after 1 year passed after registration was 309 days with the increase of 57 days (sustained treatment rate 85%)
   - In the case of diabetes, it also reached the optimal level in terms of the day of medication, post 1-year registration being 304 days with the addition of 53 days (sustained treatment rate 83%).
   - Establishment of community based Private and Public cooperation mechanism
   - Development of diverse Illness Management Programs necessary for community chronic illness management
   - Training of Community Public Health Manpower and Development of Human Resources Education Program
   - Development of Education Program for NCD Management in Community base
   - Verification of objective possibility in education service provision centered on public agencies for health behavior improvement
   - Identification of possibility in strengthening the role of primary medical institutions
   - Utilization of community resources and Capacity Development.

Annex 3
Russian experience in Community Based Intervention

Background

Chronic disease mortality has tendency to rise, and during the next twenty years its numbers will increase by 50% from 36 and up to 55 millions. And increases in mortality rates from chronic diseases, in a greater extend, will happen in economies with middle and low income levels. Chronic non-communicable diseases account for 76% of all deaths in the Russian Federation. Cardiovascular diseases, cancers, chronic obstructive pulmonary disease and diabetes make a major contribution to these deaths. Death rates from NCD in Russian men are the highest within APEC economies. And such death rates in Russian women are the highest within APEC economies with the high and upper middle income levels.

It is well-known that mortality from NCD has a significant impact on the length of life-expectancy at birth. Life-expectancy at birth in Russian men and women is the lowest within APEC economies of the high and upper middle levels of income. And the difference in life-expectancy at birth in Russian men and women is about 12 years and such difference is the biggest within APEC region.

Strengths

It has been proved that lifestyle defines the health of a person by 50-55%. Also, it is well-known that life style and socioeconomic factors responsible for the chronic disease development and progression, healthy life year lost and premature death in the community. Changes in the life style and a decrease in risk factor levels or their prevalence can lead both to prevent of chronic disease development and to delay its progression after clinical symptoms appearance.

The majority of RF, in the main, lifestyle's factors, can be influenced by the correction, called modifying RF, and they are of the greatest interest for NCD prevention. From the modifying RF, arterial hypertension (AH), alcohol abuse (AA), smoking, unhealthy nutrition, and low (insufficient) physical activity, have a great influence on mortality estimates and DALYs lost in Russia (Table 1) and, therefore, they are of the most important for the economy. These factors are equally important for other economies, such as Japan, USA, and some economically developed economies of the European region. Orders of these factors and values of their contribution to healthy life lost make a distinction between these economies.

There is a peculiarity for Russia when on the background of traditional modifying RF, psychosocial factors have a significant influence on public health, including the development, progression and premature death from NCD.

Key players

Law and regulatory authorities at national and sub national levels, health care specialists.

Target group

Entire population, health care specialists and population that seeks care in primary health care settings.

Setting

Executes laws and policy, educational, business, primary health care settings.

Activities

Government has issued the "Federal Law "On protection of public health from exposure to environmental tobacco smoke and the consequences of tobacco consumption" (FL-15 issued in February, 2013) – *reflects of the WHO FCTC articles and* "Conception on the decrease of alcohol overuse and prevention of alcoholisms in population of the Russian Federation in 2010-2020" focusing on reducing particular NCD risk factors, such as tobacco and alcohol consumption. Also, The Ministry of health has recently worked out of "The Conception Of Public Health Development In The Russian Federation up to 2020", which indicates that "in order to provide a steady social-economic development of the Russian Federation, one of the priority in the State policy should be the maintenance and promotion of people' health through forming a healthy life-style and increasing access and quality of health care".

The Conception also indicates that "the effective functioning of the public health system should be based on following factors (a little bit adopted to those out lighted in "Conception"):

- improvement of the system or creation of infrastructure and interagency cooperation that provide forming healthy lifestyle and equal access to the qualifying health care (in a standard way) to all populations of the Russian Federation (as by the State guarantee);
- set up a base for providing with adequate funding, high-tech technical/methodological, and professional resources of health care as well as other public health settings for a long-term perspective.

What challenges

- to create a system for monitoring factors that contribute to the risk of development and progression of NCD: *smoking, hypertension, alcohol abuse, psycho-social stress, obesity, etc.*
- to develop and implementation of educational programs at under- and post-graduate levels (recommendations, tools, courses) for different groups of populations and health professionals in order to implement them in cost-effective way in health care settings and/or

educational, working, and public settings on *smoking, hypertension, alcohol abuse, psycho-social stress, obesity, etc.*

- to create a system for monitoring of preventive measures that reduce the risk factors of development and progression of NCD;
- to develop, refine, adopt and disseminate a number of legislative and administrative regulatory measures toward to the prevention of NCD as a subproject(s) of national, regional and municipal health projects; success in three areas of a population strategy (tobacco, alcohol, healthy food, physical activity) requires strong laws, regulations, and enforcement mechanisms; for tobacco consumption it is the adaptation of the WHO Framework Convention on Tobacco Control in the economy.

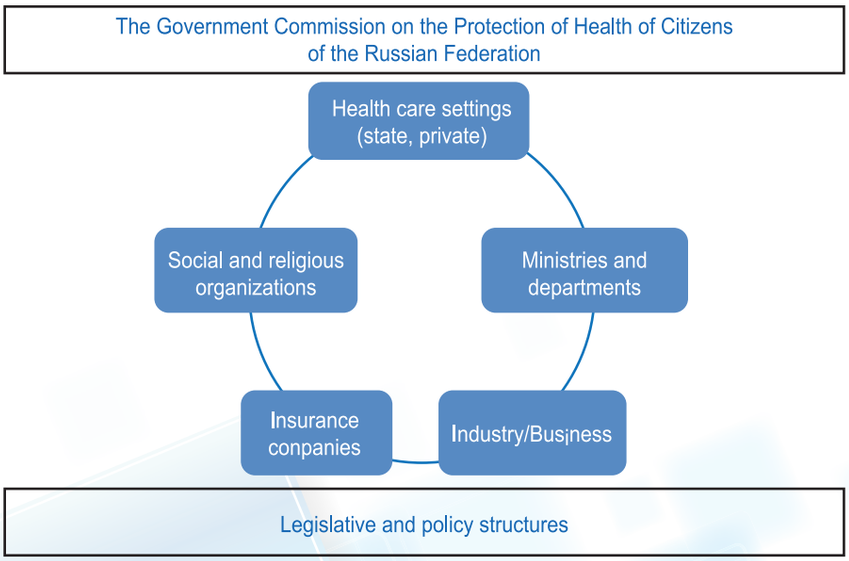
The combination of the implementation of population strategy for the prevention of NCDs, the high-risk and secondary prevention of the diseases strategy will provide an improvement in public health.

Advances of population strategy for non-communicable disease prevention are:

1. Positive effects coverage population of all ages, both sexes, different socio-economic and education level groups: healthy, with NCD RF, high NCD risk and NCD;
2. Relatively inexpensive;
3. Promotes healthy life-style and increases healthy and productive years – increases number of healthy people;
4. Has a high input in mortality decrease
5. Decreases health care system load and reduces health care costs.

Prevention of chronic disease problems is needed in a good multi-sectorial cooperation. For providing such cooperation “The Government Commission on the Protection of health of citizens of the Russian Federation” was constituted in the 2013 in Russia. Participants of multi-sectorial cooperation in prevention of chronic diseases are presented in figure 1.

Figure 1. Participants of Cross sectoral cooperation in the prevention of Chronic Disease



From such activities, in case of successful results, we will significantly reduce NCD RF levels.

Figure 2. The National Program on NCD Prevention: targets

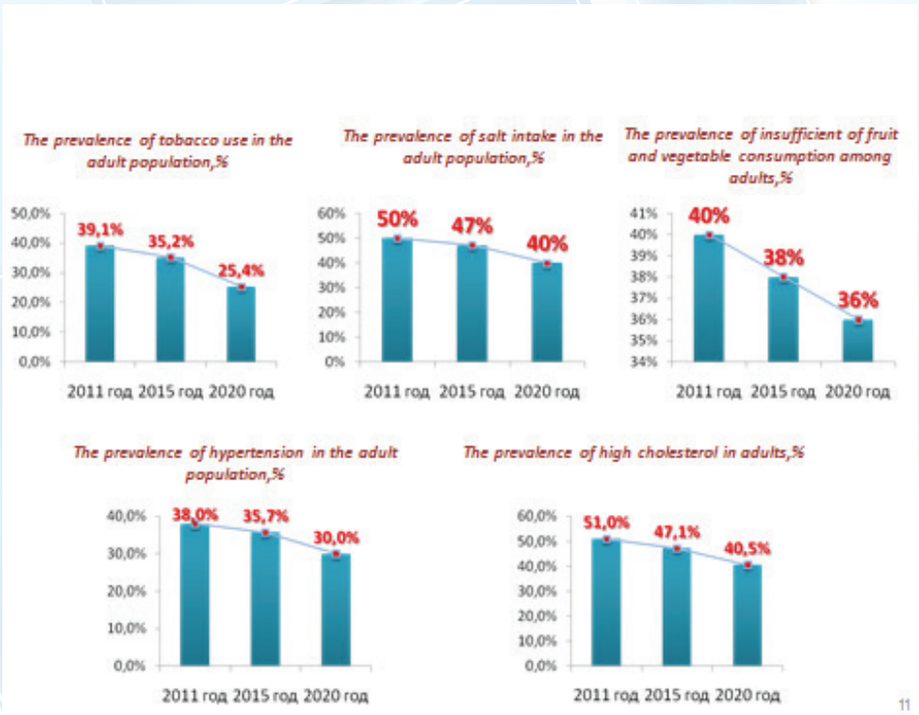


Figure 3. Implementation of FCTC articles in the Russian Federation will result in:

- decrease in smoking prevalence by 30% in 2020, and by 50% in 2055
- save 3,7 millions lives:
  increase taxes: more than 1 millions
  tobacco free environmental: more than 1 millions
  bans on advertising and promotion tobacco products: 730,000
  effective anti-tobacco campaigns and comprehensive medical care: more than 1.2 millions

Galina Ya Maslennikova, Rafael G Oganov, Sergey A Boytsov, Hana Ross, An-Tsun Huang, Aimee Near, Alexey Kotov, Irina Berezhnova, David T Levy. *Russia SimSmoke*: the long-term effects of tobacco control policies on smoking prevalence and smoking-attributable deaths in Russia.

At present, Russian efforts are directed to reach of the real shift in priorities in health care system: from the treatment of chronic diseases to health life style promotion and NCD prevention, and in community - to promote healthy life style by creating healthy environment. Thus we can increase the number of healthy people, the number of years of healthy life and economic growth of our nation.

Table 1. Total Death and Total DALYs of NCD Risk Factors in Russian Federation

Rank	Risk Factor	Total death, %	Rank	Risk Factor	Total DALYs,%
1	High blood pressure	35,5	1	Alcohol	16,5
2	High cholesterol	23,0	2	High blood pressure	16,3
3	Tobacco	17,1	3	Tobacco	13,4
4	Low fruit and vegetable intake	12,9	4	High cholesterol	12,3
5	High BMI	12,5	5	High BMI	8,5
6	Alcohol	11,9	6	Low fruit and vegetable intake	7,0
7	Physical inactivity	9,0	7	Physical inactivity	4,6
8	Urban outdoor air pollution	1,2	8	Illicit drugs	2,2
9	Lead	1,2	9	Lead	1,1
10	Illicit drugs	0,9	10	Unsafe sex	1,0

Annex 4
Experiences of Community Based Intervention in Thailand

Background

The rising trend of chronic diseases in Thailand has been observed. Mainly causes of deaths related to cardiovascular diseases and metabolic syndrome. The national policy and strategies for control and preventing NCDs have been formulated for many years. Community base interventions (CBI) is one of these strategies. CBI for NCDs in Thailand is one part of the continuing community programs based on PHC concept that Thailand has already implemented for more than 30 years, but CBI for NCD have activities that more focus on disease screening and prevention from chronic diseases.

Target group

General population in the target areas but focus on reproductive aged, elderly group and patients of diabetes and hypertension . In some areas, school children is also a part of the target.

Setting

Mainly use residential areas as the setting for interventions.

Key players

- Village health volunteers or patients' group and community leaders
- Local health authorities
- Health personnel at sub-district health centers and hospitals.

Roles/Functions of village health Volunteers:

- Screening : verbral screening and blood testing in communities
- Home visits and home support (moral, social, economy and information support)
- Promotion activities : exercise, class, camp for controlling diseases
- Basic counseling
- Formulate the health plan within the total community plan.

Functions of health personnel:

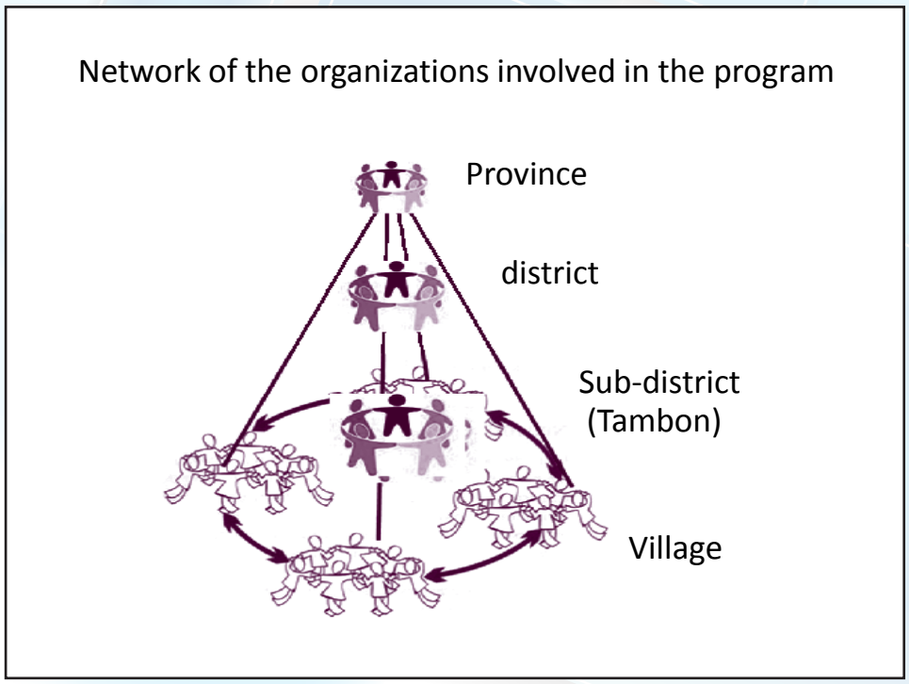
- Provide services : screening and treatment, health counseling
- Facilitate and initiate the NCD prevention programs in communities
- Provide / feedback information related to health status, risks and behaviors
- Training / capacity building for health volunteers and patients.

Roles of local authorities

- support budget for screening and health promotion activities and equipments such as exercise equipment
- facilitate the implementation programs in communities
- some areas: local authorities with community leaders may formulate local policies to support health behaviors such as no alcohol drinking in funerals/ in temples, no unhealthy snacks in nurseries.

Approaches

- engage communities leaders, village health volunteers and patients in the process of planning, managing and implementing activities to control and prevent NCD mainly focus on diabetes and hypertension
- use the Community based approach and implement comprehensively including early diagnosis, risk reduction and health promotion; public health workers in peripheral health services working with community leaders and village health volunteers.
- activities in communities mainly focus on risk and disease screening, if some ones having risk according the criterias they will be referred to sub-district health centers and hospital for diagnosis and treatment.
- in health facilities : group education and peer group have also used based, patient group.



Mechanism for the development depend on the context and their social asset such as:

- Tambon health fund for funding activities
- Strategic route map (SRM) and community health plan being used in communities
- The continuous training of village health volunteers and some patientts group
- Local policy formulation through civic group and public forum for formulating local healthy public policy.

Key success factors : depend on

- The quality of the process of community participation / being the ownership of communities
- Depth and quality of technical support, appropriate and relevant to the need of the targets
- Continuity of programs implementation and funding and evidences used in designing the programs.

Strengths

- Community participation and good support from local authorities
- Good relationship between communities and health workers
- Good coverage of health facility network in the economy.

Challenges

- Urbanization , migration
- Programs fragmentation
- Difficulty of integration of programs to be more effective
- Stability of policy and program implementation
- Difficulty in communicating issues of balance food and energy used /physical activity.

Annex 5
Some of Best Practices of Community Based Intervention to Reduce NCDs Risk Factors in United States

This paper describes some of best practices of community based intervention to reduce NCDs Risk Factors in United States:

- Behavioral Risk Factor Surveillance System (BRFSS)
- National Diabetes Prevention Program
- Racial and Ethnic Approaches to Community Health (REACH)
- Million Hearts
- Community Guide.

1. Behavioral Risk Factor Surveillance System (BRFSS)

Downloaded from: http://www.cdc.gov/brfss/about/about_brfss.htm

Background

By the early 1980s, scientific research clearly showed that personal health behaviors played a major role in premature morbidity and mortality. Although national estimates of health risk behaviors among U.S. adult populations had been periodically obtained through surveys conducted by the National Center for Health Statistics (NCHS), these data were not available on a state-specific basis. This deficiency was viewed as a critical obstacle to state health agencies trying to target resources to reduce behavioral risks and their consequent illnesses. National data may not be applicable to the conditions found in any given state; however, achieving national health goals required state and local agency participation.

About the same time as personal health behaviors received wider recognition in relation to chronic disease morbidity and mortality, telephone surveys emerged as an acceptable method for determining the prevalence of many health risk behaviors among populations. In addition to their cost advantages, telephone surveys were especially desirable at the state and local level, where the necessary expertise and resources for conducting area probability sampling for in-person household interviews were not likely to be available.

As a result, surveys were developed and conducted to monitor state-level prevalence of the major behavioral risks among adults associated with premature morbidity and mortality. The basic philosophy was to collect data on actual behaviors, rather than on attitudes or knowledge, that would be especially useful for planning, initiating, supporting, and evaluating health promotion and disease prevention programs.

BRFSS History and Timeline

To determine feasibility of behavioral surveillance, initial point-in-time state surveys were conducted in 29 states from 1981–1983. In 1984, the Centers for Disease Control and Prevention (CDC) established the Behavioral Risk Factor Surveillance System (BRFSS), and 15 states participated in monthly data collection. Although the BRFSS was designed to collect state-level data, a number of states from the outset stratified their samples to allow them to estimate prevalence for regions within their respective states. CDC developed a standard core questionnaire for states to use to provide data that could be compared across states. Initial topics included smoking, alcohol use, physical inactivity, diet, hypertension, and seat belt use. Optional modules—standardized sets of questions on specific topics—were implemented in 1988.

BRFSS became a nationwide surveillance system in 1993. The questionnaire was redesigned to include rotating fixed core and rotating core questions and up to five emerging core questions. Approximately 100,000 interviews were completed in 1993.

In 2002, BRFSS held its first biannual BRFSS Expert Panel Meeting, inviting approximately 20 survey statisticians, methodologists, and operational experts to a 2-day meeting to discuss the challenges facing the field of survey research and implications for the BRFSS. Repeated in 2004, 2006, and 2009, the meetings set a goal of developing options and prioritizing recommendations for maintaining data quality in the face of societal and technological changes.

The Asthma Call-back Survey (ACBS) was piloted in 3 states in 2005 and has been conducted each year since. The ACBS is conducted approximately 2 weeks after the BRFSS. It is conducted with respondents who report ever being diagnosed with asthma. A majority of states participate in the ACBS each year.

States have used BRFSS to address urgent and emerging health issues. For example, during the 2004 – 2005 flu season, the BRFSS was used to monitor the influenza vaccine shortage. Following Hurricanes Katrina and Rita in 2005, four Gulf Coast States used the BRFSS to assess the impact of these events. During the 2009 H1N1 flu pandemic, modules related to influenza-like illness and seasonal and 2009 H1N1 vaccinations were added to the survey.

In 2007, the BRFSS added a Web-Enabled Analysis Tool (WEAT). This online application analyzes data through a variety of statistical methods. Users are able to perform cross-tabulation and logistic regression.

The BRFSS piloted the Cell Phone Survey beginning in 2008. By including cell phones in the survey, BRFSS is able to reach segments of the population that were previously inaccessible—those who have a cell phone but not a landline—and produce a more representative sample and higher quality data. Cell Phone surveys were included in the Public release data set beginning in 2011.

More than 500,000 interviews were conducted in 2011, making the BRFSS the largest telephone survey in the world. Also in 2011, new weighting methodology—raking, or iterative proportional fitting—replaced the post stratification weighting method that had been used with previous BRFSS data sets. In addition to age, gender, and race/ethnicity, raking permits more demographic variables to be included in weighting such as education attainment, marital status, tenure (property ownership), and telephone ownership. Details are provided in the June 8, 2012 issue of the Morbidity and Mortality Weekly Report (MMWR), which highlights weighting effects on trend lines (www.cdc.gov/mmwr/preview/mmwrhtml/mm6122a3.htm).

Continuing the Legacy

BRFSS marks its 30th year in 2013 and remains the gold standard of behavioral surveillance. Currently data are collected monthly in all 50 states, the District of Columbia, American Samoa, Palau, Puerto Rico, the U.S. Virgin Islands, and Guam. CDC will continue to work closely with state and territorial partners to ensure that the BRFSS continues to provide data that are useful for public health research and practice and for state and local health policy decisions.

Public health surveillance in the future will be much more complex and involve multiple ways of collecting public health data. Although telephone surveys will likely remain the mainstay of how BRFSS data are collected, it is likely that additional modes of interviewing will also be necessary. To prepare for the future, BRFSS currently has several pilot studies and research initiatives underway. These efforts are critical for improving the quality of BRFSS data, reaching populations previously not included in the survey, and expanding the utility of the surveillance data. To find out more about BRFSS and its recent achievements, visit the BRFSS Today page.

2. National Diabetes Prevention Program

Downloaded from: http://www.cdc.gov/diabetes/prevention/about.htm#Funded

The National Diabetes Prevention Program encourages collaboration among federal agencies, community-based organizations, employers, insurers, health care professionals,

academia, and other stakeholders to prevent or delay the onset of type 2 diabetes among people with prediabetes in the United States.

The inaugural partners of the National Diabetes Prevention Program were the YMCA and UnitedHealth Group. These partners were instrumental in starting the national program and continue to expand the reach of this evidence-based lifestyle program. CDC is enthusiastic about other organizations becoming involved in the National Diabetes Prevention Program. Most recently, Viridian Health Management, Inc. has agreed to partner with CDC and others to expand the reach of the program.

The CDC-led National Diabetes Prevention Program is an evidence-based lifestyle change program for preventing type 2 diabetes.

- It can help people cut their risk of developing type 2 diabetes in half.
- The Diabetes Prevention Program research study showed that making modest behavior changes helped participants lose 5% to 7% of their body weight—that is 10 to 14 pounds for a 200-pound person.
- These lifestyle changes reduced the risk of developing type 2 diabetes by 58% in people with prediabetes.
- Participants work with a lifestyle coach in a group setting to receive a 1-year lifestyle change program that includes 16 core sessions (usually 1 per week) and 6 post-core sessions (1 per month).

Explore this site to learn more about prediabetes and how to prevent or delay type 2 diabetes. Get ready to make a change for life!

The National Diabetes Prevention Program teaches participants strategies for incorporating physical activity into daily life and eating healthy. Lifestyle coaches work with participants to identify emotions and situations that can sabotage their success, and the group process encourages participants to share strategies for dealing with challenging situations.

Funded Organizations

Overview

CDC awarded $6.75 million in grants under Prevention and Public Health Funds (PPHF) 2012—National Diabetes Prevention Program: Preventing Type 2 Diabetes Among People at High Risk. These funds will expand the National Diabetes Prevention Program (National DPP) to help establish a network of structured, evidence-based lifestyle change program designed to prevent type 2 diabetes among people at high risk. Funding was awarded to six

organizations on the basis of the number of qualified applicants, the scope of the proposals, and the geographic reach.

Partnerships developed with these awards will help CDC reach large numbers of people with prediabetes (those at high-risk for type 2 diabetes) by expanding the National DPP network of organizations offering the program. Grantees will offer a lifestyle change program consistent with the Diabetes Prevention Recognition Program Standards and Operating Procedures. Funded organizations will provide information to employers about offering the lifestyle change program as a covered health benefit for employees. They will also work with third-party payers, including public and private health insurance companies, to facilitate performance-based reimbursement directly to organizations delivering the lifestyle change program.

Grantee Profiles

The American Association for Diabetes Educators

The American Association for Diabetes Educators (AADE) will work with its diverse membership of health care professionals to offer lifestyle change programs in states with high rates of diabetes. During the 4-year period, the organization plans to make programs available in Alabama, Florida, Kentucky, Louisiana, Michigan, Mississippi, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, and West Virginia. Learn more about the AADE External Web Site Icon.

America's Health Insurance Plans

America's Health Insurance Plans (AHIP), a national trade association representing the health insurance industry will work with member health plans—Aetna, EmblemHealth, Florida Blue, and Molina Healthcare to offer lifestyle change programs in Florida, New Mexico, New York, and Texas. Those programs will focus on groups that have a higher risk of developing type 2 diabetes, including African Americans, Hispanics, and women who developed diabetes while pregnant (gestational diabetes). Learn more about the AHIP External Web Site Icon.

Black Women's Health Imperative

Black Women's Health Imperative will establish lifestyle change programs in California, Indiana, and Michigan, Missouri and Virginia to reach persons most at risk for type 2 diabetes, including African American and Hispanic women. The organization works to develop community-based strategies to improve lives by improving health. Learn more about the Black Women's Health Imperative External Web Site Icon.

By-Default REACH project, will build upon their successes among minority groups in the Southeast, Midwest, and Southwest regions of the U.S. Over the course of the project, UCLA will work closely with national partners to promote and apply programs in schools, youth groups, religious institutions, public health, and health care agencies, small businesses, and professional sports teams. These programs will integrate easy and enjoyable physical activity into daily life and ensure access to nutritious food in public places among the African American, Asian American/Pacific Islander, Hispanic/Latino and American Indian communities, so that healthy habits become second-nature.

Awardee Name: University of Colorado Denver
Funding Amount: $ 3,000,000
Summary of Project: The Centers for American Indian and Alaska Native Health (CAIANH) within the Colorado School of Public Health (CSPH) house seven national programs focused on understanding and eliminating health disparities in American Indian and Alaska Native (AI/AN) populations. CAIANH will build upon existing work to continue reducing chronic diseases in the AIAN communities, specifically targeting diabetes and heart disease. CAIANH will support at least 10 Urban Indian Health Organizations (UIHO) across multiple states to design programs to address risk factors for diabetes and heart disease, specifically proper nutrition, physical activity and weight.

New REACH Demonstration Projects

Awardees of the REACH Obesity and Hypertension Demonstration Projects will apply strategies to prevent obesity and hypertension, two of the leading risk factors for chronic diseases. A priority of this 3-year project is to increase the evidence around programs that are effective in racial and ethnic communities, which bear the greatest burden. Approximately $12.3M will fund the REACH Demonstration Projects.

Examples of awardee activities include:

- Conducting assessments of current initiatives in communities
- Identifying and designing successful long-term programs and initiatives to reduce health disparities
- Working with communities to identify ways to improve and prevent obesity and high blood pressure.

New REACH Obesity and Hypertension Demonstration Project Awardees

Awardees:

Boston Public Health Commission

Community Health Councils, Inc.

Summary of Proposed Demonstration Project Activities:

Awardee Name: Community Health Councils, Inc. (CHC)

Funding Amount: $7,693,912

Intervention Population: Approximately 449,000 African-American and Hispanic/Latino residents in the West Adams Baldwin Hills and South Los Angeles area

Sectors: Community, Non-Public Health

Summary of Project: Community Health Councils (CHC) will work with the Los Angeles County Department of Public Health (LADPH), the Los Angeles Unified School District (LAUSD), University of Southern California researchers, and the African Americans Building a Legacy of Health Consortium to develop and implement replicable and scalable policy, systems and environmental improvements to reduce disparities in obesity rates and hypertension for African-American and Hispanic/Latino residents in the West Adams-Baldwin Hills-Leimert and South Los Angeles Community Plan Areas. The project will build upon and expand intervention strategies researched and developed by CHC and community organizations and institutions with a history of serving the project area.

Awardee Name: Boston Public Health Commission

Funding Amount: $4,606,088

Intervention Population: Approximately 210,000 African-American and Hispanic/Latino residents living in the city of Boston

Sectors: Government, Public Health

Summary of Project: The proposed Boston REACH Obesity and Hypertension Demonstration will be implemented citywide in Boston and will include a place-based focus on five neighborhoods with the largest populations of Black and Latino residents, including children and adults. The project's core partners are the Boston Public Health Commission, the YMCA of Greater Boston, the Harvard Prevention Research Center and Department of Nutrition at the Harvard School of Public Health, and the Boston REACH Coalition, a resident-driven coalition which has executed programs to address health disparities in cancer and chronic diseases.

4. Million Hearts

Downloaded from: http://millionhearts.hhs.gov/aboutmh/overview.html:

Overview

Heart disease and stroke are the first and fourth leading causes of death in the United States. Heart disease is responsible for 1 of every 4 deaths in the economy. Million Hearts® is a national initiative that has set an ambitious goal to prevention 1 million heart attacks and strokes by 2017. The impact will be even greater over time.

Million Hearts® aims to prevent heart disease and stroke by:

1. Improving access to effective care.
2. Improving the quality of care for the ABCS.
3. Focusing clinical attention on the prevention of heart attack and stroke.
4. Activating the public to lead a heart-healthy lifestyle.
5. Improving the prescription and adherence to appropriate medications for the ABCS.

The Million Hearts® initiative will focus, coordinate, and enhance cardiovascular disease prevention activities across the public and private sectors in an unprecedented effort to prevent 1 million heart attacks and strokes by 2017 and demonstrate to the American people that improving the health system can save lives. Million Hearts® will scale-up proven clinical and community strategies to prevent heart disease and stroke across the nation.

Million Hearts® brings together existing efforts and new programs to improve health across communities and help Americans live longer, healthier, more productive lives. The Centers for Disease Control and Prevention and Centers for Medicare and Medicaid Services are the co-leaders of Million Hearts® within the U.S. Department of Health and Human Services, working alongside other federal agencies including the Administration for Community Living, National Institutes of Health, the Agency for Healthcare Research and Quality, and the Food and Drug Administration, the Health Resources and Services Administration, and the Substance Abuse and Mental Health Services Administration, the Office of the National Coordinator, and the U.S. Department of Veterans Affairs. Key private-sector partners include the American Heart Association, and YMCA, among many others.

Making Progress

In 2012, the initiative's first year, Million Hearts® built strong partnerships to ensure steady progress toward preventing 1 million heart attacks and strokes by 2017. Check out just a

few examples of how partners worked to improve heart health—a focus on the ABCS, using health information technology, and working in teams.
•Million Hearts® 2012: Building Strong Partnerships for Progress Adobe PDF file [PDF-7M]

Explore Innovations & Progress Notes to stay up to date with Million Hearts® and partner efforts to prevent 1 million heart attacks and strokes.

Learn More

- Million Hearts® Begins with You Infographic Adobe PDF file [PDF-327K]
- Million Hearts® Fact Sheet Adobe PDF file [PDF-1M]
- Million Hearts®: Strategies to Reduce the Prevalence of Leading Cardiovascular Disease Risk FactorsExternal Web Site Icon
- Centers for Disease Control and Prevention
- Learn about the science of Million Hearts®.
- The American Heart Association and the Million Hearts® Initiative: A Presidential Advisory From the American Heart Association Adobe PDF file [PDF-286K]External Web Site Icon
- American Heart Association
- The “Million Hearts®” Initiative—Preventing Heart Attacks and StrokesExternal Web Site Icon
- New England Journal of Medicine
- New Public-Private Sector Initiative Aims to Prevent 1 Million Heart Attacks and Strokes in Five Years Adobe PDF file [PDF-132K].

5. Community Guide

Downloaded from: http://www.thecommunityguide.org/about/index.html

What is The Community Guide?

The Community Guide is a website that houses the official collection of all Community Preventive Services Task Force (Task Force) findings and the systematic reviews on which they are based.

The Community Guide is a credible resource with many uses because it is based on a scientific systematic review process and answers questions critical to almost everyone interested in community health and well-being such as:

- What interventions have and have not worked?
- In which populations and settings has the intervention worked or not worked?
- What might the intervention cost? What should I expect for my investment?

- Does the intervention lead to any other benefits or harms?
- What interventions need more research before we know if they work or not?

The Task Force hopes those who use The Community Guide will:

- Use more interventions that have been shown to work
- Use fewer interventions that have been shown not to work
- Research interventions for which there is not enough evidence to say whether or not they work.

Collaborators in The Community Guide

Many people work together to develop and promote The Community Guide. Each contributes specialized skills, expertise and perspectives that make The Community Guide a valuable resource.

- Community Preventive Services Task Force members
- Liaisons to the Task Force
- Consultants to the Task Force
- Community Guide staff
- CDC programs
- Other partner agencies and organizations
- Individual policy makers, practitioners and researchers.

CDC Programs

Centers for Disease Control and Prevention (CDC) programs contribute subject matter experts to participate in and, in some cases, take the lead on conducting Community Guide systematic reviews. CDC program staff:

- Provide input from the beginning and throughout the review process
- Serve on, or recommend participants to serve on individual systematic review teams
- Participate in dissemination activities and promote the use of Task Force recommendations and findings among their grantees and constituent audiences.

Other Partner Agencies and Organizations

Several other agencies and organizations contribute their expertise to The Community Guide reviews. These agencies and organizations:

- Provide input into review prioritization and Task Force recommendations and findings
- Serve on, or recommend participants to serve on individual systematic review teams
- Participate in dissemination activities and promote the use of Task Force recommendations and findings among their grantees and constituent audiences.

Individual Policy Makers, Practitioners and Researchers

The Community Guide also seeks input from individual policy makers, practitioners and researchers throughout its processes. These individuals:

- Provide input into review prioritization and Task Force recommendations and findings
- Serve on, or recommend participants to serve on individual systematic review teams
- Participate in dissemination activities and promote the use of Task Force recommendations and findings among their grantees and constituent audiences.

More about The Community Guide

The Centers for Disease Control and Prevention provides administrative, research, and technical support for the Community Preventive Services Task Force. Support is provided by the Community Guide Branch, Division of Epidemiology, Analysis and Library Services, Center for Surveillance, Epidemiology and Laboratory Services, Office of Public Health Scientific Services, Centers for Disease Control and Prevention (CDC).

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