PREVENTION AND CONTROL OF NON-COMMUNICABLE DISEASES IN KERALA

PROJECT REPORT

ACHUTHA MENON CENTRE FOR HEALTH SCIENCE STUDIES
Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum

AND KERALA STATE HEALTH SERVICES DEPARTMENT

AMCHSS RESEARCH TEAM

PREVENTION AND CONTROL OF NON-COMMUNICABLE DISEASES IN KERALA
Project Report 2016-17

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AND SOCIAL JUSTICE
GOVERNMENT OF KERALA

Thiruvananthapuram
19 - 07 - 2017

Message

Achutha Menon Centre for Health Science Studies of Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum has been entrusted to implement a project on prevention and control of non- communicable diseases in the state in collaboration with the Health Department of Kerala. The objectives of the project were to find out the prevalence of major risk factors of non - communicable diseases in the state and to implement risk reduction strategies through schools and village Panchayaths. It also intended to propose a structure and function of the health protection agency in the state.

I am happy to note that a dedicated team of Achutha Menon centre for Health Science Studies has completed the baseline survey and has successfully implemented the risk reduction strategies in one fifth of the Panchayaths and schools in the state. I take this opportunity to congratulate the team for their commendable work.

I wish all success to Achutha Menon centre for Health Science Studies for the timely completion of the project.

Smt. K.K.Shailaja Teacher

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FOREWARD

I have pleasure in introducing the Report of the project "**Prevention and Control of non-communicable diseases in Kerala, India"** produced by Achutha Menon Centre for Health Science Studies (AMCHSS), of Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST), Trivandrum. AMCHSS has since its inception played a pioneering role in generating the evidence base on the prevalence of non-communicable diseases (NCDs) and their risk factors in Kerala. The Centre has also, through a number of intervention research studies and capacity-building programs for health professionals, contributed to identifying strategies for the management of non-communicable diseases in the state.

The Report presents the results of the project for the first year which consisted of three activities. The first was a large scale survey of over 12,000 households covering all the districts of Kerala; the second activity involved the implementation of risk-reduction strategies in 350 schools and 200 *Panchayats* covering all districts of Kerala; and the third activity documented the perceptions of health administrators and policy makers on the proposed structure and functions of a health protection agency in Kerala.

Findings from the household survey show that one in five persons above 18 years of age has diabetes, and over two-thirds of the population in the age group of 45-69 years is either diabetic or pre-diabetic. For the first time in India, A reversal of social gradient for diabetes has been found by the study, with higher prevalence in low educated group as compared to individuals with more than high school level education. The high prevalence of diabetes in Kerala has persisted despite major efforts by the government health sector to address the condition. Only 16% of the individuals with diagnosed diabetes achieved adequate blood sugar control status, and women fare worse than men in achieving blood sugar control. These rates compare poorly with the over 50% control rates in the Western population. Prevalence of NCD risk factors is also very high, with levels of current alcohol-use and smoking among men as high as 30% and 25% respectively. More than 70% of the population did not adhere to a healthy diet in terms of consumption of salt, vegetables and fruits; levels of physical inactivity and over-weight and obesity were also significant.

These findings pose extraordinary challenges for Kerala's health sector – in terms of coverage of the population with treatment and control measures, achieving behaviour change; changes in institutional policies in support of healthier life-styles and identifying cost-effective modes of service delivery. SCTIMST and AMCHSS reaffirm their commitment to engaging in research, training and interventions to effectively manage and control and work towards prevention and control of NCDs in the state.

Prof. Asha Kishore,MD. DM

Acknowledgements

The project on prevention and control of non-communicable diseases (NCD) in Kerala is jointly implemented by the Achutha Menon Centre for Health Science Studies (AMCHSS) of the Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum and the Health Services department of Government of Kerala. Although the leadership role is taken up by the health services department of Kerala various other departments of Kerala such as the local administration, education, and various other departments are also actively participating in this project. Considering the importance of prevention and control of life style diseases in the state our honourable chief Minister of Kerala Shri Pinarayi Vijayan inaugurated this project on August 30, 2016. The inaugural function was widely publicised in all the media which gave us the confidence to move forward in all the districts of the state. We are greatly honoured by this inauguration by our Chief Minister indicating the commitment of Government of Kerala to this project. Honourable health minister smt K K Shailaja Teacher provided all the support for implementing the project in all the districts with the support of district medical office and the district health mission offices. We are extremely thankful to her for all her support.

Shri. KM Chandrasekhar, former cabinet secretary and current president of SCTIMST was instrumental in getting this grant. His advice on the strategies for implementing this project in collaboration with health department of Government of Kerala was extremely useful in the successful implementation of the project. We place on record our thanks for his continuous support for this project. Shri. Rajeev Sadanandan, additional chief secretary, health and family welfare, Government of Kerala with his academic and administrative skills has provided all kinds of support for this project from the beginning. He has addressed the panchayat presidents in several orientation sessions which were extremely useful in getting the support of them in implementing this project at the panchayat level. We greatly appreciate all his contributions to this project. Dr. B Ekbal, Member of the State Planning Board, in charge of health and education is with us for the various activities of the project. He also writes about the importance of this project in press and provides all guidance for the implementation of the project. He was the key

resource person for all the orientation programs with panchayat presidents and his presence in these meetings was extremely valuable. Our director Dr Asha Kishore provided all the administrative support for the smooth implementation of this project. We thank her for all the support and encouragement for this project.

Kerala State Mission Director, national health mission, provided the funding and space for accommodating our district level project managers in some districts. We thank the mission director for all his support. Director of Health Services is the key technical person from the health services department for all the activities of this project. When we started the project Dr Ramesh was the director of health services and he has provided necessary orders and letters to the district medical officers for providing all the support for this project. The current director of health services Dr Saritha is providing all the support and guidance for the project implementation. We thank all the district Medical Officers, NCD Nodal officers, District Program Managers (NHM) and other program officers in all the 14 District Medical Offices for the help and assistance given for the smooth implementation of the project and their contribution as resource persons in various training programs.

We are extremely thankful to the Director of Public Instruction, deputy director of education regional deputy directors of higher education and district education officers for giving support in training the teachers and students and implementing the program in schools.

This program implementation was through Panchayats and schools. We thank the Grama Panchayat Presidents and Health Standing Committee Chairpersons of all the selected Grama Panchayats for attending the training program, participating in the discussions and providing the political support at the local level for implementing the project activities. Panchayat Secretaries and Ward Members provided all the help in various aspects relating to the household survey for baseline data collection. The Headmasters, Headmistresses, Principles of educational institutions provided permission for the smooth implementation of project activities in the schools including structural changes. Teachers who participated in the training program were very active and

committed to implement the program in the schools considering the importance of this project. We thank all of them.

All the health staff in selected primary health centres and the accredited social health activists (ASHAs) participated in the training program and all of them are implementing various aspects of the projects in their own field areas. We are thankful to all of them. The district project managers of NCD in all the districts provided leadership role in the training program of both teachers and the health staff. We appreciate their contribution in this project.

We place on record our appreciation to Ms. Bina Paul Venugopal, Ms. Pushpavathy Poypadath. Ms. Rakhee Savithri, Mr. Indrans, Ms. Syamala, Mr. Bilas Nair, Mr. Vishnu Venugopal, Ms. Rosina Shaji, Ms. Rohini Rahul, Mr. Arjun Kumar, Ms. Sithara, Ms. Uma Shankar, Mr. Jayachandran Kadampanad and Mr. Appu Bhattathiri for their contribution in making the music videos. These music videos are very effective in our training programs and we hope this will be taken up by the students and health staff in effectively communicating the messages of NCD prevention.

The baseline household survey was a huge success because of the support of participants in the survey. We thank all the data collectors and the participants of the baseline survey. The results of the survey will be extremely useful for planning and implementation of various activities related to prevention and control of NCDs in the State.

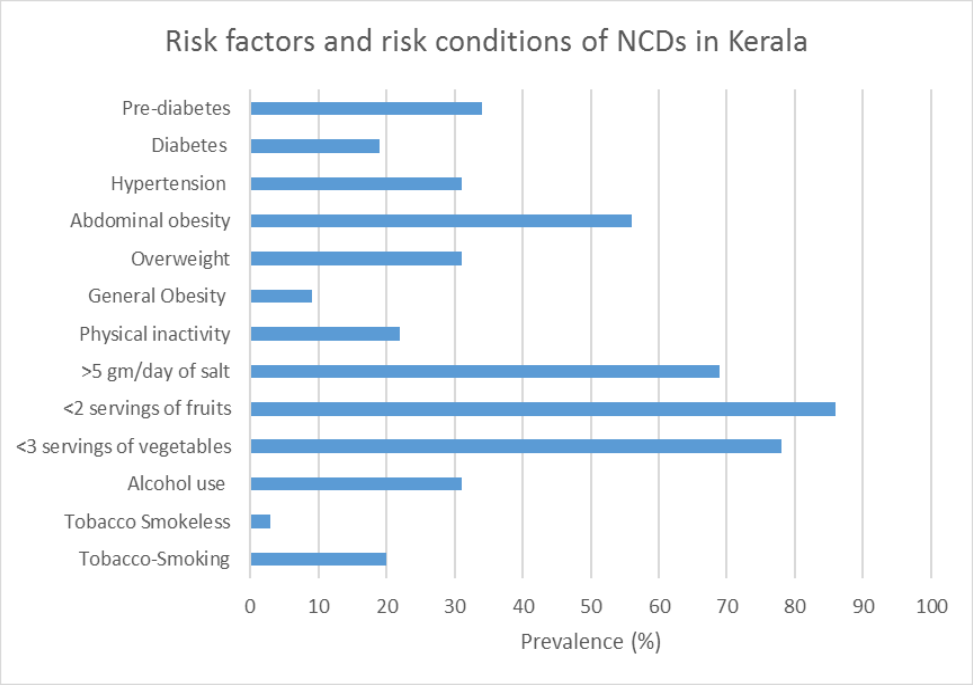
Prevention and Control of non-communicable diseases in Kerala, India

Executive summary of project report

With population ageing and changes in disease patterns, non-communicable diseases (NCDs) such as cardiovascular disease, diabetes, cancer and chronic obstructive pulmonary disease have become the major causes of death and disability in Kerala. Tobacco use, physical inactivity, unhealthy diet and harmful use of alcohol are the main risk factors of NCDs. Reliable state-wide representative data on current prevalence of risk factors and risk conditions such as hypertension and diabetes are required to influence policies for prevention and control of NCDs. In order to generate state level estimates of prevalence of risk factors or risk conditions of NCDs, we conducted a survey in a representative sample of over 12,000 adults. The survey represented both urban and rural areas in Kerala and collected data from all the fourteen districts. We followed the World Health Organization (WHO) recommended methodology for NCD risk factor surveillance. In this community based study, we achieved exceptionally high response rate across Kerala. With the uniform procedure of data collection in all districts, shorter duration of data collection, district level supervision and centralized sample selection and training, we ensured good quality of the data collected.

In adults over 18 years of age, we estimated that on an average nearly one of three and one of five adults in Kerala have hypertension and diabetes, respectively. Additionally, awareness, treatment and control status of both hypertension and diabetes are alarmingly low even in the relatively better educated Kerala population. For example, only 13% and 16% of the individuals with diagnosed hypertension and diabetes achieved adequate blood pressure and blood sugar control status, respectively. This is in comparison to over 50% control rates in the western population. Additionally, among males one of four adults reported current use of some form of tobacco and over 30% reported current alcohol use.

Pre-diabetes is a condition in which blood glucose levels are higher than normal, but not high enough to be classified as full-blown diabetes. Individuals with pre-diabetes are at high risk of developing Type 2 diabetes and also are at increased risk of developing heart disease. Additionally, the conversion of pre-diabetes to diabetes happens much faster in Asian Indians in comparison to other ethnic populations.



Alcohol and tobacco use are mainly seen among males

We find that among adults in the age group of 45-69 years, over two third of the population (67.7%) is either diabetic or pre-diabetic. The disproportionately higher burden of pre-diabetes or diabetes in Kerala calls for urgent policy action to prevent or delay the onset of diabetes at the population level. Context specific, resource sensitive and scalable intervention strategies need to be developed and implemented in Kerala. Intervention studies such as the Kerala Diabetes Prevention Program are highly relevant in this context and such novel community based strategies need to be scaled-up at the population level across Kerala.

We demonstrate reversal of social gradient for diabetes for the first time in India with

higher prevalence in low educated group as compared to individuals with more than high school level education. Individuals with diabetes often require multiple drugs for control of all cardiovascular risk factors including hypertension to prevent life-threatening vascular complications in the future. This will force families and individuals to spend a significant proportion of their family income for health care. The impact of higher spending on health especially in the low socio-economic strata would result in distress financing for health care and catastrophic health spending. It can further push individual and families into poverty. Our data strongly argue for universal health care with provisions for appropriate management of diabetes and hypertension at the primary care level in Kerala. In this context, the policy initiative of Kerala Government to convert primary health care centres as family health centres with evening out-patient clinics and the plan to provide quality treatment in the near neighborhood of affected individuals is a welcome initiative.

We find that the proportion of population consuming salt above the recommended level of 5gm/day is 69% Kerala. More than three fourth of the study population (77.8%) reported consumption of less than the recommended three servings of vegetables per day, while almost 9 of ten participants (86%) reported consumption of less than two servings of fruits per day. Diet evolves over time, being influenced by many factors and complex interactions. Income, food prices (which will affect the availability and affordability of healthy foods), individual preferences and beliefs, cultural traditions, as well as geographical, environmental, social and economic factors all interact in a complex manner to shape individual dietary patterns. Therefore, promoting a healthy food environment, including food systems which promote a diversified, balanced and healthy diet, requires involvement of multiple sectors and stakeholders, including the public and private sector. Creation of coherent state policies to provide incentives for a) producers and retailers to grow, use and sell fresh fruits and vegetables, and b) food industries and small scale food production units in reformulation of food products to reduce the contents of salt, and fats (i.e. saturated fats and trans fats), and other economic disincentives (i.e. taxation)

to promote a healthy diet are very important in curtailing the growing epidemic of NCDs in Kerala. The recent state government policy to impose a fat tax on processed food is a welcome initiative and such strategies need to be extended to curtail high salt and sugar contents of food items.

One of the stated objectives of the NCD project was also to implement risk reduction strategies at 350 selected schools and 200 selected Panchayats in Kerala in the first year of the project. With the help of well-trained district project managers, and several domain experts, we conducted sensitization program for elected representatives of the grama-panchayats and training program for school teachers and students. In total 325 elected representatives and 746 school teachers participated in the sensitization and training programs, respectively. Additionally, we have conducted 2930 orientation sessions for students across 335 schools. In total, 170,487 students attended these health education sessions. Additionally, we have trained 449 health workers in communicating NCD risk reduction strategies to the target population. In addition to the health education classes, school authorities were also instructed to bring structural changes in the schools in order to implement NCD risk reduction strategies in the schools. Such strategies included enforcement of tobacco control laws in the schools, encouraging physical activity in the schools by ensuring play ground and sports goods and cultivation of vegetable gardens in all possible schools.

An additional objective of the NCD project was to assess the perceptions of health administrators and policy makers on the proposed structure and functions of a health protection agency in Kerala. In order to achieve this objective, we conducted several in-depth interviews with key informants. The key themes emerged from the qualitative interviews were as follows; 1) no common understanding of a health protection agency among the respondents, 2) despite divergent views, there is a general agreement on existence of certain gaps/lacunae in the current functioning and delivery of public health in the state, 3) health protection agency as an ombudsman/committee with significant legal powers to address complaints of

maladministration, ensure accountability of interdepartmental actions and public complaints, and scope to commission advisory/task groups to draft policy guidelines, protocols and strategic policies may be helpful in strengthening public health delivery, 4) may be better to reform the current structures and maximize its potential from within the limitations; both financial and human resource/technical expertise related, and 5) newer structures/agencies, uninformed of the nascent equilibrium that has been reached between the public health delivery system and the panchayathi raj institutions, may negate the process of decentralized governance in the state. While agreeing on the lacunae in Public Health functions in the state, experts divulged in their opinion on the structure, powers, and function of the envisaged HPA. Our conclusion is that there needs to be a continuing policy dialogue on this.

Most of the NCDs result in catastrophic health spending and the only option to avoid or reduce this spending is to prevent these NCDs by risk reduction strategies. The decentralized Governments in Kerala in collaboration with health department are in a good position to address the above risk factors in order to prevent or delay the onset of NCDs. Such preventive activities are likely to avoid large number of premature deaths and disability due to NCDs and save huge amounts of money for the individuals, families and the State. In addition to primary prevention strategies, secondary prevention of early detection and prompt management of disease conditions particularly hypertension and diabetes are also essential in order to increase the control rates of these chronic conditions which are now far below the western countries.

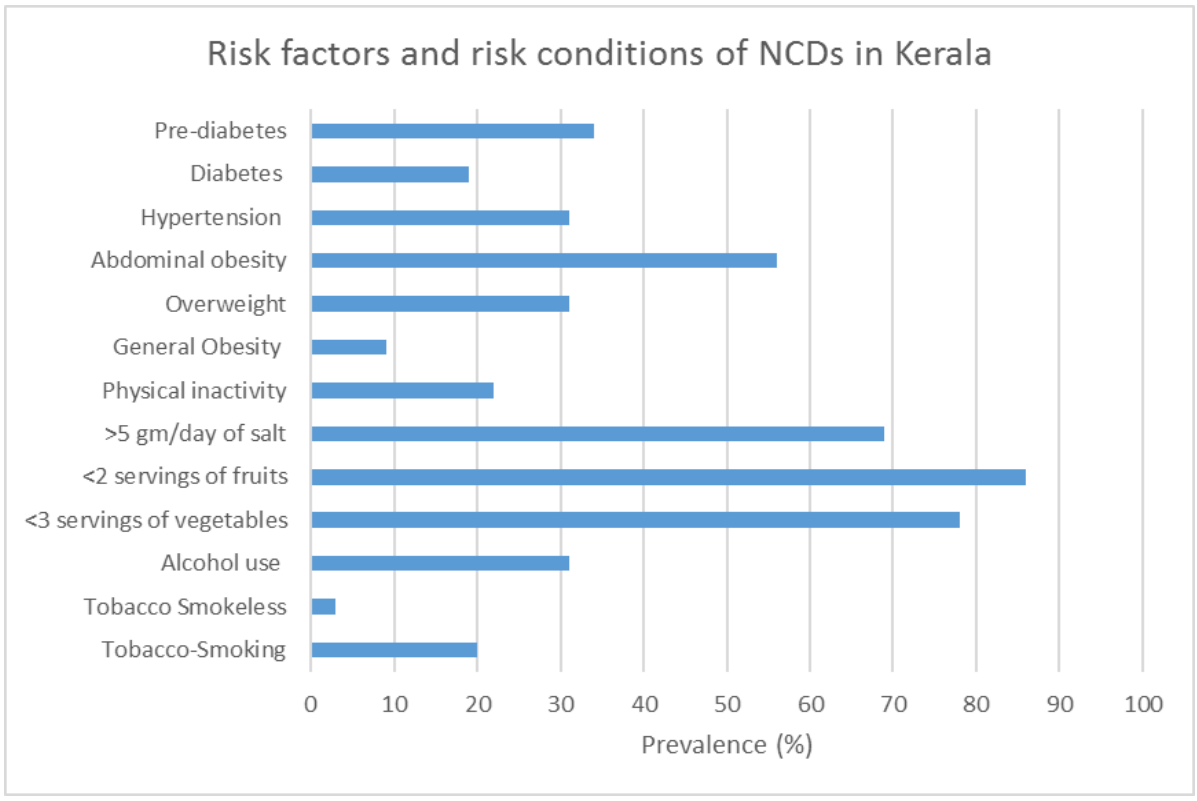
ജീവിതശൈലീരോഗങ്ങളുടെ പ്രതിരോധവും നിയന്ത്രണവും കേരളത്തിൽ

പ്രോജക്ട് റിപ്പോർട്ടിന്റെ സംക്ഷിപ്ത രൂപം

ജനസംഖ്യയിൽ വലിയൊരു ശതമാനത്തിന്റെ പ്രായവർദ്ധനവ് രോഗങ്ങളുടെ ശൈലിയിൽ കാണപ്പെടുന്ന മാറ്റങ്ങൾ എന്നിവമൂലം, അടുത്തകാലത്ത്, കേരളത്തിൽസംഭവിക്കുന്ന മരണങ്ങൾ, ശാരീരികാസ്വാസ്ഥ്യങ്ങൾ തുടങ്ങിയവയ്ക്കുള്ള മുഖ്യകാരണം ജീവിത ശൈലീരോഗങ്ങൾ (Non-communicable diseases, NCD) ആണെന്നസ്ഥിതി സംജാതമായിരിക്കുന്നു. ഹൃദ്രോഗങ്ങൾ, പ്രമേഹം, കാൻസർ, ശ്വാസകോശരോഗങ്ങൾ എന്നിവയാണ് ഇക്കൂട്ടത്തിൽ പ്രമുഖം. പുകയില ഉപയോഗം, ശാരീരികാധ്വാനത്തിന്റെ കുറവ്, അനാരോഗ്യകരമായ ഭക്ഷണക്രമം, അപകടകരമായ മദ്യഉപഭോഗം എന്നിവയാണ് ജീവിതശൈലീരോഗങ്ങളുമായി ബന്ധപ്പെട്ട മുഖ്യ അപകടകാരണങ്ങൾ. ഇത്തരം അപകടകാരണങ്ങളെ സംബന്ധിച്ചും അതുപോലെ തന്നെ രക്താതിസമ്മർദ്ദം, പ്രമേഹം തുടങ്ങിയ അപകടാവസ്ഥകളെ (Risk conditions) ക്കുറിച്ചും സംസ്ഥാന വ്യാപകവും വിശ്വസനീയവുമായ വിവരങ്ങൾ ലഭ്യമാക്കിയെങ്കിൽ മാത്രമേ ജീവിതശൈലീരോഗങ്ങൾ തടയുന്നതിനും (നിയന്ത്രിക്കുന്നതിനും) ആവശ്യമായ നയപരമായ തീരുമാനങ്ങളെ ഫലപ്രദമായി സ്വാധീനിക്കാൻ കഴിയൂ. ജീവിതശൈലീരോഗങ്ങളുമായി ബന്ധപ്പെട്ട അപകടകാരണങ്ങൾ, അപകടസാഹചര്യങ്ങൾ എന്നിവയെ സംബന്ധിച്ച് സംസ്ഥാന വ്യാപകവും വിശ്വസനീയവുമായ വിവരങ്ങൾ ശേഖരിക്കുന്നതിന് ഞങ്ങൾ ഒരു പഠനം സംഘടിപ്പിക്കുകയുണ്ടായി. നമ്മുടെ ജനസംഖ്യയെ ശരിയാംവിധം പ്രതിനിധാനം ചെയ്യത്തക്കവിധം 12000 മുതിർന്ന ആളുകൾക്കിടയിലാണ് പ്രസ്തുത പഠനം നടത്തിയത്. കേരളത്തിലെ നഗരപ്രദേശങ്ങളിൽനിന്നും ഗ്രാമപ്രദേശങ്ങളിൽനിന്നും വിവരശേഖരണം നടത്തുകയുണ്ടായി. അതുപോലെ സംസ്ഥാനത്തെ പതിനാല് ജില്ലകളിലും ഈ പഠനം നടത്തുകയുണ്ടായി.

ജീവിതശൈലീരോഗങ്ങളുമായി (NCD) ബന്ധപ്പെട്ട അപകടസാദ്ധ്യതകൾ പരിശോധിക്കുന്നതിന് ഞങ്ങൾ പിൻതുടർന്നത് ലോകാരോഗ്യസംഘടന (WHO) ശുപാർശ ചെയ്തിട്ടുള്ള രീതിയാണ്. ഞങ്ങൾ പൊതുജനങ്ങൾക്കിടയിൽ നടത്തിയ പഠനത്തിന്, കേരളത്തിലുടനീളം, അത്യന്തം മികച്ച പ്രതികരണമാണ് ലഭിച്ചത്. ജില്ലകളിൽ നിന്ന് ഏകീകൃതമായ രീതിയിലാണ് വിവരങ്ങൾ ശേഖരിച്ചത്. താരതമ്യേന കുറഞ്ഞ സമയത്തിനുള്ളിൽത്തന്നെ വിവരശേഖരണം പൂർത്തിയാക്കാനായി. ജില്ലാതലത്തിൽ പഠനത്തിന് മേൽനോട്ടം നിർവഹിക്കാനും സാമ്പിൾ സിലക്ഷൻ, പരിശീലനം എന്നിവ കേന്ദ്രീകൃതമായി നടത്താനും കഴിഞ്ഞു.

ഞങ്ങളുടെ പഠനമനുസരിച്ച് കേരളത്തിൽ 18 വയസ്സിനു മീതെ പ്രായമുള്ള മുതിർന്നവരിൽ, ശരാശരി, മൂന്നിലൊരാൾക്ക് രക്താതി സമ്മർദ്ദവും അഞ്ചിൽ ഒരാൾക്ക് പ്രമേഹവും ഉണ്ട്. അതിലും അമ്പരപ്പിക്കുന്നകാര്യം, താരതമ്യേന ഭേദപ്പെട്ട വിദ്യാഭ്യാസ നിലവാരമുള്ള ആളുകൾക്കിടയിൽപോലും രക്താതിസമ്മർദ്ദം, പ്രമേഹം എന്നിവ സംബന്ധിച്ചും അവയ്ക്കുള്ള ചികിത്സ, നിയന്ത്രണോപാധികൾ എന്നിവയെക്കുറിച്ചു മുള്ള അറിവ് വളരെ പരിമിതമാണ് എന്ന തായിരുന്നു. ഉദാഹരണമായി കേരളത്തിൽ രക്താതിസമ്മർദ്ദമുണ്ടെന്ന് കണ്ടെത്തിയ വ്യക്തികളിൽ 13 ശതമാനം പേർക്കും പ്രമേഹ മുണ്ടെന്ന് കണ്ടെത്തിയവരിൽ 16 ശതമാനം പേർക്കും മാത്രമാണ് യഥാക്രമം രക്ത സമ്മർദ്ദവും രക്തത്തിലെ പഞ്ചസാരനിലയും നിയന്ത്രണാധീനമാക്കാൻ കഴിഞ്ഞത്. പടി ഞ്ഞാറൻ നാടുകളിൽ സമാന കേസുകളിൽ 50% പേർക്ക് ഇവ നിയന്ത്രണാധീനമാക്കാൻ കഴിയുന്നുണ്ട്. ഇതിനും പുറമെ നമ്മുടെ സംസ്ഥാനത്തുള്ള പുരുഷന്മാരിൽ അഞ്ചി ലൊരാൾ വീതം ഇപ്പോഴും ഏതെങ്കിലും തരത്തിലുള്ള പുകയില ഉപയോഗക്കാരാണ്, 30 ശതമാനം പേർ മദ്യം ഉപയോഗിക്കുന്ന വരും



*പുകവലിയും മദ്യപാനവും പ്രധാനമായും പുരുഷന്മാർക്കിടയിലാണ് കണ്ടുവരുന്നത്

പ്രമേഹപൂർവ്വാവസ്ഥ എന്നാൽ രക്തത്തിലെ പഞ്ചസാരയുടെ അളവ് സ്വാഭാവിക അളവിനേക്കാൾ (നോർമ്മൽ) കൂടിയിരിക്കുകയും എന്നാൽ പൂർണ്ണമായും പ്രമേഹ

ബാധയുണ്ട് എന്ന് പറയാവുന്ന അവസ്ഥയിൽ എത്താതിരിക്കുകയും ചെയ്യുന്ന അവസ്ഥയാണ്. പ്രമേഹപൂർവ്വാവസ്ഥയിൽ എത്തിനിൽക്കുന്ന വ്യക്തികൾ Type 2 പ്രമേഹം ബാധിക്കാനും, അതുപോലെ ഹൃദ്രോഗ ബധിതരാകാനും സാദ്ധ്യതയുള്ളവരാണ്.

ഇതിനും പുറമെ കണക്കിലെടുക്കേണ്ടുന്ന ഒരു വസ്തുതയുണ്ട്. പ്രമേഹപൂർവ്വാവസ്ഥയിൽനിന്ന് പ്രമേഹാവസ്ഥയിലേക്കുള്ള പരിവർത്തനം മറ്റ് ജനസംഖ്യാവിഭാഗങ്ങളെ അപേക്ഷിച്ച്, ഏഷ്യയിലെ ഇന്ത്യക്കാരിൽ വളരെ വേഗത്തിൽ സംഭവിക്കുന്നു എന്ന വസ്തുതയാണിത്. നമ്മുടെ പഠനം കാണിക്കുന്നത് 45-69 വയസ്സുകാരായവരിൽ മൂന്നിൽ രണ്ടുപേരും (67.7% പേർ) പ്രമേഹപൂർവ്വാവസ്ഥയിലോ അല്ലെങ്കിൽ പ്രമേഹം ബാധിച്ചവരോ ആണ്. പ്രമേഹപൂർവ്വാവസ്ഥയിലോ പ്രമേഹാവസ്ഥയിലോ ഉള്ളവരുടെ ഈ ബാഹുല്യം അടിയന്തിരമായ ഇടപെടലുകൾവഴി പ്രമേഹസാദ്ധ്യത കുറയ്ക്കുകയോ തടയുകയോ ചെയ്യേണ്ടത് അത്യന്താപേക്ഷിതമാക്കിത്തീർത്തിരിക്കുന്നു. ഈ രംഗത്ത് അടിയന്തിരമായ നയപരമായ ഇടപെടലുകൾ കൂടിയേ തീരൂ. സവിശേഷമായ സാഹചര്യങ്ങൾക്ക് അനുയോജ്യമായ, വിഭവവിനിയോഗത്തെക്കുറിച്ച് തികഞ്ഞ ബോധ്യമുള്ള, വ്യക്തമായി അളന്നു തിട്ടപ്പെടുത്താൻ കഴിയുന്നതരം ഇടപെടൽ രീതികൾ കേരളത്തിൽ വികസിപ്പിച്ചെടുക്കുകയും നടപ്പിലാക്കുകയും ചെയ്യേണ്ടതുണ്ട്. ഇത്തരമൊരു പശ്ചാത്തലത്തിൽ Kerala Diabetes Prevention Program പോലുള്ള പദ്ധതികൾ അത്യന്തം പ്രസക്തമായിത്തീരുന്നു. ഇത്തരം പരിപാടികൾ കേരളത്തിലുടനീളം നടപ്പിലാക്കാൻ കഴിയുംവിധം വിപുലപ്പെടുത്തേണ്ടതും അത്യാവശ്യമാണ്.

ഇന്ത്യയിൽ ആദ്യമായി പ്രമേഹരോഗവുമായി ബന്ധപ്പെട്ട് സാമൂഹ്യസാഹചര്യങ്ങളിൽ ചില വിപരീതവ്യതിയാനങ്ങൾ എടുത്തുകാണിക്കാൻ ഞങ്ങൾക്ക് കഴിയുകയുണ്ടായി. വിദ്യാഭ്യാസത്തിന്റെ കാര്യത്തിൽ പിന്നോക്കം നിൽക്കുന്ന വിഭാഗങ്ങൾക്കിടയിൽ ഹൈസ്കൂൾ തലത്തിലേറെ വിദ്യാഭ്യാസമുള്ളവരെ അപേക്ഷിച്ച് കൂടുതൽ പ്രമേഹരോഗികൾ കാണപ്പെട്ടു. പ്രമേഹരോഗമുള്ള വ്യക്തികൾക്ക്, സാധരണഗതിയിൽ ഒന്നിലേറെ മരുന്നുകൾ കഴിക്കേണ്ടി വരാറുണ്ട്. ഹൃദയപേശീസംബന്ധമായ രോഗങ്ങൾ, ജീവാപായത്തിനുപോലും കാരണമായേക്കാവുന്ന ഹൃദ്രോഗസാദ്ധ്യതകൾ ഇവ ഒഴിവാക്കാൻ രക്താതിസമ്മർദ്ദവും മറ്റും തടയേണ്ടതുണ്ട്. തന്മൂലം വരുമാനത്തിന്റെ നല്ലൊരു ഭാഗം ചികിത്സയ്ക്കായി ചെലവാക്കാൻ ഇത്തരം വ്യക്തികളും കുടുംബങ്ങളും നിർബന്ധിതരാകുന്നു. ആരോഗ്യകാര്യങ്ങൾക്കു വേണ്ടി കൂടുതൽ പണം ചെലവഴിക്കേണ്ടിവരുന്നത് താഴ്ന്ന സാമൂഹിക സാമ്പത്തിക നിലകളിലുള്ളവരെ ഗൗരവതരമായി ബാധിക്കുകയും അവരെ

കൂടുതൽ ദാരിദ്ര്യത്തിലേക്ക് തള്ളി വിടുകയും ചെയ്യുന്നു. കേരളത്തിൽ പ്രാഥമിക തലത്തിൽ തന്നെ അനുയോജ്യമായ വിധത്തിൽ രക്താതിസമ്മർദ്ദവും പ്രമേഹവും തടയാനും ചികിത്സിക്കാനും വേണ്ട സംവിധാനങ്ങൾ ഏർപ്പെടുത്തേണ്ടതാണ്. ഈ പശ്ചാത്തലത്തിൽ, കേരളത്തിലെ പ്രാഥമിക ആരോഗ്യ കേന്ദ്രങ്ങളെ കുടുംബാരോഗ്യ കേന്ദ്രങ്ങളാക്കി മാറ്റുവാനും അവിടെ സായംകാല ഔട്ട് പേഷ്യന്റ് ക്ലിനിക്കുകൾ ഏർപ്പെടുത്തി ചുറ്റുവട്ടത്തുള്ള രോഗികൾക്ക് മികച്ച ചികിത്സാ സൗകര്യങ്ങൾ ഏർപ്പെടുത്താനും ഉള്ള കേരള സർക്കാരിന്റെ നയപരമായ തീരുമാനങ്ങൾ ഏറെ സ്വാഗതാർഹമായിത്തീരുന്നു.

കേരളത്തിൽ വിദഗ്ധർ നിർദ്ദേശിക്കുന്നതിനേക്കാൾ കൂടിയ അളവിൽ (5ഗ്രാം/ദിനം) ഉപ്പു കഴിക്കുന്നവരുടെ എണ്ണം 69% ആണെന്ന് ഞങ്ങളുടെ പഠനം വ്യക്തമാക്കുന്നു. അതു പോലെ, പഠനവിധേയമാക്കിയവരിൽ മുക്കാൽ ഭാഗത്തിലേറെപ്പേർ (77.8%) പ്രതിദിനം മൂന്നു കപ്പിൽ കുറവ് (<3 servings) പച്ചക്കറി മാത്രമേ കഴിക്കുന്നുള്ളൂവെന്നും പത്തിൽ ഒമ്പതു പേർ (86%) രണ്ടുകപ്പിൽ കുറവ് (<2 servings) പഴങ്ങൾ മാത്രമേ കഴിക്കുന്നുള്ളുവെന്നും വ്യക്തമാകുന്നു. ഭക്ഷണ ശീലങ്ങൾ കാലക്രമത്തിൽ രൂപം കൊണ്ടു വരുന്നതാണ്. അനേകം ഘടകങ്ങളും സങ്കീർണ പ്രതിപ്രവർത്തനങ്ങളുമെല്ലാം അതിനെ സ്വാധീനിക്കുന്നുണ്ട്. വരുമാനം, ഭക്ഷ്യ വസ്തുക്കളുടെ വില (ഇത് ആരോഗ്യകരമായ ഭക്ഷ്യവസ്തുക്കളുടെ ലഭ്യതയെയും ഉപഭോഗ സാധ്യതയെയും സ്വാധീനിക്കുന്നു), വ്യക്തിപരമായ ഇഷ്ടാനിഷ്ടങ്ങൾ, വിശ്വാസങ്ങൾ, സാംസ്കാരിക പാരമ്പര്യങ്ങൾ ഇവയൊക്കെ ഭക്ഷ്യരീതിയെ സ്വാധീനിക്കുന്നു. ഇതിനു പുറമെ ഭൂമിശാസ്ത്രപരവും പാരിസ്ഥിതികവും സാമ്പത്തികവുമായ ഘടകങ്ങൾ വ്യകതിയുടെ ആഹാരശൈലിയെ രൂപപ്പെടുത്തുന്നതിൽ സങ്കീർണമാംവിധം പ്രതിപ്രവർത്തിക്കുന്ന ഘടകങ്ങളാണ്. തന്മൂലം ആരോഗ്യകരമായ ഒരു ആരോഗ്യപരിസ്ഥിതി രൂപപ്പെടുത്തി എടുക്കുകയും അതുവഴി വൈവിധ്യപൂർണവും സന്തുലിതവും ആരോഗ്യകരവും ആയ ഒരു ആഹാരരീതി പ്രോത്സാഹിപ്പിക്കുകയും ചെയ്യുന്നതിന് സർക്കാരും പൊതുജനങ്ങളും സ്വകാര്യമേഖലയുമടക്കം അനേകം തൽപ്പരകക്ഷികളും വിഭിന്ന മേഖലകളും സഹകരിച്ചേ മതിയാവൂ. ഇത് സാധ്യമാകണമെങ്കിൽ a. പുതുമ നശിക്കാത്ത പഴങ്ങളും പച്ചക്കറികളും ഉത്പാദിപ്പിച്ച് വിൽപനയ്ക്കെത്തിക്കുകയും ഉപയോഗിക്കുകയും ചെയ്യുന്ന ഭക്ഷ്യോത്പാദകരേയും ചെറുകിട ഉത്പാദകരേയും അതുപോലെ b. ഭക്ഷ്യവസ്തുക്കളിലെ ഉപ്പിന്റെയും കൊഴുപ്പിന്റെയും (അതായത് സാന്ദ്രീകൃത കൊഴുപ്പ് ട്രാൻസ്ഫാറ്റ് എന്നിവ) അളവുകുറച്ചുകൊണ്ട് ഭക്ഷ്യപദാർഥങ്ങൾ പുനരാവിഷ്കരിക്കുന്ന ഭക്ഷ്യോത്പാദകരെയും അനുയോജ്യമാംവിധം പ്രോത്സാഹിപ്പിക്കുന്ന സർക്കാർ നയങ്ങൾ പ്രധാനമാവുന്നു. ഇതിനെതിരായി പ്രവർത്തിക്കുന്നവയെ വർദ്ധിച്ച നികുതിയിലൂടെയും മറ്റും പിന്തിരിപ്പിക്കുന്നതിനുള്ള നടപടികളും മറ്റും പ്രധാനമാണ്. ഇവയെല്ലാം കേരളത്തിൽ ഇന്ന് വ്യാപകമായിക്കൊണ്ടിരിക്കുന്ന ജീവിതശൈലീരോഗങ്ങളുടെ

(NCD) നിയന്ത്രണാതീതമായ വളർച്ചയെ തടയാൻ അനിവാര്യമണ്. നിർമ്മിത ഭക്ഷ്യ വസ്തുക്കൾക്ക് കൊഴുപ്പ് ടാക്സ് (Fat Tax) ഈടാക്കുന്നതിന് കേരളസർക്കാർ സ്വീകരിച്ച നിലപാട് ഈ പശ്ചാത്തലത്തിൽ ഏറെ സ്വാഗതാർഹമാണ്. ഈ തന്ത്രം ഉയർന്ന അളവിൽ ഉപ്പ്, പഞ്ചസാര എന്നിവ അടങ്ങിയ ഭക്ഷ്യവസ്തുക്കളുടെ വ്യാപനം തടയുന്നതിനുകൂടി പ്രയോജനപ്പെടുത്താവുന്നതാണ്.

NCD പദ്ധതിയുടെ മറ്റൊരു പ്രഖ്യാപിത ലക്ഷ്യം കേരളത്തിലെ തിരഞ്ഞെടുത്ത 350 സ്കൂളുകളിലും 200 പഞ്ചായത്തുകളിലും നടപ്പാക്കാൻ പോകുന്ന അപകട നിവാരണ തന്ത്രങ്ങളാണ്. ഈ പഞ്ചായത്തുകളിലെ ജനപ്രതിനിധികൾക്കായി ഞങ്ങൾ പ്രത്യേക സംവേദനാസദസ്സുകൾ സംഘടിപ്പിക്കുകയുണ്ടായി. അതുപോലെ തിരഞ്ഞെടുത്ത സ്കൂളുകളിലെ അദ്ധ്യാപകർക്കും വിദ്യാർത്ഥികൾക്കുമായി പരശീലനപരിപാടികളും. വിദഗ്ധപരിശീലനം ലഭിച്ചിട്ടുള്ള ജില്ലാ പ്രോജക്ട് മോനേജർമാരുടെ നേതൃത്വത്തിലാണ് ഈ പരിപാടികൾ ആവിഷ്കരിച്ചു നടപ്പാക്കിയത്. മൊത്തം 325 തെരഞ്ഞെടുക്കപ്പെട്ട ജനപ്രതിനിധികളും 746 സ്കൂൾ അദ്ധ്യാപകരും ഈ ആരോഗ്യവിദ്യാഭ്യാസ പരിപാടികളിൽ പങ്കാളികളായി. ഇതിനു പുറമേ ഞങ്ങൾ കുട്ടികൾക്കായി 2930 ആരോഗ്യവിദ്യാഭ്യാസ പരിപാടികളും (335 സ്കൂളുകളിൽ) സംഘടിപ്പിക്കുകയുണ്ടായി. മൊത്തത്തിൽ ഇതുവരെയായി, 1,70,487 വിദ്യാർത്ഥികൾ ഈ ആരോഗ്യ വിദ്യാഭ്യാസ പരിപാടിയിൽ പങ്കാളികളായി. ഇതിനും പുറമേ പ്രശ്നബാധിതരായ ജനങ്ങളിലേക്ക് NCD യുമായി ബന്ധപ്പെട്ട അപകടങ്ങൾ സംബന്ധിച്ചുള്ള സന്ദേശങ്ങൾ എത്തിക്കുന്നതിന് 449 ആരോഗ്യപ്രവർത്തകരെ ഞങ്ങൾ പരിശീലിപ്പിക്കുകയുണ്ടായി. ഇപ്പറഞ്ഞ ആരോഗ്യക്ളാസുകൾക്കു പുറമേ, NCD യുമായി ബന്ധപ്പെട്ട അപകടസാദ്ധ്യതകൾ ഒഴിവാക്കാൻ കഴിയും വിധം സ്കൂളുകളിൽ ഘടനാപരമായ മാറ്റങ്ങൾ വരുത്തുവാൻ സ്കൂൾ അധികാരികൾക്ക് നിർദ്ദേശം നൽകുകയുണ്ടായി. സ്കൂൾ പരിസരത്ത് പുകവലി നിരോധിക്കുന്നതു സംബന്ധിച്ചുള്ള നിയമങ്ങൾ കർശനമായി നടപ്പിലാക്കുക, കളിസ്ഥലങ്ങളും കളിക്കാനുള്ള സാമഗ്രികളും മറ്റും ലഭ്യമാക്കിക്കൊണ്ട് കായിക സംസ്കാരത്തെ പ്രോത്സാഹിപ്പിക്കുക, സാദ്ധ്യമായ സ്കൂളുകളിലെല്ലാം പച്ചക്കറിത്തോട്ടങ്ങൾ ആരംഭിക്കുക മുതലായവ ഇതിൽപ്പെടുന്നു.

NCD പ്രോജക്ടിന്റെ മറ്റൊരു ഉദ്ദേശ്യം, കേരളത്തിൽ ഒരു ആരോഗ്യ സുരക്ഷാ ഏജൻസി (Health Protection Agency) സ്ഥാപിക്കുക എന്ന സർക്കാരിന്റെ നിർദ്ദേശത്തെക്കുറിച്ച് ആരോഗ്യരംഗത്തെ ഭരണാധികാരികളും നയരൂപീകരണത്തിനു ചുമതലപ്പെട്ടവരും എന്തെല്ലാം കാഴ്ചപ്പാടുകൾ വച്ചുപുലർത്തുന്നു എന്നു വിലയിരുത്തുക എന്നതുകൂടിയായിരുന്നു. ഈ ഉദ്ദേശ്യം വച്ചുകൊണ്ട് ഞങ്ങൾ നിരവധി പ്രമുഖ വ്യക്തികളുമായി ആഴത്തിലുള്ള അഭിമുഖ സംഭാഷണങ്ങൾ നടത്തുകയുണ്ടായി. ഈ അഭിമുഖ സംഭാഷണങ്ങളിൽനിന്ന് ഉരുത്തി

രിഞ്ഞുവന്ന മുഖ്യമായ വിവരങ്ങൾ ഇവയാണ്. 1) നിർദ്ദിഷ്ട ആരോഗ്യ സുരക്ഷാ ഏജൻസിയെക്കുറിച്ച് പ്രതികരിച്ച ആളുകൾ ക്കിടയിൽ പൊതുവായ ഒരു ധാരണയല്ല ഉള്ളത്. 2) അഭിപ്രായങ്ങളിൽ ഏറെ വ്യത്യസ്തത ഉണ്ടെങ്കിലും ഇന്നത്തെ പൊതു ജനാരോഗ്യ വ്യവസ്ഥയിൽ ചില വിടവുകളും തകരാറുകളും ഉള്ളതായി ഒരു പൊതു അഭിപ്രായം ഉയർന്നുവന്നു. 3) നിർദ്ദിഷ്ട ആരോഗ്യ സുരക്ഷാ ഏജൻസി, ഭരണപരമായ വീഴ്ചകൾ സംബന്ധിച്ചുള്ള ആക്ഷേപങ്ങളിൽ ശക്തമായി ഇടപെടാൻ ആവശ്യമായ നിയമാ ധികാരങ്ങളും അതുപോലെ ഡിപ്പാർട്ട്മെന്റ് ഘടകങ്ങൽ തമ്മിലുണ്ടാകുന്ന തർക്ക ങ്ങളിലും പൊതുജനങ്ങളുടെ പരാതികളിലും ശക്തമായി ഇടപെടാൻ ആവശ്യമായ ആധി കാരികതയും അതുപോലെ നയപരമായ മാർ ഗ്ഗനിർദ്ദേശങ്ങൾ/പ്രോട്ടോക്കോളുകൾ ഇവ പരിപാലിക്കപ്പെടുന്നുണ്ടോ എന്നു മനസ്സി ലാക്കുന്നതിന് ഉപദേശകസമിതികൾ/ടാസ്ക് ഗ്രൂപ്പുകൾ എന്നിവയെ നിയോഗിക്കുവാൻ അധികാരമുള്ളതുമായ ഒരു ഓംബുഡ് സ്മാൻ/കമ്മിറ്റി ആയി പ്രവർത്തിക്കുക യാണെങ്കിൽ നമ്മുടെ പൊതുജനാരോഗ്യ രംഗത്തെ ശക്തിപ്പെടുത്താൻ കഴിഞ്ഞേക്കും എന്ന അഭിപ്രായം ഉയർന്നുവന്നു. 4) നില വിലുള്ള ഘടനകളെ കുറവുതീർത്ത്, ആന്തരികമായി മെച്ചപ്പെടുത്തുകയും പരിമി തികൾ വച്ചുകൊണ്ടുതന്നെ അതുകൊണ്ടുള്ള നേട്ടങ്ങൾ പരമാവധിയാക്കിതീർക്കാൻ ശ്രമി ക്കുകയും ചെയ്യുന്നതായിരിക്കും നല്ലത്. ഇങ്ങിനെ ചെയ്യുമ്പോൾ സാമ്പത്തികവും സാങ്കേതികവും/ മനുഷ്യവിഭവശേഷി പരവുമായ ഘടകങ്ങൾ കണക്കിലെടുക്കേ ണ്ടുന്നതാണ്. 5) കേരളത്തിലെ പൊതുജനാ രോഗ്യസംവിധാനവും പഞ്ചായത്ത് രാജ് സ്ഥപനങ്ങളും തമ്മിൽ ഉണ്ടാക്കിയെടു ത്തിട്ടുള്ള തനതായ പ്രവർത്തന സംതുലിതാ വസ്ഥയെക്കുറിച്ച് ഒരു ധാരണയുമില്ലാത്ത പുതിയ ഘടനകളും/ഏജൻസികളും മറ്റും രൂപീകരിക്കുന്നത് ഇന്നത്തെ ഭരണത്തിന്റെ വികേന്ദ്രീകൃത സ്വഭാവത്തെ പ്രതികൂലമായി ബാധിക്കാനാണ് സാദ്ധ്യത. സംസ്ഥാനത്തെ പൊതുജനാരോഗ്യ പ്രവർത്തനങ്ങളുടെ ന്യൂനതകളെക്കുറിച്ച് യോജിക്കുമ്പോൾ തന്നെ ആരോഗ്യസുരക്ഷാ ഏജൻസിയുടെ ഘടന, അധികാരങ്ങൾ, പ്രവർത്തനങ്ങൾ എന്നിവയെ ക്കുറിച്ച് വിദഗ്ധർക്ക് യോജിപ്പുണ്ടായിരു ന്നില്ല. അതിനുവേണ്ടിയുള്ള നയപരമായ ചർച്ചകൾ തുടരേണ്ടതുണ്ട്.

മിക്ക NCD കളും വൻതോതിലുള്ള ചികിത്സാചിലവുകൾക്ക് കാരണമാകുന്നവ യാണ്. ഈ ചെലവ് ഒഴി വാക്കാനോ കുറക്കാനോ ഉള്ള ഒരേ ഒരു മാർഗ്ഗം, ഈ രോഗങ്ങളുമായി ബന്ധപ്പെട്ട അപകടസാഹ ചര്യങ്ങൾ/അവസ്ഥകൾ പരമാ വധി കുറയ്ക്കുക എന്നതാണ്. കേരളത്തിലെ വികേന്ദ്രീകൃത പ്രാദേശിക ഭരണ സംവി ധാനങ്ങൾ, ഈ അപകടസാഹചര്യങ്ങൾ കണ്ടെത്തി ഒഴിവാക്കുന്നതിനും അവയുടെ വരവ് വൈകിപ്പിക്കാനും വേണ്ട പ്രവർത്ത നങ്ങൾ മെച്ചപ്പെട്ട രീതിയിൽ ഏറ്റെടുക്കാൻ കഴിയുന്ന അവസ്ഥയിലാണ്. പ്രാദേശിക ഭരണകൂടങ്ങൾ ഈ രംഗത്ത് ഫലപ്രദമായി പ്രവർത്തിക്കുന്നതിന്റെ ഫലമായി NCD

കൾമൂലം സംഭവിക്കുന്ന നിരവധി അകാല മരണങ്ങൾ തടയാനും വ്യക്തികൾക്കും കുടുംബങ്ങൾക്കും സംസ്ഥാനസർക്കാരിനും വരുന്ന ഭീമമായ പണച്ചെലവ് ഒഴിവാക്കാനും സാധ്യമാവുന്നു. പ്രാഥമികതലത്തിലുള്ള രോഗപ്രതിരോധ തന്ത്രങ്ങൾക്കുപുറമേ രോഗാവസ്ഥ നേരത്തെ കണ്ടുപിടിച്ച് ചികിത്സിക്കുന്ന ദ്വിതീയ ചികിത്സാസംവിധാനങ്ങളും പ്രധാനമാണ്. രക്താതിസമ്മർദ്ദം, പ്രമേഹം എന്നിവയുടെ വർദ്ധിച്ചുവരുന്ന നിരക്കും അവമൂലമുണ്ടാകുന്ന സങ്കീർണ്ണതകളും കുറച്ചുകൊണ്ടുവരുന്നതിന് ഇത് ഏറെ പ്രധാനമാണ്. ഇവയുടെ നിയന്ത്രണത്തിന്റെ കാര്യത്തിൽ ഇപ്പോൾ നാം പാശ്ചാത്യരാജ്യങ്ങളെ അപേക്ഷിച്ച് വളരെ താഴെയാണ് എന്ന് ഓർക്കണം.

Chapter 1
Introduction

Burden of Non-communicable Diseases in India

The WHO estimates of 2010 for India indicated an estimated 60% of all deaths attributed to NCDs in India. The Global Burden of Disease 2010 estimates for India show an increase in DALYS for ischemic heart disease, stroke, diabetes, chronic obstructive pulmonary disease and cancer. The leading burden of disease attributable to the major risk factors in 2010 included tobacco use, high blood pressure, high fasting blood glucose, alcohol use, physical inactivity, high body mass index and high cholesterol. Several surveys and studies have shown the high prevalence of risk factors like tobacco use, alcohol consumption, low intake of fruits and vegetables, physical inactivity, high blood pressure, elevated blood glucose levels, overweight and obesity in the population. The key determinants driving these risk factors include low levels of education, poverty, inadequate spaces for physical activity etc.

Burden of Non-communicable Diseases in Kerala

Non-communicable diseases such as cardiovascular diseases, cancers, diabetes and chronic lung diseases are on the rise in Kerala. The age adjusted prevalence of definite coronary artery disease increased from 1.4% in 1993 to 3.5% in 2011 (Krishnan MN, et al 2015). Incidences of cancers are one of the highest in Trivandrum and Kollam among all the major Cancer registries in India and the cancer burden in the state is extremely high due to the higher proportion of elderly population in the state. The prevalence of diabetes was reported to be 20.6% in rural Kerala, which is the highest prevalence of diabetes in any rural areas in India (Thankappan KR et al 2010). Chronic Obstructive Pulmonary Disease (COPD) among adult men was reported to be 5.9% and 4% among women in Kerala (Menon J et al 2014).

Major risk factors of NCDs such as tobacco use, alcohol use, physical inactivity and unhealthy diet are also highly prevalent in

the state. Current smoking was 28% among adult men which is higher than the national average of 24% (GATS 2009-10). Current smokeless tobacco in the state was 13% among men and 9% among women. Current alcohol use was 31.1% among men and 0.5% among women (Thankappan KR, et al 2010). Forty seven percent of adults reported low fruits and vegetable consumption (< 5 servings of fruits and vegetable per day) (Thankappan KR, et al 2010). Physical inactivity among women was reported to be 26.6% (Mathews et al 2015). Abdominal obesity among women was reported to be 52.2% and that of men 25.9%. High total cholesterol was 61.5% for women and 51.4% for men (Thankappan KR et al 2010)

National response to Non-communicable Diseases

The National Program on Prevention and Control of Cancer, Diabetes, Cardiovascular-diseases and Stroke (NPCDCS) was initiated to address the major non communicable diseases and their risk factors in India. The program coverage is expected to include all districts across India during the course of the 12th Five-Year Plan. The program components include: (i) establishment /strengthening of health infrastructure; (ii) early diagnosis and treatment; (iii) human resource development; (iv) health promotion; and (v) monitoring, surveillance and research.

As a follow up to the High Level UN Summit of NCDs in September 2011 the World Health Assembly, in May 2013, adopted the comprehensive global NCD monitoring framework, including a set of 9 targets and their 25 indicators capable of application across regional and country settings to monitor trends and to assess progress made in the implementation of national strategies and plans on NCDs. Several national and sub-national level consultations with key stakeholders were organized by Ministry of Health and Family Welfare, Government of India with support from the WHO Country Office for India, to discuss and finalize the national NCD targets and indicators. There are 10 NCD targets and 21 indicators adopted by the Ministry of Health and Family Welfare, Govt. of India. The year 2010 will serve as a baseline for assessing progress made for achieving the NCD targets in 2015, 2020

and 2025. The list of 10 targets and 21 indicators are given in annexure 1.

The WHO has recommended surveillance of NCD risk factors every 3 to 5 years in order to assess the progress of implementation of NCD risk reduction strategies. Although a few studies have reported the prevalence of NCD risk factors in Kerala they were not based on a representative sample from the state. The Indian Council of Medical Research (ICMR) conducted a survey on NCD risk factors in 7 states including Kerala in the year 2007-08. (http://www.icmr.nic.in/final/IDSP-NCD%20 Reports/Phase1%20States%20of%20India.pdf) This survey did not include any of the STEP 3 parameters of the WHO STEPs surveillance. Moreover there was no comprehensive survey after 2008. Therefore there is a need for NCD risk factor survey for the entire state of Kerala to see the prevalence of NCD risk factors. We decided to conduct the survey of NCD risk factors in rural and urban areas of the state.

Based on the recommendation of the Kerala State Planning Board the Kerala State Public Protection agency was formed in the year 2014 and budget of Rs. 10 crores was allocated from this. However there was lack of clarity to the structure and function of the Health Protection Agency in Kerala. Therefore we wanted to undertake a qualitative study by interviewing key stakeholders to understand the structure and function of the health protection agency.

In addition to the NCD risk factor survey and the qualitative study on the structure and function of the Health Protection agency we implemented NCD risk reduction strategies in 20 % of the schools and village panchayaths in the state.

The following were the objectives of this project:

Objectives

1. To generate state level estimates of key NCD risk factors.
2. To study the structure and function of proposed health protection agency in Kerala
3. Implementation of NCD risk reduction strategies at 350 selected schools (25 per district) in the state.
4. Implementation of NCD risk reduction strategies in approximately 200 Panchayats/ municipalities/ corporations in Kerala

Chapter 2
Quantitative Survey

NCD risk factor survey

In order to generate state level prevalence estimates of key NCD risk factors (e.g., tobacco and alcohol use, hypertension and diabetes), a cross sectional survey was conducted across Kerala. We followed the national guidelines for NCD risk factor survey prepared under the leadership of Indian Council of Medical Research (ICMR). The tools were adapted suitably in the local context and translated into Malayalam. The data were collected using personal digital assistants (PDAs) by trained investigators.

Sample size

Based on the national recommendation, the sample size to estimate statewide prevalence of NCD risk factors was 7200 adults (20-69 years) and 4800 adolescents (15-19 years). Based on the urban-rural distribution of population in Kerala, we selected equal proportion of sample from urban and rural areas. As the sex ratio in Kerala is almost 1 (1084 females for 1000 males), we expected equal proportion of men and women. We estimated that, in a sample of 12000 households in Kerala, a total of 48000 persons were expected (assuming 4 persons per household) in the age group of 15-69 years. Given that the population proportion in Kerala in the age group of 15-19 years is about 10% of the total population (all ages), we expected 4800 adolescents from 12,000 households. Multistage stratified cluster sampling strategy was used to select the households.

Study settings

The survey was conducted in all the 14 districts of Kerala, in rural and urban areas. In each district data were collected from 2 urban sites and 3 rural sites. The detailed listing is given in Annexure 2. The primary sampling units were local self-government institutions such as municipal corporations or municipalities in urban sites and grama panchayaths in rural sites. There were only 6 municipal corporations in the whole State and they were located in six different districts. There were 1 to 11 municipalities in one district. All municipal corporations were selected as urban sites. In addition, in

each district, one municipality or two municipalities (if there is no municipal corporation) were also selected as urban sites. Two districts had only one municipality each and they had no municipal corporations. In these districts only one urban site could be selected.

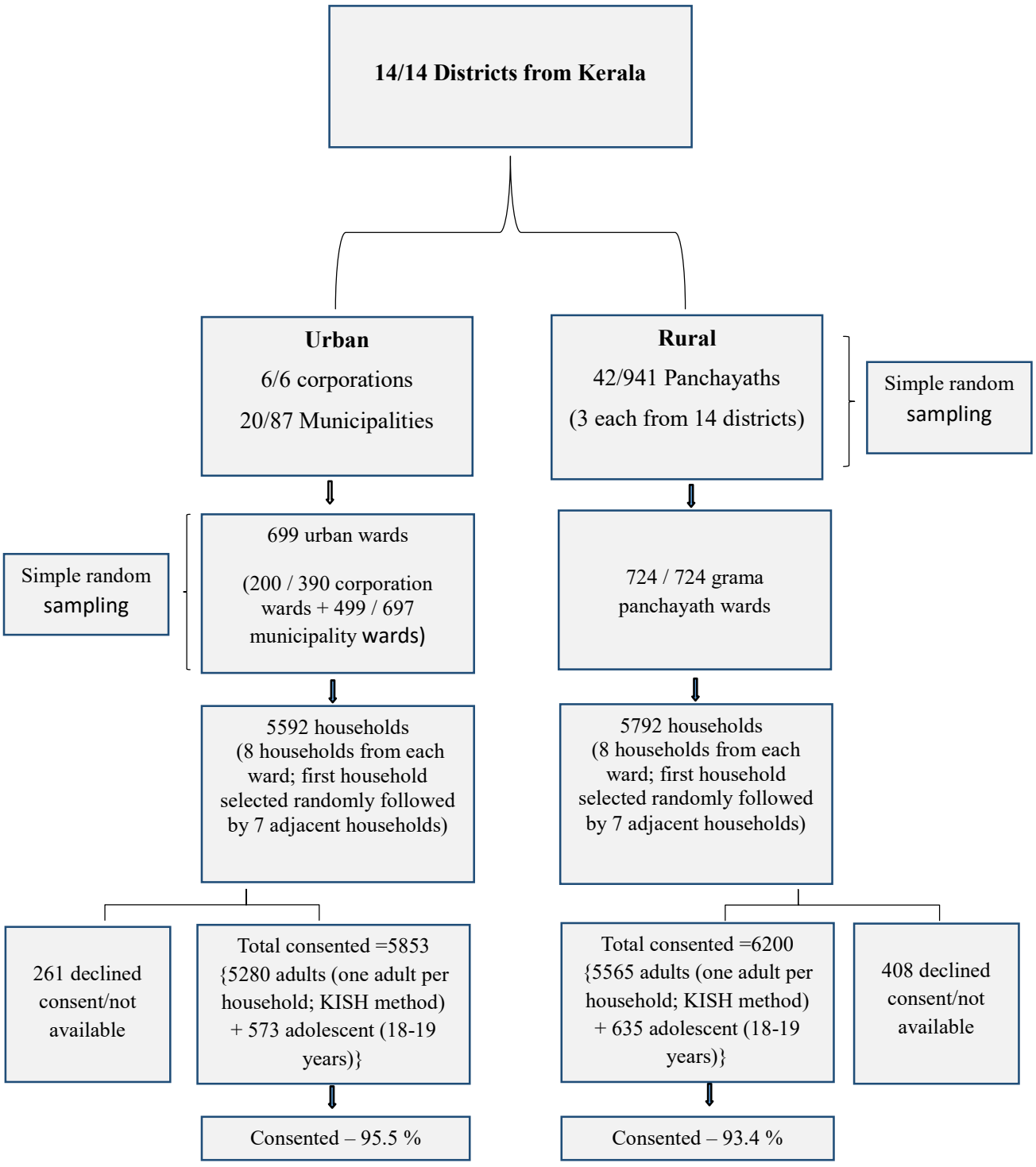
Initially, we enlisted all municipalities and Panchayaths in each district. Computer generated random numbers were used to randomly select Municipalities as urban sites and grama panchayaths as rural sites. Three panchayats were randomly selected in all the districts irrespective of the total number of panchayats in that district. There were 52 to 100 ward divisions in each Municipal Corporation, 16 to 52 ward divisions in each municipality and 13 to 23 ward divisions in each grama panchayaths. All ward divisions from the selected grama panchayaths were included in the study. We then enlisted all ward divisions of the municipal corporations and the selected municipalities. From this list, 53 ward divisions were selected randomly and in proportionate to the number of wards in each urban sites. Three out of 14 districts had less than 53 wards in the selected urban locations and hence all the wards were included in the study. Finally, in each ward division (both in rural and urban areas) we enlisted all the available households based on data shared by the local administration and then selected one household randomly using computer generated random numbers. Additionally, seven households listed after the randomly selected households were also included in the survey.The sampling scheme is presented as a flow chart in Figure 2.1.

Study Participants

All the adolescents between 15 to 19 years and adults between 20-69 years who slept in the household in the previous day were eligible to be included in the study. Data from all adolescents and one adult per household were collected. We used KISH method to identify one adult member from the household when there were more than one eligible adults in the selected households.

Exclusion criteria: Those who did not sleep in the household in the previous day, aged below 15 years and aged above 69 years were excluded from the study. Pregnant women were excluded from physical and biochemical measurements. Adolescents aged between 15 and 19 years were excluded from biochemical measurements and physical measurements except height and weight.

Figure 2.1: Study sample selection flow-chart



Study instruments

The study tool was adapted from the national level survey designed by ICMR and translated to Malayalam (The English version of the study tool is attached as Annexure 3 (household details), Annexure 4 (individual details of adult) & 5 (individual details of adolescent)). The household form (Annexure 3) captured the identification details and one sub-form captured the demographic information on the household. The individual forms (Annexure 4 and Annexure 5) captured the details of the individuals that included history, clinical examinations and laboratory investigations. The data collectors were instructed to visit a selected household up to three times on three different days before recording the household as locked or unavailable. At least two visits were mandated as the estimation of blood sugar (fasting value) and the collection of urine samples for sodium and creatinine estimations were done on the second day morning.

The behavior survey instrument as well as physical and biochemical measurements conformed to recommendations of the WHO STEPwise approach to NCD risk factors Surveillance (STEPS). The survey instrument included interview schedule, physical measurements and certain laboratory investigations performed on selected individuals in the households. In addition to the socio-demographic and economic details, the following measurements were also collected from the survey participants.

1. STEP 1. Behavioral factors based on face to face interview: Tobacco and alcohol use, use of solid fuels, salt consumption, diet and physical activity, history of screening for cancers of the breast, and cervix (women) and oral cavity (men and women), treatment history.

2. STEP 2. Physical measurement: height, weight, waist circumference, blood pressure and heart rate.

3. STEP 3. Biochemical: Fasting blood sugar and urinary sodium and creatinine excretion (for sodium intake assessment) in spot urine sample.

Physical and biochemical measurements

The physical measurements were done immediately after the questionnaire

administration. Blood pressure measurements were taken after the study subject had been at rest for at least 15 minutes and after the questionnaire administration. Blood pressure readings were taken immediately after the questionnaire survey, followed by other anthropometric measurements – height, weight and waist circumference. Blood pressure measurements were taken only in subjects who had not consumed alcohol, coffee or had food or stressful physical activity within 30 minutes before the measurements. Participants were advised to have an empty bladder at the time of taking physical measurements. The measurements were taken in the subjects' homes and the subjects themselves were allowed to choose the degree of privacy they preferred while taking physical measurements. Height, weight and waist circumference were not taken if the study subject was pregnant. While adult participants underwent all measurements, only height and weight of adolescent participants were recorded. Height, weight and waist circumference were measured using standard procedures. All the study equipment used were as per the specifications recommended

Physical Measurements (STEP II)

Blood pressure measurement

Blood pressure measurements were made using OMRON HEM-7120 battery operated automatic blood pressure monitors. Participants were seated upright comfortably and relaxed, with feet uncrossed and feet flat on the floor. An appropriate size cuff was used and wrapped onto the left arm of the subject after removing or rolling up clothing. The cuff was placed such that the bottom edge of the cuff was 1-2 cm above the elbow and the indicator arrow was aligned with the centre of the elbow. The cuff was fastened and the elbow supported such that the cuff was at the level of the subject's heart. Two readings of blood pressure and pulse rate were taken three minutes apart. The machine was switched off between the readings, after recording the systolic and diastolic blood pressure (mm Hg) and the heart rate (beats/minute).If the

systolic blood pressure readings varied more than 10 mmHg or the diastolic readings more than 6 mmHg, a third reading was taken. The mean of the last two measurements of blood pressure was used for analysis. The participant was informed of the blood pressure reading only after the last reading was obtained.

Height measurement

The height of the study subjects was measured using a SECA 213 stand-alone stadiometer. This device is easily portable and has a measuring range from 20 to 205 cm, up to an accuracy of 1 mm. The pieces of the measuring rod were unlocked from the foot plate of the measuring board and set up in the correct order. The stadiometer was placed on a flat firm surface against a wall and the spacer was used to keep the rod straight and stable. The participant was requested to remove any footwear, or head gear that may affect the height reading, but light fabrics such as scarf were not removed. The participant was made to stand on the board facing the interviewer with his/ her feet together and heels placed against the back of the foot plate. Care was taken that the participant's head was straight – by noting that the eye and the ear were at the same level. The data collector asked the participant to stand at her/ his full height after a deep inspiration and the adjustable spacer was gently lowered onto the head of the participant. The data collector noted the height in centimeters, correct to the nearest millimeter, taking care to avoid parallax error and then the participant was asked to step away from the stadiometer.

Weight measurement

A portable SECA 803 battery operated electronic weighing scale was used for measuring weight of the study subjects. The weighing scale was set on a firm and flat surface, avoiding uneven and sloping surfaces. Participants were requested to remove footwear and any objects like mobile phones, wallets and heavy belts before the measurement. The data collector turned the scale on, waited till the display was 0.0 and then made the participant mount the scale. The participant was advised to stand still with his/her face looking forward, arms and hands relaxed on the side, one foot on each side of the scale and requested to maintain this position until requested to step off. The weight reading in kilograms

(correct up to one decimal point) was recorded on the PDA.

Waist circumference

The waist circumference was measured using a SECA 201 ergonomic retractable circumference measurement tape. This tape has a lock mechanism and can take measurements in the range 0-205 cm, correct to 1mm. After ensuring a level of privacy comfortable to the study subject, the data collector advised the participant the need to take the waist circumference directly over the skin. In circumstances where this was not possible, the data collector took measurements over light clothing. The data collector stood on the right side of the participant and identified the lower palpable margin of the ribs and the upper margin of the iliac crest (with the participant's help, if required). The midpoint between these margins along the mid-axillary line was identified and the participant was asked to wrap the tape around them. The data collector made sure that the tape is horizontal all round and that the participant's feet were together and arms relaxed on the sides. At the end of a normal expiration the waist circumference was noted to the nearest 0.1cm.

Biochemical measurements

Urine sodium and creatinine

A spot urine sample (20 ml) was collected from each participant for urinary sodium and creatinine estimation. Participants were given urine collection containers on the day of the interview and asked to provide the urine sample at the time of blood sugar estimation. They were advised to continue medications, if any, as usual and to collect a mid-stream sample of up to about half the container and to carefully screw the lid firmly on to the container, without tampering with the label. Menstruating women were advised to avoid contamination of the sample with blood. The time of sample collection was noted. Urine samples were collected and transported to a national accreditation for biological laboratories (NABL) accredited and approved laboratory with branches in all districts in Kerala.

Urinary sodium was assessed using indirect ion selective electrode method and urinary creatinine was measured using alkaline picrate method.

Fasting blood glucose measurement

Participants were requested to undergo fasting blood glucose measurements on need to be fasting and also to provide capillary blood samples. Glucometers (One touch ultra-easy, Johnson & Johnson) were used for capillary blood glucose estimation. Test strips were inserted in the machine first. The participant's finger was swabbed with a sterile swab, gently kneaded and lanced. Sufficient care was taken not to massage the finger with too much pressure. A hanging drop of blood was allowed to form and put on to the test field. The participant was given a cotton swab to press the puncture wound while the data collector awaited the test result. The blood glucose measurement in mg/dl was noted and recorded in the hand-held device

Fig: OMRON HEM-7120 automatic blood pressure monitor

Source: http://www.omronhealthcare-ap.com/images/BPM/HEM-7120.jpg

Fig: SECA 213 Stand-Alone Stadiometer

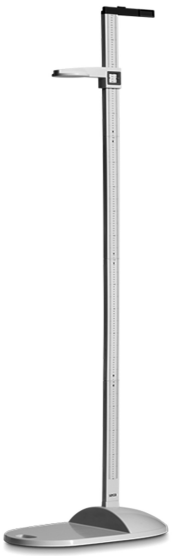


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Fig: SECA 803 Electronic weighing scale

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Fig: SECA 201 ergonomic retractable circumference measurement tape

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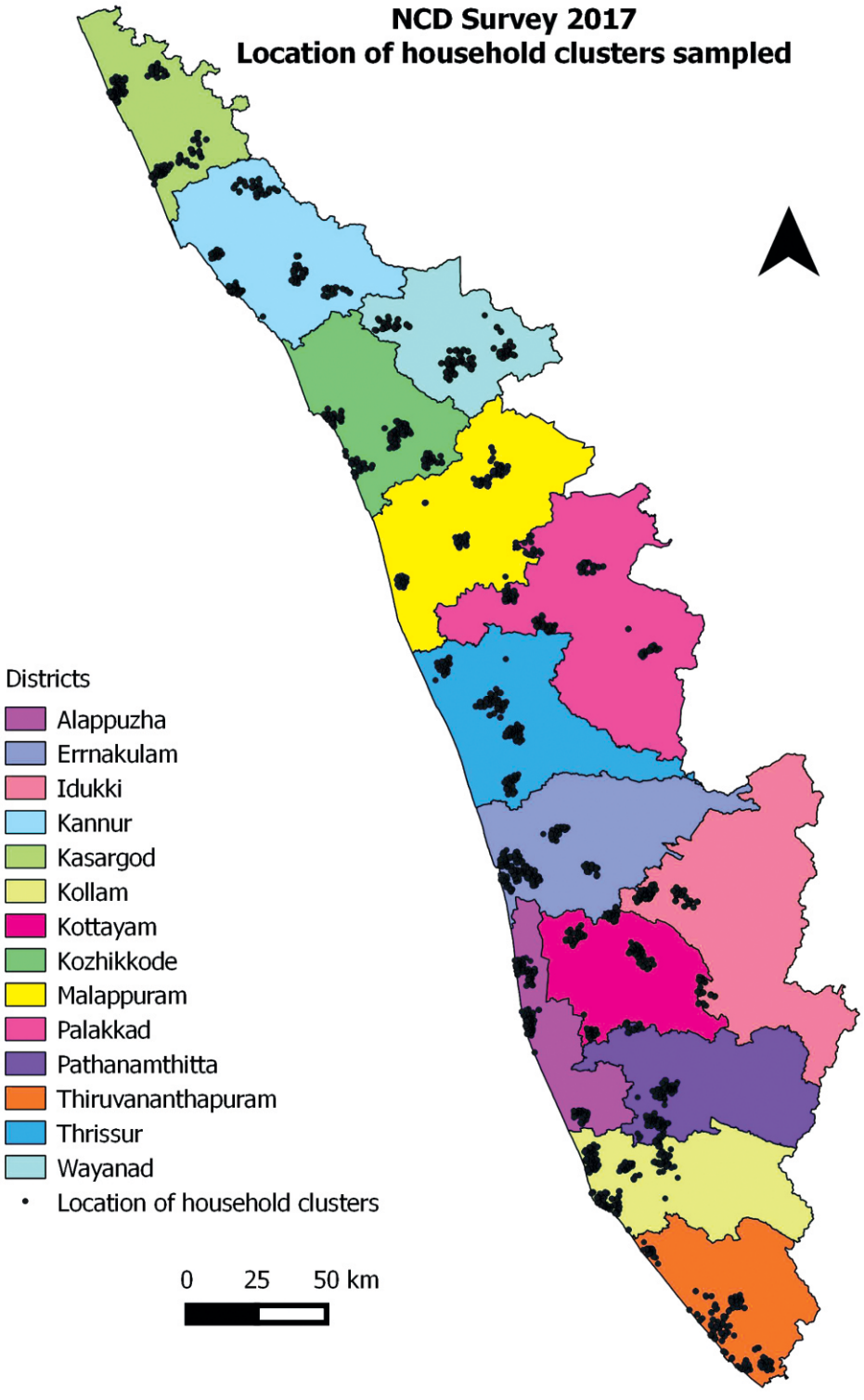
Inaugural function of the project on 30th August, 2016 at SCTIMST auditorium. Honourable Chief Minister Sri. Pinarayi Vijayan inaugurating the project. Dr.B.Ekbal, Member,Kerala State Planning Board; Dr.Asha Kishore, Director, SCTIMST; Shri. K.M.Chandrashekharan, President, SCTIMST; Sri Rajeev Sadanandan IAS, Additional Chief Secretary Health and family welfare, Government of Kerala and Dr.R.Ramesh, Director of Health

Inaugural function of the project on 30 August, 2016 at SCTIMST auditorium. Honourable Chief Minister Sri. Pinarayi Vijayan inaugurating the program

Inaugural function of the project on 30 August, 2016 at SCTIMST auditorium.
Dr.Asha Kishore Director, SCTIMST welcomes the gathering.

Inaugural function of the project on 30 August, 2016 at SCTIMST auditorium



Eight households each were selected from each of these 1423 clusters

PDA – details and overview of the data collection tasks

Procurement of software, computer tablets (PDAs) and their configuration

In order to ensure uniformity and efficiency in data collection and transfer, we used computer tablets or Personal Digital Assistants (PDAs) for data collection. The templates for interview schedules were prepared in Open Data Kit (ODK) software, which is an Open Source Software (OSS). Templates were prepared both in English and Malayalam with an option to switch between the languages. SCTIMST already have an ongoing Memorandum of Understanding (MoU) with Zyxware Technologies for the creation and maintenance of a web portal for one of the projects. The Zyxware technologies was selected in 2016 for that task through a competitive process that included calls for Request For Proposals (RFP) from various agencies based on our requirement which were subsequently vetted by an internal committee comprising members from the Computer Division, Bio Medical Technology (BMT) Wing, AMCHSS and the investigators. A separate MoU was signed with the agency to help us with the Information Technology (IT) support for the survey.

Similarly, a call for tender was issued to hardware vendors for the supply of computer tablets as per the established norms of the institute and subsequently 75 tablets of the D 100 models of D-Link were bought for the study. Prepaid mobile connections were purchased from the public sector telecom company Bharath Sanchar Nigam Limited (BSNL) and the SIM Cards were installed in all the tablets. One license for the Kaspersky Safe Kids software was purchased for a year and all 70 tablets given out in the field were configured as child units. This enabled us to have real time monitoring of the tablets and survey teams.

Tablets were configured in such a way that on removal or attempts to remove the SIM card, the tablet will get locked itself. Only the applications relevant for data collection were enabled in the tablets, all media (except for the images that were part of the interview schedule) and chat options were removed. A common e-mail id was created so that information would be communicated to all the data collectors from the project headquarters at AMCHSS. Project GMAIL was configured in all the tablets along with reading materials on NCD and office suite. SCTIMST website and WHO websites were made available in all the systems. Other allowed programs were ODK, GMAIL, PDF reader, Office Suite, Goolge Map, Calculator, Calendar, the Android App (NCD Survey) for KISH table selection, and Kaspersky Safe Kids. Any attempts to modify the list of Apps were forbidden.

An Android application was prepared for the selection of one adult member from each household using the KISH table method as per the algorithm adopted by the World Health Organization (WHO) (Annexure 6) and that was made to work in tandem with the ODK template. Data collectors were instructed to record the geo-locations of the households that they visit, which were automatically entered in the ODK forms. This enabled us to trace the location of the households to make sure that they were the households and villages provided to them from the headquarters. The interview schedules finalized by the research team were loaded in the PDA. One sub-form in the computer tablets captured details of all visits by the investigating team to each household, their number, date and time and the sections of the interview schedule that were completed in each of these visits.

Transfer and storage of the collected data

The collected interview schedules were initially stored in the respective PDAs itself with household IDs. Data collectors retrieved the relevant household form or the individual sub-form as and when they revisited the household to complete the data collection. After completion of the data collection, including the laboratory results of the investigations, the interview schedules were saved as complete. There was a built-in option to mark the schedule as complete on saving. The district level supervisors randomly checked the quality and authenticity of these completed

questionnaires in the field before they were sent to the server located at the headquarters at AMCHSS. With the concurrence of the DPM, the data collectors sent the completed schedule to the server. This was possible as they were always connected to the net using the BSNL network. From the server, the data were downloaded at regular intervals using the authentication details. Only the investigators and the senior project staff at headquarters had access to download the data from the server. From the server the data were downloaded as JSON files through the ODK interface. A filter program was developed in the web portal to convert these JSON files into CSV files. All these forms were linked with the unique variable, the individual id. Further analyses of these data were done with SPSS version 21.

All the PDAs were enabled with the geo-coding of locations and this tool helped us to monitor the location of the teams by their immediate supervisors as well as by the state level project team, thus improving the quality of data collection. Additionally, all the households included in the survey were also geocoded.

Data collection team

We recruited BSc nursing graduates or General Nurses as data collectors for a period of three months. In each of the 13 districts 10 nurses and in Wayanad district 8 nurses were recruited with the help of District Medical Officer or District National Health Mission (NHM) officers. Detailed listing of data collection team is given as Annexure 7. The nurses were selected from the same district in order to reduce travel time. Majority of the nurses (87.7%) were women. As remuneration, we paid Rs, 440 and Rs, 275 each for satisfactorily completed adult questionnaire, and adolescent questionnaire, respectively. The person responsible for data cleaning and analysis certified whether each of the questionnaires was completed satisfactorily or not. Based on the recommendation of the data cleaning person, payment was made by online transfer to the personal account of each of the nurses. All of the nurses were required to provide their bank account details or to start a new account in the same bank of the institute.

Training of staff

Training of District Project Managers

We recruited 28 District Project Managers, two each for each of the 14 districts with a minimum qualification of a Masters degree in Public Health, Epidemiology, Nursing or in Social Work. They were given training for two days in three occasions in AMCHSS by the Project Investigators and Experts from the ICMR. The training included an overview of the NCD problem in the world, in India and in Kerala. The training also focused on the 4 major risk factors of NCD such as tobacco, alcohol, unhealthy diet and physical inactivity. The WHO risk factor surveillance of NCDs was also discussed in detail during the training program. They were also given training to use the Personal digital assistants (PDA) for data collection. Training also included measurement techniques of WHO STEP 2 measurements such as weight, height, waist circumference, blood pressure and pulse rate. The company representatives of the glucometer provided the training for estimation of fasting blood glucose using glucometer. Urinary creatinine and sodium estimation were contracted to a private National Accreditation Board for Testing and Calibration laboratories (NABL) accredited laboratory. Representatives of this laboratory provided training on how to collect the urine samples and facilitate their transportation to the respective laboratories in the district. They were also given training for supervision and monitoring. They were also given the list of panchayats, wards in Panchayats in corporations and municipalities where the survey was to be conducted. The list of approximately 20% Community Development blocks in each of the 14 districts was also given to them for implementation of school level and Panchayth level action programs to reduce the NCD risk factors. Each DPM was provided a space either in the District Medical Officers office or in the District NHM office. Training was also provided to all DPM on how to work with the concerned district officers and how to build a rapport with the district officers so that the project

can be effectively implemented. Since the project staff were located outside the institution, training on administrative matters was provided by an administrative officer from SCTIMST. These included the need for submitting attendance every month through emails online transfer of their salary to their bank accounts, preparation of Travel Allowance (TA) bills and submission of original bills for reimbursement. Their attendance was also monitored from the office of the AMC through Open Data Kit (ODK).

Training of Data Collectors

Training of data collectors was given in 4 regions. The first training was given in Trivandrum for Data collectors of 3 districts: Trivandrum, Kollam and Pathanamthitta. The training was organized for 2 days. In addition to the 30 data collectors of 3 districts, 6 of the DPMs also participated in the training program. Sample of the training schedule is given as Annexure 8. The first part of the training was on the objectives of the project, 4 NCD risk factors (tobacco, alcohol, physical activity, and diet), the importance of reducing these risk factors for the prevention and control of NCDs. The second session was on data collection using the PDAs. Each of the questions was explained to them in detail and they were given an exercise to complete one household using the PDA. They were also given training on how to build rapport with the household getting the consent and assent forms signed by the participants and data collection techniques at the household level. They were expected to go in teams of two people. After data collection is completed as part of the exercise, a few of them presented to the group their findings and the errors of data collection if any were pointed out and clarified. Training was given to trace the geo-locations also. Another session was on WHO STEP 2 Measurements. The equipment for taking height, weight, waist circumference and blood pressure were purchased centrally. These were made available for the trainings in each region. There was a video demonstration on how to take measurements and each participant was instructed to take the measurement of at least one another participant. These were supervised by the project investigators and if any corrections required were made at that time. The session on bio chemical measurements was taken by the company representative of glucometer and the

laboratory. Each data collector measured the random blood sugar using the glucometer to understand the correct technique of using the glucometer. During actual data collection the participants were also informed of the possibility of demand for blood glucose testing. For collecting urine samples the importance of labeling and instructions for collection of urine were also given. The participants were also informed about the possibility of relatives of the index participant requesting for BP measurement. The importance of biological waste disposal as per the standard protocol was also informed to them. The details of the households were provided to them and they were instructed to contact the DPMs in case of any doubt.

Data collection

The data collection was done from October 2016 to March 2017. Sixty eight pairs of trained nurses, after an elaborate residential training for two days that included hands on demo data collection exercises, were employed in the survey. Two data collectors formed a team to visit the household. There were roughly five teams in each district. They carried the required equipment such as the weighing scale, stadiometer, non-elastic tape (all from SECA) and one electronic BP apparatus (Omron). The list of households and the starting house number in each ward was given from the project coordinating office at AMCHSS. On the first day of the visit, they collected data using the PDA, measured height, weight, waist circumference, blood pressure and pulse rate as per the standard protocol.

Information from all the available adolescents (15-19 years) was collected and among the adults (20-69) one adult was selected using the KISH table method. Only people who slept on the previous day of the survey was eligible to be included in the survey. Adolescents aged 18 and 19 years and all the adults in the sample were instructed for an overnight fast at least 8 hours in order to measure the fasting blood sugar in the next day morning. They were also provided bottles to collect urine samples to be collected in the morning along with blood sugar measurement. The next day morning the data collectors visited the household again early morning and measured the fasting blood sugar using the glucometer. The bottles with urine samples were also collected from the participants and

handed over to the laboratory. The laboratory values of urinary sodium and creatinine were given back to the participants as soon as they received the values from the laboratory.

After testing the blood sugar levels, the readings were shared with the participants and the close relatives. If the fasting blood sugar was more than or equal to 126 milligram per dl and if the participant is not a known diabetic they were requested to consult their local doctor to confirm the diabetes status. If any of the blood pressure readings was more than or equal to 140 mm of Hg systolic blood pressure or more than or equal to 90mm of diastolic BP the participant was requested to check the blood pressure again after a few days in the local hospital or personal doctor to confirm the hypertension status and for expert management. The values of height, weight and waist circumference were given after the measurement. They were also informed the normal range of values.

Complete data including the biochemical variables were transferred to the central server at AMCHSS at one time-point. Before sending the data to the server they were expected to be approved by the DPMs. The DPMs checked about 5% of the data randomly before approving the data for online transfer.

Monitoring and supervision of the survey

The data collectors were supervised by two District Program Managers (NCD) placed in the District Medical Office, with the help of the district health authorities. The DPMs were also instructed to accompany the data collectors for the initial few households to build confidence in the data collectors. After a few days the data collectors contacted the DPMs if they wanted to clarify any doubts or if there were any problems in the data collection. The DPMs used to check the data randomly before approving the data to be transferred to the server in AMCHSS. One staff from the coordinating centre randomly checked the selected households in the district and compared the values with the approved ranges. Participants were also called from central office to find out the quality of data collection including fasting status, whether the waist circumference was measured with the cloth or without. If there was some problems found in the calls this was discussed with the data collector over

phone in order to improve the quality. There were also calls from the participant's relatives to the Principal Investigator or the Ethics Committee whose number was provided in the participant information sheet. The calls were for the following reasons.

1. Whether such a study was approved by the SCTIMST

2. Some people were not happy with the random selection of the participant. This was a particular concern when if there was a diabetic/ hypertensive adult who was not the selected participant.

3. If there was some delay in getting the results of urine examination.

Data cleaning and analysis

Data were downloaded from the server and saved in SPSS format. Data cleaning was done to find out the errors in data entry. Some missing information was completed by contacting the data collector/participant over phone. SPSS version 21 was used for statistical analysis. For this report analysis was done only for adult participants in the age group of 18 to 69 years. The data of adolescents aged 15 to 17 years will be done later. The sample size selected was the same from all districts, irrespective of the population. Hence weighted analysis was done.

Ethics approval

Ethics approval for the study was obtained from the Institute ethics committee of Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum. The data collectors explained the various aspects of the study and necessary information regarding ethical considerations to each participant and given four different participant information sheets. The different participant information sheets were to explain the household questionnaire, physical and biochemical measures, adult individual questionnaire and adolescent individual questionnaire. Separate informed consent was obtained from each participant for collecting household information, physical and biochemical measurements, adult individual details and adolescent individual details. Ascent was also obtained from the parents of adolescents.

RESULTS

Socio-demographic characteristics of the study population

In total, 12053 adult individuals in the age group of 18-69 years participated in the survey (Table 2.1). We summarize the data of the adult participants in this report. Around six of 10 participants (62%) were females. More than half (53.2%) were in the age group of 18-44 years. Almost equal number of participants (51.4% Vs 48.6%) was from urban and rural areas. Nearly 6 of 10 participants reported educational level higher than high school level. Less than one percent of the participants (0.7%) reported no formal schooling. More than one third (36.8%) of the study participants belonged to the category of 'below poverty line'. The proportion of never married in the study population was 17.4% whereas the proportion of population with widowed status was 7.8%. More than tow third of the study population (68.9%) were married and living together at the time of the survey. Nearly half (45%) of the study population reported their occupation as 'home makers'. One of 20 study participants was unemployed and nearly 50% of them were eligible/able to work.

Table 2.1. Baseline characteristics of participants

		Male		*Female*		*Total*	
		N	*%*	*N*	*%*	*N*	*%*
Age groups	***18 – 44***	2313	50.6	4091	54.7	6407	53.2
	45 – 69	2254	49.4	3392	45.3	5646	46.8
Residence	***Rural***	2394	52.4	3806	50.9	6200	51.4
	Urban	2173	47.6	3677	49.1	5853	48.6
Education	***No formal schooling***	17	0.4	65	0.9	82	0.7
	Less than primary school	244	5.4	481	6.6	725	6.1
	Primary school completed	752	16.7	1348	18.5	2100	17.8
	Secondary school completed	820	18.2	1268	17.4	2089	17.7
	High school completed	1526	33.9	2353	32.3	3880	32.9
	Doing graduation	334	7.4	424	5.8	758	6.4
	Graduation completed	567	12.6	1051	14.4	1618	13.7
	Post graduation completed	137	3.0	213	2.9	350	3.0
	Others	103	2.3	92	1.3	195	1.7

Table 2.1. Baseline characteristics of participants (continued from previous page)

		Male		*Female*		*Total*	
		N	*%*	*N*	*%*	*N*	*%*
Social group	***BPL***	1663	36.4	2765	37.0	4430	36.8
	APL	2797	61.2	4535	60.6	7333	60.8
	Andhyodaya	17	0.4	36	0.5	53	0.4
	No Ration card	90	2.0	147	2.0	237	2.0
Marital status	***Never married***	1147	25.1	952	12.7	2100	17.4
	Living together	248	5.4	315	4.2	563	4.7
	Currently married	3076	67.4	5222	69.8	8300	68.9
	Separated	18	0.4	77	1.0	95	0.8
	Divorced	15	0.3	43	0.6	58	0.5
	Widowed	63	1.4	874	11.7	937	7.8
Occupation	***Professional***	***428***	9.4	439	5.9	867	7.2
	Executive officer	***97***	2.1	31	0.4	128	1.1
	Land owner	***230***	5.0	8	0.1	238	2.0
	Sales and marketing executive	***168***	3.7	64	0.9	232	1.9
	Business	***166***	3.6	9	0.1	175	1.5
	Self employed	***1123***	24.6	246	3.3	1370	11.4
	Skilled labour	***469***	10.3	77	1.0	546	4.5
	Unskilled labour	***525***	11.5	227	3.0	753	6.2
	Student	***626***	13.7	768	10.3	1394	11.6
	Home maker	***68***	1.5	5351	71.5	5420	45.0
	Retired	***243***	5.3	106	1.4	349	2.9
	Unemployed(able to work)	***200***	4.4	92	1.2	292	2.4
	Unemployed (unable to work)	***224***	4.9	65	0.9	289	2.4
Total		***4567***		7483		12053	

There were no trans-genders

Table 2.2. Tobacco use by type of tobacco product, age group, sex, education and residence

	Ever tobacco use		*Ever Smoker (Among ever tobacco users)*		*Ever Smoker (Among total)*		*Ever Smokeless tobacco use (Among ever tobacco users)*		*Ever Smokeless tobacco use (Among total)*	
	N	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Age (years)										
18 – 44	436	6.8	318	72.9	318	5.0	118	27.1	118	1.8
45 – 69	845	15.0	680	80.5	680	12.0	165	19.5	165	2.9
Sex										
Male	1197	26.2	985	82.3	985	21.6	212	17.7	212	4.6
Female	83	1.1	13	15.7	13	0.2	70	84.3	70	0.9
Education										
Up to high school	1094	12.3	856	78.2	856	9.6	238	21.8	238	2.7
More than high school	145	5.0	124	85.5	124	4.2	21	14.5	21	0.7
Residence										
Rural	747	12.0	576	77.1	576	9.3	161	22.9	171	2.8
Urban	534	9.1	422	79.0	422	7.2	112	21.0	112	1.9
Total	1281	10.6	998	77.9	998	8.3	283	22.1	283	2.3

Smoking and smokeless forms of tobacco use

Close to one fifth (19.6%) of males reported current smoking (Table 2.3), while the proportion of ever smokers was 21.6% (Table 2.2). The prevalence of current smoking was higher in less educated group in comparison to individuals with more than high school level education. Similarly, the prevalence was higher in older age group as compared to individuals in the age group of 18-44 years. Of the current smokers, 59.3% were daily smokers (Table 4). Close to five percent (4.6%) of males reported ever use of smokeless tobacco (Table 2). However, the current use of smokeless form of tobacco was 3.4% in males. Similar to smoking form of tobacco, the prevalence of smokeless tobacco was higher in low educational group and in older age groups. Of the current users of smokeless tobacco, 63.6 (Table 2.4) were daily users.

Exposure to secondhand smoke among non-smokers was reported by 31.4% in work place, 26.5% during travel and 18.4% from home (Table 2.5.) Males reported exposure to second hand smoking more than that of females and work place and travel where as females reported more secondhand smoke exposure at home.

Alcohol consumption

Alcohol use data are presented only in males as the numbers were too small in females. More than half of males (52%) were ever users of alcohol (Table 2.6). However, current drinking was prevalent only in less than one third of males (31%). Similar to tobacco use, alcohol use was also more prevalent in less educated (in comparison to more than high school level educated group) and older age groups (in comparison to individuals in the age group of 18-44 years). Four of five current male users of alcohol reported the consumption of hard liquor (Table 2.7), while beer was consumed by one of eight of them. Wine was the least preferred option among current alcohol users (<1%). However, toddy was consumed by 6.3% of the current users of alcohol. The median standard drinks of consumption per occasion was 2.5 drinks (range: 0.5-36). More than one sixth (17.3%) of the current users were binge drinkers (Table 2.8).

Fruits and vegetables consumption

The average daily intake of vegetables was 2.34 servings per day in the whole population (Table 2.9). Most of the people consumed vegetables on a daily basis and in a week the average days of reported consumption was 5.9 days. However, average days of reported fruits consumption in a week was only 3.5 days with an average of 1.8 servings per day. Therefore, the average weekly consumption of fruits was just 6.3 servings. Rural residents consumed more fruits and vegetables than urban residents. While males consumed fruits more frequently, females consumed vegetables more frequently than males. Older people in the age group of 45-69 years consumed more fruits and vegetables than younger people in the age group of 18-44 years. More than three fourth of the study population (77.8%) reported consumption of <3 servings of vegetables per day (Table 10). Similarly, almost 9 of ten participants (86%) reported consumption of <2 servings of fruits per day.

Table 2.3. Tobacco use status by type of tobacco product, age group, sex, education and residence

	Current smoking (Among ever smoker)		*Current smoking (Among total)*		*Current smokeless tobacco use (Among ever smokeless users)*		*Current smokeless tobacco use (Among total)*	
	N	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Age (years)								
18 – 44	341	66.2	341	5.4	81	77.1	81	1.3
45 – 69	641	62.9	641	11.1	132	74.2	132	2.3
Sex								
Male	973	66.2	973	19.6	168	73.0	168	3.4
Female	9	13.8	9	0.1	44	84.6	44	0.6
Education								
Up to high school	871	64.3	871	9.6	184	75.1	184	2.0
More than high school	80	57.1	80	3.0	16	76.2	16	0.6
Residence								
Rural	821	65.8	821	8.3	182	81.6	182	1.8
Urban	161	56.3	161	7.4	31	51.7	31	1.4
Total	982	64.0	982	8.1	213	75.3	213	1.8

Salt consumption

Although 85% of the study participants perceived that reducing salt in food is important, only 7.6% reported that salt consumption is higher than the desirable level (Table 2.11). More than half (53%) of the study population perceived that daily salt consumption affects their health status. While 3.4% of the study participants reported addition of extra salt in food (in addition to salt added while cooking) always before eating, it was only 1.7% in urban residents.

The estimated mean salt consumption per day from urine sodium and creatinine values was 5.31 and 7.50 grams/day in males and females, respectively (Table 2.12). The estimated mean salt consumption was similar in urban (6.5 gm/day) and rural (6.6 gm/day) residents. Individuals in the age group of 18-44 years showed consumption of more salt (7.1 gm/day) than individuals in the age group of 45-69 years (Table 14).

More than one third (69%) of the study population (51% in men and 82% in women), consumed salt above the daily recommended level of 5 gm (Table 2.13).

Physical activity levels

About 1 of 5 participants (22%), reported low physical activity levels based on overall METS (Table 2.14). Low physical activity was 25% in males while it was 20% in women. Urban residents and individuals with higher education status reported relatively higher physical inactivity (low level of physical activity).

Less than one third (29.4%) of the study population reported moderate to vigorous leisure-time physical activity (Table 2.15). Moderate to vigorous leisure-time physical activity was relatively lower in females (22%) as compared to males (40%). Similarly, leisure-time physical activity was lower in older participants as compared to younger participants. The mean duration of work related vigorous and moderate intensity physical activity per week was 156 minutes and 593 minutes, respectively (Table 2.16). The mean duration of travel related physical activity was 96 minutes per week. However, the mean duration of vigorous (15 minutes per week), and moderate intensity (52 minutes per week) leisure time physical activity was much lower than work related of transport related physical activity.

Anthropometric measurements

The mean BMI of the study population was 24.3 kg/m^2 whereas it was 23.8 kg/m^2 in males and 24.6 kg/m^2 in females (Table 2.17). The mean BMI was relatively higher in urban residents than their rural counterparts. Similarly, the mean BMI was relatively higher in older adults as compared to younger adults.

The mean waist circumference was 86.5 cm in the total study population. While the mean waist circumference was 86 cm in rural residents, it was 88.5 cm in urban residents. Similar to BMI, older adults reported relatively higher mean waist circumference than younger adults. However, there were no major differences in mean waist circumference in men and women.

The proportion of obese was 8.6% in the total study population, while it was 11.2% in urban residents (Table 2.18). Nearly one

third (31.3%) of the study population was overweight. Abdominal obesity was prevalent in more than half (56.3%) of the study population.

Blood pressure levels and hypertension prevalence

The mean systolic blood pressure of the whole population was 126.8 mmHg and the mean diastolic blood pressure was 80.9mmHg (Table 2.17). Mean systolic blood pressure was higher in males (as compared to females), older population (as compared to younger population), and in the less educated group (as compared to individual with higher education). However, there were no major differences in mean systolic blood pressure between urban and rural residents.

While the prevalence of raised blood pressure was 26.5%, hypertension was prevalent in 30.6% of the study population (Table 20). Males (34.9%), urban residents (33.4%) and older adults (48.1%) had relatively higher hypertension prevalence.

Table 2.4. Daily use of tobacco by type of tobacco product, age group, sex, education and residence

	Daily smokers (Among current smokers)		*Daily smokers (Among total)*		*Daily smokeless tobacco users (Among current smokeless users)*		*Daily smokeless tobacco users (Among total)*	
	N	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Age (years)								
18 – 44	295	57.3	295	4.7	66	62.9	66	1.1
45 – 69	615	60.4	615	10.6	114	64.0	114	2.0
Sex								
Male	864	58.8	864	17.4	145	62.8	145	2.9
Female	46	70.8	46	0.7	35	66.0	35	0.5
Education								
Up to high school	811	59.9	811	8.9	152	62.0	152	1.7
More than high school	68	48.6	68	2.5	12	57.1	12	0.4
Residence								
Rural	749	60.0	749	7.6	147	65.9	147	1.5
Urban	161	56.3	161	7.4	32	54.2	32	1.5
Total	910	59.3	910	7.5	180	63.6	180	1.5

Table 2.5. Source of non smoker's exposure to tobacco smoke by age group, sex, education and residence

	Home		*Workplace*		*Transportation*	
	N	*%*	*N*	*%*	*N*	*%*
Age (years)						
18 – 44	1273	20.3	2095	33.5	1746	27.9
45 – 69	940	16.2	1695	29.2	1444	24.9
Sex						
Male	776	15.6	2070	41.6	1703	34.2
Female	1437	20.3	1720	24.3	1487	21.0
Education						
Up to high school	1811	20.0	2988	32.9	2405	26.5
More than high school	360	13.3	748	27.7	732	27.1
Residence						
Rural	1788	18.1	3250	32.9	2564	26.0
Urban	426	19.5	539	24.7	626	28.7
Total	2213	18.4	3790	31.4	3190	26.5

Fasting blood glucose levels and diabetes

The mean fasting blood sugar levels in the whole population was 108.7 mg/dl (Table 2.19). Mean fasting blood sugar levels were higher in less educated group (110.6 mg/dl) and older adults (119.1 mg/dl).

While the prevalence of diabetes was 19.2%, pre-diabetes was prevalent in 33.7% of the study population (Table 2.20). Diabetes prevalence was higher in less educated group (20.8%), males (20.2%) and in older adults (31.5%). Interestingly, the proportion of either pre-diabetes or diabetes was 67.7% in the age group of 45-69 years.

Awareness, treatment, and control of hypertension

Less than half (44%) of total individuals with hypertension were aware of their blood pressure status, while treatment was taken by only one third (37%) of them (Table 2.21). Furthermore, only 13% of individuals with hypertension achieved blood pressure control status. Awareness, treatment and control status of hypertension was higher in rural residents as compared to urban

residents, females as compared to males, and in older age group as compared to younger age group.

Awareness, treatment, and control of diabetes

More than half (55%) of total subjects with diabetes were aware of their blood sugar status, while treatment was taken by half of them (Table 2.22). Furthermore, only 16% of individuals with diabetes achieved blood sugar control status. Treatment of diabetes was higher in urban residents as compared to rural residents, females as compared to males, and in older age group as compared to younger age group. However, control status was achieved more in males as compared to females, and in older age group as compared to younger age group.

Primary and primordial prevention involving health professionals Only <10% of the study population receive advice on tobacco use from a doctor or a health worker (Table 2.23). Similarly, advice on alcohol use was received by only 8% of the study population. Advice on diet was however received by one five study participants from a physician or health worker. In total only 2% of the total study population underwent oral cancer screening (Table 2.24), while 3.4% and <1% of women underwent breast cancer and cervical cancer screening, respectively.

Table 2.6. Alcohol consumption of males by socio-demographic characteristics

	Ever consumed alcohol		*Current drinker out of Ever drinker*		*Current drinker out of all males*	
	N	%	N	%	N	%
Age						
18 – 44	751	43.8	463	61.8	463	27.0
45 – 69	1062	59.8	615	58.1	615	34.6
Education						
Up to high school	1499	55.3	909	60.7	909	33.5
More than high school	296	40.1	154	52.4	154	20.8
Residence						
Rural	1501	51.6	889	59.4	889	30.5
Urban	312	53.5	190	60.9	190	32.6
Total	1813	51.9	1079	59.6	1079	30.9

Table 2.7. Type of alcohol consumed by current drinkers (Males) by socio-demographic characteristics

	Toddy		*Wine*		*Beer*		*Hard liquor*	
	N	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Age								
18 – 44	8	1.7	8	1.7	103	22.4	341	74.1
45 – 69	60	9.8	0	0	36	5.9	518	84.4
Education								
Up to high school	65	7.2	3	0.3	104	11.5	731	81.0
More than high school	2	1.3	5	3.2	33	21.3	115	74.2
Residence								
Rural	64	7.2	8	0.9	110	12.4	703	79.4
Urban	4	2.1	0	0	29	15.3	156	82.5
Total	68	6.3	8	0.7	139	12.9	859	80.0

Table 2.8. Amount of standard drinks and large quantity standard drinks consumed by socio-demographic characteristics (males)

	Standard drinks		5 or more standard drinks	Large quantity standard drinks		5 or more standard drinks
	Median	Min-Max	%	Median	Min-Max	
Age						
18 – 44	2.5	0.5-33.0	17.5	4.0	0.5-35.0	35.4
45 – 69	2.5	0.5-36.0	16.9	3.0	0.5-33.3	27.2
Education						
Up to high school	2.5	0.5-36.0	17.4	3.0	0.5-35.0	32.6
More than high school	3.0	0.5-11.0	14.6	3.0	0.5-25.0	21.9
Place of residence						
Rural	2.0	0.5-36.0	17.3	3.0	0.5-35.0	29.7
Urban	3.0	0.5-25.0	16.9	4.0	0.5-33.3	35.4
Total	2.5	0.5-36.0	17.3	3.0	0.5-35.0	30.7

Table 2.9. Pattern of consumption of fruits and vegetables by age group, sex, education and residence

	Number of days of vegetable intake in a week Mean (SD)	*Number of servings of vegetables on those days Mean (SD)*	*Number of days of fruits intake in a week Mean (SD)*	*Number of servings of fruits on those days Mean (SD)*
Age (years)				
18 – 44	5.87 (1.57)	2.28 (1.38)	3.45 (2.1)	1.76 (1.07)
45 – 69	5.89 (1.55)	2.39 (1.36)	3.49 (2.12)	1.81 (1.07)
Sex				
Male	5.75 (1.68)	2.29 (1.32)	3.55 (3.00)	1.81 (1.09)
Female	5.97 (1.47)	2.36 (1.40)	3.41 (2.12)	1.77 (1.05)
Education				
Up to high school	5.83 (1.59)	2.34 (1.38)	3.32 (2.06)	1.77 (1.04)
More than high school	6.09 (1.39)	2.32 (1.31)	4.04 (2.20)	1.86 (1.15)
Residence				
Rural	5.92 (1.52)	2.36 (1.34)	3.45 (2.10)	1.82 (1.05)
Urban	5.70 (1.72)	2.23 (1.51)	3.56 (2.18)	1.65 (1.13)
Total	5.88 (1.56)	2.34 (1.37)	3.47 (2.11)	1.79 (1.07)

Table 2.10. Intake of fruits and vegetables by age group, sex, education and residence

	Less than 3 servings of vegetables per day		*Less than 2 servings of fruits per day*	
	N	*%*	*N*	*%*
Age (years)				
18 – 44	5000	79.9	5459	87.2
45 – 69	4378	75.5	4904	84.6
Sex				
Male	3923	78.8	4260	85.6
Female	5455	77.1	6102	86.2
Education				
Up to high school	7086	78.1	7944	87.5
More than high school	2060	76.2	2163	80.0
Residence				
Rural	7588	76.9	8449	85.6
Urban	1790	82.1	1914	87.8
Total	9378	77.8	10363	86.0

Table 2.11. Salt consumption by age group, sex, education and residence

	Knowledge regarding salt consumption		*Perception regarding salt consumption*				*Practice related to salt consumption*	
	Daily salt consumption affects health		*Salt or salted food consumption is high*		*Reducing salt in food is important*		*Always add salt in food before eating*	
	N	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Age (years)								
18 – 44	3050	48.7	486	7.8	5224	83.4	253	4.0
45 – 69	3324	57.4	425	7.3	5054	87.2	160	2.8
Sex								
Male	2538	51.0	367	7.4	4127	82.9	156	3.1
Female	3835	54.2	544	7.7	6151	87.0	257	3.6
Education								
Up to high school	4823	53.1	711	7.9	7735	85.2	331	3.6
More than high school	1413	52.3	174	6.4	2300	85.2	73	2.7
Residence								
Rural	5115	51.8	737	7.4	8363	84.7	375	3.8
Urban	1258	57.7	175	8.0	1917	87.9	37	1.7
Total	6374	52.9	912	7.6	10278	85.3	413	3.4

Table 2.12. Estimated amount of daily salt consumption (grams) from urine sodium and creatinine values by socio demographic characteristics (males)

	Estimated salt consumption (grams/day)	
	Mean	SD
Sex		
Males	5.31	1.99
Females	7.50	2.83
Age		
18 – 44	7.10	2.94
45 – 69	6.06	2.39
Education		
Up to high school	6.54	2.69
More than high school	6.80	2.88
Place of residence		
Rural	6.63	2.75
Urban	6.46	2.66

Table 2.13. Distribution of salt consumption (grams) by socio-demographic characteristics

	Estimated daily salt consumption (grams)					
	<3.00		3.00-4.99		>=5	
	N	%	N	%	N	%
Sex						
Males	407	8.5	1940	40.4	2451	51.1
Females	177	2.6	1080	15.7	5611	81.7
Age						
18 – 44	235	3.9	1316	21.8	4490	74.3
45 – 69	349	6.2	1704	30.3	3572	63.5
Education						
Up to high school	446	5.1	2319	26.3	6041	68.6
More than high school	134	5.1	626	23.9	1854	70.9
Place of residence						
Rural	465	4.9	2484	26.1	6581	69.1
Urban	119	5.6	537	25.1	1481	69.3

T able 2.14. Physical activity status (based on METS) by age group, sex, education and residence

	Low		*Moderate*		*High*	
	N	*%*	*N*	*%*	*N*	*%*
Age (years)						
18 – 44	1264	20.2	2051	32.8	2943	47.0
45 – 69	1367	23.6	1977	34.1	2451	42.3
Sex						
Male	1221	24.5	1555	31.2	2201	44.2
Female	1410	19.9	2472	34.9	3194	45.1
Education						
Up to high school	1852	20.4	2872	31.6	4352	48.0
More than high school	681	25.2	1081	40.0	941	34.8
Residence						
Rural	2106	21.3	3376	34.2	4390	44.5
Urban	525	24.1	651	29.8	1005	46.1
Total	2631	21.8	4027	33.4	5395	44.8

Table 2.15. Vigorous and moderate levels of physical activity by age group, sex, education and residence

	Work related				*Travel related*		*Leisurely activity related*			
	Vigorous		*Moderate*				*Vigorous*		*Moderate*	
	N	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Age (years)										
18 – 44	812	13.0	4710	75.3	2908	46.5	594	9.5	1582	25.3
45 – 69	803	13.9	4327	74.7	2942	50.8	62	1.1	1314	22.7
Sex										
Male	1215	24.4	3093	62.2	2545	51.1	583	11.7	1420	28.5
Female	401	5.7	5944	84.0	3305	46.7	74	1.0	1475	20.8
Education										
Up to high school	1423	15.7	6998	77.1	4475	49.3	358	3.9	2089	23.0
More than high school	167	6.2	1880	69.6	1268	46.9	297	11.0	767	28.4
Residence										
Rural	1410	14.3	7463	75.6	4826	48.9	541	5.5	2348	23.8
Urban	206	9.4	1574	72.2	1025	47.0	115	5.3	548	25.1
Total	1615	13.4	9037	75.0	5850	48.5	656	5.4	2896	24.0

Table 2.16. Mean duration (minutes per week) of physical activity by age group, sex, education and residence

	Work related		*Travel related*	*Leisurely activity related*	
	Vigorous	*Moderate*	*Mean (SD)*	*Vigorous*	*Moderate*
	Mean(SD)	*Mean(SD)*		*Mean(SD)*	*Mean(SD)*
Age (years)					
18 – 44	153.18 (524.44)	617.55 (760.93)	87.80 (162.35)	27.90 (120.02)	55.10 (161.51)
45 – 69	153.03 (525.19)	586.27 (753.18)	105.76 (192.72)	2.62 (32.87)	48.41 (146.33)
Sex					
Male	313.81 (731.89)	479.87 (763.27)	117.07 (196.03)	35.06 (130.98)	66.54 (165.52)
Female	40.11 (247.99)	688.80 (741.16)	81.93 (162.26)	2.16 (37.202)	41.58 (145.25)
Education					
Up to high school	181.53 (569.14)	653.35 (789.04)	100.85 (184.83)	11.64 (79.64)	49.77 (153.40)
More than high school	59.09 (310.030)	444.83 (621.088)	79.28 (144.18)	31.06 (121.45)	61.33 (161.93)
Residence					
Rural	156.63 (521.93)	592.55 (737.04)	97.73 (175.39)	14.49 (81.68)	50.78 (154.97)
Urban	137.19 (537.34)	647.61 (841.88)	90.59 (188.37)	21.44 (121.84)	56.87 (151.89)
Total	153.11 (524.78)	602.51 (757.35)	96.44 (177.82)	15.75 (90.32)	51.88 (154.43)

Table 2.17. Mean value of physical measurements by age group, sex, education and residence

	Height (cms)		*Weight (Kgs)*		*BMI*		*WC (cms)*		*SBP mmHg*		*DBP mmHg*	
	Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*
Age (years)												
18 – 44	159.66	8.77	60.96	11.93	23.91	4.74	84.79	11.04	120.06	14.34	78.15	9.92
45 – 69	157.73	8.87	61.23	11.57	24.63	4.83	88.33	11.02	133.96	18.93	83.93	10.61
Sex												
Male	164.90	7.79	64.69	11.62	23.83	5.27	86.68	10.62	129.78	17.02	82.86	10.95
Female	154.39	6.77	58.54	11.18	24.56	4.41	86.36	11.54	124.62	18.51	79.58	10.23
Education												
Up to high school	158.39	8.73	60.87	11.51	24.26	4.28	86.64	11.04	128.60	18.39	81.73	10.78
More than high school	160.37	9.12	62.21	12.51	24.24	6.27	86.12	11.62	120.30	15.45	78.20	9.86
Residence												
Rural	158.77	8.83	60.71	11.58	24.09	4.60	86.04	11.16	126.75	17.85	80.91	10.65
Urban	158.55	9.07	62.80	12.38	25.02	5.52	88.54	10.97	126.74	19.12	81.05	10.66
Total	158.73	8.87	61.09	11.76	24.25	4.80	86.49	11.17	126.75	18.09	80.94	10.66

Table 2.18. Clinical risk factors by age group, sex, education and residence

	Overweight		*Obese*		*Abdominal obesity*		*Raised BP*		*Hypertension*	
	N	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Age (years)										
18 – 44	1870	30.1	437	7.0	3172	51.1	846	13.6	898	14.5
45 – 69	1876	32.5	589	10.2	3574	62.0	2334	40.5	2774	48.1
Sex										
Male	1437	29.0	270	5.5	1763	35.6	1572	31.7	1727	34.9
Female	2309	32.8	756	10.8	4984	70.9	1608	22.9	1945	27.7
Education										
Up to high school	2831	31.4	777	8.6	5130	56.8	2641	29.3	5972	66.2
More than high school	826	30.7	232	8.6	1462	54.5	467	17.4	2158	80.3
Residence										
Rural	2996	30.5	782	8.0	5370	54.7	2581	26.3	2949	30.0
Urban	750	34.6	243	11.2	1377	63.6	600	27.7	723	33.4
Total	3746	31.3	1026	8.6	6746	56.3	3180	26.5	3672	30.6

**Raised BP: Blood pressure >=140/90 mmHG*

Table 2.19. Mean value of biochemical values by age group, sex, education and residence

	FBS		*Urine Creatinine*		*Urine Sodium*	
	Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*
Age (years)						
18 – 44	98.93	26.59	106.31	72.33	113.15	58.80
45 – 69	119.10	44.28	88.11	61.82	102.76	53.63
Sex						
Male	109.508	38.27	114.61	76.79	111.42	58.75
Female	108.06	37.11	85.50	58.27	105.82	54.92
Education						
Up to high school	110.55	38.27	95.08	65.96	108.31	56.22
More than high school	101.98	34.28	106.24	73.48	106.72	57.47
Residence						
Rural	108.655	37.03	96.02	67.51	107.45	56.21
Urban	108.69	40.08	104.36	70.15	111.28	58.25
Total	108.66	37.59	97.53	68.07	108.14	56.60

Table 2.20. Prevalence of pre-diabetes, diabetes by age group, sex, education and residence

	Normal (<100 mg/dl)		*Pre-diabetic (100-125mg/dl)*		*Diabetics (>=126 mg/dl or on medication)*	
	N	*%*	*N*	*%*	*N*	*%*
Age (years)						
18 – 44	3720	60.9	1919	31.4	471	7.7
45 – 69	1841	32.3	2062	36.2	1798	31.5
Sex						
Male	2191	44.9	1705	34.9	984	20.2
Female	3370	48.6	2276	32.8	1284	18.5
Education						
Up to high school	3897	43.7	3173	35.5	1856	20.8
More than high school	1556	59.0	732	27.8	349	13.2
Residence						
Rural	4491	46.4	3337	34.5	1850	19.1
Urban	1070	50.1	645	30.2	419	19.6
Total	5561	47.1	3982	33.7	2269	19.2

Table 2.21. Awareness, treatment and control of hypertension among all hypertensives

	Aware		*Treating*		*Under control*	
	N	*%*	*N*	*%*	*N*	*%*
Age						
18 – 44	202	22.5	131	14.6	52	5.8
45 – 69	1424	51.3	1212	43.7	438	15.8
Sex						
Male	638	36.9	506	29.3	155	9.0
Female	987	50.7	837	43.0	335	17.2
Education						
Up to high school	1379	45.1	1122	36.7	412	13.5
More than high school	205	38.5	181	34.0	64	12.1
Residence						
Rural	359	49.7	312	43.2	123	17.0
Urban	1267	42.9	1031	34.9	367	12.4
Total	1625	44.3	1343	36.6	490	13.3

Table 2.22. Awareness, treatment and control of diabetes among all diabetics

	Aware		Treating		Under control	
	N	%	N	%	N	%
Age						
18 – 44	133	28.2	115	24.4	31	6.6
45 – 69	1116	62.1	1016	56.5	320	17.8
Sex						
Male	532	54.1	474	48.2	165	16.8
Female	717	55.8	657	51.2	186	14.5
Education						
Up to high school	1054	56.8	958	51.6	302	16.3
More than high school	166	47.6	146	42.0	47	13.5
Residence						
Rural	233	55.6	214	51.1	67	16.0
Urban	1016	54.9	917	49.6	285	15.4
Total	1249	55.1	1131	49.9	351	15.5

Table 2.23. Percentage of participants got advice from doctor or health worker

Advice	*N*	*%*
Against starting smoking or to quit smoking	1109	9.2
Against starting smokeless tobacco use or to quit the same	616	5.1
Against starting alcohol drinking or to reduce the quantity or quit alcohol drinking	946	7.9
To reduce salt content in food	2449	20.3
To eat 5 or more servings of fruits and vegetables	2298	19.1
To reduce cholesterol content in food	2583	21.4
To increase exercise	2115	17.5
To maintain or reduce body weight	1771	14.7
To follow special diet	2280	18.9
To do yoga	727	6.0

Table 2.24. Percentage of participants undergone disease screening by age group, sex, education and residence

	Oral cancer		*Breast cancer*		*Cervical cancer*	
	N	*%*	*N*	*%*	*N*	*%*
Age (years)						
18 – 44	73	2.0	68	2.9	6	0.4
45 – 69	118	2.0	123	3.8	6	0.4
Sex						
Male	80	2.1				
Female	111	2.0	191	3.4	6	0.4
Education						
Up to high school	160	2.1	116	2.6	1	0.1
More than high school	28	1.9	60	6.6	5	1.3
Residence						
Rural	158	2.0	126	2.8	3	0.2
Urban	32	1.9	65	6.4	3	1.2
Total	191	2.0	191	3.4	6	0.4

DISCUSSION

Based on state level population representative data from adults over 18 years of age in Kerala, we estimated that on an average nearly one of three and one of five adults in Kerala have hypertension and diabetes, respectively. Additionally, awareness, treatment and control status of both hypertension and diabetes are alarmingly low even in the relatively better educated Kerala population. Among males one of three adults reported current use of some form of tobacco and over 30% reported current alcohol use.

To the best of our knowledge, this is the first study reporting state-wide prevalence of hypertension, diabetes, and alcohol use by using a state level representative data from both urban and rural areas of Kerala. Interestingly, we did not find any major differences between urban and rural residents in terms of the prevalence of diabetes and hypertension. It probably reflects the advanced stage of epidemiological transition and near urbanization of most of the areas labeled as rural in Kerala. The relatively better treatment and control rates of hypertension and diabetes in rural Kerala as compared to urban Kerala and other parts of India probably reflects the strength of the public funded primary care system in Kerala. Our study findings on overall prevalence, awareness, and treatment of hypertension and diabetes are also consistent with previously reported data from the Indian sub-continent. However, we find that two thirds of the population in Kerala is either diabetic or pre-diabetic in the age group of 45-69 years. Similar findings are reported in recent studies conducted in large cities such as Chennai and Delhi. Our data call for urgent action to prevent or delay the onset of diabetes at the population level to curtail the future burden related to the complications of diabetes. Context specific, resource sensitive and scalable intervention strategies need to be developed and implemented in Kerala. Studies such as the Kerala Diabetes Prevention Project are highly relevant in this context and such novel community based strategies need to be scaled-up at the population level across Kerala.

Our data demonstrate reversal of social gradient for the first time in India in the case of diabetes in Kerala. For example, the prevalence of diabetes was clearly higher in low educated group as compared to individuals with more than high school level education. Given that individuals with diabetes, if not treated with multiple drugs for control of all cardiovascular risk factors and including hypertension, will develop life-threatening vascular complications, families and individuals will be forced to spend a significant proportion of their family income for health care. The impact of higher spending on health especially in the low socio-economic strata would result in distress financing for health care and catastrophic health spending. It can further push individual and families into poverty. Our data strongly argue for universal health care with provisions for appropriate management of diabetes and hypertension at the primary care level in Kerala. In this context, the policy initiative of Kerala Government to convert primary health care centres as family health centres with evening out-patient clinics and the plan to provide quality treatment in the near neighborhood of affected individuals is a welcome initiative.

Excess salt consumption has been cited as a reason for higher prevalence of hypertension in Indians. We indirectly estimated the population level salt intake from urine sodium and creatinine values. We find that women consume more salt than men in Kerala. Additionally, there is no urban and rural difference in terms of mean intake of salt. The proportion of population consuming salt above the recommended level of 5gm/day was very high in Kerala. In a Cochrane systematic review (including 17 trials in individuals with elevated blood pressure and 11 trials in individuals with normal blood pressure) a modest reduction in salt intake for duration of 4 weeks or more is associated with a significant and, from a population viewpoint, important effect on blood pressure. Given the efficacy of reduced sodium intake in lowering blood pressure, our data urgently seek policy initiates to curtail population level consumption of salt. The UK Food Standards Agency (FSA) salt campaign is noteworthy because of its demonstrated success in reducing salt intake, voluntary collaboration with the food industry, and use

of surveillance data. Launched in 2003, the campaign aims to reduce salt intake from 9.5 to 6 grams per day through packaged food reformulation, consumer awareness campaigns, and improved front-of-pack nutrition labeling.

Strengths and limitations

Our main strengths are the population representative data and the generalizability of our findings to whole Kerala. We have also achieved exceptionally higher response rate in our survey. The uniform data collection in all districts, data collection during the same period in all the districts, short duration of data collection, district level supervision of data collection and centralized sample selection and training helped as to collect quality data.

Data collectors training programme in Ernakulam region. Group work in progress

Data collectors training programme in Kannur region, Demonstration of the assessment of physical measurements. Dr. A. S. Pradeep Kumar, Senior research officer of the project, AMCHSS is conducting the class

Data collectors training programme on 22 November 2016 in Thrissur region.
Group work in progress

Data collectors training programme on 3rd November 2016 in Thiruvananthapuram region, Group work in progress

Data collectors training programme on 22 November 2016 in Thrissur region. Demonstration of GIS mapping by Dr.Biju Soman, AMCHSS

Field verification of collected data in Kozhikode by Dr. A. S. Pradeep Kumar and Dr. B. Ushakumari, Senior research officers, AMCHSS

Field verification of data collection in Kozhikode. Dr. A. S. Pradeep Kumar and Dr. B. Ushakumari, Senior research officers, AMCHSS are observing

Field verification of collected data in Ernakulum by Dr. Pradeepkumar and Dr. Ushakumari, Senior research officers, AMCHSS. Smt. Anu Maria Jacob, District project manager Ernakulam is also seen

Field verification of collected data in Thrissur by Dr. Pradeepkumar and Dr. Ushakumari, Senior research officers, AMCHSS. Jorry Poulose, District project manager, Thrissur and Brian.S.Raj, Project Assistant of the project are also seen

Field verification of collected data in Kottayam by Dr. Pradeepkumar and Dr. Ushakumari, Senior research officers, AMCHSS. Smt. Sumitha P.H, District project manager Kottayam is also seen

Field verification of data collection in Pathanamthitta district

Field verification of data collection in Kanjiramkulam, Thiruvananthapuram by Dr. B. Ushakumari, Senior research officer, AMCHSS

Field verification of data collection in Varkala, Thiruvananthapuram by Dr. Pradeep Kumar, Senior research officer, AMCHSS

Training of District Project Managers on 21 - 22 July 2016 at AMC seminar hall.
Dr. K.R.Thankappan, Professor & HOD AMCHSS delivers the introductory address.
Dr. V. Raman Kutty Professor AMCHSS is next to him.

Training of District Project Managers on 21 - 22 July 2016 at AMC seminar hall.
Dr. A. S. Pradeep Kumar Senior Research Officer is taking the class. Dr. K.R.Thankappan,
Professor & HOD AMCHSS and Dr. V. Raman Kutty Professor AMCHSS are also seen.

Training of District Project Managers on 21 - 22 July 2016 at AMC seminar hall.
District Project Managers are engaged in group discussion.

Training of District Project Managers on 21 - 22 July 2016 at AMC seminar hall.
District Project Managers are engaged in group discussion.

Training of District Project Managers on 8 – 9 August 2016 at AMC seminar hall.
Dr. V. Raman Kutty Professor AMCHSS is taking the class.

Training of District Project Managers on 8 – 9 August 2016 at AMC seminar hall.
Dr. Sundari Ravindran Professor AMCHSS is taking the class.

Training of District Project Managers on 22 - 23 August, 2016 at AMC Seminar hall.
Dr. K.R.Thankappan, Professor & HOD AMC talks on the occasion

Sensitisation programme for the Grama panchayath president and health standing committee chairperson on 6th October 2016 at AMC Auditorium SCTIMST.
Sri Rajeev Sadanandan IAS, Additional Chief Secretary, Health and family welfare, Govt of Kerala, addressing the gathering

Sensitisation programme for the Grama panchayath president and health standing committee chairperson on 6th October 2016 at AMC Auditorium SCTIMST. Sri Rajeev Sadanandan IAS, Additional Chief Secretary, Health and family welfare, Govt of Kerala, addressing the gathering

Sensitisation programme for the Grama panchayath president and health standing committee chairperson on 6th October, 2016 at SCTIMST Auditorium. Dr.K.R.Thankappan, HOD AMCHSS, addressing the programme.

Sensitisation programme for the Grama panchayath president and health standing committee chairperson on 6th October, 2016 at SCTIMST Auditorium

Sensitisation programme for the Grama panchayath president and health standing committee chairperson on 17th October 2016 at Kerala Institute of Local Administration (KILA) Thrissur. Dr.B.Ekbal, Member, Kerala State Planning Board, discussing the issues with elected representatives. Dr.K.R.Thankappan, HOD AMCHSS and Dr. Bindu Thomas Additional DMO, Thrissur are on the dias.

Sensitisation programme for the Grama panchayath president and health standing committee chairperson on 17th October 2016 at Kerala Institute of Local Administration (KILA) Thrissur.

Third Sensitisation programme for the Grama panchayath president and health standing committee chairperson on 15th March, 2017 at SCTIMST Auditorium. Dr. B.Ekbal, Member of Kerala State Planning Board addressing the gathering

Teachers training programme in Kannur district.
Dr.Biju Soman, AMCHSS is taking the class

Teachers training programme in Ernakulam district.
Dr. Manju R Nair, AMCHSS is taking the class

Teachers training programme in Kannur. Group work in progress

Teachers training programme in Pathanamthitta district. Dr.Ushakumari.B, Senior research officer of the project, AMCHSS is conducting the class

School classes in Pathanamthitta District

School classes in Palakkad District

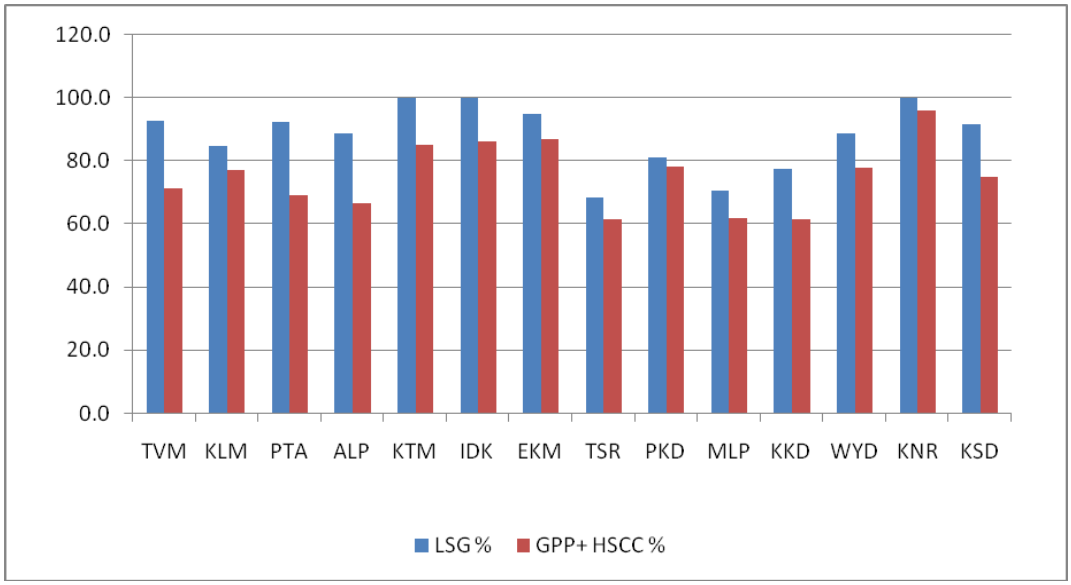
School classes in Wayanad District.
Smt. Athulya Thomas, District Project Manager, Wayanad taking the class

School classes in Kollam District.
Dr. Reethu S, District Project manager, Kollam taking the class

School classes in Alappuzha District

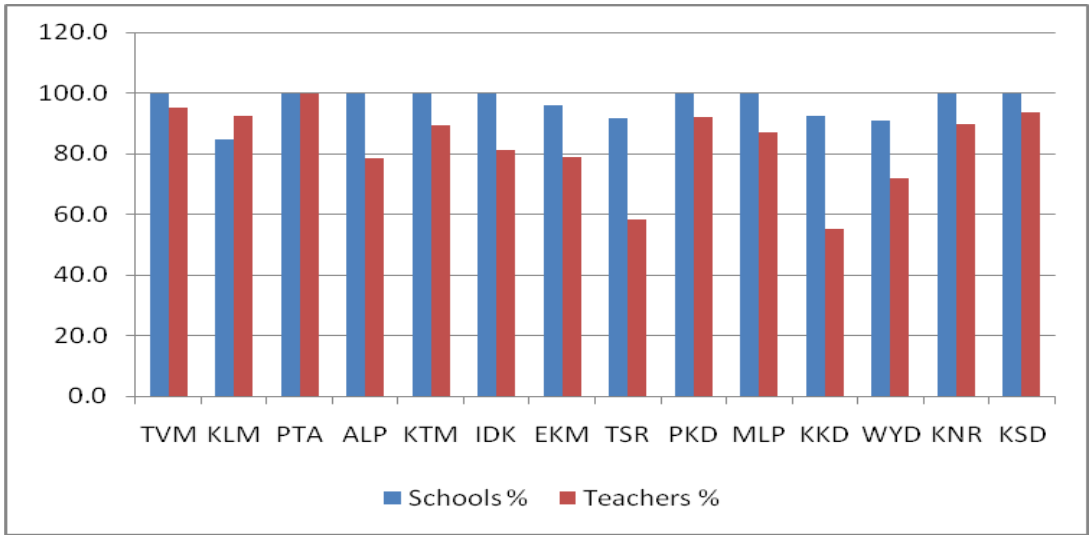
School classes in Thrissur District.
Dr. Vinayak P, District Project Manager Thrissur taking the class

Fig 3.1. Panchayaths and elected representative's participation in sensitization program



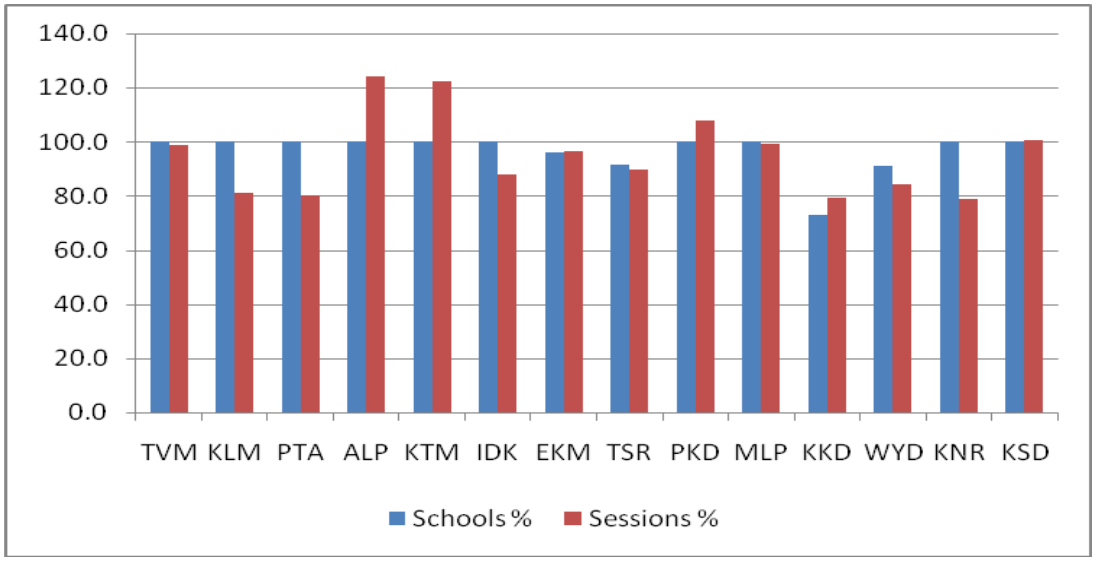
LSG – Local Self Governments (Block Panchayaths and Grama Panchayaths), GPP – Grama Panchayath President, HSCC – Health Standing Committee Chairpersons. TVM- Thiruvananthapuram, KLM – Kollam, PTA – Pathanamthitta, ALP – Alappuzha, KTM – Kottayam, IDK – Idukki, EKM – Ernakulam, TSR – Thrissur, PKD – Palakkad, MLP – Malappuram, KKD- Kozhikode, WYD – Wayanad, KNR – Kannur, KSD - Kasaragod

Fig 3. 2. Details of schools and teachers participation in teachers training program by districts



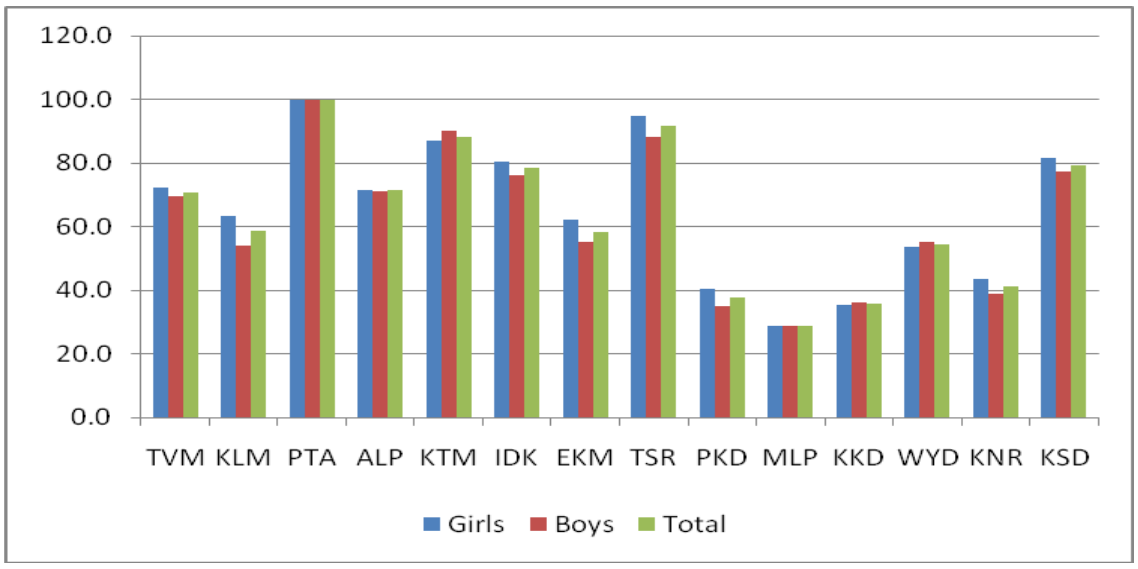
TVM- Thiruvananthapuram, KLM – Kollam, PTA – Pathanamthitta, ALP – Alappuzha, KTM – Kottayam, IDK – Idukki, EKM – Ernakulam, TSR – Thrissur, PKD – Palakkad, MLP – Malappuram, KKD- Kozhikode, WYD – Wayanad, KNR – Kannur, KSD - Kasaragod

Fig 3.3. Details of schools participation and school sessions conducted



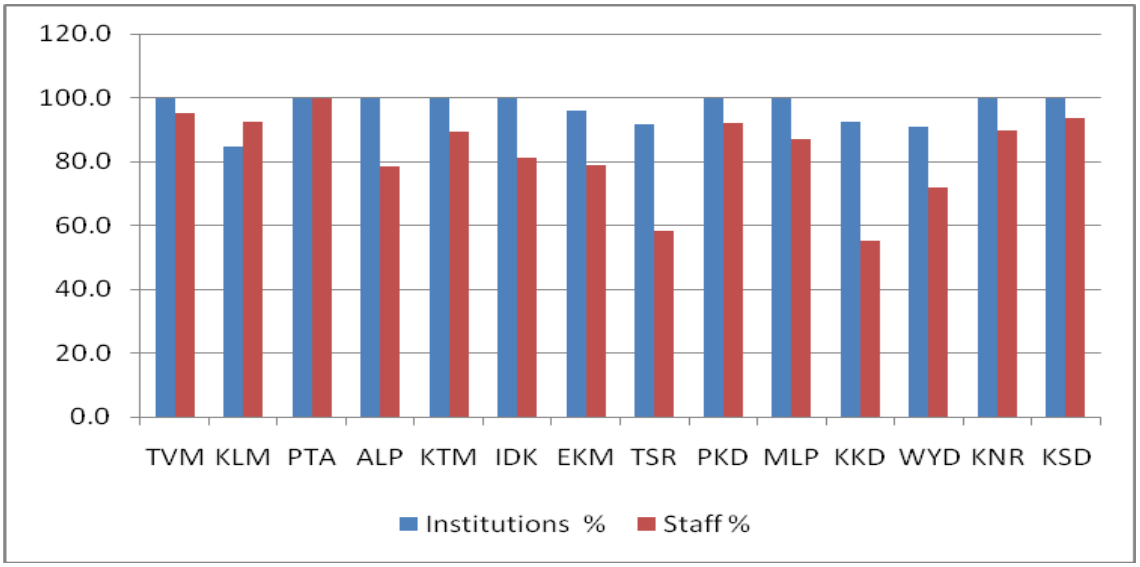
TVM- Thiruvananthapuram, KLM – Kollam, PTA – Pathanamthitta, ALP – Alappuzha, KTM – Kottayam, IDK – Idukki, EKM – Ernakulam, TSR – Thrissur, PKD – Palakkad, MLP – Malappuram, KKD- Kozhikode, WYD – Wayanad, KNR – Kannur, KSD - Kasaragod

Fig 3.4. Details of students attended the school students training program



TVM- Thiruvananthapuram, KLM – Kollam, PTA – Pathanamthitta, ALP – Alappuzha, KTM – Kottayam, IDK – Idukki, EKM – Ernakulam, TSR – Thrissur, PKD – Palakkad, MLP – Malappuram, KKD- Kozhikode, WYD – Wayanad, KNR – Kannur, KSD - Kasaragod

Fig 3.5. Details of health institutions and health staff participated in the training program by district



TVM- Thiruvananthapuram, KLM – Kollam, PTA – Pathanamthitta, ALP – Alappuzha, KTM – Kottayam, IDK – Idukki, EKM – Ernakulam, TSR – Thrissur, PKD – Palakkad, MLP – Malappuram, KKD- Kozhikode, WYD – Wayanad, KNR – Kannur, KSD - Kasaragod

Fig 3.6. State level objectives and achievements of the project during the year one

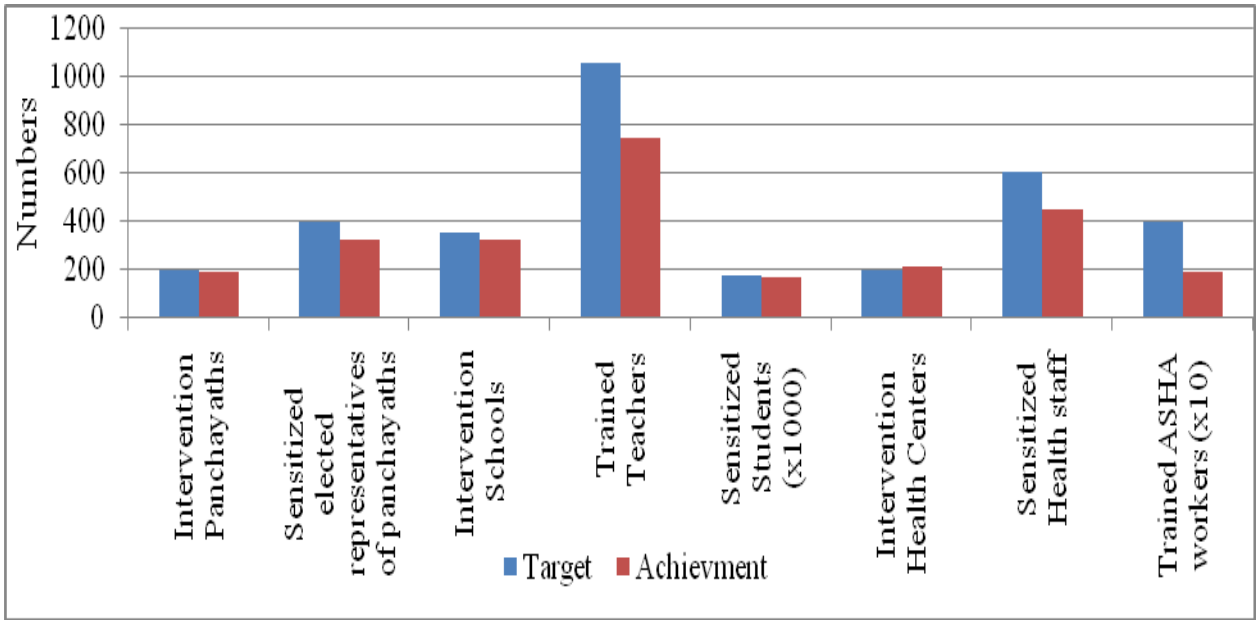
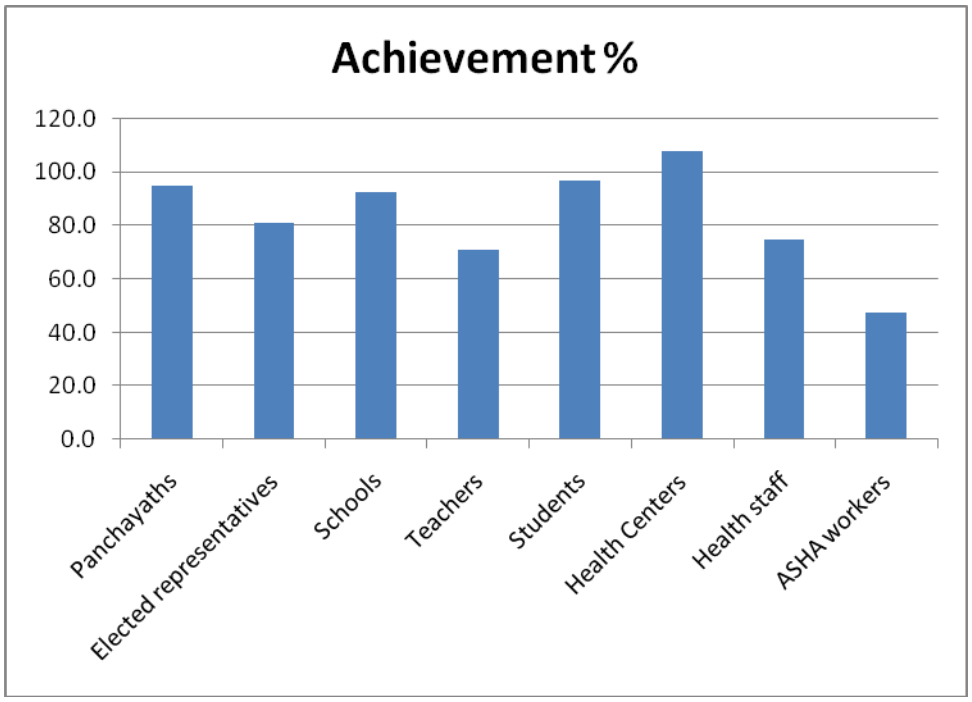


Fig 3.7. State level achievements of the project during the year one



Chapter 3

Implementation of NCD Risk Reduction strategies

The major focus of this project was implementation of risk reduction strategies through selected schools and panchyaths in the state. In the first year around 20% of the community development blocks in the state were selected for this implementation. All the village panchayats and schools in these selected blocks were included for implementation of risk reduction activities. The activities of the project started with a series of training programs.

Training Programs

In order to implement the activities in the districts 28 District Project Managers, two each for each of the 14 districts, with a minimum qualification of a Masters degree in Public Health, Epidemiology, Nursing or Social Work were recruited. A project cell was established in Achutha Menon Center for Health Science Studies (AMCHSS) of Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST) to coordinate the project activities in the state. The list of staff in AMCHSS and DPMs are given in Annexure 9.

Training of District Project Managers

The District Project Managers (DPM) were given induction training on 7th July 2016 in Achutha Menon Center for Health Science Studies (AMCHSS) by the Project Investigators. In this training, the various project activities, administrative issues, coordination with health system, structure of health system and the importance of this project were discussed. Subsequently, two days training was given on 21 and 22 July 2016 in AMCHSS. The training schedule is given as Annexure 10. The training included an overview of the NCD problem in the world, in India and in Kerala. The training also focused on the four major risk factors of NCDs: tobacco, alcohol, unhealthy diet and physical inactivity. The third training was on 8 and 9 August 2016 and was conducted in AMCHSS. In addition to the project activities, various strategies and models for prevention and control of NCDs were discussed in this session. There were

problem solving sessions also. The fourth training was on 22 and 23 August 2016 in AMCHSS by the Project Investigators and experts from the Indian Council of Medical Research (ICMR) and the World Health Organization (WHO) India country office, New Delhi. The training schedule is given as Annexure 11. The WHO risk factor surveillance of NCDs was also discussed in detail during the training program. They were also given training to use the Personal digital assistants (PDA) for data collection. Training also included measurement techniques of WHO STEP 2 measurements such as weight, height, waist circumference, blood pressure and pulse rate. The list of selected community development blocks in each of the 14 districts was also given to the DPMs for implementation of school level and panchayth level activities to reduce the NCD risk factors. Each DPM was provided a space either in the District Medical office or in the District national health mission (NHM) office. Training was also provided to them on how to work with the concerned district officers and how to build a rapport with the district officers so that the project can be effectively implemented. Since the project staff was located outside our institution, training on administrative matters was provided by an administrative officer from Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST). These included the need for submitting attendance every month through emails, online transfer of their salary to their bank accounts, preparation of Travel Allowance (TA) bills, submission of original bills for reimbursement etc. Their attendance was also monitored from the office of the AMCHSS through Open Data Kit (ODK).

Risk reduction strategies through panchayaths

This project intended to cover one fifth of grama panchayaths and schools in the first year. We selected the community development blocks from each district based on the performance of these blocks in the previous National Health Mission (NHM) projects on health. There was an evaluation conducted by the NHM and ranked the CD blocks in all the districts for giving *Arogyakeralam puraskaram.* The best performing blocks to get 20% of grama panchayaths were selected from this list. This was purposely done in order to effectively implement the risk reduction strategies in those blocks. Thus two to four

block panchayaths were selected in each district. All interventions were implemented in 219 grama panchayaths within the selected 36 block panchayaths in the state. The number and names of selected block panchayaths and number of selected grama panchayaths are given in Table 3.1. The names of selected grama panchayaths are given in Annexure 12.

Sensitization program for elected representatives of grama panchayaths

This was conducted in four sessions. The grama panchayath Presidents and Health standing committee chairpersons attended these programs. The first session was conducted in SCTIMST auditorium along with inaugural function of the project on 30th August 2016 and there were 115 participants. The second session was conducted on 6/10/2016 in SCTIMST Auditorium with 94 participants and the third session was conducted in the Kerala Institute of Local Administration (KILA), Thrissur on 17 October 2016 with 97 participants. The final session was conducted in SCTIMST Auditorium on 15th March 2017 with 61 participants. Mr. Rajiv Sadanandan IAS, Additional Chief Secretary Health and Family Welfare gave the key note address in first and second sessions. Dr.B. Ekbal, Member State Planning Board in charge of heatlh and education moderated the discussions with participants in the first,

third and fourth sessions. Dr.KR Thankappan Professor and HOD (Principal Investigator of the project), Dr. V. Raman Kutty Professor (Co-Investigator), Dr.Biju Soman Additional Professor (Co-Investigator) and Dr A.S. Pradeep Kumar Senior research officer and former Additional Director of health services in charge of the NCD program were also resource persons for the sessions. One sample program agenda is given in Annexure 13. The training module was prepared in Malayalam and copy given to all participants. A total of 367 representatives participated in four orientation sessions from 190 grama panchayats. Among these 367 elected representatives, there were 177 panchayath Presidents and 148 Health standing committee chairpersons (325) and the remaining were members of the Panchayats. The details are given in Table 3.2. List of participants is given in Annexure 14. This is reflected in Fig 3.1 also.

Table 3.1. List of panchayaths selected for interventions

Sl. No	District	No of selected block panchayaths	Name of selected block panchayaths	No of selected grama panchayaths
1	Thiruvananthapuram	2	Perinkidavila Parassala	14
2	Kollam	2	Chittumala Ochira	13
3	Pathanamthitta	2	Koyippuram Elanthur	13
4	Alappuzha	3	Veliyanad Thykattussery Pattanakkad	18
5	Kottayam	3	Ettumanur Kaduthuruthy Uzhavur	20
6	Idukki	2	Thodupuzha Adimaly	11
7	Ernakulam	3	Mulanthuruthy Angamaly Pampakuda	19
8	Thrissur	4	Thalikkulam Chowannur Irinjalakkuda Anthicad	22
9	Palakkad	3	Pattambi Sreekrishnapuram Attappadi	16
10	Malappuram	3	Perumpadappu Thirurangadi Kalikavu	17
11	Kozhikode	3	Kunnummal Chelavannur Koduvally	22
12	Wayanad	2	Sulthanbethery Panamaram	9
13	Kannur	2	Koothuparampu Peravur	13
14	Kasaragod	2	Kanjangad Manjeswaram	12
	Total	**36**		**219**

Risk reduction strategies through schools

Training programs were organized for school teachers and students in schools of selected block panchayaths in each district. All the Government schools and Government aided private schools were included in the program. It was decided to include students of standards 8 – 12 in the selected block panchayaths for the school based intervention. Private unaided schools were not included due to logistic reasons, although some of the NCD risk factors such as unhealthy diet were likely to be more in children of these schools. In the state 335 schools were selected from all the 14 districts. There were a total of about 3 lakhs students (about 50% girls) in these schools. List of schools with student strength is given in Annexure 15.

Table 3.2. Details of elected representatives of panchayaths who participated in sensitization program by district

Sl. No.	District	Number of Panchayaths included	Number of Panchayaths participated	Percentage participation	Number of elected representatives invited	Number of elected representatives participated	Percentage participation
1	Thiruvananthapuram	14	13	92.9	28	20	71.4
2	Kollam	13	11	84.6	26	20	76.9
3	Pathanamthitta	13	12	92.3	26	18	69.2
4	Alappuzha	18	16	88.9	36	24	66.7
5	Kottayam	20	20	100	40	34	85.0
6	Idukki	11	11	100	22	19	86.4
7	Ernakulam	19	18	94.7	38	33	86.8
8	Thrissur	22	15	68.2	44	27	61.4
9	Palakkad	16	13	81.3	32	25	78.1
10	Malappuram	17	12	70.6	34	21	61.8
11	Kozhikode	22	17	77.3	44	27	61.4
12	Wayanad	9	8	88.9	18	14	77.8
13	Kannur	13	13	100	26	25	96.2
14	Kasaragod	12	11	91.7	24	18	75.0
	Total	**219**	**190**	**86.8**	**438**	**325**	**74.2**

Training of teachers

A letter from the education department was sent to all the selected schools to obtain their support. Two to three teachers were identified from each school in consultation with the school headmaster/headmistress and all of them were invited to participate in the one day training. The training programs were organized during September – October 2016 with the help of Secretary General Education, Secretary Higher Education, Deputy Director Education and School Principal / Head. Two batches of training program were organized in all districts except Idukki where there was only one session. The sessions were taken by representatives from District Medical Office, AMCHSS and DPM (NCD) of this project. A sample schedule of the training program is also given in the Annexure 16. In brief the session started with an introduction of the project on prevention and control of NCDs and the role of schools in reducing the risk factors. Using centrally prepared poweroints each of the risk factors (tobacco, alcohol, unhealthy diet and physical inactivity) was presented by one faculty. Separate power point slides were prepared for each of these risk factors by the project team at AMCHSS and they were communicated to all the resource persons. In addition, written modules for teachers were also printed and distributed to all the participating teachers. In the afternoon there was group work where each group was allowed to discuss how to combine all these classes into a one class session in the school. They were also requested to make presentation to the whole group after the discussion. At the end of the day there was a planning session. In this session future implementation of these classes in the schools along with structural changes on risk reduction strategies were also discussed. Among the invited 904 teachers from these schools, 746 teachers (82.5%) from 324 schools (96.7%) participated in teachers training program. The details are given in Table 3.3. The list of participants is given in Annexure 17. This is reflected in Fig 3.2 also.

Training of students

The trained teachers were requested to take classes for the students of their own school. The classes were arranged in batches of 50 students and a minimum of 10 classes were conducted in each school with 500 or more students. The number of classes was

proportionate to the number of students. Thus the number of classes was less than 10 in schools with less than 500 students and more when there were more than 500 students. An amount of Rs. 250/- was given to each class and the maximum amount given to one school was Rs. 2500. The amount was to prepare teaching materials, introducing structural changes such as no tobacco boards in school premises vegetable gardens in the schools wherever possible and purchase of sports goods to encourage physical activity among the children. In some schools more than 10 sessions were taken to cater maximum number of students.

The classes were organized during December 2016 and March 2017 and were monitored by DPM. The classes were organized in 323 schools. About 3064 classes were planned and 2930 (95.6%) were completed. The details are given in Table 3.4. The list of schools that conducted the training with number of students attended is given in Annexure 18. The number of schools included, classes conducted, the number of sessions planned and conducted in each district are also given in this Annexure 18. The proportion of school participation and sessions conducted are shown in Fig 3.3.

Table 3.3. Details of schools and teachers participation in teachers training program by districts

Sl. No.	District	Number of schools included	Number of schools participated	Percentage participation	Number of teachers invited	Number of teachers participated	Percentage participation
1	Thiruvananthapuram	23	23	100	60	57	95.0
2	Kollam	26	22	84.6	67	62	92.5
3	Pathanamthitta	21	21	100	54	54	100
4	Alappuzha	25	25	100	70	55	78.6
5	Kottayam	27	27	100	65	58	89.2
6	Idukki	16	16	100	48	39	81.3
7	Ernakulam	25	24	96.0	61	48	78.7
8	Thrissur	24	22	91.7	72	42	58.3
9	Palakkad	26	26	100	76	70	92.1

10	Malappuram	22	22	100	62	54	87.1
11	Kozhikode	26	24	92.3	78	43	55.1
12	Wayanad	22	20	90.9	57	41	71.9
13	Kannur	22	22	100	58	52	89.7
14	Kasaragod	30	30	100	76	71	93.4
	Total	**335**	**324**	**96.7**	**904**	**746**	**82.5**

Table 3.4. Details of schools participated and sessions conducted in students training program by district

Sl. No.	District	Number of schools included	Number of schools participated	Percentage participation	Number of sessions planned	Number of sessions conducted	Percentage conducted
1	Thiruvananthapuram	23	23	100	210	207	98.6
2	Kollam	26	26	100	225	182	80.9
3	Pathanamthitta	21	21	100	199	160	80.4
4	Alappuzha	25	25	100	230	286	124.3
5	Kottayam	27	27	100	235	288	122.6
6	Idukki	16	16	100	140	123	87.9
7	Ernakulam	25	24	96	214	207	96.7
8	Thrissur	24	22	91.7	240	215	89.6
9	Palakkad	26	26	100	250	270	108.0
10	Malappuram	22	22	100	210	208	99.0
11	Kozhikode	26	19	73.1	240	190	79.2
12	Wayanad	22	20	90.9	202	170	84.2
13	Kannur	22	22	100	219	173	79.0
14	Kasaragod	30	30	100	250	251	100.4
	Total	**335**	**323**	**96.4**	**3064**	**2930**	**95.6**

More than 1.7 lakhs students (51% girls) attended the classes. Thus more than half of students in these schools were sensitized. In Alappuzha, Kottayam and Palakkad additional sessions were taken to sensitize more students. But Kozhikode, Kannur, Kollam and Pathanamthitta achieved only about 80% of the target. The details are given in Table 3.5. This is reflected in Fig 3.4 also.

Table 3.5. Details of students who attended the training program

Sl. No	District	No of Students attended the class			Percentage of students attended the class		
		Girls	Boys	Total	Girls	Boys	Total
1	Thiruvananthapuram	6930	7215	14145	72.1	69.7	70.8
2	Kollam	6704	5804	12508	63.3	53.8	58.5
3	Pathanamthitta	4322	4687	9009	100	100	100
4	Alappuzha	6597	7282	13879	71.6	71.1	71.4
5	Kottayam	7778	7487	15265	86.8	90.0	88.3
6	Idukki	4579	3782	8361	80.4	76.3	78.5
7	Ernakulam	4860	5221	10081	62.1	55.0	58.2
8	Thrissur	9554	8720	18274	94.9	88.0	91.5
9	Palakkad	7524	6343	13867	40.2	34.8	37.6
10	Malappuram	5960	5520	11480	28.9	28.9	28.9
11	Kozhikode	5604	5166	10770	35.5	36.0	35.7
12	Wayanad	4532	4786	9318	53.5	55.3	54.4
13	Kannur	4749	4311	9060	43.5	39.0	41.2
14	Kasaragod	7203	7267	14470	81.6	77.3	79.4
	Total	**86896**	**83591**	**170487**	**58.1**	**55.9**	**57.0**

Training of Health Staff

In each of the 14 districts one batch of health workers and doctors from the selected blocks were given training. The sessions were taken by representatives from District Medical Office, AMCHSS and DPM (NCD) of this project. A sample training schedule is given in the Annexure 19. In brief the session started with an introduction of the project on prevention and control of NCDs and the role of health workers in reducing the risk factors. Then each of the risk factors (tobacco, alcohol, unhealthy diet and physical inactivity) was taken by one resource person. Separate power point slides were prepared for each of these risk factors by the project team at AMCHSS and they were communicated to all the resource persons. In addition written modules for health workers were also printed and distributed to all the participants. In the afternoon there was a group work where each group was allowed to discuss how to implement risk reduction strategies in the panchayath. They were also requested to make presentation to the whole group after the discussion. At the end of the day there was a planning session. In this session future strategies to reduce risk factors in the panchayat and training of ASHA workers were discussed. One module was prepared in Malayalam and copy given to all participants. This program started in January 2017 and completed in February 2017. Altogether 532 health workers were selected from 237 health institutions with the help of District Medical Officer and 449 health workers (84.4%) from 216 health institutions (91.1%) participated. The details are given in Table 4.6. List of health institutions and health staff that participated are given in Annexure 20 and Annexure 21 respectively. This is shown in Fig 3.5 also.

Training of ASHA workers

The trained health workers offered training for ASHA works in each panchayath. The plan was to train a maximum of 20 ASHA workers from each panchayath. If the strength of ASHA workers in one panchayath was less than 20, some ASHA workers from neighboring panchayaths were also included. ASHA workers trainings were organized in 116 panchayaths. There were 2442 ASHA workers in those panchayaths and 1909 were trained. The details are given in Table 3.7 and in Annexure 22.

Table 3.6. Health institutions and health staff who participated in the training program by district

Sl. No.	District	Number of health institutions included	Number of health institutions participated	Percentage participation	Number of health workers invited	Number of health workers participated	Percentage participation
1	Thiruvananthapuram	23	23	100	40	33	82.5
2	Kollam	14	14	100	35	33	94.3
3	Pathanamthitta	14	14	100	36	34	94.4
4	Alappuzha	19	17	89.5	42	36	85.7
5	Kottayam	17	17	100	35	35	100
6	Idukki	14	14	100	37	35	94.6
7	Ernakulam	26	18	69.2	36	24	66.7
8	Thrissur	18	17	94.4	40	31	77.5
9	Palakkad	19	19	100	42	36	85.7
10	Malappuram	19	16	84.2	42	30	71.4
11	Kozhikode	22	15	68.2	40	25	62.5
12	Wayanad	14	14	100	37	36	97.3
13	Kannur	13	13	100	42	37	88.1
14	Kasaragod	5	5	100	29	24	82.8
	Total	**237**	**216**	**91.1**	**532**	**449**	**84.4**

Table 3.7. Details of ASHA workers training program by district

Sl. No.	District	No of batches	No of panchayaths	Strength of ASHAs	No of ASHAs attended	Percentage Trained
1	Thiruvananthapuram	8	8	222	145	65.3
2	Kollam	6	6	116	109	94.0
3	Pathanamthitta	7	11	143	139	97.2
4	Alappuzha	7	12	193	138	71.5
5	Kottayam	7	13	252	148	58.7
6	Idukki	6	8	138	108	78.3
7	Ernakulam	8	8	165	134	81.2
8	Thrissur	7	7	152	152	100.0
9	Palakkad	8	8	156	143	91.7
10	Malappuram	8	8	199	179	89.9
11	Kozhikode	8	8	154	140	90.9
12	Wayanad	7	7	215	135	62.8
13	Kannur	7	7	165	129	78.2
14	Kasaragod	5	5	172	110	64.0
	Kerala Total	**99**	**116**	**2442**	**1909**	**78.2**

Music Videos

Four short duration music videos were produced with the help of Ms Bina Paul Venugopal, a well known name in the Malayalam movie industry: one each on tobacco control, healthy diet, physical activity promotion and the need for avoiding alcohol. Each video is about two minutes duration. These music videos were shown along with the short power point presentation of each of the above topics to elected representatives of local self governments, teachers and health staff. The music director is Ms Pushpavathy Poypadath, a play back singer of the Malayalam movie Industry. The singers were Sithara, Uma Shankar, Pushpavathy Poypadath and Jayachandran Kadampanadu. The lyrics for the tobacco control music video was written by NP Chandrasekharan, healthy diet and physical activity promotion by Bindu Pradeep and avoidance of alcohol by Pushpavathy and Rakhee Savithri. Rakhee Savithri was the director of these videos. Executive producer was Bina Pual and camera was handled by Swaroop. Editing was done by Appu Bhattathiri. The main actors were Indrans, Symala, Bilas Nair, Vishnu Venugopal, Rosina Shoji, Rohini Rahul, and Arjun Kumar.

State level achievements of the project

The overall achievements of intervention of year one are shown in Table 3.8. This is shown in Fig 3.6 and 3.7 also.

Table 3.8. Details of the achievements of the project

Activity	Target	Achievment	Achievment %
Intervention in panchayaths	200	190	95.0
Sensitization of elected representatives of panchayaths	400	325	81.3
Intervention in Schools	350	324	92.6
Training of Teachers	1050	746	71.0
Training of Students	175000	170000	97.1
Intervention in Health Centers	200	216	108.0*
Training of Health staff	600	449	74.8
Training of ASHA workers	4000	1910	47.8

*There were 216 primary health centres and all of them participated. Therefore the achievement was more than 100%.

Health workers Training programme in Alappuzha district

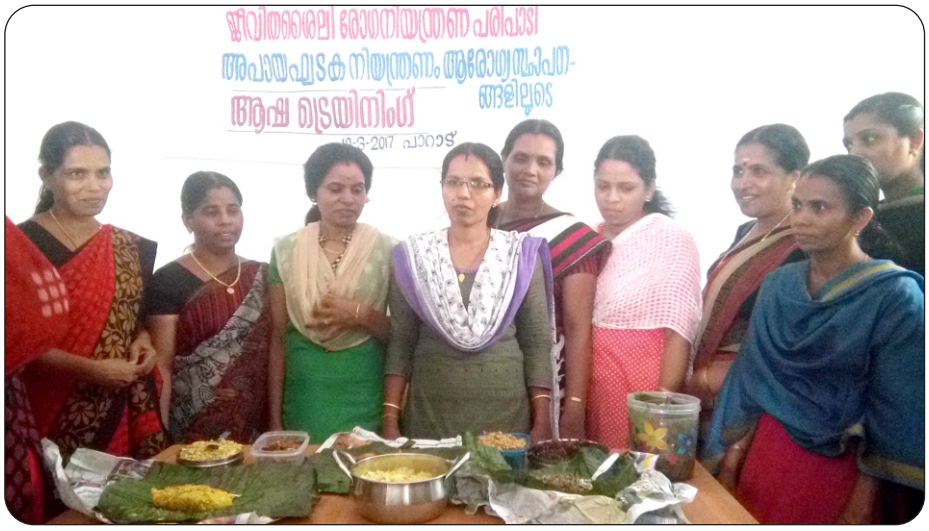
Health workers Training programme in Kasargod district.
Shri, Ajil.K, District project manager, Kasargod taking the class

Health workers Training programme in Malappuram district.
Dr. Sakina DMO Malappuram inaugurating the session

Health workers Training programme in Pathanamthitta district. Dr. Nandini, Deputy DMO and Dr. Dev Kiran, Junior Administrative Officer, Pathanamthitta are on the stage

Health workers Training programme in Pathanamthitta district.
Dr.T. Anitha Kumari, Deputy DMO, Pathanamthitta taking the class

Health workers Training programme in Palakkad district. Sri. Vishnu Nataraj,
District project manager, Palakkad taking the class



Training programme for ASHA workers in Kannur district

Training programme for ASHA workers in Idukki district.
Shri. Able Tom George, District project manager, Idukki taking the class

Training programme for ASHA workers in Thrissur district

Training programme for ASHA workers in Thrissur district

Training programme for ASHA workers in Palakkad district.

Training programme for ASHA workers in Wayand district.
Group discussion in progress

Training programme for ASHA workers in Kasargod district

Four music videos were released by Dr. B.Ekbal,Member, Kerala State Planning Board. on 22nd May, 2017 at SCTIMST auditorium.
From left to right: Rakhee Savithri, Director of music videos, Ms Pushpavathy Poypadath, a play back singer of the Malayalam movie Industry. Dr.B.Ekbal, Member, Kerala State Planning Board, Dr. V. Raman Kutty, Professor and HOD AMCHSS. Mr. Indrans, Malayalam movie actor. Dr.K.R.Thankappan, Emeritus Professor, AMCHSS

On the occasion of music video releasing Sri Rajeev Sadanandan IAS, Additional Chief Secretary, Health and family welfare, Govt of Kerala, addressing the gathering

Chapter 4

Qualitative Study on Health Protection Agency

The third objective of the "Prevention and control of non- communicable diseases in Kerala" was

- To explore the structure and function of a proposed health protection agency in Kerala

The research questions thereupon were

1. What are the stakeholder perspectives on the establishment of a health protection agency in the state?
2. What are their expectations of the structure, functions and perceived benefits of such an agency in the state?

Methods:

Data was collected through in-depth interviews with the stakeholders. Stakeholders, for the purpose of this study were defined as those who were involved directly with either strategic policy and planning process, governance or program management in health at the state level. They included senior bureaucrats, senior government officials and senior program officers of the department of health services and prominent public health experts/advocates of Kerala.

A non-probabilistic purposive sampling approach was used to identify 12 participants as key informants for the in-depth interviews. The focus was on capturing a range of diverse views and perspectives and focused on those who had extensive experience related to public health policy making and management in the state and those who were closely associated with the formation of a health protection agency in Kerala. The interviews were conducted using a semi structured in-depth interview guide (copy of the guide is given as Annexure 23) that was exploratory in nature. All the interviews were done after obtaining written informed consent, digitally recorded and transcribed verbatim. The data were analyzed using thematic analysis; both inductive and deductive coding were used to incorporate the a priori codes based on the

interview guides and emergent codes that were data-driven. The transcripts were manually coded by the two members of the team individually and then compared for coder variation, reviewed for major themes followed by analysis and interpretation. Coding discrepancies were resolved through discussion and a consensus reached in each case.

Finding

Five main themes emerged from the in-depth interviews with the key informants. 1) There was no common understanding of the concept of a health protection agency among the respondents and therefore their views regarding the structure and functions of a potential HPA were also disparate. 2) Though their views towards an HPA were divergent, there was a general agreement that there existed gaps in the current execution of public health functions in the state 3) There were some common themes that emerged like an ombudsman/committee with significant legal powers to address complaints of maladministration, ensure accountability of interdepartmental actions& public complaints, scope to commission advisory/task groups to draft policy guidelines, protocols and strategic policies, strengthening of the current system from within the existing structures 4) There was a dominant opinion that there was to need to reform the current structures and maximize its potential from within the limitations; both financial and human resource/technical expertise related. 5) There was an overarching concern among all the public health advocates/health activists and among some senior public health administrators that newer structures and agencies, uninformed of the nascent equilibrium that has been reached between the public health delivery system and the panchayati raj institutions, would impede the process of decentralized governance in health in the state.

4.1 HPA is not a single homogenous concept

Almost all the stakeholders interviewed related the term 'HPA' to the non-departmental public body that was set up in the UK and were acutely aware that it was later merged with the department of health, UK.

However the understanding and perceptions regarding 'health protection agency' as a concept in the state was varied among those interviewed and consequently their

expectations and concerns of a potential HPA in the state were also diverse. These differences seemed to be shaped by the roles and responsibilities of the individual stakeholders as well as their experience of the public health administration and delivery in the state. Metaphorically, it was like the six blind men and the elephant parable; where each group had a different idea while describing the same entity.

Perceptions of usefulness/relevance of HPA

- **For inter-sectoral co ordination**

The primary concerns that molded the views of some senior public health administrators were those related to the practical problems they faced in the implementation of health programs and disease control activities. The biggest stumbling block according to them was the difficulty in getting things done through the other linked departments like the water authority, agriculture, veterinary etc. Based on their experiences they even rated the current inter-sectoral departmental review chaired by the chief minister as largely ineffective in terms of follow up action. In this backdrop, some of these senior officials felt an acute need for a body that can hold the departments accountable for their lapses/inaction in matters related to public health.

" ……. In the inter-sectoral meeting; for example the one for pre-monsoon preparedness chaired by the chief minister with four or five other ministers, representatives of other departments like agriculture, water authority, suchitwa mission, veterinary & others and detailed discussions are held regarding disease mapping, seasonality mapping etc. The roles of the different departments including the panchayats are discussed there and action plans drawn. But nothing happens after that; they come, attend and leave with no further action……Even decisions taken in the meetings chaired by chief minister is not carried out" (Senior public health administrator)

"……..Even in specific instances that were notified; one where water supply had

to be regularized for the control of dengue in a coastal area ……or in an instance where a pipeline was being submerged in a depression leading to cholera outbreak, the response was poor….. The reason is that they are not held answerable and also because health is not a priority for them……. that has to change and accountability must be ensured. If an agency can help in that it will be good" (senior public health administrator)

The public health activists/advocates however had a radically different opinion regarding the above situation. They unanimously and strongly disapproved of the need to create an agency to oversee the inter-sectoral coordination between departments. They expressed the view that each department had well laid down role and responsibilities and setting up agencies to see that departments work was not in the right direction to proceed. They also felt that replicating the same governance structures and elements would be illogical and inefficient.

"……You cannot go on floating organisations and agencies for inter-sectoral collaboration and holding each department responsible; in which case there will be a large number of such independent agencies in Kerala for each department. For example, inter-sectoral collaboration is necessary for even agriculture, for eg; school based vegetable cultivation. It is the mandate of the water authority to ensure safe drinking water, water supply system etc. That is their job. There should not be the need for another agency to tell them to do their job well. If they are failing, it is the responsibility of the respective ministers, secretaries etc to see that is done……" (Senior public health activist/policy maker)

"……..There are structures of governance here to deal with all this (inter-sectoral coordination); that is why we have the different ministers, secretaries, departments etc. If that is not working, isn't it absurd to make a new agency and bring together the same people? ……." (Senior academician/ public health expert)

- **For disease surveillance and prediction**

The policy makers including experts from outside health sector and invited technical experts who were directly involved with the floating of the concept of HPA in the state had a different assessment of the situation

and reasoning for the same. However it was noted that the rationale for such an initiative was different among those who were behind the decision too. One of the prime movers of the concept felt HPA was necessary for Kerala to probe for a possible evolution of any disease or more specifically a pro-active disease surveillance/field epidemiology. According to this expert there was an "*urgent need of some kind of institutionalized public health presence or public health agency"* and the structure that emerged from the description was that similar to the environmental protection agency. He strongly underlined the need for a unified apex agency for looking at communicable diseases with competent laboratory systems. *"….The health services department can only respond to an event. The health protection agency would look for the possibility of any diseases…." (Senior technical expert)* .The description was that it was seen as an autonomous set up, separate from the health services department who will have all the diseases to which Kerala would be prone including water quality of rivers and lakes, immigrant health and its health consequences for the state, epidemic investigation, epidemic management and also be able to control non communicable diseases. It was not visualized as a separate bureaucracy with legal/enforcement authority but only as an advisory group and envisaged it as something in which the health department will be an equal part.He also indicated that a clear format or structure and functions of an HPA in the state was not clearly visualized at the time of its inception.

- **For preventive care**

The other major premise according to one senior health planner that necessitates such an agency was the current inadequacy in the structures of preventive care and the excessive stress of the present system on curative care. This was clear from the descriptions of one senior public health expert "…….*the current health department…they were more focused in the curative aspects and hospitals" (one senior public health expert)*and another senior opinion leader and planner involved with the creation of HPA"……*When we look back in time, we had a public health department which was actually looking after the health of the individual which in a way over the period of time has a laboratory or something but there is no work happening in terms of prevention other than routine vaccination etc. …….Most of them in the*

health set up today whether in the medical colleges or hospitals are just looking at curative medicine……The feeling was that there was no way that the same group can do prevention also. Because even today it is their mandate, but even in the primary health centers or community (health centres), they can't focus on it all other than some camps, ASHA workers etc……"

From the narratives of the key stakeholder who was directly involved with the creation of HPA,it was apparent that there was no clearly delineated objectives and structure even in the mind of the planners, when the concept of HPA was mooted. However several different thoughts emerged through from the conversation with the respondent including 1) the HPA was a designed intended to initially build a cadre of public health initially (till the district level) experts separate from the clinical health services 2) to have a director general of health services (the senior most person) under which there will be two separate directorates with directors; one for public health and the other for clinical services 2) that it was to be a like an independent department not under the ministry of health and had ministers of health, social justice, water supply, food etc 3) A strong, key person who is a doctor and who has been active in the area of public health who will be able to draft reports and advise the government 4) a mission under the chief minister directly like many mission at the central government under the prime minister.

- **Lack of conceptual clarity**

A near unanimous dissent was noted especially among the senior technocrats as well as public health advocates/activists regarding the manner in which the idea of HPA was conceived and implemented in the state.

Some senior technocrats recalled the beginning of the process as a plan scheme with a "*brief write up of about a paragraph stating the need to set up an agency in the line of those in some developed countries*" from the planning board. They felt that since it was not a proposal that was borne out of a discussion with the officers the department or the health secretary as was the usual process, there was no conceptual clarity within the department as to how to proceed.

The lack of clarity (as reported by both senior technocrats and a public health

academician) was because, unlike in most of the developed countries where the national health services had only clinical service provision, the structure of the health services and the medical education departments had a strong framework for preventive services including different cadres of field workers and field based activities.

One of the main reasons for this dissonance between those who purported the idea of HPA and the key stakeholders within the health system could have been a lack of understanding regarding the current field situation of the public health delivery in the state and the inability of the planners to put forward and situate their concept of HPA (structure and function) within the existing realities of the state.

- **Skill building of the existing public health functionaries**

All the senior technocrats/programme managers reported that internal discussions within the department and with the top bureaucrats of the then health ministry, a proposal was submitted by the department for the creation of a skilled public health cadre aiming at the skill building of existing functionaries (a diploma program me for the health workers) and a master's in public health administration for the medical officers. Such a proposal was borne out of a felt need among the senior technocrats/program managers of the health services department to strengthen the public health skills of the existing staff of the health services. Some of them even made references to a course that was planned with the Government medical college, Trivandrum and the University of Kerala.

- **Lack of buy in**

The stakeholders from both within and outside the health care delivery system agreed that there existed major lacunae in the current public health surveillance and response. However it was evident that the idea of the HPA in the state lacked stakeholder buy-in. A "communication gap" regarding the concept was as well as its structure and function was palpable from the various descriptions.

"……..It did not have clear, well defined objectives. *According to the discussions that happened then, I remember very senior people remarking that we are trying to copy somebody's blunder and will end up where*

they did……" (A senior public health expert)

"…….Funds came first without a proposal from the health department from the planning board…….one for animal birth control and the other for HPA…….the proposal from the department was for capacity building. (Senior programme manager , Department of health)

"The critical issue related to the success of any new public health plans or programmes that is launched is how has evolved I see that it should involve three levels – the technical officers from the department with technical competency, the bureaucracy including senior IAS/other officials and the third the political decision makers. For a successful public health initiative an effective coordination between these three axes is mandatory. In this case (HPA), it was not there ……" (Senior technocrat/Program manager)

There was also an opinion from among the public health activists that the idea was not rooted in an understanding of the current structure and functioning of the health services department, current public health activities and the financial and political context of the state. They also felt that the process of how it was set up was not democratic.

However, the key stakeholders who were associated with the idea of HPA were of the opinion that the idea was discussed many times with the officials of the department. They perceived a lack of support for their idea of a HPA and even suspected the negative interests of pharmaceutical agencies who could be the biggest losers in a 'wellness' concept. *"....There are two elements that are critical for every idea to be successful; we need a strong person on the political side for whom this is an agenda even if they put only five percent of their time in it and we need to identify a key person who will carry it forward. If you get both these, the rest is easy and in this case they had to be strong enough to fight the opposition from resistant groups."*

However a different insight was provided by a technical expert who strongly favors the HPA in his description*"……The planning board only had a vision of creating something which will be provide a kind of unified work and it was left to the department to work out a model."* It was reported by almost all respondents that a

national symposium along with the inauguration of an HPA (registered as a society) was held in the state with technical experts from all over the country as well as the other departments to discuss its potential role. The main theme that emerged from the meeting was that the HPA should be a mechanism for inter-sectoral coordination and a society was registered with effective inter-sectoral coordination as its key focus. However it emerged from the interviews that there was no homogenous understanding about what the HPA was or how it should function, among the key stakeholders. It was also reported by almost all that, many key departments were not represented in the initial meeting by their senior officials or ministers.

- **Role of the panchayatiraj system in the state**

One of the major themes that emerged from the interviews was the need to consider the role of the panchayats in ensuring inter-sectoral co-ordination and in the health protection of Kerala. Many senior academicians, public health activist & technocrats also added that there could be further efforts to upgrade their skills in this respect. There was also a major concern among the public health activists about the creation of structures that disregard the local self governments. The example of the expansion of toilets across the state in the late eighties aiming at a hundred percent coverage was cited as an example of how successful public health activities in the state could be done through the efforts of local pressure groups, sustained efforts of the local governments with support from the state and central governments.

"….. I feel that if the block and district panchayats are strengthened and their skills strengthened and supported the results will be much better than a new agency in terms of co-ordination and accountability of departments."(Senior academician/public health activist)

"…….The local self-government can certainly play a role in that particular area ……. and the district, I think is a better form of government than the State and it would be easier to have a nuclear body headed by a medical officer and with 2-3 people to co-ordinate with the district panchayat/district collector"'(Senior technical expert)

However there was a voice of dissent in this regard. A senior public health administrator remarked *……" When we examine the reality of how LSG funds are used, there are a lot of other priorities that decides the utilization of funds…….political priorities, individual priorities etc …….and their focus is on matters that are visible like the construction of a ward, modification of the OP services etc…….their priority is in construction activities and clinical services with not thought of recurring expenditure or efficient utilization of funds. It is not to discount the good things that they do in some places"*

- **Role of the health services department in public health**

All of the respondents agreed that the health services department in the state was currently performing sub optimally and identified different reasons for the same. A senior public health activist described it as " *"….According to me the department health services should be able to study the public health situation of the state in detail and respond accordingly……..The director is supposed to direct the course of action and not be a person for transfers and postings ……..now that is their preeminent role."*

Many respondents from outside the health services department expressed the view that the current practice of monitoring of services and disease surveillance in the state being entirely under the control of the health services department was not ideal. Since it was also the implementing agency; some of the respondents felt strongly that there could be a tendency to suppress the negative findings and its failures. In this context, most felt that the medical colleges (read community medicine department) which at present do not contribute much to the health services in the state, has to be utilized for such purposes in the future

- **Role of departments of community medicine and microbiology**

Most of the respondents felt that the surveillance and monitoring mechanisms and data interpretation of the state needs to be strengthened in the state and were of the view that the expertise available at department of community medicine at the various medical colleges (both government and private) could be effectively used for this purpose. The major areas identified were for regular interpretation and feedback on routinely generated surveillance data and independent analysis of specific situations to

aid the health services department respond better to public health issues. A few also mentioned the possibility of identifying and strengthening selected microbiology labs for advanced laboratory support. The respondents who were involved in current planning, public health activists as well as senior administrators termed it as cost effective, mutually beneficial as well as prudent considering the financial situation and practical realities of the state.

- **Advisory bodies/ task groups in public health**

Many identified lacunae in terms of technical expertise in terms of guidance to the government or the department on public health related issues especially in long term strategies as well as emergency responses.

There was a congruence in the views expressed by the various senior technocrats, public health experts and most health planners to constitute task groups or advisory committees with experts from the department and other academic institutions, with the existing funds (now given to HPA) to guide the department and the government in matters related to public health, drafting of guidelines, protocols and strategic policies etc. There were several examples cited like for issues related to climate change, food safety, food labeling and marketing, environmental health, positive mental health, counteracting and issuing statements on false information on social media etc. These groups could also be called upon by the chief ministers/ministers for guidance on issues as per need.

Two senior administrators also felt the need for an agency/body with statutory authorities to ensure accountability and fix liabilities if inter-sectoral decisions are not implemented time-bound but was confused about its' structure.

- **Public health legislation and enforcement**

A key stakeholder who advocated the idea of HPA did not see it as an enforcement/regulatory agency. "*A regulatory agency will mean you are trying to force people into something. This has to be on a proactive basis….*" Almost all the respondents felt that there was no dearth of regulations/acts but felt that the gap is in its implementation. Many respondents reported that one of the biggest lacunae was that the state did not have a uniform public health

act or the clinical establishment act and had many gaps in the implementation of acts like the food security act.

- **Current structure of the public health system**

Almost all the respondents also felt that a bifurcation of the current system further into a public health department and clinical serviced department could also make the system more effective. One senior health planner and senior technocrat also raised the issue that the current cadre system served to create discontent in terms of seniority and hierarchy between the senior clinical providers and comparatively junior public health cadre holding senior administrative responsibilities and needed a revisit.

- **Public health ombudsman**

The senior public health administrators felt very strongly that inter-sectoral action expected of the line departments do not happen even on the decisions taken in the inter-ministerial meetings chaired by the chief minister. They mooted the idea of an ombudsman to ensure accountability in such cases. The purpose would not be police or be parallel to the current department, but an extra departmental authority to intervene in case of complaints from the department of public.

Conclusion

One of the most important findings was that there was no single understanding of HPA as a concept and the evolution of the concept and formation of the current HPA was not out of a common felt need. There seemed to be a lack of stakeholder buy-in and a total lack of agreement or clarity with regard to the creation of HPA in the state.

From the interviews with all those who were involved with the idea of HPA and senior opinion leaders who were not, it was clear that there were no public discussions or deliberations on the rationale of such an agency, the lacunae in the current system and the possibilities of potential options. It appeared from the narratives of those who

were involved that it had evolved from the experiences and opinions of a select few individuals.

Almost all the senior public health activists, planners and technocrats interviewed felt that this was a "top-down plan" and felt that it was not subjected to any critical analysis. Some of the public health experts felt that it was not backed by an awareness of the current structure and functioning of the health services and the context of the panchayati raj institutions in Kerala.

The prime opinion that emerged from the public health experts, activists and senior technocrats from within the state was to find viable potential solutions considering the financial, social and political realities of the state.

There was considerable agreement that there were several lacunae in the current public health surveillance and response in the state. The three major gaps that emerged were 1) lack of accountability of departments in carrying inter-sectoral coordination committee decisions to solve public health issues 2) the need for an additional independent surveillance and monitoring mechanism to strengthen the public health responses of the health services and avoid reporting bias. 3) the need to link the resources of the academic institutions (particularly the community medicine departments and public health institutions in the state) in disease surveillance and capacity building of health services department 3) the potential of separating the clinical services from the public health services of the department

Since there was no common meaning/understanding of a health protection agency among the respondents, their views regarding the relevance, structure and functions of a potential HPA were also disparate.

The potential solutions that emerged from the various stakeholders could be best summed as below.

- A director general of health (the senior most doctor) under whom there will be two directors –
  - one for public health under whom the additional and deputy directors and others concerned with public health activities at the state level, the DMO and the deputy DMOs and other public health program managers at the district level to

a block public health medical officer who will be responsible for all the public health activities in the block including surveillance, data management, public health activities/programmes etc and all the related sub centers and health workers reporting to him/with an additional data entry operator to assist in her/his functions. Could be stationed at the block primary health center

- One for clinical health services under whom all clinical care providers including the doctors and other clinical/para-clinical providers work. This will include all the doctors and staff related to provision of clinical services up to the primary health centers. The medical officers of the primary health centers (other than the block public health medical officer) will be responsible only for curative care
- A public health ombudsman at the state level with significant legal powers to ensure accountability of the various departments of their follow up actions on inter –ministerial decisions on departmental actions as well as on public complaints
- A linkage between medical colleges (community medicine and microbiology departments) and the health services department and up gradation of their facilities with funds.
- Skill building of all program managers, doctors and health workers in public health administration and field epidemiology as proposed by the health services department.
- Skill building of panchayat leaders to ensure inter-departmental action at the local level. There was a feeling that after many years of sensitization and continued working together, there has been a positive work culture of mutual respect between the public health delivery system and the panchayati raj institutions in the state. There was a word of caution from all the public health activists and some senior public health administrators that structures/agencies, uninformed of this nascent equilibrium would negate the process of decentralized governance in the state.
- A need to reform the current structures and institutions and maximize their potential from within the limitations that are financial, human resource and technical expertise related.
- It is to be noted that regarding the initial step taken by the previous government on

HPA, viz., formation of a society, most stakeholders had very little to say. Some were openly dismissive, considering it a non-starter. Some others, especially experts in the health service who thought that inter-sectoral co-operation is lacking now, suggested that the HPA society could take the initiative on creating guidelines for action, standard operating procedures etc. However, there is no consensus on this and the society is practically defunct.

Concluding remark

The 'Health Protection Agency' is an idea that the government may make use of. However, if it is to be effective, its functions and position within the current governance structure has to be carefully defined by the policy makers. This is a formidable task and needs contributions from many experts. If, on the other hand, the policy makers think that this is redundant, they should take action to dismantle it. Keeping this in limbo reflects poorly on policy making in the state.

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Annexures

Annexure 1

List of 10 targets and 21 indicators

TARGETS AND INDICATORS
(National Monitoring framework for Prevention and Control of Noncommunicable Diseases)

S.NO.	Framework element	Targets			Indicators
		Outcomes	2020	2025	
Mortality and morbidity					
1.	**Premature mortality from NCDs**	Relative reduction in overall mortality from cardiovascular disease, cancer, diabetes, or chronic respiratory disease	10%	25%	1. Unconditional probability* of dying between ages 30-70 from cardiovascular disease, cancer, diabetes, or chronic respiratory disease 2. Cancer incidence, by type of cancer, per 10,00,00 population
Risk factors					
2.	**Alcohol use**	Relative reduction in alcohol use	5%	10%	3. Age standardised prevalence of current alcohol consumption in adults aged 18+ years
3.	**Diabetes and obesity**	Halt the rise in obesity and diabetes prevalence	No mid-term target set	Halt the rise in obesity and diabetes prevalence	4. Age standardised prevalence of obesity among adults aged 18+ years (defined as body mass index greater than 30 kg/m²) 5. Prevalence of obesity in adolescents(defined as two standard deviations BMI for age and sex overweight according to the WHO Growth Reference) 6. Age standardised prevalence of raised blood glucose/diabetes among adults aged 18+ years (defined as fasting plasma glucose value 126 mg/dl or on medication for raised blood glucose
4.	**Physical inactivity**	Relative reduction in prevalence of insufficient physical activity	5%	10%	7. Age standardised prevalence of insufficient physical activity in adults aged 18+ years (defined as less than 150 minutes of moderate-intensity activity per week, or equivalent) 8. Prevalence of insufficiently physically active adolescents (defined as less than 60 minutes per day of physical activity)
5.	**Raised blood pressure**	Relative reduction in prevalence of raised blood pressure	10%	25%	9. Age-standardized prevalence of raised blood pressure among persons aged 18+ years (defined as systolic blood pressure ⩾ 140 mmHg and/or diastolic blood pressure ⩾ 90 mmHg) and mean systolic blood pressure
6.	**Salt/sodium intake**	Relative reduction in mean population intake of salt, with aim of achieving recommended level of less than 5 gms per day	20%	30%	10. Age-standardized mean population intake of salt (sodium chloride) per day in grams in persons aged 18+ years.
7.	**Tobacco use**	Relative reduction in prevalence of current tobacco use	15%	30%	11. Age standardised prevalence of current tobacco use (smoking and smokeless) among adults aged 18+ years 12. Prevalence of current tobacco use (smoking and smokeless) among adolescents
8.	**Household air pollution**	Relative reduction in household use of solid fuels as a primary source of energy for cooking	25%	50%	13. Proportion of households using solid fuels as a primary source of energy for cooking
		Additional indicator			14. Age standardised prevalence of adults (aged 18+ years) consuming less than five total servings (400 gms) of fruit and vegetables per day
National system response					
9.	**Drug therapy to prevent heart attacks and strokes**	Eligible people receiving drug therapy and counselling (including glycaemic control) to prevent heart attacks and strokes	30%	50%	15. Proportion of eligible adults (defined as aged 40 years and older with a 10-year cardiovascular risk greater than or equal to 30% including those with existing cardiovascular disease) receiving drug therapy and counselling (including glycaemic control) to prevent heart attacks and strokes
10.	**Essential NCD medicines and basic technologies to treat major NCDs**	Availability and affordability of quality, safe and efficacious essential NCD medicines including generics, and basic technologies in both public and private facilities	60%	80%	16. Availability and affordability of quality, safe and efficacious essential NCD medicines including generics, and basic technologies in both public and private facilities
11.	**Additional indicators**				17. Access to palliative care assessed by morphine-equivalent consumption of strong opioid analgesics (excluding methadone) per death from cancer 18. Vaccination coverage against hepatitis B virus monitored by number of third doses of Hep-B vaccine (Hep B3) administered to infants 19. Proportion of women aged between 30-49 screened for cervical cancer at least once 20. Proportion of women aged 30 and above screened for breast cancer by clinical examination by trained health professional at least once in lifetime 21. Proportion of high risk persons (using tobacco, smoking and smokeless and betel nut) screened for oral cancer by examination of oral cavity

* Not dependent on probability of other causes of death

Annexure 2

List of selected Local bodies and number of wards selected for Community survey

Sl. No.	District	Urban sites		Rural sites	
		Location	No of wards selected	Location	No of wards selected
1	**Thiruvananthapuram**	Trivandrum Corporation	41	Aruvikkara	20
2		Varkkala Municipality	13	Chenkal	21
3				Kanjiramkulam	14
4	**Kollam**	Kollam Corporation	32	East Kallada	14
5		Karunagapally Municipality	20	Mylom	20
6				Panmana	23
7	**Pathanamthita**	Adoor Municipality	28	Anicadu	13
8		Pathanamthitta Municipality	20	Ezhamkulam	20
9				Omalloor	14
10	**Alappuzha**	Alappuzha Municipality	29	Cherthala	22
11		Kayamkulam Municipality	25	Kanjikuzhy	18
12				Punnapra North	17
13	**Kottayam**	Changanassery Municipality	32	Kaduthuruthy	19
14		Pala Municipality	22	Meenachil	13
15				Veliyanoor	13
16	**Idukki**	Thodupuzha Municipality	35	Kokkayar	13
17				Pampadumpara	16
18				Udumbanoor	16

19	**Ernakulam**	Ernakulam Corporation	32	Mulavukad	16
20		Tripunithura Municipality	22	Valakom	13
21				Vazhakulam	20
22	**Thrissur**	Thrissur Corporation	33	Alagappanagar	17
23		Kunnamkulam Municipality	21	Mala	20
24				Pudukkad	15
25	**Palakkad**	Chittur Municipality	24	Alanallur	23
26		Ottapalam Municipality	30	Nellaya	19
27				Thachampara	15
28	**Malappuram**	Nilambur Municipality	25	Chaliyar	14
29		Tirur Municipality	29	Kootilangadi	19
30				Mampad	19
31	**Kozhikode**	Kozhikode Corporation	34	Karassery	18
32		Koyilandi Municipality	20	Kizhakkoth	18
33				Thamarassery	19
34	**Wayanad**	Kalpatta Municipality	25	Muttil	18
35				Thondarnad	15
36				Sulthan Batheri	22
37	**Kannur**	Kannur Corporation	28	Alakode	21
38		Mattanoor Municipality	26	Kannapuram	14
39				Kolayad	13
40	**Kasargod**	Kasargod Municipality	28	Kinanoor-Karinthalam	17
41		Nileshwaram Municipality	25	Kumbadaje	13
42				Madhur	20

National Non-Communicable Disease Monitoring Survey – India Risk Factor Survey, 2016

Household Questionnaire **Interviewer id** | | | |

Annexure 3

State	……....			Household Number	……			
District	……....			Name of the Head of the household	……			
PSU				Address				
PSU Type (Urban=1; Rural=2; Tribal=3)				Name of the Informant _____ Verbal consent to fill form Yes=1; No=2				

General Instruction to interviewer

- Understand what you are going to ask and what are you going to record
- Read each question verbatim. In case the respondent does not understand can explain in own language carefully without changing the meaning of the question
- Skip patterns are provided at relevant points please follow them
- Some codes are universal e.g. Not applicable=99; Refuses information =77;do not know/ no response =88
- Note the number in the respective boxes given. Each box is for one digit. For single digit response fill the second/right box in each cell.

Interview tracking details

Visit	**Date**							**Interviewer code**	**Outcome of visit for HH form** Form Fully filled =1; Form Partly filled =2; Form filling not started =3 Refused=4; Not at home=5 Others (specify)_____=6							
										Step1		**Step2**		**Step3**	
First	d	d	m	m	y	y									
Second	d	d	m	m	y	y									
Third	d	d	m	m	y	y									

Quality Checks (not to be filled by interviewer)

			Name (In CAPS)	**Code**	Date and Signatures
QC1.Was Interview supervised in field?	Yes =1 No=2				d d m m y y
QC2.Was form checked for completeness?	Yes =1 No=2				d d m m y y
Data Entered by					d d m m y y

Family Structure (FS) : Tell me the number of persons in the household in the following age groups Please exclude non-family helpers (cook, maid, driver)		
Age groups	**Number of family members who slept in the house yesterday night**	**Number of family members who are away temporarily**
Aged <15 Years		
Aged 15-19 years		
Aged 20-69 Years		
Aged more than 69		

List all household members aged 15 years to 19 Years who slept in the house yesterday night. Please exclude non-family helpers (cook, maid, driver)Select all adolescents in the household for the interview

Line No.	Names of all 15 to 19 years who slept in the house yesterday	Relation with Household head	Sex Male=1 Female=2	Age in Completed Years	Recruited for Survey	Participant ID
01						
02						
03						
04						

Codes for Q.3 Relationship to Head of Household: 01 – Head, 02 – Wife or Husband, 03 – Son or Daughter, 04 – Son in Law or Daughter in Law, 05 – Grandchild, 06 – Parent, 07 – Parent in Law, 08 – Brother or Sister, 09 – Brother in law or Sister in law, 10 – Niece or Nephew, 11 – Other Relative, 12 – Adopted or Foster Child, 13 – Not Related

List all household members aged 20 years to 69 Years who slept in the house yesterday night. Please exclude non-family helpers (cook, maid, driver)*Recruit one member randomly using Kish method.*

Line No.	Names of all 20 to 69 years who slept in the house yesterday	Relation with Household head	Sex Male=1 Female=2	Age in Completed Years	Rank all the members aged 18-69 in the following order – oldest male, next oldest male, and so on for all males followed by oldest female, next oldest female, etc.	Recruited for Survey Using selection table Put a tick mark against the selected person give participant ID
01						
02						
03						
04						
05						
06						
07						
08						

09						
10						
11						
12						
13						
14						
15						

Codes for Q.3 Relationship to Head of Household: 01 – Head, 02 – Wife or Husband, 03 – Son or Daughter, 04 – Son in Law or Daughter in Law, 05 – Grandchild, 06 – Parent, 07 – Parent in Law, 08 – Brother or Sister, 09 – Brother in law or Sister in law, 10 – Niece or Nephew, 11 – Other Relative, 12 – Adopted or Foster Child, 13 – Not Related

Selection outcome			
Adolescents 15 – 17 (Adolescent questionnaire)		**Adults**	
Number of adolescents participant IDs GIVEN in household		**Sequence number:**	
Adolescents 18 – 19 (Adult questionnaire)		Kish table used	
Number of adolescents participant IDs GIVEN in household		Adult outcome Adult selected = 1; No eligible adult=2	

Household Questionnaire **Interviewer id** | | | |

General Household Information		Response		Skip	Variable code
1	**Type** of house	Pucca …… 1 Semi-Pucca ……..... 2 Kachha …… 3	☐☐		HH1
2	How many **rooms** are there in this household?	Rooms	☐☐		HH2
3	What kind of **toilet** facility do members of your household usually use?	Flush - pour to sewage……1 Flush - pour to septic tank……2 Flush - pour to others ……3 Flush, don't know where ……4 Pit latrine ……5 Pit (VIP)/biogas latrine……6 Pit latrine with slab……7 Pit latrine without slab/ Open pit...8 Twin pit/composting toilet……9 Dry toilet……10 No facility/uses open space11 Other….12 Other (Specify) _____	☐☐	For response 11 go to Q5	HH3 HH3SP
4	Type of ownership of the Toilet	Private……..……..…1 Private (Shared)……..…..2 Community …….3	☐☐		HH4
5	What is the main source of **drinking water** for members of your House hold**?**	Piped water at dwelling…1 Piped water in a public place…2 Dug well…3 Water from spring…4 Rainwater…5 Tanker truck …6 Cart with small tank …7 Surface water (river/dam/ Lake/pond/stream/canal/ Irrigation channel)…8 Bottled water…9 Community RO plant …10 Other 11 Other (Specify) _____	☐☐		HH5 HH5SP
6	Which of the following **type of fuel** do you **use** for cooking?(Multiple options possible)				
6a	Electricity	Yes……..……..…1 No……..……..…..2	☐☐		HH6A
6b	LPG/Natural gas	Yes……..……..…1 No……..……..…..2	☐☐		HH6B
6c	Biogas	Yes……..……..…1 No……..……..…..2	☐☐		HH6C
6d	Kerosene	Yes……..……..…1 No……..……..…..2	☐☐		HH6D
6e	Coal/lignite	Yes……..……..…1 No……..……..…..2	☐☐		HH6E

6f	Charcoal	Yes……1 No……..2			HH6F
6g	Wood	Yes……1 No……..2			HH6G
6h	Straw/shrubs/grass	Yes……1 No……..2			HH6H
6i	Agricultural crop waste	Yes……1 No……..2			HH6I
6j	Dung cakes	Yes……1 No……..2			HH6J
6k	Others Others Specify _____	Yes……1 No……..2			HH6K HH6KSP
6l	No food cooked in household	Yes……1 No……..2		If yes Go to Q12	HH6L
7	Among those listed above what type of fuel does your household **MAINLY** use for cooking?	**Electricity ……..1** **LPG/Natural gas ……..2** **Biogas ……..3** Kerosene ……..4 Coal/lignite ……..5 Charcoal ……..6 Wood ……..7 Straw/shrubs/grass ……..8 Agricultural crop waste ……..9 Dung cakes ……..10 Other….11 Other (Specify) _____		**For response 1, 2, 3 go to Q9**	HH7 HH7SP
8	In this household is food cooked on a stove, a chullah or an open fire?	Stove…. 1 Chullah…2 Open fire…3 Other….4 Other (Specify) _____			HH8 HH8SP
9	Where is the cooking usually done in your house (read out the options)?	Cook in a separate kitchen …..1 Use part of another room for cooking …2 Cook in open space outside the house…3			HH9
10	What are the types of **oil or fat used** for meal preparation in your household?				
10a	Mustard oil	Yes……1 No……..2			HH10A
10b	Coconut oil	Yes……1 No……..2			HH10B
10c	Groundnut oil	Yes……1 No……..2			HH10C
10d	Sunflower oil	Yes……1 No……..2			HH10D

10e	Soyabean oil	Yes……1 No……2			HH10E
10f	Palm oil	Yes……1 No……2			HH10F
10g	Vanaspati oil	Yes……1 No……2			HH10G
10h	Pure ghee	Yes……1 No……2			HH10H
10i	Butter	Yes……1 No……2			HH10I
10j	Others Others Specify _____	Yes……1 No……2			HH10J HH10JSP
10k	None	Yes……1 No……2			HH10K
11	What type of **oil or fat is most often used** for meal preparation in your household? ➢ **Select only one**	Mustard oil...1 Coconut oil...2 Groundnut oil...3 Sunflower oil...4 Soyabean oil...5 Palm oil...6 Vanaspati oil...7 Pure Ghee...8 Butter...9 Can't decide/Not in particular...10 Other…11 Other (Specify) _____			HH11 HH11SP
12	Does anyone in the household have a bank or a post office account?	Yes ……..……1 No ……..……..2			HH12
13	What is the type / color of ration card held by your family?	Antodaya…1 BPL….2 APL….3 No Ration card…4			HH13

National Non-Communicable Disease Monitoring Survey – India Risk Factor Survey, 2016

Adult Individual (18-69 years) Questionnaire **Interviewer id** | | | |

Annexure 4

State	…….....			Household Number	……					
District	…….....			Individual name (in CAPS) and code	……					
PSU				Individual code						
PSU Type (Urban=1; Rural=2; Tribal=3)				Written consent obtained from individual: Yes= 1 ; No=2 If no end interview						

General Instruction to interviewer

- Understand what you are going to ask and what are you going to record
- Read each question verbatim. In case the respondent does not understand can explain in own language carefully without changing the meaning of the question
- Skip patterns are provided at relevant points please follow them
- Some codes are universal e.g. Not applicable=99; Refuses information =77;do not know/ no response =88
- Note the number in the respective boxes given. Each box is for one digit. For single digit response fill the second/right box in each cell.

Interview tracking details

Visit	**Date**	**Interviewer code**	**Outcome of visit for each STEP** Form Fully filled =1; Form Partly filled =2; Form filling not started =3 Refused=4; Not at home=5 Others (specify)_____=6							
				Step1		**Step2**		**Step3**		
First	d d m m y y									
Second	d d m m y y									
Third	d d m m y y									

Quality Checks (not to be filled by interviewer)

			Name (In CAPS)	**Code**	Date and Signatures
QC1.Was Interview supervised in field?	Yes =1 No=2				d d m m y y
QC2.Was form checked for completeness?	Yes =1 No=2				d d m m y y
Data Entered by					d d m m y y

National Non-Communicable Disease Monitoring Survey – India Risk Factor Survey, 2016
Adult Individual (18-69 years) Questionnaire

Individual id | | | | | | | **Interviewer id** | | | |

STEP- I: DEMOGRAPHY					
Section : D Demographic Information					
Questions		**Response**		**Skip**	**Variable Code**
D1	Sex	Male…1 Female…2 Transgender…3			D1
D2	What is the date of your birth?	Day Month Year		If given go to D4	D2
D3	What is your age?	Age in completed years			D3
D4	Which religion do you belong to?	Hinduism……1 Islam……2 Christianity……3 Other…….4 Other (Specify) _____			D4 D4SP
D5	Which caste group do you belong to? (as per state government notification)	General……1 OBC……2 Scheduled caste……3 Scheduled tribe……4			D5
D6	What is your current marital status?	Never married……1 Living in/ cohabiting……2 Currently married (including no-cohabiting) 3 Separated……4 Divorced……5 Widowed……6			D6
D7	Have you ever attended school?	Yes……1 No……2		If no go to D9	D7
D8	If yes, what is the highest level of education you completed?	No formal schooling…..1 Less than primary school… 2 Primary school completed…3 Secondary school completed.4 High school completed……5 Graduate completed……6 Post graduate degree…... 7			D8
D9	Which of the following best describes your main work status/ occupation over the past 12 months?	Professional…….1 Medium to large Business….2 Mid-Senior Executive/officer….3 Agriculture land owner……4 Sales & Marketing executives/ Clerical…5 Self-employed and small business .6 Skilled manual laborer….7 Unskilled manual/agricultural laborer...8 Student…… 9 Homemaker…… 10 Retired ……11 Unemployed (able to work) …..12 Unemployed (unable to work) …13			D9

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Individual id | | | | | | | **Interviewer id** | | | |

STEP- I BEHAVIOURAL MEASUREMENTS

Section T. Tobacco use:

Smoking

Now I am going to ask you some questions about various health related behaviors. This includes things like smoking, drinking alcohol, eating fruits and vegetables and physical activity. Let's start with tobacco. We have to ask these questions as given. Please do not take offense as none is intended.

	Questions and Filter	Response		Skip	Variable Code
T1	Do you **currently** smoke any **tobacco** products, such as bidis, cigarettes, cigars or pipes, hookah or any other local smoked tobacco products?	Yes……1 No……2		If no go to T8	T1
T2	Do you smoke tobacco products **daily**?	Yes……1 No……2			T2
T3	How old were you when you **first** started smoking?	Age in completed years Don't remember…66		If known go to T5	T3
T4	How **long ago** did you start smoking?	In Years			T4
T5	On an average, **how many** (number of times in case of hookah) of the following products do you smoke **each day/week**? ➢ ***Record for each type*** ➢ *Record 66, if any product is not used instead of leaving blank in the products categories*. ➢ *Record for any New form of Tobacco use reported by the Respondent e.g. Reverse Smoking etc.* *If less than daily, record weekly*				
	Smoked tobacco product	Daily	Weekly		
T5a	Bidis				T5A/T5AW
T5b	Manufactured Cigarettes				T5B/T5BW
T5c	Hand-rolled Cigarettes				T5C/T5CW
T5d	Pipes				T5D/T5DW
T5e	Cigars, Cheroots				T5E/T5EW
T5f	Hookah/No. of Shisha session				T5F/T5FW
T5g	E- cigarette				T5G/T5GW
T5h	Other local **<u>smoked</u>** tobacco product (Please Specify) _____				T5H/T5HW T5HSP
T6	During the past 12 months, have you tried **to stop smoking?**	Yes……1 No……2			T6
T7	During any visit to a doctor or other health worker in the past 12 months, were you advised to quit smoking tobacco?	Yes……1 No……2 No visit in the period……3		**If T7=yes go to T12** **If T7=no go to T9**	T7

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T8	In the **past**, did you **ever** smoke any tobacco products?	Yes……1 No……2		If no go to T12	T8
T9	In the past, did you **ever** smoke **daily**?	Yes……1 No……2			T9
T10	How old were you when you **stopped** smoking?	Age in years Don't remember…66		If known go to T12	T10
T11	How **long ago** did you stop smoking?	In Years			T11
	Smokeless Tobacco use				
	Now I shall ask you about smokeless tobacco like chewing tobacco,*tuibu*snuff, tobacco containing betel,gutka, pan masala, etc**.**				
T12	Do you currently **use** any smokeless **tobacco**, such as (chewing tobacco, *tuibu*snuff, tobacco containing betel, gutka, pan masala, etc.)?	Yes……1 No……2		If no go to T17	T12
T13	Do you **currently use smokeless tobacco** products **daily?**	Yes……1 No……2			T13
T14	How old were you at that time when you **first started** using smokeless tobacco?	Age in completed years Don't remember…66			T14
T15	On average, how many **times a day/week** do you use smokeless tobacco products? Record for each type Record 66, if any product is not used instead of leaving blank in the products categories. If less than daily, record weekly				
	Smokeless tobacco product	Daily	Weekly		
T15a	Chewing tobacco				T15A/T15AW
T15b	Pan with zarda,, Khaini*Pan masala, Gutka*, Betel with Tobacco, quid				T15B/T15BW
T15c	*Tuibu*, Tobacco Snuff, by mouth				T15C/T15CW
T15d	Snuff, by nose				T15D/T15DW
T15e	Other (Please Specify) _____				T15E/T15EW T15ESP
T16	Have you ever tried to stop using smokeless tobacco?	Yes…1 No…..2			T16
T17	If you are not using currently, in the **past** did you **ever use** smokeless tobacco products such as chewing tobacco, tuibu, snuff, betel, gutaka, etc.?	Yes……1 No……2		If no go to T20	T17
T18	In the **past**, did you **ever** use smokeless tobacco products such as [snuff, chewing tobacco, or betel] **daily**?	Yes……1 No……2			T18

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T19	How old were you when you **stopped** taking smokeless tobacco products?	Age in completed years Don't remember…66			T19
Passive smoking					
Now I shall ask you about exposure to smoke because of smokers near you who share room/ space with you even if you are not smoking					
T20	During the past 30 days, did someone smoke in your home?	Yes……1 No……..2			T20
T21	During the past 30 days, did someone smoke in closed areas in your workplace (in the building, in a work area or a specific office)?	Yes……1 No……..2 Don't work in a closed area..3			T21
T22	During the past 30 days, Were you exposed to tobacco smoke while travelling in car/ bus/ train/metro etc?	Yes……1 No……..2			T22
Section A. Alcohol consumption:					
Now I shall ask you about drinking alcohol. Please be truthful in your answer and do not be offended by questions. The alcohol consumption for this survey does not include those related to religious sipping of alcohol.					
Questions and Filter		**Response**		**Skip**	**Variable Code**
A1	Have you **ever** consumed any alcoholic products (such as beer, wine, whisky, locally prepared alcohol, etc.)? (*Use Showcard)*	Yes……1 No……..2		If no go to A16	A1
A2	How **old** were you when you **first** consumed alcohol?	Age in completed years Don't remember…66			A2
A3	Have you consumed any alcoholic products within the **past 12 months**?	Yes……1 No……..2		If no go to A16	A3
A4	What type of alcohol do you usually drink? ➢ *Only one response*	Beer, lager, or stout ...1 Wine/champagne…2 Spirits, such as whisky, rum ...3 Desi/Some other type like toddy...4 Ready to drink mixers...5 Other (Please Specify)…6 _____			A4
A5	During the past 12 months, how often have you found that you were **not able to stop** drinking once you had started?	Almost every occasion (>75% times)…...1 Often (50-75% times)…2 Sometimes (25-50% times)...3 Rarely (<25% times)…….4 Never….. …5			A5

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A6	During the past 12 months, how often have you **failed to do** what was **normally expected** from you because of drinking?	Almost every occasion (>75% times)…...1 Often(50-75% times)…2 Sometimes(25-50% times)...3 Rarely (<25% times)…….4 Never….. …5			A6
A7	During the past 12 months, how often have you **needed a first drink** in the morning to get yourself going after a heavy drinking session?	Almost every occasion (>75% times)…...1 Often (50-75% times)…2 Sometimes (25-50% times)...3 Rarely (<25% times)…….4 Never….. …5			A7
A8	In past 12 months, **how frequently** have you had at least one standard alcoholic drink? ➢ *READ RESPONSES*	Daily... 1 5-6 days per week ...2 3-4 days per week ...3 1-2 days per week …4 1-3 days per month …5 Less than once a month….6			A8
A9	Have you consumed any alcohol products within the past **30 days**?	Yes……..……..…1 No……..…..2		If no go to A17	A9
A10	During the past 30 days, on how many **occasions** did you have at least one standard alcoholic drink?	Number Don't remember…66			A10
A11	During the past 30 days, when you drank alcohol, how many **standard drinks on average** did you have during one drinking occasion? ➢ USE SHOWCARD	Number Don't remember…66			A11
A12	During the past 30 days, what was the **largest number** of standard drinks you had on a single occasion, counting all types of alcoholic drinks together?	Largest number Don't remember…66			A12
A13	During the past 30 days, how many times did you have **Five/four or more** standard drinks in a **single drinking occasion?**	Number of times Don't remember…66			A13

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A14	During the past 30 days, how did you usually get the alcohol you consumed? Select only one response.	I did not drink alcohol during the past 30 days…1 I bought it in a store, shop, or from a street vendor...2 I gave someone else money to buy it for me…3 I got it from my friends…4 I got it from my family …5 I stole it or got it without permission …6 I got it some other way…7			A14
A15	During each of the past 7 days, how many standard drinks of any alcoholic drink did you have each day? ➢ *Record for each day* ➢ *Use Show Card for Standard Drink* ➢ Don't remember…66	Monday			A15A
		Tuesday			A15B
		Wednesday			A15C
		Thursday			A15D
		Friday			A15E
		Saturday			A15F
		Sunday			A15G
I have just asked you about your consumption of alcohol during the past 7 days. The questions were about alcohol in general, while the next questions refer to your consumption alcohol from source other than authorized shop like smuggled in alcohol (from another country) or, home brewed alcohol. **Please think only about these types of alcoholwhen answering the next questions**					
A16	During the past 7 days, didyou consume alcohol fromsource other than authorized shop?	Yes……1 No……..2		If no go to A 18	A16
A16a	Did you consume alcohol that had been smuggled in from another country?	Yes……1 No……..2			A16A
A16b	Did you consume alcohol that had been brewed at home?	Yes……1 No……..2			A16B
A17	On average, how **many standard drinks** of the following did you consume during the past 7 days? ➢ USE SHOWCARD ➢ Don't remember…66				
A17a	Homebrewed spirits, e.g. moonshine				A17A
A17b	Homebrewed beer or wine e.g. beer, palm or fruit wine				A17B
A17c	Alcohol brought over the border/from another country				A17C
A17d	Alcohol not intended for drinking, e.g. alcohol-based medicines, perfumes, after shaves				A17D
A17e	Other untaxed alcohol in the country				A17E

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A18	Have you stopped drinking due to health reasons, such as a negative impact on your health or on the advice of your doctor or other health worker?	Yes……1 No……2			A18
A19	During the past 12 months, have you had family problems or a problem with your partner due to someone else's drinking (by some others than you)?	Yes, more than monthly…1 Yes, monthly… 2 Yes, several times but less than monthly …….3 Yes, once or twice… 4 No… 5			A19
Section F: Diet – Food items					
Next I will ask about the fruits and vegetables that you usually eat. I have a nutrition card here that shows you some examples of local fruits and vegetables. Each picture represents the size of a serving. As you answer these questions please think of a '**typical' or a 'usual**' week					
F1	During the past 30 days, how often did you eat breakfast?	Never …1 Rarely…2 Sometimes…3 Most of the time...4 Always…5			F1
F2	In a typical week, on how many days do you **eat fruit**? *(USE SHOWCARD)*	Number of days Don't remember…66		If '0'go to F4	F2
F3	How many **servings** of fruit do you eat on **one** of those days? *(USE SHOWCARD)*	Number of servings Don't remember…66			F3
F4	In a typical week, how many days do you **eat vegetables**? *(USE SHOWCARD)*	Number of days Don't remember…66		If '0'go to F6	F4
F5	How many **servings** of vegetables do you eat on one of those days? *(USE SHOWCARD)*	Number of servings Don't remember…66			F5
Dietary Salt					
With the next questions, we would like to learn more about salt in your diet. Dietary salt includes ordinary table salt. The following questions are on adding salt to the food right before you eat it, on how food is prepared in your home and questions on controlling your salt intake. Please answer the questions even if you consider yourself taking a diet low in salt.					
F6	Do you think your daily salt intake **affects your health?**	Yes……1 No……2			F6
F7	**How much of salt or high salt containing products** do you think you consume?	Far too much …..1 Too much …..2 Just the right amount…3 Too little …..4 Far too little …..5			F7
F8	How important to you is **lowering the salt** in your diet?	Very important….1 Somewhat important 2 Not at all important …..3			F8

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F9	How often do add **extra salt** to your food right before you eat it or as you are eating it? (SELECT ONLY ONE)	Always 1 Often 2 Sometimes 3 Rarely 4 Never 5			F9
F10	Now tell me how often do you take each of the following **food having high salt content including processed/ pre-packed ready to eat food items?**				
F10a	Namkeen, pappad, packaged chips, sauce etc.	Daily…1 5-6 days per week…2 3-4 days per week …3 1-2 days per week ...4 1-3 days per month ...5 Less than once a month...6 Never ...11 Don't remember…66			F10A
F10b	Preserved canned products including pickle	Daily…1 5-6 days per week…2 3-4 days per week …3 1-2 days per week ...4 1-3 days per month ...5 Less than once a month...6 Never ...11 Don't remember…66			F10B
F10c	Homemade high salt contentfood like chutney, panna,pickle	Daily…1 5-6 days per week…2 3-4 days per week …3 1-2 days per week ...4 1-3 days per month ...5 Less than once a month...6 Never ...11 Don't remember…66			F10C
F10d	Other dairy products like processed or packaged cheese, butter etc.	Daily…1 5-6 days per week…2 3-4 days per week …3 1-2 days per week ...4 1-3 days per month ...5 Less than once a month...6 Never ...11 Don't remember…66			F10D
F11	Do you practice any of the following on a regular basis to control your salt intake? (RECORD FOR EACH) elaborate process food				
F11a	Limit consumption high salt containing foods like pappad	Yes……1 No……2			F11A
F11b	Look at the salt or sodium content on food labels	Yes……1 No……2			F11B
F11c	Buy low salt/sodium alternatives	Yes……1 No……2			F11C
F11d	Use spices other than salt when cooking	Yes……1 No……2			F11D
F11e	Avoid eating foods prepared outside of a home	Yes……1 No……2			F11E

F11f	Do other things specifically to control your salt intake Other (Please Specify) _____	Yes……1 No……2			F11F F11F
F12	On average, how many meals per week do you eat that were not prepared at a home? By meal, I mean breakfast, lunch and dinner.	Number of meals Don't remember…66			F12
Section P: Physical Activity					
Next I am going to ask you about the time you spend doing different types of physical activity in a typical week. Please answer these questions even if you do not consider yourself to be a physically active person Think first about the time you spend doing work. Work includes things that you have to do such as paid or unpaid work, study/training, household chores, harvesting food/crops, fishing or hunting for food, seeking employment. In answering the following questions 'Vigorous –Intensity activities' are activities that require hard physical effort and cause large increase in breathing or heart rate, 'Moderate-Intensity activities' are activities that require effort and cause small increases in breathing or heart rate.					
P1	Does your routine work involve **vigorous-intensity activity** that causes large increases in breathing or heart rate like (carrying or lifting heavy loads, digging or construction work) for at least 10 minutes continuously?	Yes……1 No……2		If no go to P4	P1
P2	In a typical week, on how many days do you do **vigorous-intensity activities** as part of your work?	Number of days			P2
P3	How much time do you spend doing **vigorous- intensity** activity at home/work on a typical day?	Hours Minutes			P3H P3M
P4	Does your work involve **moderate-intensity** activity that causes small increases in breathing or heart rate for at least 10 minutes continuously such as brisk walking or carrying loads, manual washing of clothes, dry sweeping of floor, wet mopping of floor, drawing water from well, carrying water from tap, carrying water from river or well, manual grinding or pounding of cereals, gardening at home etc.?	Yes……1 No……2		If no go to P7	P4

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P5	In a typical week, on how many days do you do **moderate-intensity** activities as part of your work?	Number of days			P5
P6	How much time do you spend doing moderate-intensity activity at home/work on a typical day?	Hours Minutes			P6H P6M
Travel to and from places					
The next questions exclude the physical activities at work that you have already mentioned. Now I would like to ask you about the usual way you travel to and from places. For example to work, for shopping, to market, to place of worship etc					
P7	Do you walk or use a bicycle (pedal cycle) for at least 10 minutes continuously to get to and from places?	Yes……1 No……2		If no go to P10	P7
P8	In a typical week, on how many days do you walk or bicycle for at least 10 minutes continuously to get to and from places?	Number of days			P8
P9	How much time do you spend walking or bicycling for travel on a typical day?	Hours Minutes			P9H PM
Recreational activities					
The next questions exclude the work and transport activities that you have already mentioned. Now I would like to ask you about sports, fitness and recreational activities (leisure).					
P10	Do you do any vigorous-intensity sports, fitness or recreational (leisure) activities that cause large increases in breathing or heart rate like (running or football) for at least 10 minutes continuously?	Yes……1 No……2		If no go to P13	P10
P11	In a typical week, on how many days do you do vigorous-intensity sports, fitness, or recreational activity?	Number of days			P11
P12	How much time do you spend doing vigorous-intensity sports, fitness or recreational (leisure) activities on a typical day?	Hours Minutes			P12H P12M

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P13	Do you do any **moderate**-intensity sports, fitness or recreational (leisure) activities that causes small increases in breathing or heart rate such as brisk walking (cycling, swimming, volleyball etc.) for at least 10 minutes continuously?	Yes……1 No……2		If no go to P16	P13
P14	In atypical week, on how many days do you do moderate-intensity sports, fitness, or recreational activities?	Number of days			P14
P15	How much time do you spend doing moderate-intensity sports, fitness, or recreational activities on a typical day?	Hours Minutes			P15H P15M
Sedentary behaviour					
The following question is about sedentary behavior sitting or reclining at work, at home, getting to and from places, or with friends including time spent [sitting at a desk, sitting with friends, traveling in car, bus, train, reading, playing cards or watching television], but do not include time spent sleeping					
P16	How much **time** do you usually spend sitting or reclining on a typical day?	Hours Minutes			P16H P16M
Yoga. Now I shall ask you about Yoga					
P17	Do you practice **Yoga**?	Yes……1 No……2		If no go to H1	P17

P18	How many days in a week do you perform the following?	Number of days	On the day that you do yoga taking into account all the sessions how many hours and or minutes do you perform these? Hours	Minutes		
P18a	Asana					P18AD P18AH P18AM
P18b	Pranayam					P18BD P18BH P18BM
P18c	Meditation					P18CD P18CH P18CM

Section H: History of Raised Blood Pressure, Diabetes, Raised total cholesterol, cardiovascular disease, cerebrovascular accident, lifestyle advice					
Now I shall ask you about raised blood pressure. Blood Pressure is normal if systolic is below 120 mm Hg and diastolic below 80 mm Hg.					
H1	Have you **ever** had your blood pressure measured by a doctor or other health worker?	Yes……1 No……2		If no go to H8	H1

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H2	When was your blood pressure last measured by a health professional/worker?	Within past 12 months…1 1-5 years ago….. 2 Not within past 5 years…3			H2
H3	Have you ever been told by a doctor or other health worker that you have raised (high) blood pressure or hypertension?	Yes……..1 No……..2		If no go to H8	H3
H4	Have you been told so in the past 12 months?	Yes……..1 No……..2			H4
H5	In the past 2 weeks were you taking any medication or drugs for raise Blood pressure or Hypertension prescribed by a doctor or other health worker?	Yes……..1 No……..2			H5
H6	In the past 2 weeks did you reduce intake in your diet as advised by a doctor or other health worker?	Yes……..1 No……..2			H6
H7	Have you ever seen any practitioner from the following for raised blood pressure or hypertension?				
H7a	Ayurveda	Never…1 Yes and currently taking medication…2 Yes but currently not taking medication…3			H7A
H7b	Siddha	Never…1 Yes and currently taking medication…2 Yes but currently not taking medication…3			H7B
H7c	Unani	Never…1 Yes and currently taking medication…2 Yes but currently not taking medication…3			H7C
H7d	Homeopathy	Never…1 Yes and currently taking medication…2 Yes but currently not taking medication…3			H7D
H7e	Alopathy	Never…1 Yes and currently taking medication…2 Yes but currently not taking medication…3			H7E
History of Diabetes					

Individual id | | | | | | | **Interviewer id** | | |

H8	Have you **ever** had your blood sugar been measured by a doctor or health worker?	Yes……1 No……..2		If no go to H16	H8
H9	When was your blood sugar last measured by a health professional/ worker?	Within past 2 months ……...1 Within past 2-6 months……2 Within past 6-12 months…..3 Within past 1-2years…….4 Not within past 2 years……5			H9
H10	Have you ever been told by a doctor or health worker that you have diabetes?	Yes……1 No……..2		If no go to H16	H10
H11	Have you been told so in the past 12 months?	Yes……1 No……..2			H11
H12	In the past 2 weeks were you taking any Oral drugs (medication) for raised Blood sugar or Diabetes prescribed by a doctor or other health worker?	Yes……1 No……..2			H12
H13	In the past 2 weeks were you taking Insulin for raised Blood sugar or Diabetes prescribed by a doctor or other health worker?	Yes……1 No……..2			H13
H14	In the past 2 weeks were you taking Special diet for raised Blood sugar or Diabetes prescribed by a doctor or other health worker?	Yes……1 No……..2			H14
H15	Have you ever seen any practitioner from the following for raised blood sugar or Diabetes?				
H15a	Ayurveda	Never…1 Yes and currently taking medication…2 Yes but currently not taking medication…3			H15A
H15b	Siddha	Never…1 Yes and currently taking medication…2 Yes but currently not taking medication…3			H15B
H15c	Unani	Never…1 Yes and currently taking medication…2 Yes but currently not taking medication…3			H15C

H15d	Homeopathy	Never…1 Yes and currently taking medication…2 Yes but currently not taking medication…3			H15D
H15e	Alopathy	Never…1 Yes and currently taking medication…2 Yes but currently not taking medication…3			H15E
History of Raised Total Cholesterol					
H16	Have you had your cholesterol (fat levels in your blood) measured by a doctor or other health worker?	Yes……1 No……..2		If no go to H21	H16
H17	Have you ever been told by a doctor or other health worker that you have raised cholesterol?	Yes……1 No……..2		If no go to H21	H17
H18	Have you been told so in the past 12 months?	Yes……1 No……..2			H18
H19	In the past two weeks, have you taken any oral treatment (medication) for raised total cholesterol prescribed by a doctor or other health worker?	Yes……1 No……..2			H19
H20	Have you ever seen any practitioner from the following for raised cholesterol?				
H20a	Ayurveda	Never…1 Yes and currently taking medication…2 Yes but currently not taking medication…3			H20A
H20b	Siddha	Never…1 Yes and currently taking medication…2 Yes but currently not taking medication…3			H20B
H20c	Unani	Never…1 Yes and currently taking medication…2 Yes but currently not taking medication…3			H20C
H20d	Homeopathy	Never…1 Yes and currently taking medication…2 Yes but currently not taking medication…3			H20D

Individual id | | | | | | | **Interviewer id** | | | |

H20e	Alopathy	Never…1 Yes and currently taking medication…2 Yes but currently not taking medication…3			H20E
History of Cardiovascular Diseases/Cerebro-Vascular Accident					
H21	Have you ever had a chest pain (heart related) or heart attack (angina) or a stroke (cerebrovascular accident or incident) diagnosed in hospital?	Yes……1 No……2			H21
H22	Are you currently taking aspirin to prevent or treat heart disease?	Yes……1 No……2			H22
H23	Are you currently taking statins (Lovastatin/ Simvastatin/ Atorvastatin or any other statin) regularly to prevent or treat heart disease?	Yes……1 No……2			H23
Lifestyle advice					
H24	During the past one year, has a doctor or other health worker advised any of the following? ➢ Record for each				
H24a	Against starting smoking tobacco or quitting smoking	Yes……1 No……2			H24A
H24b	Against start using smokeless tobacco or quitting smokeless tobacco	Yes……1 No……2			H24B
H24c	Against start taking alcohol or decrease intake or alcohol cessation	Yes……1 No……2			H24C
H24d	Reduce salt in your diet	Yes……1 No……2			H24D
H24e	Eat at least five servings of food and vegetable	Yes……1 No……2			H24E
H24f	Reduce fat in your diet	Yes……1 No……2			H24F
H24g	Start or increase physical activity	Yes……1 No……2			H24G
H24h	Maintain a healthy body weight or lose weight	Yes……1 No……2			H24H
H24i	Consume special prescribed diet	Yes……1 No……2			H24I
H24j	Practice Yoga	Yes……1 No……2			H24J

Section S: Cancer Screening (To be administered to those above 30 years of age only)

Certain examination or tests are done on apparently health individual to look for cancer in its early stage and this is known as cancer screening, different cancer have different screening methods. You may have been subjected to any of the methods. So please try to recall if any of the methods I shall be describing below in the relevant section were done for you.

Individual id | | | | | | | **Interviewer id** | | | |

Oral cancer screening					
S1	Have you ever had any doctor or dentist examined your oral cavity to look for **early signs of cancer**?	Yes……1 No……..2		If **male** go to M1	S1
Breast cancer screening					
S2	Have you ever performed Breast Self-Examination to look for breast cancer?	Yes……1 No……..2		If age<40 go to S5	S2
S3	Have you ever had any breast examination by a doctor for Breast Cancer?	Yes……1 No……..2			S3
S4	Have you ever undergone an ultrasound of breast or mammography?	Yes……1 No……..2			S4
Cervical cancer screening					
The next question asks about cervical cancer prevention. Screening tests for cervical cancer prevention can be done in different ways, including Visual Inspection with Acetic Acid/vinegar (VIA), pap smear and Human Papillomavirus (HPV) test. VIA is an inspection of the surface of the uterine cervix after acetic acid (or vinegar) has been applied to it. For both pap smear and HPV test, a doctor or nurse uses a swab to wipe from inside your vagina, take a sample and send it to a laboratory. It is even possible that you were given the swab yourself and asked to swab the inside of your vagina. The laboratory checks for abnormal cell changes if a pap smear is done, and for the HP virus if an HPV test is done					
S5	Have you ever had ascreening test forcervicalcancer, using any of thesemethodsdescribed above?	Yes……1 No……..2			S5

Individual id | | | | | | | **Interviewer id** | | | |

STEP- II: PHYSICAL MEASUREMENTS				
Section M Measurements				
➢ For blood pressure (BP) measurement the respondent must be comfortable and if the respondent had been exerting then he/she must rest for at least 5 minutes. ➢ There must be at least 5 minutes gap between two consecutive readings. ➢ If the respondent refused for any of the measurement write 66				
	Physical measurements	**Response**		**Variable Code**
M1	Technician / Interviewer ID			M1
M2	Device ID for Blood Pressure			M2
M3a	B.P. Reading 1	Systolic (mmHg)		M3A
M3b		Diastolic (mmHg)		M3B
M3c	Pulse Rate Reading 1	Beats/min		M3C
M4a	B.P. Reading 2	Systolic (mmHg)		M4A
M4b		Diastolic (mmHg)		M4B
M4c	Pulse Rate Reading 2	Beats/min		M4C
M5a	B. P. Reading 3	Systolic (mmHg)		M5A
M5b		Diastolic (mmHg)		M5B
M5c	Pulse Rate Reading 3	Beats/min		M5C
Height and Weight				
M6	(For Women) Are you pregnant?	Yes….1 No…..2	If yes go to B1	M6
M7	Technician / Interviewer ID			M7
M8	Device ID for height and weight	Height Weight		M8H M8W
M9	Height	In Centimeters (cm)	.	M9
M10	Weight ➢ *If too large for scale 666*	In Kilograms (kg)	.	M10
Waist circumference				
M11	Device ID for waist			M11
M12	Waist circumference	In Centimeters (cm)	.	M12

Individual id | | | | | | | **Interviewer id** | | | |

STEP- III: BIOCHEMICAL MEASUREMENTS				
➢ If the respondent refused for any of the measurement write 66				
Blood Glucose				
B1	During the last 10 hours have you had anything to eat or drink, other than water?	Yes……..…1 No……..2	☐☐	B1
B2	Technician ID		☐☐☐	B2
B3	Device ID for Blood Glucose		☐☐☐	B3
B4	Time of day blood specimen taken (24 hour clock)	Hours: Minutes	☐☐ : ☐☐	B4H B4M
B5	Fasting blood glucose	mg/dl	☐☐☐ . ☐	B5
B6	Today, have you taken insulin or other drugs (medication) that have been prescribed by a doctor or other health worker for raised blood glucose?	Yes……..…1 No……..2	☐☐	B6
Urinary sodium and creatinine				
B7	Lab ID or Bar Code ➢ **Stick bar code**			
B8	Time of day urine sample taken (24 hour clock)	Hours: Minutes	☐☐ : ☐☐	B8H B8M
B9	Urinary sodium	mmol/l	☐☐☐ . ☐	B9
B10	Urinary creatinine	mmol/l	☐☐☐ . ☐	B10

National Non-Communicable Disease Monitoring Survey – India Risk Factor Survey, 2016

Adolescent (15-17 years) Questionnaire **Interviewer id** | | | |

Annexure 5

State	…….....			Household Number	……					
District	…….....			Individual name (in CAPS) and code	……					
PSU				Individual code						
PSU Type (Urban=1; Rural=2; Tribal=3)				Assent/ Written consent obtained from individual &Guardians/parents: Yes= 1 ; No=2 If no end interview						

General Instruction to interviewer

- Understand what you are going to ask and what are you going to record
- Read each question verbatim. In case the respondent does not understand can explain in own language carefully without changing the meaning of the question
- Skip patterns are provided at relevant points please follow them
- Some codes are universal e.g. Not applicable=99; Refuses information =77;do not know/ no response =88
- Note the number in the respective boxes given. Each box is for one digit. For single digit response fill the second/right box in each cell.

Interview tracking details

Visit	**Date**	**Interviewer code**	**Outcome of visit for each STEP** Form Fully filled =1; Form Partly filled =2; Form filling not started =3 Refused=4; Not at home=5 Others (specify)_____=6					
			Step1		**Step2**		**Step3**	
First	d d m m y y							
Second	d d m m y y							
Third	d d m m y y							

Quality Checks (not to be filled by interviewer)

			Name (In CAPS)	**Code**	Date and Signatures
QC1.Was Interview supervised in field?	Yes =1 No=2				d d m m y y
QC2.Was form checked for completeness?	Yes =1 No=2				d d m m y y
Data Entered by					d d m m y y

National Non-Communicable Disease Monitoring Survey – India Risk Factor Survey, 2016

Individual id | | | | | | | **Adolescent (15-17 years) Questionnaire** **Interviewer id** | | | |

STEP- I: DEMOGRAPHY					
Section : D Demographic Information					
Questions		**Response**		**Skip**	**Variable Code**
D1	Sex	Male…1 Female…2 Transgender…3			D1
D2	What is the date of your birth?	Day Month Year		If given go to D4	D2
D3	What is your age?	Age in completed years			D3
D4	Which religion do you belong to?	Hinduism……1 Islam……2 Christianity……3 Other…….4 Other (Specify) _____			D4 D4SP
D5	Which caste group do you belong to? (as per state government notification)	General……1 OBC……2 Scheduled caste……3 Scheduled tribe……4			D5
D6	Have you ever attended school?	Yes…….1 No……..2		If no go to T1	D6
D7	If yes, what is the highest level of education you completed?	Class 1……1 Class 2……2 Class 3……3 Class 4……4 Class 5……5 Class 6……6 Class 7……7 Class 8……..8 Class 9…..……...9 Class 10……..10 Class 11……..11 Class 12……..12 Doing graduation……..13 Other (after Class 12)…….14 Other (Specify) _____			D7 D7SP

STEP- I BEHAVIOURAL MEASUREMENTS

Section T. Tobacco use:

Smoking

Now I am going to ask you some questions about various health related behaviors. This includes things like smoking, drinking alcohol, eating fruits and vegetables and physical activity. Let's start with tobacco which can be either smoked in the form of cigarette, bidi etc or used in smokeless form like Gutka, khaini, tuibu, chewing tobacco, tobacco with betel nut etc . We have to ask these questions as given. Please do not take offense as none is intended.

Questions and Filter	**Response**	**Skip**	**Variable Code**

T1	Have you ever tried or experimented with smoking tobacco products, even one or two puffs?	Yes……1 No……2		If no go to T7	T1
T2	Do you smoke tobacco products **daily**?	Yes……1 No……2			T2
T3	How old were you when you **first** started smoking?	Age in completed years Don't remember…66			T3
T4	During the past 30 days, on how many days did you smoke tobacco products? ➢ If not put 00	No. of days		If 00 go to T7	T4
T5	Please think about the days you smoked during the past 30 days. On the days you smoked tobacco products, what was the usual number/times you smoked? Record for each type Record 66, if any product is not used instead of leaving blank in the products categories. Record for any New form of Tobacco use reported by the Respondent e.g. Reverse Smoking etc. If less than daily, record weekly				
	Smoked tobacco products	Daily	Weekly		
T5a	Bidis				T5A/T5AW
T5b	Manufactured Cigarettes				T5B/T5BW
T5c	Hand-rolled Cigarettes				T5C/T5CW
T5d	Pipes				T5D/T5DW
T5e	Cigars, Cheroots				T5E/T5EW
T5f	Hookah/No. of Shisha session				T5F/T5FW
T5g	E- cigarette				T5G/T5GW
T5h	Other local **<u>smoked</u>** tobacco product (Please Specify) _____				T5H/T5HW T5HSP
T6	Have you ever tried to stop smoking tobacco products?	Yes……1 No……2			T6
T7	Do you think the smoke from other people's tobacco smoking is harmful to you?	Definitely not...1 Probably not...2 Probably yes...3 Definitely yes..4			T7
	Smokeless Tobacco use				
	Now I shall ask you about smokeless tobacco like chewing tobacco,*tuibu*snuff, tobacco containing betel,gutka, pan masala, etc**.**				
T8	Have you ever tried or experimented with smokeless tobacco products like chewing tobacco or tobacco containing betel, pan masala, ghutka, tuibu snuff, quid etc?	Yes……1 No……2		If no go to A1	T8

T9	Do you **currently use smokeless tobacco** products **daily?**	Yes……1 No……2			T9
T10	How old were you at that time when you **first started** using smokeless tobacco?	Age in completed years Don't remember…66			T10
T11	During the past 30 days, on how many days did you use smokeless tobacco product? ➢ If not put 00	No. of days		If 00 go to T7	T11
T12	Please think about the days you used smokeless tobacco during the past 30 days. On the days you used smokeless tobacco products, how many times did you use it? Record for each type Record 66, if any product is not used instead of leaving blank in the products categories. If less than daily, record weekly				
	Smokeless tobacco products		Daily	Weekly	
T12a	Chewing tobacco				T12A/T12AW
T12b	Pan with zarda,, Khaini *Pan masala, Gutka*, Betel with Tobacco, quid				T12B/T12BW
T12c	*Tuibu*, Tobacco Snuff, by mouth				T12C/T12CW
T12d	Snuff, by nose				T12D/T12DW
T12e	Other (Please Specify) _____				T12E/T12EW T12ESP
T13	Have you ever tried to stop using smokeless tobacco?	Yes……1 No……2			T13

Section A. Alcohol consumption:

Now I shall ask you about drinking alcohol. Please be truthful in your answer and do not be offended by questions. The alcohol consumption for this survey does not include those related to religious sipping of alcohol.

Questions and Filter		**Response**		**Skip**	**Variable Code**
A1	Have you ever consumed alcohol more than 1-2 sips? (*Use Showcard or Show Examples)*	Yes……1 No……2		If no go to F1	A1
A2	How old were you when you had your first drink of alcohol which was more than a few sips?	Age in completed years Don't remember…66			A2
A3	Have you consumed any alcoholic products within the **past 12 months**?	Yes……1 No……2		If no go to F1	A3

A4	What type of alcohol do you usually drink? ➢ *Only one response*	Beer, lager, or stout ...1 Wine/champagne…2 Spirits, such as whisky, rum ...3 Desi/Some other type like toddy...4 Ready to drink mixers...5 Other (Please Specify)…6 _____			A4 A4SP
A5	Have you consumed any alcohol products within the past **30 days**?	Yes……1 No……2		If no go to F1	A5
A6	During the past 30 days, on how many **occasions** did you have at least one standard alcoholic drink?	Number Don't remember…66			A6
A7	During the past 30 days, when you drank alcohol, how many standard drinks on average did you have during one drinking occasion? ➢ *USE SHOWCARD*	Number Don't remember…66			A7
A8	During the past 30 days, what was the **largest number** of standard drinks you had on a single occasion, counting all types of alcoholic drinks together?	Number Don't remember…66			A8
A9	**If respondent is male ask:** During the past 30 days, how many times did you have *five or more*standard drinks in a*single drinking occasion*? **If respondent is female ask** During the past 30 days, how many times did you have *four or more*standard drinks in a*single drinking occasion*?	Number Don't remember…66			A9
A10	During the past 30 days, how did you usually get the alcohol you consumed? Select only one response.	I did not drink alcohol during the past 30 days…1 I bought it in a store, shop, or from a street vendor...2 I gave someone else money to buy it for me…3 I got it from my friends…4 I got it from my family …5 I stole it or got it without permission …6 I got it some other way…7			A10
Section F: Diet – Food items					

Individual id | | | | | | | **Adolescent (15-17 years) Questionnaire** **Interviewer id** | | | |

The next questions I will ask about the fruits and vegetables that you usually eat. I have a nutrition card here that shows you some examples of local fruits and vegetables. Each picture represents the size of a serving. As you answer these questions please think of a '**typical' or a 'usual**' week					
F1	During the past 30 days, how often did you eat breakfast?	Never …1 Rarely…2 Sometimes…3 Most of the time...4 Always…5			F1
F2	Usually, how often do you have the following food items? (Exclude the days of feast/fast/festivals) ➢ Select option for each and record separately ➢ Read out the following options: Daily (>5days in week)…….1 At least once a week……..2 At least once a month……3 Lesser than once a month….4 Never……5				
F2a	Achar/ Pappad				F2A
F2b	Chole Bature/ Pakora/ Samosa/ Kachori/bhajji/bonda/vada/pazhampori				F2B
F2c	French fries/Chips/ Namkeens				F2C
F2d	Pizza/ Burger				F2D
F2e	Instant noodles				F2E
F2f	Cake/Pastry/Patties				F2F
F2g	Cold drinks/Other Aerated drinks				F2G
F2h	Fresh fruits / fruit Juice/ Canned fruit juice				F2H
F2i	High energy /high protein Drinks				F2I
F2j	Ice-Cream / Milk Shakes				F2J
F2k	Chocolates// Toffees				F2K
F2l	Salads				F2L
F2m	Sweets				F2M
F2n	Any other food items bought from market				F2N

Physical Activity

➢ *If the respondent is not going to school go to P2*

Next I am going to ask you about the time you spend doing different types of physical activity in a typical week. Please answer these questions even if you do not consider yourself to be a physically active person. For the sake of better understanding, we are dividing the physical activity into those done in school, at home or for recreation. In general, we are interested in only those sessions of physical activity which last for more than 10 minutes at a stretch.

In School (This includes time spent **AT SCHOOL** including lunch time and before or after school timings.

P1	For each of the following occasions, tell us the frequency and duration of the physical activity done by you.	Days Per Week	Duration of session in minutes		
P1a	During Assembly				P1AD,P1AM

P1b	Games/ PT period/ Free Period				P1BD,P1BM
P1c	Lunch Break				P1CD,P1CM
P1d	Pre/Post school				P1DD,P1DM
P1e	Special Coaching				P1ED,P1EM
Travel to School/Market/Tuition					
P2	Do you usually walk or cycle to school/ Market/Tuition or elsewhere, even if it is a part of the journey. ➢ *Only include if more than 10 min at stretch*	Walk….1 Bicycle …..2 No……3		If 3 go to P5	P2
P3	If Yes, how many days in a week do you walk or cycle?	Number of days			P3
P4	On each day that you walk or cycle, how much time do you spend doing so (both onward and return journeys put together)?	Hours Minutes			P4H P4M
At Home/ Work					
Think first about the time you spend doing work at home. (If school going exclude the time at school.) Work includes things that you have to do such as paid or unpaid work, study/training, household chores, harvesting food/crops, fishing, caring of siblings, fetching water, seeking employment etc. In answering the following questions 'Vigorous –Intensity activities' are activities that require hard physical effort and cause large increase in breathing or heart rate, 'Moderate-Intensity activities' are activities that require effort and cause small increases in breathing or heart rate					
P5	Does your routine work involve **vigorous- intensity activity** that causes large increases in breathing or heart rate like running while running an errand, digging for cultivation etc.?	Yes……..……..…1 No……..2		If no go to P8	P5
P6	In a typical week, on how many days do you do **vigorous-intensity activities** as part of your work?	Number of days			P6
P7	How much time do you spend doing **vigorous- intensity** activity at home/work on a typical day?	Hours Minutes			P7H P7M

P8	Does your work involve **moderate-intensity** activity that causes small increases in breathing or heart rate for at least 10 minutes continuously such as brisk walking while carrying groceries from market, manual washing of clothes, dry sweeping of floor, gardening at home, etc.?	Yes……1 No……2	☐☐	If no go to P11	P8
P9	In a typical week, on how many days do you do **moderate-intensity activities** as part of your work?	Number of days	☐☐		P9
P10	On a typical day, how much time do you spend doing moderate-intensity activity at home/work?	Hours Minutes	☐☐ ☐☐		P10H P10M
Recreational					
P11	In typical week, apart from those mentioned above how much time do you spend per week doing any vigorous physical activity for your own enjoyment like weight lifting in gym or play football etc?	Hours Minutes	☐☐ ☐☐		P11H P11M
P12	In typical week, apart from those mentioned above how much time do you spend per week doing any moderate physical activity for your own enjoyment like dancing, roaming on foot, gardening or playing cricket, kabaddi?	Hours Minutes	☐☐ ☐☐		P12H P12M
P13	During a **typical or usual day**, how much time do you spend sitting and watching television, working on computer, playing game in mobile/tablet , talking with friends, or doing other sitting activities like knitting, embroidery etc? Please include the time spent sitting in school and not time spent sleeping.	Hours Minutes	☐☐ ☐☐		P13H P13M

P14	Now that you have told me all about the physical activity that you do in a typical week please calculate and tell me on how many days of a week are you physically active for a total of at least 60 minutes <u>per day</u>? ➢ *Add up all the time spent in any kind of physical activity each day*	0 Days…….1 1 Days…….2 2 Days…….3 3 Days…….4 4 Days…….5 5 Days…….6 6 Days…….7 7 Days…….8	☐☐		P14

Section M Measurements

If the respondent refused for any of the measurement write 66

	Physical measurements	**Response**		**Variable Code**
M1	Technician / Interviewer ID		☐☐☐	M1
M2	Device ID for height and weight	Height	☐☐	M2H
		Weight	☐☐	M2W
M3	Height	In Centimeters (cm)	☐☐☐.☐	M3
M4	Weight ➢ *If too large for scale 666*	In Kilograms (kg)	☐☐☐.☐	M4

Annexure 6

Adult member selection using KISH table

Kish Household Coversheet

Directions

List the sex and age of all adults in the household aged 25-64 years in the empty table below. To complete the Rank column, order all adults in the list by:

- males in order of decreasing age (oldest to youngest)
- females in order of decreasing age (oldest to youngest)

Example:

Sex	Age		Rank
M	45		**1**
F	47		**3**
M	28		**2**
F	35		**4**

In the **Kish Selection Table** find the square whose column heading matches the last digit of the Household Number and whose row heading matches the total number of eligible persons in the household. The person whose Rank matches this number is the selected participant for this household.

List all persons age 25-64 in household

Sex	Age		Rank	Selected Respondent

Full physical household address:

_____

_____

_____

Household Number _____

Cluster Number_____

Participant ID _____

Kish Selection Table:

Number of Eligible Persons in Household	Last Digit of Household Number									
	0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
1	1	1	1	1	1	1	1	1	1	1
2	1	2	1	2	1	2	1	2	1	2
3	3	1	2	3	1	2	3	1	2	3
4	1	2	3	4	1	2	3	4	1	2
5	1	2	3	4	5	1	2	3	4	5
6	6	1	2	3	4	5	6	1	2	3
7	5	6	7	1	2	3	4	5	6	7
8	1	2	3	4	5	6	7	8	1	2
9	8	9	1	2	3	4	5	6	7	8
10	9	10	1	2	3	4	5	6	7	8

Annexure 7

List of Data Collectors

Sl No	District	Name of LSGD	Name of Data collector
1.	Trivandrum	Kanjiramkulam	Hemalatha R
2.			Veena V Raj
3.		Corporation	Rincy V
4.			Vidya Surendran P
5.		Varkala	Ansi A V
6.			Amala A L
7.		Chenkal	Saranya M P
8.			Nisha U S
9.		Aruvikkara	Jayaprabha K.P
10.			Sreekanth M J
11.	Kollam	Kollam Corporation	Shehna. S
12.			Neethu S
13.		Mylom	Reshma Rajan
14.			Sreelakshmi .S
15.		Karunagapally	Anooja Prasad
16.			Minnu Sreevalsan
17.		Panmana	Reshma V
18.			Saranya Das S
19.		East Kallada	Anuja Jose
20.			Dyuthi John
21.	Pathanamthitta	Pathanamthitta Municipality	Rinky Mary Varghese
22.			Anju Krishna
23.		Adoor	Lekshmi H Nair
24.			Arya Robert
25.		Ezhamkulam	Neethu S Babu
26.			Akhila S Kurup
27.		Omalloor	Jithu Cherian
28.			Chinnu S
29.		Anicadu	Rekha R
30.			Anju Krishna
31.		Alappuzha	Thripthy J

32.	Alappuzha		Syama S Kurup
33.		Kayamkulam	Sreedevi. S
34.			Sajana. M
35.		Punnapra North	Resmi Raj
36.			Sumayya. A
37.		Kanjikkuzhy	Soumya.S
38.			Rosamma Scaria
39.		Cherthala South	Anila Prakash
40.			Savitha K.K
41.	Kottayam	Pala	Delson James
42.			Rakhi Haridas
43.		Changanasery	Rajithakumari R
44.			Rakhi R
45.		Kaduthuruthy	Roshma K M
46.			Jino Jose
47.		Veliyannoor	Ambily Bhaskaran
48.			Sreedevi T R
49.		Meenachil	Joby Joy
50.			Kunjumol Thomas
51.	Idukki	Thodupuzha Muncipality	Soumyamol P.V
52.			Arya C Vijayan
53.		Thodupuzha Muncipality	Soumya C.S
54.			Chippy K Baby
55.		Udumbannur	Jincy James
56.			Helan varghese
57.		Pampadumpara	Sudhi Mol K.S
58.			Sherly Joseph
59.		Kokkayar	Soosan E.S
60.			Remya Krishnan
61.	Ernakulam	Tripunithura municipality	Vyshnavi M V
62.			Chempakakutty B
63.		Mulavukadu panchayat	Athira K.S
64.			Jesna Xavier
65.		Vazhakulam panchayat	Teena Jolly
66.			Jemy Joy
67.		Ernakulam Corporation	Ajisha T. a

68.			Nafin Rafi M R
69.		Valakom	Gisha N G
70.			Rajani Rajappan
71.	Thrissur	Pudukad	Therese Cyriac
72.			Neena Mathew
73.		Alagappanagar	Bency T.P
74.			Keerthi Raveendran
75.		Kunnamkulam	Nisha. K.J
76.			Sneha.C. Shajan
77.		Thrissur Corporation	Beedu. K. Thomas
78.			Stephy Jose
79.		Maala	Neethu Pauly
80.			Vismaya N.V
81.	Palakkad	Chittur	Aparna J
82.			Fincy Francis
83.		Alanallur	Saranya K M
84.			Juby Babu
85.		Thachampara	Sabareesh K
86.			Liji K E
87.		Ottapalam	Midhun M
88.			Aswathy E S
89.		Nellaya	Divya U.S
90.			Renuga .C
91.	Malappuram	Mampad	Shalina KC
92.			Abeeda KT
93.		Nilambur	Rincy Jose
94.			Shalu P
95.		Nilambur	Shaibi Nishanth
96.			Jeeba M
97.		Kootilangadi	Nidheesh P
98.			Asma ul Husna U
99.		Karassery	Sanal Kumar M.K
100.			Shahna T M

101.	Kozhikode	Kozhikode Corporation	Surabhi. V
102.			Reshma T.N
103.		Koyilandy	Sandhya. A
104.			Arsha Krishna B
105.		Thamarassery	Jithin. K.T
106.			Sini Michael
107.		Kizakoth	Sarath Lal C.K
108.			Subisha.N
109.	Wayanad	Muttil	Remya M.G
110.			Sandhya Raghu
111.		Thondernad	Reena Scaria
112.			Sini Isaac
113.		Sulthan Bathery	Sisna Elias C
114.			Hima Varghese
115.		Kalpetta	Divya Babu
116.			Liya Paul
117.	Kannur	Mattanur	Pranav. P.K
118.			Drishya P.K
119.		Kolayad	Vignesh Babu K
120.			Amaya P.P
121.		Alakkode	Nithin Chacko
122.			Pinky Mareena
123.		Kannur	Shameem M P
124.			Remya V R
125.		Kannapuram	Rashid Kunnummal
126.			Jyosmin Mariya
127.	Kasargod	Nileshwar	Vandana Kadavath
128.			Divya Bhaskar
129.		Madhur	Jose Mathew
130.			Shany Xaviour
131.		Kinanoor karinthalam	Bindu C.V
132.			Sayana. K
133.		Kumbadaje	Lijina K
134.			Nishad N.V
135.		Kasargod Municipality	Silvy P J
136.			Deepa Johny

Annexure 8

Agenda- Training of Surveyors
Venue: Renewal Centre, Azad road, Kalloor, Kochi-17

14.11.2016

Time	**Topic**	**Resource person**
9.45 to 10 AM	Registration	
10 to 10.20 AM	Welcome and Introduction (NCD Risk Factors and survey)	Dr. K.R.Thankappan
10.20 to 10.40 AM	Details of 4 risk factors and consent taking	Dr.A.S.Pradeep Kumar
10.40 to 11.10 AM	Overview of questionnaire and Introduction of PDA	Dr.Biju Soman
11.10 to 11.30 AM	Tea break	
11.30 to 1.30 PM	Questionnaire details	Dr.Usha Kumari.B and other team members
1.30 to 2 PM	Lunch break	
2 to 3.45 PM	Equipments and Measurements overview Glucometer Blood pressure Waist circumference Height, weight	Dr.A.S.Pradeep Kumar and DPMs (NCD) Ms. Vani sankar Dr.Dona Boban and Dr. Varun Dharman Ms.Anu Maria Jacob and Ms.Sumitha Mr.Able Tom George and Mr.Sumeth Sukumaran
3.45 to 4 PM	Tea break	
4 to 5.30 PM	Data entry in PDA by participants- practise	
5.30 to 6.30 PM	Free time	
6.30 to 8 PM	Clarification of doubts on data entry	

15.11.2016

9 to 9.30 AM	Recap by participants	
9.30 to 10.15 AM	Sample selection	Dr.A.S. Pradeep Kumar
10.15 to 11.45AM	Discussion on problem solving	
11.45 to 1.15 PM	Measurements taking- self practise (Tea break in between)	
1.15 to 1.45 PM	Lunch	
1.45 to 2.15 PM	Administrative matters	
2.15 to 3.00 PM	Problem solving- Data entry and measurement	
3.00 to 3.45 PM	District wise group discussion	DPM- NCD
3.45 to 4 PM	Conclusion, Tea and dispersal	

Annexure 9

List of Investigator, Co- Investigators and Project staff

Principal Investigator		
Sl. No.	**Name**	**Designation**
1	Dr. K. R. Thankappan	Professor and HOD, AMCHSS

Co- Investigators		
Sl. No.	**Name**	**Designation**
1	Dr. V. Raman Kutty	Professor, AMCHSS
2	Dr. Biju Soman	Additional Professor, AMCHSS
3	Dr. K. Srinivasan	Additional Professor, AMCHSS
4	Dr. Ravi Prasad Varma	Assistant Professor, AMCHSS
5	Dr. Manju R Nair	Scientist C, AMCHSS
6	Dr. Jissa V.T	Scientist B, AMCHSS

Other Faculty members		
Sl. No.	**Name**	**Designation**
1	Dr. T. K. Sundari Ravindran	Professor, AMCHSS
2	Dr. P. Sankara Sarma	Professor, AMCHSS

Project Staff in AMCHSS of SCTIMST		
Sl. No.	**Name**	**Designation**
1	Dr. A. S. Pradeep Kumar	Senior Research Officer
2	Dr. B. Ushakumari	Senior Research Officer
3	Gayathri.G.P	Project Assistant
4	Brian.S.Raj	Project Assistant

Project Staff in the Districts			
Sl. No.	**District**	**District Project Managers (NCD)**	
1	Trivandrum	Rakesh R	Dr. Thirumaal.A
2	Kollam	Shemeera.S	Dr.Reethu.S
3	Pathanamthitta	Jasmin R.Pereira	Sulfath.S
4	Alappuzha	Vani Sankar	Dr.Varun Dharman
5	Kottayam	Sumitha P.H	Dr.Kauma Kurien
6	Idukki	Able Tom George	Sumeth Sukumaran
7	Ernakulam	Dr.Dona Boban	Anu Maria Jacob
8	Thrissur	Jorry Poulose	Dr.Vinayak.P
9	Palakkad	Rajinesh.K.V	Vishnu Nataraj
10	Malappuram	Moorshid Mon Thayyil	Mohamed Rafeek
11	Kozhikode	Sivaraman.T.K	Navas.M.P
12	Wayanad	Athulya Thomas	Dr. Sijay Jayan Dev
13	Kannur	Sreejesh M.V	Rince Mani
14	Kasasrgod	Godwin.G.Augustin	Ajil.K

Annexure 10

Two day training program for District Project Managers (NCD)
on 21st and 22nd July, 2016at AMCHSS, SCTIMST

Agenda

Day 1		
Time	**Topic**	**Resource person**
9 - 9.30	Registration, Informal Discussions	
9.30 - 10	Welcome and introduction to the training; Break up into 4 groups	Dr. A.S.Pradeep Kumar
10 – 10.30	**Epidemiology of NCDs and 4 main NCDs** Objective: to understand the magnitude of NCDs, prevalence among various age & sex groups, myths and misconceptions	Dr. Ravi Prasad Varma
10.30 -10.45	Discussion	
10.45 – 11.15	**Epidemiology of risk factors and 4 major risk factors** Objective: to understand modifiable and non- modifiable risk factors, inter relationship between NCDs and risk factors, magnitude of the problem	Dr. Ravi Prasad Varma
11.15 – 11.30	Tea break	
11.30 to 12	Discussion	
12 to 12.30	**Interventions to reduce risk factors- diet and physical activity** Objective: to understand various interventions done in Kerala and its challenges to reduce risk factors	Dr.K.R.Thankappan
12.30 to12.45	Discussion	
12.45 to 1.15	**Interventions to reduce risk factors - Tobacco** Objective: to understand tobacco control measures, FCTC, COTPA and challenges of implementation	Dr.A.S.Pradeep Kumar
1.15 to 1.30	Discussion	
1.30 to 2.15	Lunch	
2.15 to 2.45	**Concept of communication and rapport building** Objective: to understand principles of communication and advocacy and to understand how to work with the community	Dr.Srinivasan.K
2.45 to 3.15	**Counselling skills** Objective : to understand concepts such as empathy in community settings	Dr. Srinivasan.K
3.15 to 3.30	Discussion	
3.30 to 3.45	Tea Break	
3.45 to 4.15	**Decentralised planning and Health** Objective: to provide a basic understanding of the decentralisation process in Kerala with emphasis to the health sector	Dr. Biju Soman
4.15 to 5	Group work	

Day 2		
Time	**Topic**	**Resource Person**
8.30 to 9.15	Recap by participants	
9.15 to 9.45	**Addressing social determinants of NCDs** Objective : to understand factors influencing NCD, health inequity and social determinants of health framework	Dr. T.K. Sundari Ravindran
9.45 to 10.15	Discussion	
10.15 to 10.45	**Structural determinants and typology of action** Objective: to understand existing framework for multi-sectoral action, expanding delivery platforms	Dr. T.K. Sundari Ravindran
10.45 to 11	Tea break	
11 to 11.15	Discussion	
11.15 to 11.45	**Discussion on Gender differentials of NCDs** Objective : to understand gender related challenges, addressing differential needs and strengthening systems accordingly	Dr.T.K.Sundari Ravindran
11.45 to 12.15	**Policy reforms for NCD care** Objective : to understand reforming policies at Panchayath and district levels	Dr. V. Ramankutty
12.15 to 12.30	Discussion	
12.30 to 1.15	Lunch	
1.15 to 1.45	Project experiences	Dr.G.K.Mini and Dr.Sajitha.B
1.45 to 3	Presentation of group work and discussion	
3 to 3.15	Strategies to collect ward population and households	
3.15 to 3.45	Future plans, feedback from participants, Conclusion	
3.45 to 4	Tea break	

Annexure 11

Two day Training program on WHO STEPS
On August 22-23 2016, At Seminar Hall, AMCHSS, SCTIMST

Agenda

Day 1		
Time	**Topic**	**Resource Person**
9 - 9.30	Registration, informal discussion	
9.30-945	Welcome and introduction to the workshop	Dr. KR Thankappan
9.45-10.45	National NCD action plan and monitoring framework	Dr Prasanth Mathur, director ICMR
10.45-11.00	Tea Break	
11.00-11.45	NCD risk factor surveillance using WHO STEPS	Dr Pradeep Joshi, WHO India Country office
11.45-12.15	Sampling scheme	Dr PS Sarma, Professor Biostatistics, AMCHSS
12.15-1.00	STEP 1 – Questionnaire	Prasanth Mathur, KR Thankappan,
1.00-2.00	Lunch Break	
2.00-5.00	STEP 2 – measurements	Ravi Prasad Varma, Associate Professor, AMCHSS
	Height measurement	
	Weight measurement	
	Waist Circumference	
	Hip circumference	
	Blood Pressure and Heart Rate	
	Informed consent forms and procedures	

Day 2		
Time	**Topic**	**Resource Person**
8.30 – 10.30	STEP 3 Measurements	Pradeep Joshi, WHO India County office
	Fasting Blood Glucose	
	Urinary Sodium	
	Urinary Creatinine	
10.30-11.00	Tea Break	
11.00-12.00	Health Facility Survey	AS Pradeepkumar, Senior Reserch Officer NCD Project
12.00-1.00	Use of PDAs	Biju Soman and the external expert team from Software company
1.00-2.00	Lunch Break	
2.00-4.00	Verbal Autopsy	Dr Sanjeev Nair Dept of Pulmonary Medicine, MCH Trivandrum
4.00-5.00	Future plans	KR Thankappan, AS Pradeepkumar

Annexure 12

List of Panchayaths selected for intervention programs

Sl. No.	District	Block Panchayath	Grama Panchayath
1	Thiruvananthapuram	Parassala	Parassala
2			Karode
3			Kulathur
4			Chenkal
5			Tirupuram
6			Poovar
7		Perumkadavila	Vellarada
8			Kunnathukaal
9			Kollayil
10			Perumkadavila
11			Aryancode
12			Ottasekharamangalam
13			Kallikadu
14			Amboori
15	Kollam	Chittumala	Kundara
16			Panayam
17			Perayam
18			East kallada
19			Montrothuruthu
20			Perinadu
21			Thrikkaruva
22		Oachira	Oachira
23			Kulasekharapuram
24			Thodiyoor
25			Alappadu
26			Thazhava
27			Clappana
28	Pathanamthitta	Elanthoor	Omalloor
29			Cheneerkkara
30			Elanthoor

31			Cherukole
32			Kozhencherry
33			Mallapuzhasherry
34			Naranganam
35		Koipuram	Ayroor
36			Eraviperoor
37			Koipuram
38			Thottapuzhassery
39			Ezhumattoor
40			Puramattom
41	Alappuzha	Thycattussery	Perumbalam
42			Panavally
43			Thycattussery
44			Chennam-Pallipuram
45			Arookutty
46		Pattanakad	Ezhupunna
47			Aroor
48			Kodamthuruth
49			Kuthiyathodu
50			Thuravoor
51			Pattanakad
52			Vayalar
53		Veliyanad	Veliyanad
54			Pulinkunnu
55			Kavalam
56			Ramankary
57			Muttar
58			Neelamperoor
59	Kottayam	Kaduthuruthy	Kaduthuruthy
60			Kallara
61			Mulakullam
62			Njeezhoor
63			Thalayolaparambu
64			Velloor
65		Ettumanoor	Thiruvarppu

66			Aymanam
67			Athirampuzha
68			Arpookara
69			Neendoor
70			Kumarakom
71		Uzhvoor	Kadaplamattom
72			Marangattupally
73			Kanakkary
74			Veliyanoor
75			Kuravilangadu
76			Uzhvoor
77			Ramapuram
78			Manjoor
79	Idukki	Adimaly	Adimaly
80			Konnathady
81			Baisanvally
82			Vellathooval
83			Pallivasal
84		Thodupuzha	Kumaramangalam
85			Muttom
86			Edavetty
87			Karimkunnam
88			Manakkadu
89			Purapuzha
90	Ernakulam	Pambakuda	Elanji
91			Thirumarady
92			Palakuzha
93			Pambakuda
94			Ramamangalam
95		Angamaly	Mookkanur
96			Thuravoor
97			Manjapra
98			Karukutty
99			Ayyampuzha
100			Kanjoor

101			Kalady
102			Malayatoor Neeliswaram
103		Mulanthuruthy	Udayamperoor
104			Mulanthuruthy
105			Chottanikara
106			Edakkatuvayal
107			Amballoor
108			Maneed
109	Thrissur	Talikkulam	Engandiyur
110			Vatanappally
111			Talikkulam
112			Nattika
113			Valapad
114		Iringalakkuda	Karalam
115			Kattoor
116			Muriyad
117			Parappukkara
118		Chowannur	Choondal
119			Chowannur
120			Kadavallur
121			Kandanassery
122			Kattakampal
123			Porkulam
124			Kadangod
125			Velur
126		Anthikad	Arimpur
127			Anthikad
128			Thanniyam
129			Chazhoor
130			Manalur
131	Palakkad	Attapapdy	Agali
132			Pudur
133			Sholayur
134		Sreekrishnapuram	Kadambazhipuram
135			Karimpuzha

136			Sreekrishnapuram
137			Vellinezhi
138			Karakurissi
139			Pookottukavu
140		Pattambi	Parudur
141			Koppam
142			Kulukkallur
143			Muthuthala
144			Ongallur
145			Thiruvegappura
146			Vilayur
147	Malappuram	Kalikkavu	Karulai
148			Amarambalam
149			Kalikkavu
150			Karuvarakkundu
151			Thuvvur
152			Edapetta
153			Chokkad
154		Perumpadappu	Alamkode
155			Maranjeri
156			Nannamukku
157			Perumpadappu
158			Veliyancode
159		Thiroorangadi	Thenjipalam
160			Vallikunnu
161			Munniyoor
162			Nannambra
163			Peruvallur
164	Kozhikode	Kunnummal	Kunnummal
165			Kayakkodi
166			Kavilumpara
167			Kuttaidy
168			Maruthomkara
169			Velom
170			Narippatta

171		Chelannur	Kakkodi
172			Chelannur
173			Kakkur
174			Nanmanda
175			Narikkuni
176			Thalakulathur
177		Koduvally	Thiruvampady
178			Koodaranhi
179			Kizhakkoth
180			Madavoor
181			Puthuppady
182			Thamarassery
183			Omassery
184			Kattippara
185			Kodenchery
186	Wayanad	Panamaram	Panamaram
187			Pulpally
188			Poothady
189			Mullankolly
190			Kaniyambetta
191		Sulthan Bathery	Meenangadi
192			Nenmeni
193			Noolpuzha
194			Ambalavayal
195	Kannur	Kuthuparamba	Kottayam Malabar
196			Triprangottur
197			Chittaripparamba
198			Kunnothuparamba
199			Mangattidom
200			Pattiam
201		Peravoor	Kanichar
202			Kelakam
203			Kottiyoor
204			Muzhakkunnu
205			Kolayad

206			Maloor
207			Peravoor
208	Kasaragod	Kanhangad	Ajanur
209			Madikkai
210			Pallikkere
211			Pullur-Periya
212			Uduma
213		Manjeshwaram	Enmakaje
214			Mangalpady
215			Manjeswar
216			Meenja
217			Paivalike
218			Puthige
219			Vorkady

Summary: Number of Panchayaths selected for intervention programs

District	No of Block Panchayaths	No of Grama Panchayaths
Thiruvananthapuram	2	14
Kollam	2	13
Pathanamthitta	2	13
Alappuzha	3	18
Kottayam	3	20
Idukki	2	11
Ernakulam	3	19
Thrissur	4	22
Palakkad	3	16
Malappuram	3	17
Kozhikode	3	22
Wayanad	2	9
Kannur	2	13
Kasaragod	2	12
Kerala Total	**36**	**219**

Annexure 13

Agenda

Orientation Program for Elected Representatives of Grama Panchayath on 15.03.2017

Venue: AMC Auditorium

Time	**Topic**	**Resource Person**
9.30 to 10 AM	Registration	
10 to 10.20 AM	Welcome and Introduction	Dr. K.R. Thankappan Professor and Head, AMCHSS
10.20 to 10.50 AM	Tobacco use and control measures	Dr.A.S.Pradeep Kumar Senior Research Officer
10.50 to 11.10 AM	Healthy Diet and possibilities	Dr. K.R.Thankappan Professor and Head, AMCHSS
11.10 to 11.30 AM	Tea Break	
11.30 to 11.50 AM	Physical activity and opportunities	Dr. Biju Soman Additional Professor
11.50 to 12.10 PM	Alcohol consumption and prevention	Dr. V. Ramankutty Professor AMCHSS
12.10 to 1.30 PM	Discussion on role of Panchayaths in prevention and control of NCDs	Moderator- Dr. B.Ekbal Member, Kerala State Planning Board
1.30 PM	Lunch & Dispersal	

Annexure 14

List of elected representatives participated in the sensitization program

Sl No:	District	Name of Panchayath	Name of Panchayath President / Vice President	Name of Health Standing Committee Chairperson
1	**Thiruvananthapuram**	Parassala	S Suresh	
2		Karode	Latha Shiju	
3		Kulathoor	Bilcy Jayachandran	Raja Alli
4		Chenkal		Thresya Selvister
5		Thirupuram	L Christhudas	Sajiraj Victor
6		Poovar	Jishy Moideen Pillai	Shaleela Shaju
7		Vellarada	Shobhakumari M S	Sugandhi
8		Kunnathukal		Ashok Kumar
9		Kollayil	Y Lekha Pankajakshan	Anitha Shali M
10		Perumkadavila	Sunitha I R	Valsala Kumari
11		Aryankode		Aneesh Chaithanya
12		Ottashekaramangalam		Sreedharan Thrisheelan
13		Kallikadu	L Sanumathi	Latha S
14	**Kollam**	Mundrothuruth		Gopalakrishnan
15		Panayam	Sheela	Chinju
16		Thrikkaruva	K Chandrashekharan Pillai	Sudhamany T
17		East Kallada	N Vijayyan	Yamuna
18		Perayam	Stansy Yesudasan	Rajitha Kumari
19		Ochira	Ayyanikkal Abdul Majeed	S Mahila Many
20		Thazhava	Sreelatha	Annie Pon
21		Clappana	S M Iqbal	Geetha
22		Alappad	P Saleena	Suhasini
23		Thodiyoor	Kadavikkadu Mohanan	K Sureshkumar
24		Perinad	L Anil	
25	**Pathanamthita**	Ayroor	Thomas Thambi	
26		Eraviperoor	Geetha Anil Kumar	
27		Koipuram	Moncy Kizhakedath	
28		Thottapuzhassery	Elsy	Ajithakumari
29		Ezhumattoor		Anilkumar Paikkara
30		Omalloor	Geetha Vijayan	Lakshmi Manoj
31		Cheneerkkara	Kala Ajith	Radhamani
32		Elanthoor	Samson Thekkathil	

33		Cherukole	Gopi V P	Krishnakumari N G
34		Kozhencherry	Mini Shyam Mohan	Christopher
35		Mallapuzhasherry	Manoj Madhavashery	P A Narayanan
36		Naranganam	Kadamanitta Karunakaran	
37	**Alappuzha**	Perumbalam	Shibu K S	
38		Panavally	Rajesh Vivekananda	
39		Thaikattussery	Shanthamma Prakash	
40		Chennam-Pallippuram	Shilja	P G Mohanan
41		Arookutty	Aabida Azeez	Yasmine
42		Ezhupunna	Syamalakumari S T	
43		Aroor	Retnamma	Sajitha
44		Kodamthuruth	Shyni Peringatt	Baby
45		Kuthiyathod	Prema Rajappan	
46		Thuravoor	Anitha Soman	R Vidyadharan
47		Pattanakkad	Adv. T M Sherif	M S Sumesh
48		Vayalar		U G Unni
49		Pulinkunnu	Babu Kuruppassery	
50		Veliyanad	M P Sajeev	K Mohanlal
51		Ramankary		Annamma Varghese
52		Muttar	Mathukutty Eapen	Mathew Varghese
53	**Kottayam**	Kaduthuruthy	P. V. Sunil	Mathew G
54		Kallara	Jameela Pradeep	Saumya
55		Mulakullam	Sujatha Suman	Sini Jain
56		Njeezhoor	N. Manilal	P D Radhakrishnan
57		Thalayolaparambu	V. G. Mohanan	Anil
58		Velloor	Laila Jamal	Jomol
59		Thiruvarppu	Jessy Ninan	Subhaga
60		Aymanam	Alichan	
61		Athirampuzha	Anns Varghese	Lissy Tomy
62		Arpookara	Anand Panjikkaran	
63		Neendoor	Mini Kunjumon	Vimalakkutty
64		Kumarakom	A. P. Salimon	P K Santhakumar
65		Kadaplamattom	Mary kutty Thomas	
66		Marangattupally	Dr. Rani joseph	Omana
67		Kanakkary	Cherian Mathew	Binoy Cheriyan
68		Veliyanoor	Thankamani Sasi	
69		Kuravilangadu	P. C. Kurian	George G

70		Uzhvoor	Mary M. T	
71		Ramapuram	Baiju John	Jeen S Nath
72		Manjoor	K. C. Mathew	
73		Adimaly	Smitha Muniswamy	Mary Jacob
74		Baisan Valley	Manju Jince	Preethi Premkumar
75		Konnathady	Mohanan Nair	
76		Vellathooval	T R Bigi	Roy John
77		Pallivasal	Thlasibhai Krishnan	Pavanthai
78	**Idukki**	Kumaramangalam	Niyas Pazheri	Siju
79		Muttom	Kuttiyamma Michel	T K Mohanan
80		Edavetty	Latheef Muhammad	Beevi
81		Karimkunnaom	Beena Biju	
82		Manakkadu	Valsa Jhon	
83		Purapuzha	Elikutty Mani	Suja Salimkumar
84		Mulanthuruthy	Cheriyan	George Mani
85		Chottanikara	Omana Sasi	Jaya Sivaraj
86		Edakkatuvayal	Jessy Peter	
87		Amballoor	Jalaja Mohan	Beena Mohanan
88		Maneed	Sobha Eliyas	Dhanya
89		Elanji	Joy Mambally	Riya Manoj
90		Thirumarady	O N Vijayan	K R Prakashan
91		Palakuzha	Joshu Scaria	
92		Pambakuda	Sushama Madhavan	Sindhu George
93	**Ernakulam**	Ramamangalam	Jessy George	Adv.Mini Kumari
94		Mookkanur	Molly Wincent	Jisha Joji
95		Thuravoor	Silvi Baiju	M M Jaison
96		Manjapra	Cheriyan Thomas	Raju Devis
97		Karukutty	Shaju V Thekkekkara	Joji Kalloorkkaran
98		Ayyampuzha	Neethu Anu	Jancy
99		Kanjoor	M P Lonappan	
100		Kalady	Thulasi Bhai Padmanabhan	Alphonsa
101		Malyatoor Neeliswaram	Animol Baby	Mini Surendran
102		Engandiyur	K.V.Ashokan	Indira
103		Vatanappally	Shijith V R	Sudheesh
104	**Thrissur**	Talikkulam	Rajani K K	
105		Nattika	Vinu P	
106		Karalam	Babu K S	Rama Raj

107		Kattoor	Manoj Valiyaparambil	Ramesh
108		Parappukkara	Karthika Jayan	Reena Francis
109		Chowannur	K K Satheeshan	K P Surendran
110		Kadavallur	Shobana U P	Nijimol
111		Kattakampal	C K Sadanandan Master	Arjunan
112		Porkulam	Omana Babu	Seena Wilson
113		Velur	Sherly Dileepkumar	Swapna Ramachandren
114		Arimpur	Sujatha Mohandas	Subitha Santhosh
115		Anthikad		Babu A.B
116		Manalur	Sita Ganesh	Viji Sashi
117	**Palakkad**	Paruthur	Santhakumari	K Ambika
118		Koppam	Sumitha	Vanaja Krishnakumar
119		Muthuthala	Neelakandan C M	Mukesh
120		Ongallur	Narayanan A M	Jisha R
121		Thiruvegappura	Sarada T P	Raihananandan
122		Vilayur	Muraleedharan	Neeladi Sudkakaran
123		Kadampazhipuram	Ambujakshy K	
124		Karimpuzha	Sheeba P T	Rehana
125		Sreekrishnapuram	Shaju Sanker	P K Gangadharan
126		Vellinezhi	K Sreedharan	K Ramankutty Master
127		Karakkurissi	Majeed	Vijayan P
128		Pookkottukavu	Jayadevan K	Ajithkumar K
129		Agali	Sreelakshmi Sreekumar	Santha Venugopal
130	**Malappuram**	Alankode	Ayisha Hassan	
131		Marenchery	E Sindhu	Hamsa
132		Veliyankode	Premaja	Babitha
133		Thenjipalam	Safiya Razaque	Ashalatha
134		Vallikunnu	Shobhana V N	E Dasan
135		Moonniyur	Kuttassery Shareefa	C P Subaida
136		Nannambra	Muhammed Hassan	Mujeeb Rahman
137		Peruvalloor	Ramla P K	Rasiya
138		Amarambhalam	Sujatha C	Ganga Devi
139		Karulai	Asainar	Manoj K
140		Karuvarakkundu	K Muhammed Master	
141		Thuvvur	Balakrishnan	
142	**Kozhikode**	Kunnummal		Mr Vijilesh
143		Kuttaidy	Bindu K C	Nanu E K

144		Velom	Abdulla V K	K K Anduru Master
145		Narippatta	Narayani A K	Sheeja T K
146		Kakkodi	Rajendran	Melal Mohanan
147		Chelannur		Leela
148		Narikkuni	P Abdul Jabbar	Amina I
149		Thalakulathur	Prakashan C	Prajitha
150		Thiruvampady	P T Augustin	
151		Koodaranhi	Soly Joseph	Aleyamma
152		Kizhakkoth		Abdul Jabbar
153		Madavoor	V C Abdul Hameed Master	Sindhu Mohanan
154		Puthuppady	Nandakumar	
155		Thamarassery	Saraswathy	
156		Omassery	C K Khadeeja Mohhamed	Fathima Vadakkinikandi
157		Kattippara	Baby Raveendran	Baby Babu
158		Kodenchery	Annakutty Devasia	
159		Ambalavayal		Sunitha Dasan
160		Meenangadi	C Assainer	Lissy Paulose
161		Nenmeni	Mr. Karuppan	Rajagopalan K
162	**Wayanad**	Panamaram	Lissy Thomas	Julna Usman
163		Pulpally	Bindhu Prakash	Shobhana
164		Poothady	George Pulppara	George Pulpara
165		Mullankolly	Girija Krishnan	Cicily Cherian
166		Kaniyambetta	Kadavan Hamsa	
167		Kottayam	T. Shabna	Dharmarasj
168		Triprangottoor	Kattoor Muhammad	
169		Chittariparamb	A P Shobha	Beena N K
170		Kunnothuparamb	Balan K	Aneesh P K
171		Mangattidom	Praseetha K	Sandya
172		Pattiam	Balan Master V	Mr Surendran
173	**Kannur**	Kanichar	Salin Mani	Shanthi Sebastian
174		Kelakam	Maithili Ramanan	Thankamma Scaria
175		Kottiyoor	Indira Sreedharan	Cicily
176		Muzhakkunnu	Babu Joseph	Surendran Thacholi
177		Kolayad	K P Suresh Kumar	Kunhammad
178		Malur	P Ashokan	Manoj Kumar
179		Peravoor	Jiji Joy	Elsamma Dominic
180	**Kasargod**	Ajanur	Podipallath Damodaran	

181		Madikkai	C Prabhakaran	Abdul Anwar
182		Pallikkere	Indira P	Bindu K A
183		Pullur-Periya	Krishnan P	Bindu T
184		Uduma	Muhammedali	Santhosh
185		Mangalpady	Shahul Hameed Bandhiyod	Abdul Razzak
186		Manjeswar	Abdul Azeez	
187		Meenja	Shamshad Shukkoor	Krishna Kommangala
188		Paivalike	Bharathi	Fathima Zuhara
189		Puthige	Aruna	
190		Vorkady	Abdul Majeed B.A	

Summary: Number of Panchayaths and elected representatives participated in the sensitization program

District	No of panchayaths	No of Panchayath President / Vice President	No of Health Standing Committee Chairperson
Thiruvananthapuram	13	9	11
Kollam	11	10	10
Pathanamthitta	12	11	7
Alappuzha	16	14	10
Kottayam	20	20	14
Idukki	11	11	8
Ernakulam	18	18	15
Thrissur	15	14	13
Palakkad	13	13	12
Malappuram	12	12	9
Kozhikode	17	14	13
Wayanad	8	7	7
Kannur	13	13	12
Kasaragod	11	11	7
Kerala Total	**190**	**177**	**148**

Annexure 15

List of selected schools for training with strength of students in each district

Sl.No.	District	Name of School	Total Strength of students		
			Boys	Girls	Total
1	Thiruvananthapuram	LMS HSS, Amaravila	905	608	1513
2		Govt. HSS, Thirupuram	218	198	416
3		MVHSS, Arumanoor	929	601	1530
4		Vimala Hridaya High School	467	430	897
5		Govt. Vocational and HSS, Kulathoor	652	664	1316
6		Evan's HSS, Parassala	721	599	1320
7		Govt. Vocational HSS, Parassala	487	635	1122
8		Samuel LMSHSS, Parassala	514	544	1058
9		Govt. KVHSS, Ayira	300	268	568
10		St. Mathews HS, Pozhiyoor	191	185	376
11		Govt. HSS, Poovar	234	240	474
12		GHSS, Marayamuttom	668	562	1230
13		GHSS, Keezharoor	258	220	478
14		GHSS, Mylachal	279	267	546
15		LMSHSS, Chemboor	372	364	736
16		GHSS, Neyyar Dam	263	279	542
17		St. Thomas HSS, Amboori	332	419	751
18		VPMHSS, Vellarada	787	774	1561
19		St. John's HSS, Undancode	660	626	1286
20		PPM High School, Karakonam	473	398	871
21		Govt. Girls High School, Dhanuvachapuram	128	227	355
22		Govt. NKMBHSS, Dhanuvachapuram	273	180	453
23		NSSHSS, Dhanuvachapuram	244	330	574
		Sub Total	**10355**	**9618**	**19973**
24	Kollam	GHS Oachira	172	140	312
25		Vellimon VHSS	148	115	263
26		Boys HS,Karunagappally	1450	0	1450

27		Girls HS,Karunagappally	0	1925	1925
28		Model HS ,Karunagappally	388	812	1200
29		Model HSS and VHSC ,Karunagappally	506	482	988
30		GHS Panayil	257	214	471
31		BJSM Madathil HSS	360	370	730
32		BJSM Madathil HS	815	390	1205
33		NSS HSS Prakkulam	140	180	320
34		NSS HS Prakkulam	257	380	637
35		MSM HSS ,Chathinamkulam	1720	1880	3600
36		GOVT HS,Thazhava	357	400	757
37		GOVT HSS,Thazhava	200	255	455
38		AVHS,Thazhava	430	425	855
39		GOVT HSSAshtamudi	135	137	272
40		MSM HS ,Chathinamkulam	750	470	1220
41		GOVT HS Cheriyazheekkal	138	119	257
42		GOVT VHSC Cheritazheekkal	120	140	260
43		JFKM HSS And VHSC, Ayanivelikulangara	110	195	305
44		JFKM HS, Ayanivelikulangara	110	117	227
45		CVKM HS and HSS East Kallada	392	415	807
46		MMHS,Uppodu	118	116	234
47		MGD Boys,Kundara	817	0	817
48		MGD Girls,Kundara	790	790	1580
49		GHS Perinadu	110	126	236
		Sub Total	**10790**	**10593**	**21383**
50	**Pathanamthitta**	Elanthoor VHSS	74	3	77
51		Kadammanitta HSS	254	212	466
52		Omalloor HSS	211	260	471
53		Pathanamthitta HSS & VHSS	221	263	484
54		Thumpamon North HSS	166	154	320
55		Chenneerkara SNDPHSS	158	134	292
56		Kozhencherry St. Mary's H S	0	327	327
57		Kozhencherry St. Thomas HSS	304	0	304
58		Kuzhikala CMS HSS	172	179	351
59		Muttathukonam SNDPHSS	254	180	434

60		Mylapra S.H.H.S.	351	284	635
61		Omalloor ABHS	251	195	446
62		Pathanamthitta Catholic HSS	153	127	280
63		Pathanamthitta Marthoma HSS	257	263	520
64		Ezhumattoor HSS	188	132	320
65		Koipram HSS	123	199	322
66		Eraviperoor St. John's HSS	264	226	490
67		Kumbanad NM HS	85	70	155
68		Pullad SV HS	141	132	273
69		Thadiyoor N.S.S.H.S.S.	481	433	914
70		Vennikulam St. Behanan's HSS	579	549	1128
		Sub Total	**4687**	**4322**	**9009**
71		GHSS Perumpalam	330	205	535
72		VRVMHSS Vayalar	289	216	505
73		GHSS Thirunalloor	390	321	711
74		SCUVHSS Pattanakkadu	788	643	1431
75		GHSS Thevarvattom	235	260	495
76		VV HSS Kodamthuruthu	196	212	408
77		GHSS Chandiroor	347	260	607
78		St Theresa's HS Manappuram	244	190	434
79		St Augustine's HSS Aroor	670	597	1267
80		ECEK U HS Kuthiathodu	187	128	315
81		SNHSS Poochakaal	928	919	1847
82	**Alappuzha**	St Raphael's HSS Ezhupunna	499	462	961
83		SCS HSS Valamangalam	243	237	480
84		St Micheal's HS Kavil	208	188	396
85		VJHSS N Nagar	934	887	1821
86		TDHSS Thuravoor	1044	1031	2075
87		NSS HSS Panavally	478	421	899
88		St Sebastine's H S Pallithodu	215	173	388
89		St. George HSS, Muttar	371	307	678
90		AJJM HSS Kainady	240	219	459
91		St. Xavier’s HS, Mithrakary	148	135	283
92		LF HS, Kavalam	128	144	272
93		NSS HSS Kavalam	314	303	617

94		LF GHS, Pulincunnoo	0	531	531
95		St. Joseph’s HSS, Pulincunnoo	813	219	1032
		Sub Total	**10239**	**9208**	**19447**
96		St Michels HS, Kaduthuruthy	681	321	1002
97		SMVNSS HS, Kallara	374	342	716
98		St Thomas HS, Kallara	325	294	619
99		St. Agnes GHS, Muttuchira	0	434	434
100		AJ John Memorial Govt HS, Thalayolaparambu	0	753	753
101		Rev. Fr. GVHSS, Peruva	242	113	355
102		VBB NHSS, Njeezhoor	483	343	826
103		St Alosious HSS, Athirumpuzha	900	208	1108
104		St Philominas GHS Arpukkara	0	269	269
105		St Mary's GHS Athirumpuzha	0	640	640
106		St Ephrems HS Mannanam	839	411	1250
107		St George HS Kaipuzha	286	265	551
108		Parippu HS, Parippu	112	181	293
109	**Kottayam**	SKM HSS, Kumarakom	608	510	1118
110		St Pauls GHS, Vettimukal, Pala	0	257	257
111		DVV HS, Kumaranalloor	367	201	568
112		HF HS, Parampuzha	132	100	232
113		SNDP HSS, Kiliroor	400	231	631
114		St Augustins HS Ramapuram	384	380	764
115		SH GHS, Ramapuram	0	311	311
116		OLL HS, Uzhavoor	501	529	1030
117		Emanuel's HS, Kothanalloor	368	389	757
118		St Mary's Boys HSS, Kuravilangad	421	210	631
119		St Mary's Girls HS, Kuravilangad	0	501	501
120		St Annes HSS, Kurianad	473	349	822
121		St Xavier's HSS Kuruppumthara	149	132	281
122		SKV HSS Kurichithanam	278	284	562
		Sub Total	**8323**	**8958**	**17281**
123		GHS Adimaly	152	115	267
124	**Idukki**	GVHSS Deviyarcolony	261	238	499
125		FMGHSS Koompanpara	0	1100	1100
126		CMHS Mankadavu	192	122	314

127		SNDVHSS Adimaly	425	301	726
128		SSHS Pottankadu	228	335	563
129		SGHS Parathode	620	568	1188
130		SSHS Thokkupara	178	99	277
131		GHSS Panikankudi	258	250	508
132		SSHS Thodupuzha	329	214	543
133		SHGHS Muthalakodam	0	499	499
134		MKNM HSS Kumaramangalam	434	439	873
135		SGHSS Muthalakodam	749	466	1215
136		SSHSS Vazhithala	392	345	737
137		SGHSS Kallanickal	211	190	401
138		SAHSS Karimkunnam	530	415	945
		Sub Total	**4959**	**5696**	**10655**
139	**Ernakulam**	High School Ramamangalam	132	123	255
140		St. Ignatious HSS Kanjiramattom	847	738	1585
141		NSS Boys HSS Manickamangalam	590	352	942
142		St. Sebastian's HS Kanjoor	448	0	448
143		Government Model HSS Palakuzha	254	157	411
144		MTM HSS Pambakuda	386	290	676
145		Star Jesus HS Karukutty	245	0	245
146		St. Peters HSS Elanji	284	263	547
147		Little Flower HS Vadakara	104	184	288
148		St.Johns Syrian HSS Vadakara	290	279	569
149		High School Koothatukulam	114	118	232
150		MKMHSS Piravom	661	602	1263
151		St. Joseph's HS Piravom	222	201	423
152		KPMHSS Poothotta	952	751	1703
153		St.Mary's HSS Thalacodu	412	321	733
154		St.Pauls HSS Veliyanadu	225	195	420
155		SNDPHSS Udayamperoor	1222	1139	2361
156		GHSS Mookkannoor	272	233	505
157		VHSS Irumpanam	328	171	499
158		GHSS Chottanikara	188	195	383
159		GHSS Mulanthuruthy	305	322	627
160		St Thomas HSS Malayatoor	670	483	1153

161		St. Joseph's CGHS Kanjoor	0	471	471
162		Akavoor HS Sreemoolanagaram	177	112	289
163		St.George HS Arakunnam	164	130	294
		Sub Total	**9492**	**7830**	**17322**
164		KNMVHSS, Thrithalur	514	359	873
165		National HSS, Engandiyur	197	257	454
166		St.Thomas HSS, Engandiyur	845	694	1539
167		GFHSS, Nattika	263	232	495
168		SN Trust HSS, Nattika	420	523	943
169		GVHSS,Thalikulam	150	81	231
170		GHSS, Peringottukara	310	280	590
171		SH of Marys Convent GS, Kandassankadavu	0	688	688
172		Seraphic CGHS, Peringottukara	0	878	878
173		Govt HS, Anthikkad	635	401	1036
174		PJMS GHSS, Kandassankadavu	190	280	470
175		SNGSHSS, Karamukk	790	704	1494
176	**Thrissur**	GHSS, Manalur	233	350	583
177		St Francis HSS, Mattom	704	226	930
178		GVHSS, Pazhanji	924	0	924
179		St.Syrills and St Josephs HSS, West Mangadu	552	285	837
180		ST Mary's HS, Chowannoor	250	999	1249
181		TMHS, Perumpilavu	488	284	772
182		LIGHS, Choondal	0	585	585
183		GMBHS, Irinjalakkuda	546	0	546
184		ST Marys HSS, Irinjalakkuda	642	207	849
185		NHSS, Irinjalakkuda	958	526	1484
186		LFCHS, Irinjalakkuda	0	900	900
187		SNHSS, Irinjalakkuda	301	325	626
		Sub Total	**9912**	**10064**	**19976**
188		GHSS Pattambi	1118	1258	2376
189		PHSS Pallippuram	1908	1758	3666
190	**Palakkad**	GHSS Kodumunda	364	265	629
191		GJHSS Naduvattom	660	681	1341
192		GHSS Vadanamkurissi	650	739	1389

193		GVHSS Koppam	797	809	1606
194		GOHSS Pattambi	480	475	955
195		PTMYHSS Edappalam	1537	1736	3273
196		GHSS Chundampatta	515	585	1100
197		Sabari PTBS Adakaputhur	439	355	794
198		AKNMMA HSS Kattukulam	726	674	1400
199		GHSS Munnurcode	342	276	618
200		GHSS Cherpulassery	1278	1429	2707
201		GVHSS Agali	717	669	1386
202		Mount Carmel H S Jellippara	557	716	1273
203		GTHS Puthur	229	162	391
204		GTHS Sholayur	361	396	757
205		Arogyamatha HS Kottathara	132	198	330
206		S P C H S Kookkampalayam	267	183	450
207		KHSS Thaottara	777	731	1508
208		GHSS Vellinezhi	489	434	923
209		HS Kadampazhippuram	507	495	1002
210		MNKMGHSS Pulapetta	688	788	1476
211		GVHSS Karakurissi	642	821	1463
212		Sabari HS Pallikkurup	834	864	1698
213		HSS Sreekrishnapuram	1202	1201	2403
		Sub Total	**18216**	**18698**	**36914**
214		GHSS Pullengode	851	934	1785
215		GHSS Peruvallur	726	798	1524
216		SSMHSS Theyyalingal	832	966	1798
217		Crescent HSS Adakakkundu	1724	1839	3563
218		MHSS Moonniyoor	1023	1055	2078
219		GHS Edapatta	120	80	200
220	**Malappuram**	KMHSS Karulai	1022	1079	2101
221		GVHSS Chelari	1148	1072	2220
222		GMHSS Calicut University	1160	1772	2932
223		GHSS Pookottumpadam	1171	1151	2322
224		CBHSS Vallikunnu	728	712	1440
225		MVHSS Ariyallur	520	712	1232
226		GHSS Thuvvur	865	1035	1900

227		GHSS Veliyancode	356	290	646
228		HSS Vanery	567	444	1011
229		GHSS Karuvarakkundu	1562	2022	3584
230		GHSS Palapetty	341	299	640
231		PCNGHSS Mookkuthala	817	883	1700
232		ASMHS Valiyanchery	657	751	1408
233		GHSS Marenchery	1402	1202	2604
234		GHSS Kokkur	524	580	1104
235		AHS Paral Mampattumoola	968	972	1940
		Sub Total	**19084**	**20648**	**39732**
236		RNMHSS, Naripatta	524	533	1057
237		SN Trust HSS Chelannur	429	355	784
238		GHSS Narikkuni	678	769	1447
239		CMMHSS Thalakulathur	485	383	868
240		HSS Kuttamboor	470	377	847
241		GHSS,Nanmanda	648	459	1107
242		SGMGHSS Kolathur	472	378	850
243		AKKRHSS GIRLS, Chelannur	0	990	990
244		MGMHSS Eangapuzha	692	682	1374
245		VHSE Thamarassery	656	494	1150
246		GHSS Puthuppady	467	832	1299
247		ST.Josephs HS Pullarampara	547	473	1020
248	**Kozhikode**	Holy Family HSS , Venappara	316	533	849
249		ST.Mary’s HSS Koodathai	447	522	969
250		FMHSS Koombara	272	458	730
251		ST. Sebastians HSS Koodaranji	731	579	1310
252		MJHSS Elettil	845	857	1702
253		GHSS Chakkalakkal	856	870	1726
254		GHSS Pannur	363	619	982
255		Sacred Heart HSS, Thiruvambady	694	806	1500
256		Holy Family HSS, Kattipara	574	543	1117
257		GHSS Kuttiady	1115	1155	2270
258		GHSS Velom	347	414	761
259		St. Marrys HSS Maruthomkara	306	304	610
260		Sanskrit HS Vattoly	490	474	964

261		National HSS Kuttiady	913	938	1851
		Sub Total	**14337**	**15797**	**30134**
262		GHSS Anappara	426	395	821
263		GMHSS Cheeral	480	619	1099
264		GHSS Meenagadi	942	696	1638
265		GHSS Kallore	284	261	545
266		GHSS Moolankavu	512	460	972
267		GVHSS Ambalavayal	434	373	807
268		GHS Vaduvanchal	312	258	570
269		Nirmala HS Kabibigiri	132	162	294
270		LMHS Pallikkunnu	329	350	679
271		JHS Kalluvayal	382	351	733
272		SHSS Eachome	311	394	705
273	**Wayanad**	SNHS Poothady	488	591	1079
274		St. Mary's HS Mullankolly	437	388	825
275		St. Thomas HS Nadavayal	405	464	869
276		Vijaya HSS Pulapally	593	565	1158
277		GHS Irulathu	118	111	229
278		GHS Kappiset	163	101	264
279		GHSS Kaniyambetta	736	748	1484
280		GHS Panamaram	513	516	1029
281		GVHSS Vakery	193	230	423
282		GHSS Neervaram	241	188	429
283		GHSS Perikkalloor	231	253	484
		Sub Total	**8662**	**8474**	**17136**
284		St.Cornelius Kolayad	382	551	933
285		GHSS Maloor	424	414	838
286		HSS Sivapuram	463	412	875
287		PGMPHSS Cheruvanchery	264	233	497
288		GHSS Mambaram	303	237	540
289	**Kannur**	GHSS Vengad	591	605	1196
290		KRHS Pathiriyad (Rajas Kottayam)	282	241	523
291		GHSS Chittaripparamba	467	595	1062
292		KKV HSS Panoor	290	422	712
293		PR HS Panoor	665	607	1272

294		RGMHSS Mokeri	1834	1515	3349
295		GHSS Kolavallur	801	794	1595
296		Chothavoor HSS Champad	742	679	1421
297		IJM HSS Kottiyoor	479	530	1009
298		St. Josephs HS Adakathode	100	115	215
299		St.Thomas HSS Kelakam	479	422	901
300		KVHSS Kadavathur	413	416	829
301		GHSS Manathana	415	428	843
302		Santhome HSS Kolakkad	305	355	660
303		GHSS Pattiam	332	370	702
304		GHSS Pala	575	548	1123
305		St. Josephs HSS Peravoor	446	426	872
		Sub Total	**11052**	**10915**	**21967**
306	**Kasaragod**	GHSS Shiriya	242	103	345
307		GHSS Mangalpady	434	457	891
308		SDPHSS Dharmathadka	380	404	784
309		GVHSS Heroor-Meepry	184	184	368
310		GHSS Bangara Manjeshwar	251	208	459
311		SVVHS Miyapadav	326	373	699
312		GVHSS Kunjathur	205	202	407
313		GHSS Paivalike nagar	322	465	787
314		GHSS Angadimoger	236	267	503
315		GHSS Uppala	330	273	603
316		SVVHSS Kodlamogaru	400	353	753
317		GHSS Paivalike	253	203	456
318		GHSS Padre	144	123	267
319		SSHSS Kattukukke	220	297	517
320		SNHS Perla	190	190	380
321		SSHSS Sheni	439	416	855
322		SATHS Manjeswar	331	303	634
323		GFHS Bekal	327	226	553
324		GHSS Pakkam	281	267	548
325		GHSS Udma	671	577	1248
326		GHSS Pallikkare	460	484	944
327		GVHSS Kuniya	185	189	374

328		GHSS Kalliot	235	165	400
329		GHSS Periya	487	442	929
330		GHSS Ravaneswaram	326	332	658
331		GVHSS Ambalathara	170	165	335
332		MPSGVHSS Bellikoth	306	281	587
333		SRMGHS Ramnagar	263	198	461
334		Iqbal HSS Ajanur	574	470	1044
335		GHS Thachangad	230	213	443
		Sub Total	**9402**	**8830**	**18232**
		Grand Total	**149510**	**149651**	**299161**

Summary: Number of selected schools for training with strength of students in each district

District	No of schools	Total Strength of students		
		Boys	Girls	Total
Thiruvananthapuram	23	10355	9618	19973
Kollam	26	10790	10593	21383
Pathanamthitta	21	4687	4322	9009
Alappuzha	25	10239	9208	19447
Kottayam	27	8323	8958	17281
Idukki	16	4959	5696	10655
Ernakulam	25	9492	7830	17322
Thrissur	24	9912	10064	19976
Palakkad	26	18216	18698	36914
Malappuram	22	19084	20648	39732
Kozhikode	26	14337	15797	30134
Wayanad	22	8662	8474	17136
Kannur	22	11052	10915	21967
Kasaragod	30	9402	8830	18232
Kerala Total	**335**	**149510**	**149651**	**299161**

Annexure 16

Agenda for Teachers training

Date: District:

Time: Venue:

Time	Topic	Resource Person
9.30 to 10 AM	Registration	
10 to 10.20 AM	Inaugural session	
	Welcome	Mention the name&Designation
	Inauguration	Mention the name&Designation
	Self- Introduction of teachers	
10.20 to 10.50 AM	NCD action plan	AMC Faculty (give name)
10.50 to 11.10 AM	Tea break	
11.10 to 11.50 AM	Tobacco use and control measures	DPM NCD Project (give name)
11.50 to 12.20 PM	Alcohol consumption and prevention	DPM NCD Project (give name)
12.20 to 1 PM	Healthy diet and possibilities	DPM NCD Project (give name)
1 to 1.50 PM	Lunch break	
1.50 to 2.30 PM	Physical activity and opportunities	DPM NCD Project (give name)
2.30 to 3 PM	Group Discussion Planning of classes in schools (development of content for school session and modification of school environment)	Moderator - AMC Faculty (give name)
3 to 3.30 PM	Presentation by Teacher groups	
3.30 PM	Conclusion and Tea break	
4 PM	Dispersal	

Annexure 17

List of Teachers attended training program

Sl. No.	District	Name of School	Name of Teacher	Subject
1	Thiruvananthapuram	Evans HS, Parassala	Anitha VS	Zoology
2			R.R. Robert Raj	Biology
3			Dr. Sony Poomany	Malayalam
4		G&VHSS, Poovar	Achsah Moses	Zoology
5			Johny T. J	Fisheries
6		GHSS, Marayamuttom	Reji S.R	Biology
7			Vijitha Nair. L	Biology
8			Seethalekshmi A.S	Biology
9		Govt HSS, Thirupuram	Arun AC	Botany
10		Govt. GHS, Dhanuvachapuram	Bijitha PS	Biology
11			Jayasree TR	Hindi
12		Govt. HSS, Keezharoor	Priya SP	Economics
13			Yamuna Kumari S	Hindi
14		Govt. HSS, Mylachal	Leena Stephen S	Zoology
15			Lekha YV	Malayalam
16		Govt. HSS, NeyyarDam	Sunitha Kumari S	Zoology
17			Grishma A	Physical Sciences
18		Govt. KVHSS, Ayira	Sobha V.S	Biology
19			Soja Elizebeth C.J	Biology
20		GVHSS, Kulathoor	Raja Mabel. L	Natural Sciences
21			Sindhu M.S	Computer Sciences
22			Nithya. P	Electronics
23		GVHSS, Parassala	Preetha G.B	Zoology
24			Sindhu I. J	Biology
25			Deepu. M. Nair	Biology
26		LMSHSS, Amaravila	J. Sumangala	Biology
27			Vijala Florence. D	Biology
28			Suja Christy. C. J	Hindi
29		LMSHSS, Chemboor	Fredy Sam	English
30			Prince M	Computer Sciences
31			Sheeja Alex JR	Hindi
32		MVHSS, Arumanoor	Chithra Krishnan K.V	Biology
33			Nisha S.O	Biology
34			Shalini. L	Zoology

35		NKMGHSS, Dhanuvachapuram	Girija P	Sociology
36			Latha Devi R	Zoology
37			Sunitha SA	Mathematics
38		PPMHS Karakonam	Mini KB	Biology
39			Sarala Kumari M	Malayalam
40		Samuel LMSHSS, Parassala	Anitha K.R	Botany
41			Sheeja Helen L. G	Malayalam
42			Sunila Rani L.D	Malayalam
43		St. John's HSS, Undencode	Shirly Premeela TS	Biology
44			A Indra	Biology
45		St. Mathew's HS, Pozhiyoor	J. Manson	Biology
46			Reena. R	Biology
47		St. Thomas HSS, Amboori	Prakashini Thomas	Physical Education
48			Tessy Joseph	Sociology
49		Vimala Hridaya HS, Viraly	Xavier. M	Mathematics
50			Soumya A.K	English
51			Anitha K.R	Physics
52		VPMHSS, Vellarada	Nisha Sathyam	Physics
53			Asha VS	English
54			Remya CK	Malayalam
55		VTMNSSHSS, Dhanuvachapuram	Rani SG	Physics
56			Lakshmi PI	Zoology
57			Beena S Nair	Malayalam
58	Kollam	AV GHS, Thazhava	Reshmi R Mohan	Biology
59			Anilkumar	Biology
60			Sreelatha	English
61		BJSM Madathil HS Thazhava	Indhu.G	Social Studies
62			Bindhu.A	Economics
63			Sajeev.R	English
64			Shaji.S	GFC
65			Bindhu.M	History
66		CVKM HSS, East Kallada	Viji Victor	Counselling
67			Molly C.D	Physics
68			Dhanya.N.S	English
69			Alex Oomen	Sociology
70		GHS Panayil	Jameela P.O	Hindi
71			Nazila .A	Biology
72		GHS Perinad	Raghunath	Hindi
73			Asha Phito	Economics
74		GHS, Karunagapally	Jubairiyath Beevi	Chemistry
75			Beena.K	Malayalam

76		GHS, Ochira	Shobha Kumari	Malayalam
77			Jyothisha.S	Biology
78		GHSS Thazhava	Hemaletha Bassil Morris	Commerce
79			Vasantha	Biology
80			Lilly Kutty	Malayalam
81			Bincy D.Mathew	Biology
82		GHSS, Karunagapally	Padmini.V	Hindi
83			Dr.S. Sekher	Commerce
84		Govt HSS Astamudy	Shobha Antony	Zoology
85		GV HSS, Karunagapally	Shameena Beegam	MLT
86		GV HSS,Cheriazheekal	Susha.S	Natural Science
87			Dr. Shyni	Biology
88			Sreedeviamma	Natural Science
89		JFKM HSS Ayanivelikulangara	Sreeja.C	Natural Science
90			Susha.S	Natural Science
91			Riya .R	Chemistry
92			Sujith Varghese	Accounting
93		MGD Boys Kundara	Rosamma David	Biology
94			Laly Alexander	Malayalam
95		MGD Girls Kundara	Bini Mathew	Biology
96			Mini Varghese	Biology
97		MGD HS for Boys Karunagapally	Leela Krishnan	Biology
98			Prathibha	Biology
99			Beena.R	Physical Science
100			Nazeema.	Biology
101		MGD HS for Girls Karunagapally	Sreeja Devi	Natural Science
102			Sheela.R	Natural Science
103			Sreelekshmi	English
104		MM HSS, Uppodu	Sneha.V.G	Hindi
105			Suresh Kumar	Biology
106		MSM HSS, Chathinamkulam	Seena.A	UPSA
107		MSMHS, Chathinamkulam	Suja.L	UPSA
108			Geetha.U	Zoology
109			Sareena.N	English
110			Mini S. Kurup	Economics
111			Sreelatha K.C	Biology
112		NSS HSS Prakulam	P.B. Supriya	Hindi
113			Ajitha Nandhini.L	Biology
114			Luna .P	Malayalam
115			Saji.A	Biology

116			Sabitha	Mathematics
117			Premjaya	Physics
118		VVHSS, Vellimon	Asha Rajan	Biology
119			Mariyamma C. Mathew	Physics
120	Pathanamthitta	AB HS Omalloor	MERIN BABY	Biology
121			MINIMOL D,	Malayalam
122			ALICE DANIEL	History
123		Catholic HSS Pathanamthitta	Anu George	Biology
124			Celin Joseph	UPSA Malayalam
125		CMS HSS Kuzhikala	Suby Annie Stephen	Biology
126			Sheba Mary Varghese	Zoology
127		HSS & VHSS Pathanamthitta	Jessy Mathew	Chemistry
128			Rajani R	MLT
129			Bindhu T	Sanskrit
130		HSS Ezhumattoor	Sundaresan G	Political Science
131			Moncy kurien	PD
132		HSS Kadammanitta	Dr.Sheena U S	Hindi
133			Shyla P N	Physical Education
134		HSS Koipram	Lethi C	PD
135			Rejoy Joseph	Botany
136			Vargheses PJ	Political Science
137		HSS Omalloor	Indhubala	Social Science
138			Lekshmi B K	Commerce
139		HSS Thumpamon North	Dr.Susheel Kumar	Zoology
140			Merin Zachariah	English
141			Ambili.K	Social Science
142		Marthoma HSS Pathanamthitta	Jasmin Susan Thomas	Zoology
143			Nina Miriam Philip	HSA Biology
144			Nancy K Cherian	UPSA
145		N.S.S.H.S.S Thadiyoor	Ranjini S	Biology
146			Pravitha V R	Mathematics
147			Shylaja Devi P S	UPSA
148		NM HS Kumbanad	Glozy P Joy	Chemistry
149			Betty Philip	Mathematics
150		S.H.H.S Mylapra	Manju Varghese	Social Science
151			Sr.Ancy N D	Social Science
152		SNDP HSS Chenneerkara	N. Kala	Biology
153			Sheeja Rani	Social Science
154			Neeba P R	Mathematics

155		SNDPHSS Muttathukonam	Asha Sadasivan	Physics
156			Anitha Kumari V	Hindi
157		St. Behanan's HSS Vennikulam	Renu Adhikari	Biology
158			Reji K Mathew	Chemistry
159			Suja Mathew	Social Science
160		St. John's HSS Eraviperoor	Sinoj Varghese	English
161			Sobha Mary Varkey	Zoology
162			Kavitha S	Malayalam
163		St. Mary's H S Kozhencherry	Lizy M. Koshy	Biology
164			Suju Annie Thomas	Mathematics
165			Asha V Varghese	Malayalam
166		St. Thomas HSS Kozhencherry	Saramma V	Social Science
167			Reji Varghese	English
168			Ajie Elcey Verghese	Hindi
169		SV HS Pullad	Sindhu C	Chemistry
170			Jayasree N	Biology
171		VHSS Elanthoor	Sajith M R	English
172			Sajeev A K	Electronics
173			Biju John	Electronics
174	Alappuzha	AJJM HSS Kainady	Anila Thomas	Zoology
175			Sr. Lissamma Joseph	Biology
176		ECEKUHS Kuthiyathodu	R Jayasree	Biology
177			Usha Devi L	Biology
178		GHSS Chandiroor	Philip Thomas	Physical Science
179			Jaseela AE	Biology
180		GHSS Perumbalam	Musfira M	Physical Science
181			Sreekumar P R	Hindi
182			Anithakumari Y K	Science
183		GHSS Thevarvattom	Jose K Thariyan	Biology
184			Sojith S	Chemistry
185		GHSS Thirunalloor	Manila PC	Physical Science
186			Kala K	Social Science
187		LFGHS Pulincunnoo	Alphonsa Joseph	English
188			Mini Mathews	Mathematics
189		LFHS Kavalam	Asha C Antony	Biology
190			Rosamma KA	Science
191		NSS HSS Kavalam	Sindhu Thyagarajan	Biology
192			Rajeev R	Computer Science
193		NSS HSS Panavally	Sudha Pillai	Hindi
194			Deepa R Nair	Zoology

195			Gayathri Devi R	Botany
196			Manju P Panicker	English
197		SCSHSS Valamangalam	Manju S	Biology
198		SCUGVHSS Pattanakkad	Daly C Francis	Social Science
199			Daisy Devassy	Biology
200			Sreelatha S	Biology
201		SNHSS Poochakkal	Raji A	Hindi
202			Sajitha Jinan	Physics
203		St. Augustine's HSS Aroor	Jaseentha K V	Biology
204			Anniemol T M	Chemistry
205			Moses J	Drawing
206		St. George HSS Muttar	Seepha MD	Biology
207		St. Joseph's BHSS Pulincunnoo	Anto Joseph	Biology
208			Simi Mathew	Science
209		St. Michael's HS Kavil	Sybilla Antony	Biology
210			Elsamma P P	Biology
211		St. Raphael's HSS Ezhupunna	Jini Varghese	Biology
212			Nivia Tom	Physics
213			Nissamol Abraham	Chemistry
214		St. Sebastian's HS Pallithodu	Nisha K Kunnel	Biology
215			Lizy S	Social Science
216		St. Theresa's HS Manappuram	Bindu Thomas	Science
217			Ancy Antony	Biology
218		St. Xavier's Mithrakary	Binumon	Biology
219			Molamma	Biology
220		TDHSS Thuravoor	Latha S Kaimal	Biology
221			Rekha Sreenath S	Biology
222		VJHSS N Nagar	K M Ansari	Biology
223			Shakeela	Biology
224		VRVMHSS Vayalar	Pravada M	Botany
225			Sandhya Pai K R	Social Science
226			K X Judy	Biology
227		VVHSS Kodamthuruthu	Jyothimol G	Social Science
228			Sangeetha C C	Biology
229	Kottayam	AJ John Memorial Govt HS, Thalayolaparambu	Shynamol S A	Malayalam
230			Treeza Sebastian	Biology
231			Sujatha S	Chemistry
232		DVV HS, Kumaranalloor	Preeja N Potty	Biology
233			Reshmi K S	Biology
234			Remya Gangadharan	ED (Commerce)

235		Emanuel's HS, Kothanalloor	Mella Joseph	Physical Education
236			Biju Mathew	Biology
237		HF HS, Parampuzha	Liny Mathew	Biology
238			Bettykutty M George	Hindi
239		OLL HS, Uzhavoor	Mathew Philip	Science
240			Mathew Chandy	Biology
241		Parippu HS, Parippu	Ashalatha M	Biology
242			Vijith K V	English
243		Rev. Fr. GVHSS, Peruva	Jijo John	Biology
244			Muraleedharan K R	Vocational UT
245		SH GHS, Ramapuram	Lincy Thomas	History
246			Sr Bindhumol Thomas	Biology
247		SKM HSS, Kumarakom	Veena S	Biology
248			Asha Sankar	Biology
249		SKV HSS Kurichithanam	Shivaja K	Biology
250			Sampath R	Science
251		SMVNSS HS, Kallara	Ajitha G	Zoology
252			Ambily K Nair	English
253		SNDP HSS, Kiliroor	T A Ansa	Biology
254			Reena V R	Chemistry
255		St Alosious HSS, Athirumpuzha	Betcy P Varghese	Zoology
256			Rosamma Rouckey	Science
257			Thankachan K J	Hindi
258		St Annes HSS, Kurianad	Sr Molly Mathew	Biology
259			Joseph C J	Mathematics
260			Cici Rose Kurian	Science
261		St Augustins HS Ramapuram	K C Mary	Biology
262			Pritty Augustine	Biology
263			Melvin K Alex	Zoology
264		St Ephrems HS Mannanam	Kunjumol Sebastian	Biology
265			Abin Alexander	Commerce
266			Minimol Kurian	Chemistry
267		St George HS Kaipuzha	Sini K John	Mathematics
268			Toms P Alex	MLT
269		St Mary's Boys HSS, Kuravilangad	Dr K V George	Malayalam
270			Sr Rani Mathew	Biology
271			George Joseph	Zoology
272		St Mary's GHS Athirumpuzha	Lissy Thomas	Biology
273		St Mary's Girls HS, Kuravilangad	Jansamma Zacharias	Malayalam

274			Sr Rosly Kuriakose	Biology
275		St Michels HS, Kaduthuruthy	Kochurani T C	Biology
276		St Pauls GHS, Vettimukal, Pala	Sr Bearly George	Biology
277			Lathika Mathew	Malayalam
278		St Philominas GHS Arpukkara	Jijimol K L	Science
279		St Thomas HS, Kallara	Mary Joseph	Biology
280			Philmon Thomas	English
281		St Xavier's HSS Kuruppumthara	Tom K Mathew	Zoology
282			Lilly Elizabath Jacob	Biology
283		St. Agnes GHS, Muttuchira	Jesiamma Mathew	Biology
284			Sr Joselyn Joseph	Biology
285		VBB NHSS, Njeezhoor	Jain R Mathew	Zoology
286			Nisha Madhavan	Biology
287	Idukki	CMHS Mankadavu	Sajan NS	English
288			Sr Jesty Joseph	English
289		FMGHSS Koompanpara	Jiss Joseph	Social Science
290			Prakash Antony	Commerce
291			Sr Elsitta Antony	Malayalam
292		GHS Adimaly	Sunitha Rani TS	Natural Science
293			Mubissair	Physical Science
294			Bindu CT	Mathematics
295		GHSS Panikankudy	Anima Aravindh	Biology
296			Sunina	English
297			Rejanimol.R	Botany
298		GVHSS Deviyarcolony	Shaji Thomas	Malayalam
299			Manju P Mohanan	Malayalam
300			Shajan P George	English
301		MKNM HSS Kumaramangalam	Ashly S Krishnan	English
302			Suma S	Biology
303		SAHSS Karimkunnam	Sr Limsy P	Social Science
304			Anitha Cyric	Biology
305		SGHSS Kallanickal	Noble j Thayyil	Computer
306			Celin Mathew	Natural Science
307			Renoj John	Drawing
308		SGHSS Muthalakodam	Romcy George	Social Science
309			Alice Antony	Natural Science
310			Agnus James	Economics
311		SGHSS Parathode	Siby KS	English
312			Domy Mathew	Biology
313		SHGHS Muthalakodam	Shiny Thomas	Natural Science

314			Lissy Paily	Physical Science
315		SNDPVHSS Adimaly	Nimmy P	Natural Science
316			Priya K	Natural Science
317		SSHS Pottankadu	Daison Mathew	Hindi
318			Sonykutty george	Drawing
319		SSHS Thodupuzha	RatheeshChandran	Drawing
320			Jaimol James	Natural Science
321		SSHS Thokkupara	Emily Joseph	Natural Science
322			Rosamma K	Social Science
323		SSHSS Vazhithala	Vivish V Roldant	Malayalam
324			Kochurani Mathew	Physical Science
325			Shobana Jose	Botany
326	Ernakulam	Akavoor H S Sreemoolanagaram	Jisha N	Social Science
327		GHSS Mookkanoor	Jose M C	Mathematics
328			Rekha Mathew	School counsellor
329		GHSS, Chottanikara	Bobby Viswam	Botany
330			Shaini V Chacko	Biology
331		GHSS, Mulanthuruthy	Roy Mathai	Botany
332			Asha Anna George	Biology
333			Godsy Kuriakose	School counsellor
334		Goverment Model HSS Palakuzha	Binoy Skaria	Commerce
335		High school Koothatukulam	Sailajadevi	Chemistry
336		High School Ramamangalam	Shaiji K Jacob	Physical education
337			Molly Mathew	Biology
338		KPMHSS Poothota	Anil K Sudhakaran	Mathematics
339			Maju A T	Art Education
340			Abhilash T H	Hindi
341		LFHS Vadakara	Sr Maria Sebastian	Mathematics
342			Praseeda Paul	English
343		MKMHSS Piravom	Rekhamol Joshy	Biology
344			Merina M Paulose	Zoology
345			Saramma Kuriakose	Botany
346		MTMHSS Pambakuda	Anu Poulose	Biology
347			Bindhu Paul	Biology
348		NSS boys HSS Manickamangalam	Sreeja K G	Chemistry
349			Girija P S	Biology
350		SNDP HSS, Udayamperoor	Beena Raghavan M	Biology
351		St George's HS, Arakunnam	Gincy Paul	Chemistry
352			Jasmine V George	Social Science
353		St Johns Syrian HSS,	Resmi Kuriakose	Chemistry

354		Vadakara	Roshin Hanna Eapen	Botany
355		St Joseph's CGHS, Kanjoor	Litty P K	Natural Sciences
356			Moly Poulose	Natural Sciences
357		St Joseph's HS, Piravom	Smitha Mathew	Mathematics
358		St Mary's HSS, Thalacodu	Lalitha O N	Biology
359			Shiji Varghese T	Chemistry
360			Rita Varkey	Zoology
361		St Paul's HSS, Veliyanadu	Achudas N	Accountancy
362			Rani N Joseph	Physics
363		St Sebastian's HS, Kanjoor	Swapna Sebastian	Biology
364			Mini Devassy	Biology
365		St Thomas HSS, Malayatoor	Tessy Tomy	English
366		St. Ignatious HSS Kanjiramattom	Mathew Joseph	Botany
367			Giny Susan Kurian	Botany
368			Preema M Paul	Biology
369			Jeeva John K	English
370		St. Peters HSS Elanji	Jaison Sebastian	Botany
371		VHSS Irumpanam	Siji M	Biology
372			Siju Thomas	Physical education
373			Shyni P Mani	Botany
374	Thrissur	GFHSS Nattika	Smitha K S	Commerce
375			Absath A	Biology
376		GHSS Manalur	Prasanna Kumariamma	Sanskrit
377		GHSS Peringottukara	Bindhu K G	Science
378			Shylaja V K	Science
379			Siju P T	Zoology
380		GMBHSS Irinjalakkuda	Nisha Vijayan	Chemistry
381		GVHSS Pazhanji	Christeena T George	Botany
382		GVHSS,Thalikulam	Sunitha G L	Physics
383			Minitha Raghavan	Botany
384			Dineesh P D	Mathematics
385		HS Anthikad	Varsha M T	Malayalam
386			Sandhya A K	Malayalam
387		KNMVHSS Thrithalur	Vimaja E V	Economics
388			Sheena Paul	Mathematics
389			Dhanya	Biology
390		LFCHS Irinjalakkuda	Veenus Paul	Physical Education
391		LIGHS Choondal	Sindhu kuzhuvelil	Physical Education
392		NHSS Engandiyur	Sindhu K S	Biology

393			Anitha T V	Social Science
394			Rani George C	Biology
395		NHSS Irinjalakkuda	Vrindha T S	Biology
396			Devi T M	Social Science
397			Sreeja K M	Natural Science
398			Sylaja K	Natural Science
399			Nimmy M H	Mathematics
400		PJMS GHSS Kandassankadavu	Fabida Backer	English
401			Lalitha K V	Mathematics
402		Seraphic CGHS Peringottukara	Jessy B D	Social Science
403			Litty C A	Biology
404			Soly Thomas	Science
405		SH of Marys Convent GS, Kandassankadavu	Daisy B D	Biology
406		SN Trust HSS, Nattika	Kusumam P P	Biology
407		SNGSHSS Karamukk	Mini K K	Biology
408			Letha K T	English
409		SNHSS Irinjalakkuda	Rakhi Ramachandran	English
410			Ajitha P	Botany
411		St Marys HSS Irinjalakkuda	Omana A P	Physics
412		St.Marys HSS Chowannoor	Regina A P	Biology
413			Joicy A J	Science
414		St.Syrills & St Josephs HSS, West Mangadu	Subash Mathew	English
415		St.Thomas HSS Engandiyur	Bindhu T G	Biology
416	Palakkad	AKMNNA HSS Kattukulam	Latha KV	Biology
417			Sonitha MS	Zoology
418		Arogyamatha HS Kottathara	Sr. Lincy T Francis	Biology
419			Sherly CO	PET
420		GHSS Cherpulasery	N Vijayalashmi	Science
421			Sunandakumari	Biology
422			Ramakrishnan	Zoology
423		GHSS Chudampatta	Ruby jahan	Biology
424			Saleena P	Physics
425			Baiju N	Zoology
426		GHSS Kodumunda	Anila KS	Malayalam
427			Smitha Haridas	Physics
428			Sakunthala P	Biology
429		GHSS Munnurcode	Bindu PR	Malayalam
430			Srinivasan K	Biology
431		GHSS Pattambi	Mini kumari P	Biology

432			Soja CJ	Biology
433			Roy MV	Biology
434			Mallika TK	Zoology
435		GHSS Vadanamkurissi	Beena P	Zoology
436			Jayakrishnan C	PET
437			MK Leela Rugmini	Biology
438		GHSS Vellinezhi	Maimoona M	Malayalam
439			A Rajan	Geography
440		GJHSS Naduvattom	Kanchana K	Zoology
441			Sandhya S	Biology
442		GOHSS Pattambi	Sreelatha P	Mathematics
443			Santhosh Kumar P	Zoology
444		GTHS Puthur	Prema K	Physical Science
445			Reena K	Mathematics
446			Sameena K	Botany
447			Sini PJ	Biology
448		GTHS Sholayur	Manikantan K	Botany
449			Senthil kumar VA	Social Science
450			Leghamol PT	Biology
451		GVHSS Agali	Dhanya P	Mathematics
452			Sudheesha devi	Biology
453			Beena Andrews	Botany
454		GVHSS Karakurissi	Bindu VS	Natural Science
455			Meera K	Botany
456			Thomas Francis	PET
457		GVHSS Koppam	Gayathri P	Biology
458			Sheeja K	Zoology
459			Preeja P	Biology
460		HS Kadampazhipuram	Latha TM	Biology
461			Anila AR	Biology
462			KK Anilkumar	PET
463		HSS Sreekrishnapuram	Giriraj K	PET
464			Saritha R	Botany
465			Jishamol K	Biology
466		KHSS Thottara	Divya VR	Biology
467			Priya M	Biology
468			Sathidevi MP	Botany
469		MNKMGHSS Pulapatta	Radhamani C	Biology
470			Shanmughadas	Botany
471		Mt Carmel HS Jellipara	Sindhu John V	Biology
472			Binsy Joseph	PET

473		PHSS Pallipuram	Vinod kumar R	Political Science
474			Priya M	Biology
475			Shimna Raj PB	Biology
476		PTMYHSS Edappalam	Radhika K	Zoology
477			Tigi Paul	Biology
478			Umadevi KK	Chemistry
479		Sabari HS Pallikurup	Anumol P Vince	PET
480			Praseetha T	Biology
481			Dileep kumar M	Biology
482		Sabari PTBS Adakkaputhur	Ajit K	Hindi
483			Sajitha PK	Commerce
484		SPCHS Kookkampalayam	Jossy M Joseph	PET
485			Shaila Poulose	Biology
486	Malappuram	AHSS Parel Mapattumoola	Shaji KC	Biology
487			Sindhu KP	Social Science
488			Nishad CK	English
489		ASM HSS Velliyanchery	Moideen Kutty	Sociology
490			Abdul Jaleel	Language
491			Isac M Pau	Biology
492		CBHSS Vallikunnu	Remya C	Natural Science
493			Archana VK	Natural Science
494			Manoj PK	Work Experience
495		CHSS Adakkakkundu	Jalaludheen	Biology
496			Shifanath	Biology
497			Praveen PB	English
498		GHS Edapatta	Tintu EP	Chemistry
499		GHSS Karuvarakkundu	Sudheer MS	Biology
500			Shajahan	History
501		GHSS Kokkur	P Vijayan	Commerce
502		GHSS Marenchery	Deepa P	Natural Science
503			Dhanalakshmi M	Biology
504		GHSS Palapetty	Jiji MK	Natural Science
505			M. Jamila Bheevi	Botany
506		GHSS Peruvallur	Reshmi VT	Natural Science
507			Sasikumar K	Natural Science
508			Muneer MP	Social Science
509		GHSS Pookkottumpadam	Sheena KK	Biology
510			Gireesh EP	Economics
511			Sanooja PK	Biology
512		GHSS Pullengode	Deepu MB	Biology
513			Vineetha KV	Chemistry

514			Basheer Aliparamban	Social Science
515		GHSS Tuvvur	Sarath P	Chemistry
516			Nithya	Biology
517			Linda K Joseph	Biology
518		GHSS Veliyancode	Jayan PS	Biology
519			Kalidasan	English
520		GMHSS Calicut University	Bindu P	Biology
521			Lakshmi Menon K	Zoology
522		GVHSS Chelari	Mini Mol K	Biology
523			T. Purushothaman	Social Science
524			Sunny PJ	English
525		HSS Vannery	Rajilal Raneesanivas	English
526		KMHS Karulai	Rasheeda K	Biology
527			Sony Antony	Biology
528			Anitha	Social Science
529		MHSS Moonniyur	Abdul Jaleel P	Social Science
530			Beena V	English
531			Nygel Mathew Varghese	Social Science
532		MVHSS Ariyallur	Deepthi MP	Biology
533			Mini George	Biology
534		PCNGHSS Mookkuthala	Ambili PH	Biology
535			Salini A	Botany
536			Vinodkrishnan TV	Biology
537		SSMHSS Theyyalingal	Abdul Samad	Social Science
538			Bindu K Sebastian	Biology
539			Smitha R	Malayalam
540	Kozhikode	AKKR GHS Chelanur	Jiji	Biology
541		CMM HSS Thalakulathur	Rajalakshmi	Mathematics
542		FM HSS Koompara	Abdul Jamal K	Zoology
543		GHSS Kuttiyadi	Sajeevan	Social science
544		HF HSS Venappara	Kuriachan KK	Biology
545			Sherly Mathew	Zoology
546			Sister Nisha Philip	Hindi
547		Holy Family HSS Kattippara	LissyMA	Music
548			Jose KP	Biology
549		HSS Chakkalakal	Santhosh Thomas	Zoology
550		HSS Kolathur	Navith Kottora	Science
551			Shareefa T	Physics
552		HSS Narikkuni	Balakrishnan p	Biology

553			Nishad K K	Biology
554			Asha K	Zoology
555		HSS Pannur	Sujitha Sukumaran	Sociology
556			Muhammadali P	Zoology
557		HSS Puthupady	Rajaneesh	Chemistry
558			Salin Althaf	Biology
559			Joby jose	Physics
560			Roopesh T	Commerce
561		HSS Velom	Yusuf	Urdu
562		MGM HSS Engapuzha	SunithaJoyce	Mathematics
563			Bency baby	Biology
564		MJHSS Elettil	Mohd Basheer	Zoology
565			Jaseer	Biology
566			Ahammad Shareef	Biology
567		National HSS Vattoli	K Maniyan	Drawing
568		RNMHSS Naripatta	Sudheesh K	Biology
569		Sanskrit HS Vattoli	Rusy	Biology
570		SH HSS Tiruvampady	Shaji Augustin	Biology
571			Minimol EV	Physics
572			Ranjini Grace	English
573		SJ HSS Pullurampara	Subi Abraham	Biology
574			Valsamma VV	Biology
575		SM HSS Maaruthomkara	Binu George	Social science
576			Janesh Devasia	Politics
577		SN Trust Chelanur	Kalmadasan	Biology
578		ST. Marys HSS Koodathai	Josin P John	Physical Education
579		ST. Sebastians HSS Koodarnji	Saji Mathew	Zoology
580			Babsy VT	Biology
581		VHSE Thamarassery	K Venu	Physics
582			Rehna	Music
583	Wayanad	GHS Irulam	Saritha Anto T A	Biology
584		GHSS Anappara	Kavitha B K	Biology
585			Mini P K	Biology
586			Santhosh T M	Commerce
587		GHSS Echom	Jesna Philip	English
588			Jijo Mathai	Physical training
589			Rajesh E C	Arts
590		GHSS Kallore	Soosan Salomon	Mathematics
591		GHSS Kaniyambetta	Elizabeth Thomas	Zoology
592			Mariyam Mohammed C P	Biology

593			Kavitha P A	Biology
594		GHSS Meenangadi	Sadan T P	Biology
595			Bindhu P K	Biology
596		GHSS Moolankavu	Manju S	Zoology
597		GHSS Neervaram	M G Shaji	Biology
598			Sunitha T N	Botany
599		GHSS Panamaram	Priya E V	Biology
600		GHSS Perikkallore	Sija Eldhose	Biology
601		GHSS Vaduvanchal	Elsy M F	Science
602			Gracy L	Malayalam
603			Nmonappan G	Zoology
604		GMHSS Cheeral	Benzer T	Mathematics
605			Jiji Jacob	Biology
606			Ajith B	Biology
607		GVHSS Ambalavayal	Abdul Samad P K	Physics
608			Agustine K V	Biology
609			Shimmod O P	English
610		GVHSS Vakery	Mohanan K G	English
611			Sajina A	Biology
612		Jayasree HSS Kalluvayal	Lavan V J	Biology
613			Praveen Jacob	Biology
614		LMHSS Pallikkunnu	J Mary	English
615			Prameela K M	Biology
616		SNHSS Poothady	Magi George	Mathematics
617			Manoj K M	Biology
618		St. Mary's HSS Mullankolly	Ranjith Jacob	Biology
619			K Molly George	Biology
620		ST. Thomas HSS Nadavayal	Teji K C	Biology
621			Shaji C C	Malayalam
622			Mathew T J	Malayalam
623		Vijaya HSS Pulpally	Jayanthi Thayangoli	Biology
624	Kannur	Chothavoor HSS Champad	Sindhu E K	English
625			Umadevi K M	Work Experience
626			Valsan K C	Physical Education
627		GHSS Chittariparamba	Rameshan U	Natural Science
628			Indu Chandran	English
629		GHSS Kolavallur	Uma A	Malayalam
630			Anulopha V	Social Science
631			Anitha Karikkan	Botany
632		GHSS Maloor	Shemi K	Hindi
633			Vanaja K	Biology

634			Sithara P K	Biology
635		GHSS Mambaram	Sulekha A	Social Science
636			Praseetha K	Hindi
637		GHSS Manathana	Jessi E C	Biology
638			Josekutty	Physics
639			Sheena Abraham	Zoology
640		GHSS Pala	G Anilkumar	Mathematics
641			Sasidharan C K	Hindi
642		GHSS Pattiam	Sowmini V	Zoology
643			Sumangala K	Health Nurse
644			Beena G	Chemistry
645		GHSS Vengad	Shajila M	Biology
646			Deepa C	Zoology
647			Jasleem C H	Urdu
648		HSS Sivapuram	Beena M P	Biology
649			Smija N	Botany
650			C P Sheela Ramani	Hindi
651		IJM HSS Kottiyoor	Biju P T	Biology
652			M V Thomas	English
653		KKV HSS Panoor	Priya T G	Economics
654			C Ameer	Social Science
655		KRHS Pathiriyad (Rajas Kottayam)	Ranjini K	Biology
656			Baby Lessy	Biology
657		KVHSS Kadavathur	Shaniba A T	Commerce
658			Jisha T	Malayalam
659			Nissar P	I T
660		PGMGHSS Cheruvanchery	A K Pradeepkumar	Biology
661			M V Lekha	Chemistry
662			Bindu Sareena	Zoology
663			Shyamal M V	Malayalam
664		PR HS Panoor	Vivek K V	English
665			Sayanth K P	Social Science
666		RGMHSS Mokeri	Shmna K T	Biology
667			Sareesh R	English
668		Santhome HSS Kolayad	Laly Joseph	Zoology
669		St Thomas HSS Kelakam	Annamma M K	Natural Science
670			Smitha Keloth	Hindi
671		St, Cornelius HSS Kolayad	Shyaja Parali	Zoology
672			V K Jayan	Music
673		St. Josephs HSS Peravoor	Basil Abraham	Computer Science
674			Jibimon Joseph	Physics

675		St.Josephs HS Adakathode	Saji Antony	English
676	Kasaragod	GFHSS Bekkal	Sheeba K V	Biology
677			Anil kumar G	Botany
678			Sudha R	Zoology
679		GHS Thachangad	Rajashree K	Biology
680		GHSS Angadimogeru	Boban Kurian	PET
681			Sarojini M	Mathematics
682		GHSS Bangara Manjeshwar	Biji M	Hindi
683			Prakasha M	Kannada
684		GHSS Kalliot	Sushma PP	Botany
685			Nisheena N	English
686		GHSS Mangalpady	Sajitha KV	Hindi
687			Prabha V	English
688			Swapna	Biology
689		GHSS Padre	Sheenappa B	Physical Science
690			Sharmila A	Kannada
691		GHSS Paivalike	Vishwanath KN	Kannada
692		GHSS Paivalike Nagar	Ravidranath KR	Biology
693			Arun Roy SR	Chemistry
694			Usha E.V	Hindi
695		GHSS Pakkam	Pramila K	HSA
696		GHSS Pallikkare	Bindu A K	PET
697			Reenakumari K K	Hindi
698			Remani C	Sociology
699		GHSS Periya	Gopi K	Hindi
700			Reshma A R	Biology
701		GHSS Ravaneshwaram	Ramani P	Zoology
702			Mini V P	Social Science
703			Premarajan P K	Statistics
704		GHSS Shiriya	Usha K	Mathematics
705			Jyothi K	English
706		GHSS Udma	Beena P P	HSA
707			Rajini P	Biology
708			Abhiram C P	Computer Science
709			Divya Mol	HSST
710		GHSS Uppala	Kadhijath Nisa P	Kannada
711			Roopa P	History
712		GVHSS Ambalathara	Velayudhan P G	Biology
713			Shyju Philip	Physics
714		GVHSS Heroor Meepry	Manoj Kumar E	Computer Science
715		GVHSS Kuniya	Baby Jalaja	Hindi

716			Lajina O K	Commerce
717		GVHSS Kunjathur	Rani Vasudevan	Biology
718			Sanoop C	Commerce
719		Iqbal HSS Ajanur	Sumesh K	Biology
720			Aboobacker Amir	Urdu
721			Pushpa rani George	Mathematics
722			Premalatha K	Physics
723		MPSGVHSS Bellikoth	Valsaraj C P	HSA
724			Lalithambika S M	English
725			Sujith Kumar M K	Biology
726		SATHSS Manjeshwar	Shantheri Shenoy	Chemistry
727			Priya BM	Botany
728		SDPHSS Dharmathadka	Usha KR	English
729			Nagaraja Y	Political Science
730			Govidha Bhat EH	Natural Science
731		SNHS Perla	K Sreekrishna Prasad	Hindi
732			Suguna U	Mathematics
733		SRMGHSS Ramnagar	Gangadharan P	HSA
734			Padmini K	English
735		SSHSS Katukukke	Sandhya	Natural Science
736			Sandheep Kumar NV	Commerce
737			Govindhan Namboothiri KM	Hindi
738		SSHSS Sheni	Smitha KT	Natural Science
739			Dileep A	Zoology
740			Rajitha K	Natural Science
741		SVVHSS Kodlamogaru	Krishna Veni	HAS (Physical Science)
742			Prakasan PV	History
743			Shama Bhat	Natural Science
744		SVVHSS Miyapadav	Sumana	Natural Science
745			Rajendran KP	Commerce
746			Lakshmeesha B	Hindi

Summary: Number of schools and teachers attended the training

District	No of schools	No of teachers
Thiruvananthapuram	23	57
Kollam	22	62
Pathanamthitta	21	54
Alappuzha	25	55
Kottayam	27	58
Idukki	16	39
Ernakulam	24	48
Thrissur	22	42
Palakkad	26	70
Malappuram	22	54
Kozhikode	24	43
Wayanad	20	41
Kannur	22	52
Kasaragod	30	71
Kerala Total	**324**	**746**

Annexure 18

List of schools with number of students participated

Sl. No.	Name of district	Name of School	No of classes	No of students attended		
				Boys	Girls	Total
1	Thiruvananthapuram	LMS Higher Secondary School, Amaravila	20	624	504	1128
2		Govt. HSS, Thirupuram	2	40	45	85
3		MVHSS, Arumanoor	15	838	578	1416
4		Vimala Hridaya High School	8	428	400	828
5		Govt. Vocational and HSS, Kulathoor	8	190	210	400
6		Evan's HSS, Parassala	11	486	403	889
7		Govt. Vocational HSS, Parassala	19	473	617	1090
8		Samuel LMSHSS, Parassala	10	269	223	492
9		Govt. KVHSS, Ayira	9	212	297	509
10		St. Mathews HS, Pozhiyoor	7	183	186	369
11		Govt. HSS, Poovar	4	125	115	240
12		GHSS, Marayamuttom	10	493	338	831
13		GHSS, Keezharoor	5	173	172	345
14		GHSS, Mylachal	4	206	233	439
15		LMSHSS, Chemboor	10	333	374	707
16		GHSS, Neyyar Dam	6	201	204	405
17		St. Thomas HSS, Amboori	15	377	374	751
18		VPMHSS, Vellarada	10	248	243	491
19		St. John's HSS, Undancode	6	400	472	872
20		PPM High School, Karakonam	10	439	380	819
21		Govt. Girls High School, Dhanuvachapuram	4	138	211	349
22		Govt. NKMBHSS, Dhanuvachapuram	7	216	102	318
23		NSSHSS, Dhanuvachapuram	7	123	249	372
		Sub total	**207**	**7215**	**6930**	**14145**
24	Kollam	GHS Oachira	4	172	140	312
25		Vellimon VHSS	4	148	115	263
26		Boys HS, Karunagappally	10	620	0	620
27		Girls HS, Karunagappally	10	0	680	680
28		Model HS, Karunagappally	10	200	415	615

29		Model HSS and VHSC, Karunagappally	10	280	300	580
30		GHS Panayil	4	257	214	471
31		BJSM Madathil HSS	10	250	250	500
32		BJSM Madathil HS	10	300	390	690
33		NSS HSS Prakkulam	6	140	180	320
34		NSS HS Prakkulam	6	257	380	637
35		MSM HSS ,Chathinamkulam	10	380	320	700
36		GOVT HS,Thazhava	10	357	350	707
37		GOVT HSS,Thazhava	6	200	255	455
38		AVHS,Thazhava	4	430	425	855
39		GOVT HSS Ashtamudi	4	135	137	272
40		MSM HS, Chathinamkulam	10	250	300	550
41		GOVT HS Cheriyazheekkal	4	138	119	257
42		GOVT VHSC Cheritazheekkal	4	120	140	260
43		JFKM HSS and VHSC, Ayanivelikulangara	4	110	195	305
44		JFKM HS, Ayanivelikulangara	4	110	117	227
45		CVKM HS and HSS East Kallada	10	110	415	525
46		MMHS,Uppodu	4	110	116	226
47		MGD Boys,Kundara	10	620	0	620
48		MGD Girls,Kundara	10	0	625	625
49		GHS Perinadu	4	110	126	236
		Sub total	**182**	**5804**	**6704**	**12508**
50	**Pathanamthitta**	Elanthoor VHSS	3	74	3	77
51		Kadammanitta HSS	10	254	212	466
52		Omalloor HSS	9	211	260	471
53		Pathanamthitta HSS & VHSS	10	221	263	484
54		Thumpamon North HSS	9	166	154	320
55		Chenneerkara SNDPHSS	6	158	134	292
56		Kozhencherry St. Mary's H S	6	0	327	327
57		Kozhencherry St. Thomas HSS	6	304	0	304
58		Kuzhikala CMS HSS	8	172	179	351
59		Muttathukonam SNDPHSS	8	254	180	434
60		Mylapra S.H.H.S.	10	351	284	635
61		Omalloor ABHS	9	251	195	446
62		Pathanamthitta Catholic HSS	3	153	127	280
63		Pathanamthitta Marthoma HSS	10	257	263	520
64		Ezhumattoor HSS	6	188	132	320
65		Koipram HSS	7	123	199	322

66		Eraviperoor St. John's HSS	10	264	226	490
67		Kumbanad NM HS	3	85	70	155
68		Pullad SV HS	6	141	132	273
69		Thadiyoor N.S.S.H.S.S.	11	481	433	914
70		Vennikulam St. Behanan's HSS	10	579	549	1128
		Sub total	**160**	**4687**	**4322**	**9009**
71	**Alappuzha**	GHS Perupalam	10	330	205	535
72		VRVMHSS Vayalar	10	289	216	505
73		GHSS Thirunaloor	14	390	321	711
74		SCUVHSS Pattanakkadu	12	350	226	576
75		GHSS Thevarvattom	10	235	260	495
76		V V HSS Kodamthuruthu	8	196	212	408
77		GHSS Chandiroor	12	330	250	580
78		St Theresa's HS Manappuram	9	235	180	415
79		St Augustine's HSS Aroor	14	350	323	673
80		ECEK U H S Kuthiathodu	10	187	128	315
81		SNHSS Poochakkal	17	440	396	836
82		St Raphael's HSS Ezhupunna	13	318	299	617
83		SCS HSS Valamangalam	10	239	225	464
84		St Micheal's HS Kavil	8	210	170	380
85		VJHSS N Nagar	24	612	556	1168
86		TDHSS Thuravoor	25	623	602	1225
87		NSS HSS Panavally	13	345	278	623
88		St Sebastine's H S Pallithodu	8	215	166	381
89		St. George HSS, Muttar	6	215	173	388
90		AJJM HSS Kainady	10	240	219	459
91		St. Xavier’s HS, Mithrakary	6	146	132	278
92		LF HS, Kavalam	6	126	141	267
93		NSS HS, Kavalam	10	266	271	537
94		LF GHS, Pulincunnoo	10	0	498	498
95		St. Joseph’s HSS, Pulincunnoo	11	395	150	545
		Sub total	**286**	**7282**	**6597**	**13879**
96	**Kottayam**	St Michels HS, Kaduthuruthy	7	271	105	376
97		SMVNSS HS, Kallara	14	369	341	710
98		St Thomas HS, Kallara	12	325	294	619
99		St. Agnes GHS, Muttuchira	8	0	434	434
100		AJ John Memorial Govt HS, Thalayolaparambu	14	0	747	747

101		Rev. Fr. GVHSS, Peruva	7	239	112	351
102		VBB NHSS, Njeezhoor	12	490	337	827
103		St Alosious HSS, Athirumpuzha	13	476	223	699
104		St Philominas GHS Arpukkara	5	0	269	269
105		St Mary's GHS Athirumpuzha	12	0	640	640
106		St Ephrems HS Mannanam	20	662	388	1050
107		St George HS Kaipuzha	10	277	249	526
108		Parippu HS, Parippu	5	173	114	287
109		SKM HSS, Kumarakom	12	373	276	649
110		St Pauls GHS, Vettimukal, Pala	5	0	250	250
111		DVV HS, Kumaranalloor	11	367	201	568
112		HF HS, Parampuzha	4	132	100	232
113		SNDP HSS, Kiliroor	6	184	148	332
114		St Augustins HS Ramapuram	29	1270	220	1490
115		SH GHS, Ramapuram	6	0	307	307
116		OLL HS, Uzhavoor	7	191	159	350
117		Emanuel's HS, Kothanalloor	15	368	389	757
118		St Mary's Boys HSS, Kuravilangad	12	421	210	631
119		St Mary's Girls HS, Kuravilangad	10	0	500	500
120		St Annes HSS, Kurianad	16	473	349	822
121		St Xavier's HSS Kuruppumthara	5	148	132	280
122		SKV HSS Kurichithanam	11	278	284	562
		Sub total	**288**	**7487**	**7778**	**15265**
123		GHS Adimaly	10	152	115	267
124		GVHSS Deviyarcolony	10	261	238	499
125		FMGHSS Koompanpara	10	0	1100	1100
126		CMHS Mankadavu	7	192	122	314
127		SNDVHSS Adimaly	10	425	301	726
128		SSHS Pottankadu				0
129		SGHS Parathode				0
130	**Idukki**	SSHS Thokkupara	6	178	99	277
131		GHSS Panikankudi	10	258	250	508
132		SSHS Thodupuzha				0
133		SHGHS Muthalakodam	10	0	499	499
134		MKNM HSS Kumaramangalam	10	434	439	873
135		SGHSS Muthalakodam	10	749	466	1215
136		SSHSS Vazhithala	10	392	345	737
137		SGHSS Kallanickal	10	211	190	401

138		SAHSS Karimkunnam	10	530	415	945
		Sub total	**123**	**3782**	**4579**	**8361**
139	**Ernakulam**	GHSS Chottanikara	7	173	178	351
140		GHSS Mulanthuruthy	10	204	282	486
141		St George HS Arakunnam	5	137	105	242
142		VHSS Irumpanam	6	152	148	300
143		St. Ignatious HSS Kanjiramattom	10	254	269	523
144		KPMHSS Poothotta	10	298	189	487
145		St Mary's HSS Thalacodu	10	278	266	544
146		SNDPHSS Udayamperoor	10	250	250	500
147		St. Paul's HSS Veliyanadu	8	180	219	399
148		GHSS Mookkanoor	10	272	223	495
149		St. Joseph's CGHS Kanjoor	10	0	429	429
150		St. Sebastian's HS Kanjoor	10	406	0	406
151		St. Thomas HSS Malayatoor	10	306	205	511
152		NSS Boys HSS Manickamangalam	10	266	198	464
153		Akavoor HS Sreemoolanagaram	6	135	99	234
154		Government Model HSS Palakuzha	8	177	123	300
155		St. Peter's HSS Elanji	10	286	248	534
156		High School Koothatukulam	9	183	225	408
157		MTM HSS Pampakuda	9	258	186	444
158		MKM HSS Piravom	10	267	264	531
159		St. Joseph's HS Piravom	8	220	202	422
160		High School Ramamangalam	5	133	120	253
161		Little Flower Girls HS Vadakara	6	104	184	288
162		St. John's Syrian HSS Vadakara	10	282	248	530
		Sub total	**207**	**5221**	**4860**	**10081**
163	**Thrissur**	GHSS Peringottukara	10	310	280	590
164		SH of Marys Convent GS, Kandassankadavu	10	0	688	688
165		National HSS, Engandiyur	10	197	257	454
166		GVHSS,Thalikulam	5	150	81	231
167		SN Trust HSS, Nattika	10	420	523	943
168		PJMS GHSS, Kandassankadavu	10	190	280	470
169		GFHSS,Nattika	10	263	232	495
170		Govt HS, Anthikkad	10	635	401	1036
171		KNMVHSS, Thrithalur	10	514	359	873
172		St.Thomas HSS, Engandiyur	10	845	694	1539

173		GMBHSS, Irinjalakkuda	10	546	0	546
174		LFCHS, Irinjalakkuda	10	0	900	900
175		NHSS, Irinjalakkuda	10	958	526	1484
176		St Marys HSS, Irinjalakkuda	10	642	207	849
177		SNHSS, Irinjalakkuda	10	301	325	626
178		GVHSS, Pazhanji	10	924	0	924
179		LIGHS, Choondal	10	0	585	585
180		Seraphic CGHS, Peringottukara	10	0	878	878
181		St.Marys HSS, Chowannoor	10	250	999	1249
182		SNGSHSS, Karamukk	10	790	704	1494
183		GHSS, Manalur	10	233	350	583
184		St.Syrills and St Josephs HSS, West Mangadu	10	552	285	837
		Sub total	**215**	**8720**	**9554**	**18274**
185		GHSS Pattambi	14	260	301	561
186		PHSS Pallippuram	10	229	292	521
187		GHSS Kodumunda	10	173	328	501
188		GJHSS Naduvattom	14	274	324	598
189		GHSS Vadanamkurissi	10	239	410	649
190		GVHSS Koppam	12	274	237	511
191		GOHSS Pattambi	10	208	254	462
192		PTMYHSS Edappalam	16	353	399	752
193		GHSS Chundampatta	10	275	321	596
194		Sabari PTBS Adakaputhur	10	287	274	561
195		AKNMMA HSS Kattukulam	10	135	375	510
196		GHSS Munnurcode	10	372	216	588
197	**Palakkad**	GHSS Cherpulassery	10	249	267	516
198		GVHSS Agali	10	131	445	576
199		Mount Carmel H S Jellippara	11	228	254	482
200		GTHS Puthur	9	185	137	322
201		GTHS Sholayur	4	85	120	205
202		Arogyamatha HS Kottathara	10	119	207	326
203		S P C H S Kookkampalayam	10	224	227	451
204		KHSS Thaottara	10	406	265	671
205		GHSS Vellinezhi	10	290	326	616
206		HS Kadampazhippuram	10	219	284	503
207		MNKMGHSS Pulapetta	10	314	217	531
208		GVHSS Karakurissi	10	251	379	630
209		Sabari HS Pallikkurup	10	279	392	671

210		HSS Sreekrishnapuram	10	284	273	557
		Sub total	**270**	**6343**	**7524**	**13867**
211	**Malappuram**	GHSS Pullengode	10	270	310	580
212		GHSS Peruvallur	10	280	300	580
213		SSMHSS Theyyalingal	10	275	315	590
214		Crescent HSS Adakakkundu	10	220	285	505
215		HS Moonniyoor	10	280	325	605
216		GHS Edapatta	2	45	55	100
217		KMHSS Karulai	10	235	315	550
218		GVHSS Chelari	10	290	265	555
219		GMHSS Calicut University	10	260	310	570
220		GHSS Pookottumpadam	10	270	250	520
221		CBHSS Vallikunnu	10	270	265	535
222		MVHSS Ariyallur	10	270	315	585
223		GHSS Thuvvur	10	275	295	570
224		GHSS Veliyancode	10	260	240	500
225		HS Vanery	10	265	255	520
226		GHSS Karuvarakkundu	10	220	295	515
227		GHSS Palapetty	6	165	145	310
228		PCNGHSS Mookkuthala	10	285	275	560
229		ASMHS Valiyanchery	10	285	325	610
230		GHSS Marenchery	10	270	250	520
231		GHSS Kokkur	10	265	275	540
232		AHS Paral Mampattumoola	10	265	295	560
		Sub total	**208**	**5520**	**5960**	**11480**
233	**Kozhikode**	RNMHSS, Naripatta	10	257	306	563
234		SN Trust HSS Chelannur	10	248	275	523
235		GHSS Narikuni	10	306	277	583
236		CMMHSS Thalakulathur	10	234	298	532
237		GHSS Kuttamboor	10	268	240	508
238		GHSS Nanmanda	10	340	302	642
239		SGMGHSS Kolathur	10	320	224	544
240		AKKRHSS Girls, Chelannur	10	0	524	524
241		MGMHSS Engapuzha	10	328	271	599
242		VHSE Thamarassery	10	356	294	650
243		GHSS Puthupady	10	295	324	619
244		St.Jospehs HS Pullurampara	10	278	316	594
245		FMHSS Koombara	10	234	306	540

246		St. Sebastians HSS Koodaranji	10	265	263	528
247		Sacred Heart HSS, Tiruvambady	10	312	298	610
248		GHSS Kuttiyady	10	309	273	582
249		GHSS Velom	10	309	261	570
250		Sanskrit High School Vatooli	10	257	284	541
251		National HSS Vattoli	10	250	268	518
		Sub total	**190**	**5166**	**5604**	**10770**
252	**Wayanad**	GHSS Anappara	10	289	250	539
253		GHSS Vaduvanchal	10	262	240	502
254		GVHSS Ambalavayal	10	311	274	585
255		GHSS Kallore	10	263	252	515
256		GHSS Echome	10	211	294	505
257		GHSS Moolankavu	10	352	175	527
258		Sree Narayana HSS Poothady	10	214	289	503
259		GHS Irulam	4	110	109	219
260		GHSS Neervaram	9	239	175	414
261		St. Thomas HSS Nadavayal	10	240	272	512
262		LMHS Pallikkunnu	10	216	287	503
263		GHSS Kaniyampetta	10	267	252	519
264		GHSS Panamaram	10	332	340	672
265		GVHSS Vakery	1	17	28	45
266		GMHSS Cheeral	10	280	397	677
267		GHSS Meenangadi	10	368	180	548
268		Jayasree HSS Kalluvayal	3	90	84	174
269		St. Mary's HSS Mullankolly	10	272	248	520
270		GHSS Perikkalloor	3	92	71	163
271		Vijaya HSS Pulpally	10	361	315	676
		Sub total	**170**	**4786**	**4532**	**9318**
272	**Kannur**	St.Cornelius Kolayad	6	136	167	303
273		GHSS Maloor	8	187	225	412
274		HSS Sivapuram	10	263	229	492
275		PGMPHSSCheruvanchery	7	190	160	350
276		GHSS Mambaram	6	158	146	304
277		GHSS Vengad	6	148	152	300
278		KRHS Pathiriyad (Rajas Kottayam)	6	158	142	300
279		GHSS Chittaripparamba	6	107	193	300
280		KKV HSS Panoor	10	234	266	500
281		PR HS Panoor	10	262	268	530

282		RGMHSS Mokeri	10	348	412	760
283		GHSS Kolavallur	10	259	263	522
284		Chothavoor HSS Champad	10	279	221	500
285		IJM HSS Kottiyoor	10	234	266	500
286		St. Josephs HS Adakathode	4	96	114	210
287		St.Thomas HSS Kelakam	10	258	302	560
288		KV HSS Kadavathur	6	110	200	310
289		GHSS Manathana	10	223	277	500
290		Santhome HSS Kolakkad	4	94	113	207
291		GHSS Pattiam	8	186	214	400
292		GHSS Pala	8	183	217	400
293		St. Josephs HSS Peravoor	8	198	202	400
		Sub total	**173**	**4311**	**4749**	**9060**
294	**Kasaragod**	GHSS Shiriya	5	179	87	266
295		GHSS Mangalpady	9	237	239	476
296		GVHSS Heroor Meepry	5	139	134	273
297		SDPHSS Dharmathadka	10	375	404	779
298		GHSS Padre	5	144	123	267
299		SSHSS Katukukke	10	205	295	500
300		SNHS Perla	8	190	190	380
301		SSHSS Sheni	11	324	339	663
302		GHSS Angadimogeru	5	130	137	267
303		GHSS Uppala	6	167	141	308
304		SVVHSS Kodlamogaru	5	160	111	271
305		GHSS Paivalike Nagar	14	290	419	709
306		GHSS Paivalike	5	127	115	242
307		GVHSS Kunjathur	8	203	199	402
308		SVVHSS Miyapadav	9	224	219	443
309		GHSS Bangara Manjeshwar	7	177	173	350
310		SATHSS Manjeshwar	10	270	317	587
311		Iqbal HSS Ajanur	11	433	489	922
312		SRMGHSS Ramnagar	9	243	198	441
313		MPSGVHSS Bellikoth	10	308	276	584
314		GVHSS Ambalathara	5	123	123	246
315		GHSS Ravaneshwaram	10	252	277	529
316		GHSS Periya	17	463	427	890
317		GHSS Kalliot	7	233	165	398
318		GVHSS Kuniya	7	186	188	374
319		GHSS Pakkam	4	157	159	316

320		GHSS Pallikkare	13	447	487	934
321		GFHSS Bekkal	3	85	70	155
322		GHSS Udma	15	562	508	1070
323		GHS Thachangad	8	234	194	428
		Sub total	**251**	**7267**	**7203**	**14470**
		Grand total	**2930**	**83591**	**86896**	**170487**

Summary: Details of school classes

Districts	No of schools	No of classes	No of students attended		
			Boys	Girls	Total
Thiruvananthapuram	23	207	7215	6930	14145
Kollam	26	182	5804	6704	12508
Pathanamthitta	21	160	4687	4322	9009
Alappuzha	25	286	7282	6597	13879
Kottayam	27	288	7487	7778	15265
Idukki	16	123	3782	4579	8361
Ernakulam	24	207	5221	4860	10081
Thrissur	22	215	8720	9554	18274
Palakkad	26	270	6343	7524	13867
Malappuram	22	208	5520	5960	11480
Kozhikode	19	190	5166	5604	10770
Wayanad	20	170	4786	4532	9318
Kannur	22	173	4311	4749	9060
Kasaragod	30	251	7267	7203	14470
Kerala Total	**323**	**2930**	**83591**	**86896**	**170487**

Annexure 19

Health Workers training program for Prevention and Control of NCD

Objectives:

1. Capacity building of Health Workers on risk factors and risk reduction strategies for the prevention and control of NCDs.
2. Plan training of ASHA workers about risk factors and risk reduction strategies for the prevention and control of NCDs. (20 ASHA workers per Grama Panchayath in 2 Block Panchayath areas)

Draft Agenda

Date:

Venue:

9.30– 10 AM:	Registration
10– 10.20 AM:	Welcome/ Introduction/ Inauguration etc..
10.20– 10.40 AM:	NCD burden, Risk factors of NCD and NCD control project of SCTIMST by Faculty- AMCHSS.
10.40- 11.10 AM:	Risk reduction strategies for tobacco use and alcohol consumption by DPM (NCD)
11.10- 11.20 AM:	Tea Break
11.20- 12 noon	Risk reduction strategies for unhealthy diet and physical inactivity by DPM (NCD)
12- 12.20 PM:	Discussion
12.20- 1PM:	Session 1 and discussion by local resource person
1- 1.45 PM:	Lunch
1.45- 2.30 PM:	Session 2 and discussion by local resource person
2.30- 3.15 PM:	Session 3 and discussion by local resource person
3.15- 3.30 PM:	Tea Break
3.30- 4.30 PM:	Discussion on planning ASHA workers training, innovative projects for NCD control, suggestions for improving present NCD control program etc..
4.30 PM:	Conclusion

Note: The following topics may be considered for session 1, 2 & 3 by local resource persons

1. Tobacco cessation counselling
2. Diet Counselling
3. Alcohol de-addiction strategies
4. Practical demonstration on Yoga and other exercises
5. Social determinants of NCD and measures to expand care services for NCD control
6. Gender and social inequities in NCD and measures to reduce inequity
7. Administrative and managerial issues of NCD control program

Annexure 20

Name of health institutions represented the training

Sl. No.	Name of district	Name of health institution
1	**Thiruvananthapuram**	CHC Andoorkonam
2		CHC Kallara
3		CHC Kesavapuram
4		CHC Perumkadavila
5		CHC Poonthura
6		CHC Pulluvila
7		CHC Venpakal
8		CHC Vizhinjam
9		DH Nedumangad
10		GH Neyyattinkara
11		PHC Anad
12		PHC Aruvikkara
13		PHC Balaramapuram
14		PHC Kallikadu
15		PHC Kilimanoor
16		PHC Kollayil
17		PHC Kottukal
18		PHC Mukkola
19		PHC Paraniyam
20		PHC Parasuvakkal
21		PHC Perumpazhuthoor
22		TH Nemom
23		TH Vithura
24	**Kollam**	CHC Oachira
25		DMO Kollam
26		PHC Chathannoor
27		PHC East Kallada
28		PHC Eravipuram
29		PHC Kilikollur
30		PHC Kulashekharapuram
31		PHC Mantro Island
32		PHC Perayam
33		PHC Perinadu
34		PHC Peruman

35		PHC Vallikkavu
36		Taluk hospital Kundara
37		Taluk hospital Punalur
38	**Pathanamthitta**	CHC Ezhumattoor
39		CHC Kanjitkara
40		GH Kozhencherry
41		PHC Cheneerkara
42		PHC Cherukole
43		PHC Elanthoor
44		PHC Kadammanitta, Naranganam
45		PHC Koipuram
46		PHC Mallapuzhassery
47		PHC Omalloor
48		PHC Othera
49		PHC Puramattom
50		PHC Thelliyoor
51		PHC Thottapuzhashery
52	**Alappuzha**	CHC Arookutty
53		CHC Thuravoor
54		CHC Thycattussery
55		CHC Veliyanad
56		PHC Aroor
57		PHC Ezhupunna
58		PHC Kavalam
59		PHC Kodamthuruthu
60		PHC Muttar
61		PHC Neelamperoor
62		PHC Pallippuram
63		PHC Pallithodu
64		PHC Panavally
65		PHC Perumbalam
66		PHC Pulincunnoo
67		PHC Ramankary
68		PHC Vallethode
69		PHC Vayalar
70		PHC Vettackal
71	**Kottayam**	BPHC Athirampuzha
72		CHC Arunoottimangalam
73		CHC Kumarakom
74		CHC Ramapuram
75		CHC Thalayolaparambu

76		PHC Aymanam
77		PHC Kaduthuruthy
78		PHC Kallara
79		PHC Kanakkary
80		PHC Kattampak
81		PHC Kuruppumthara
82		PHC Marangattupally
83		PHC Onamthuruthu
84		PHC Peruva
85		PHC Thiruvarppu
86		PHC Veliyanoor
87		PHC Velloor
88	**Idukki**	CHC Chithirapuram
89		CHC Muttom
90		CHC Purapuzha
91		DH Thodupuzha
92		PHC Baisonvalley
93		PHC Deviyarcolony
94		PHC Edavetty
95		PHC Kallarvattiyar
96		PHC Karimkunnam
97		PHC Konnathady
98		PHC Kumaramangalam
99		PHC Manakkadu
100		PHC Vellathooval
101		THQH Adimaly
102	**Ernakulam**	CHC Kalady
103		CHC Keechery
104		CHC Mulanthuruthy
105		CHC Ramamangalam
106		PHC Arakunnam
107		PHC Ayampuzha
108		PHC Chotanikara
109		PHC Chowara
110		PHC Elanji
111		PHC Eroor
112		PHC Kanjoor
113		PHC Malayatoor
114		PHC Maneed
115		PHC Manjapra
116		PHC Mookanoor

117		PHC Palakuzha
118		PHC Paliserry
119		PHC Pampakuda
120		PHC Poothota
121		PHC Thirumarady
122		PHC Thiruvankulam
123		PHC Thottur
124		PHC Thuravoor
125		PHC Udayamperoor
126		TH Kothamangalam
127		TH Tripunithura
128	**Thrissur**	CHC Anandapuram
129		CHC Kattoor
130		CHC Pazhanji
131		CHC Valapad
132		CHC Vatanappilly
133		PHC Arthat
134		PHC Choondal
135		PHC Chowanoor
136		PHC Engandiyur
137		PHC Kadangode
138		PHC Kandanasserry
139		PHC Karalam
140		PHC Nattika
141		PHC Parappukkara
142		PHC Perumbilavu
143		PHC Porkulam
144		PHC Thalikkulam
145		PHC Velur
146	**Palakkad**	CHC Agali
147		CHC Kadambazhipuram
148		CHC Koppam
149		CHC Koppam
150		PHC Anakatty
151		PHC Elumbulassery
152		PHC Karakurissi
153		PHC Kottappuram
154		PHC Kulukkallur
155		PHC Muthuthala
156		PHC Ongallur
157		PHC Pallippuram

158		PHC Pookkottukavu
159		PHC Pudur
160		PHC Sholayoor
161		PHC Sreekrishnapuram
162		PHC Thiruvegappura
163		PHC Vellinezhi
164		PHC Vilayur
165		CHC Kalikkavu
166		CHC Karuvarakkundu
167		PHC Alamcode
168		PHC Amarambalam
169		PHC Athanikkal
170		PHC Chokkad
171		PHC Edapetta
172		PHC Kadalundi Nagaram
173		PHC Karulai
174	**Malappuram**	PHC Marenchery
175		PHC Munniyur
176		PHC Nannamukku
177		PHC Nannnambra
178		PHC Palapetty
179		PHC Perumpadappu
180		PHC Peruvallur
181		PHC Thenjipalam
182		PHC Thuvvur
183		PHC Veliyancode
184		CHC Kuttiyady
185		CHC Narikkuni
186		CHC Thalakulathoor
187		PHC Erivaloor
188		PHC Kakkody
189		PHC Kakoor
190		PHC Kattipara
191	**Kozhikode**	PHC Kayakody
192		PHC Kizakoth
193		PHC Kodenchery
194		PHC Koodiranji
195		PHC Kulathoor
196		PHC Kunduthodu
197		PHC Kunnummal
198		PHC Madavoor

199		PHC Maruthomkara
200		PHC Naripatta
201		PHC Omassery
202		PHC Puthupady
203		PHC Thiruvambady
204		PHC Velom
205		TH Thamarassery
206	**Wayanad**	CHC Ambalavayal
207		CHC Meenangadi
208		CHC Panamaram
209		CHC Pulpally
210		PHC Cheeral
211		PHC Chethalayam
212		PHC Chulliyode
213		PHC Mullankolly
214		PHC Noolpuzha
215		PHC Pakkam
216		PHC Poothadi
217		PHC Varadoor
218		PHC Vazhavatta
219		TH Sulthan Bathery
220	**Kannur**	PHC Chittaripparamba
221		PHC Kanichar
222		PHC Kottayam Malabar
223		PHC Kottiyoor
224		PHC Kunnothuparmba
225		PHC Maloor
226		PHC Mangattidam
227		PHC Muzhakkunnu
228		PHC Pattiam
229		PHC Peruva
230		PHC Triprangottur
231		T H Kuthuparamba
232		T H Peravoor
233	**Kasaragod**	CHC Periya
234		PHC Ajanur & Anandasramam
235		PHC Madikai
236		PHC Pallikkare
237		PHC Udma

Summary: Number of health institutions represented the training

District	No of health institutions
Thiruvananthapuram	23
Kollam	14
Pathanamthitta	14
Alappuzha	19
Kottayam	17
Idukki	14
Ernakulam	26
Thrissur	18
Palakkad	19
Malappuram	19
Kozhikode	22
Wayanad	14
Kannur	13
Kasaragod	5
Kerala Total	**237**

Annexure 21

List of health staff attended the training

Sl.No.	Name of district	Name of Health Institution	Name of Health Staff	Designation
1	Thiruvananthapuram	CHC Andoorkonam	Arun G	JHI
2		CHC Kallara	Jinu S	JHI
3			C Jayachandran	HI
4			Valsala B	PHN
5		CHC Kesavapuram	Jayasekhar T	JHI
6			K R Shaji	HI
7		CHC Perumkadavila	Dr. Benzilal W S	MO
8			S Jayasree	PHN
9		CHC Poonthura	A Surendran	HI
10		CHC Pulluvila	Semeera R	JPHN
11			Esily Ratnam	PHN
12		CHC Venpakal	L Lathika	JPHN
13		CHC Vizhinjam	M Sudharma	JPHN
14		DH Nedumangad	Padmaraj S	JHI
15		GH Neyyattinkara	Dr. Krishnakumar A	MO
16			Lathakumari L	PHN
17		PHC Anad	M N Vimal Kumar	HI
18		PHC Aruvikkara	Chandrika C	PHN
19		PHC Balaramapuram	Shajilal	HI
20		PHC Kallikadu	Samsulosalinsdas	JHI
21		PHC Kilimanoor	Noble Raj	HI
22		PHC Kollayil	S Radhakrishnan	HI
23		PHC Kottukal	Rajalakshmi S	PHN
24			Kumari Kala S	JPHN
25		PHC Mukkola	D Lathaksha	PHN
26			Swapna Joseph	JPHN
27		PHC Paraniyam	Dr. Rahul G J	MO
28			T Kumaradas	HI
29		PHC Parasuvakkal	T Mohanachandran	HI
30			N S Sajitharani	PHN
31		PHC Perumpazhuthoor	Dr. Lini M S	MO
32		TH Nemom	Smitha K Nair	JPHN
33		TH Vithura	Reji P M	JHI

34		CHC Oachira	Geetaha KS	PHN
35			A sleena	JPHN
36			Abha Gopinath	Jr HI
37			PC Madhukumar	HI
38			Joy KS	Jr HI
39			Saleena B	Jr HI
40			A Jafar ali	HS
41		DMO Kollam	Gopakumar a	Jr HI
42		PHC Chathannoor	Sunitha V	JrPHN
43		PHC East Kallada	Icy K Kunjumon	JrPHN
44			Rajesh R	Jr HI
45			T Sundaran	HI
46		PHC Eravipuram	Sujith RS	Jr HI
47			Manu RG	JHI
48		PHC Kilikollur	Mukesh KB	Jr HI
49		PHC Kulasekharapuram	Kala R	JHI
50	**Kollam**		Jolly Vincent	Jr HI
51		PHC Mantro Island	Y Nazarudheen	HI
52			Aji C	JHI
53			R Ashaletha	PHN
54		PHC Perayam	Lurdha D	JPHN
55		PHC Perinadu	Vijeesh V	JHI
56			Sujatha Berlis S	JPHN
57		PHC Peruman	A Berty	HI
58		PHC Vallikkavu	Pradeep kumar.S	HI
59			R Vijayakumari amma	JrPHN
60			A Syamkumar	Jr HI
61		Taluk hospital Kundara	Ancy Zachariya	HI
62			Rosamma T	LHS
63			Raju K	JHI
64			Gracy VT	PHN
65			Jose L George	HS
66		Taluk hospital Punalur	Geetha kumar M	PHN
67		CHC Ezhumattoor	Jyothilal P R	JHI
68			Minimol K C	JPHN
69		CHC Kanjitukara	Prasanth Kumar T S	JHI
70	**Pathanamthitta**		S Nair B	JHI
71			Rosamma Daniel	JPHN
72		GH Kozhencherry	Sreelatha	JPHN
73			Ravi Kumar	JHI

74		PHC Cheneerkara	Gopakumar	JHI
75			Jyothi Krishna	JHI
76			Jolly Thomas	JPHN
77		PHC Cherukole	Arya Devi T	JHI
78		PHC Elanthoor	Geethamol	JPHN
79			Sindhu Nair	JPHN
80			Smitha V Nair	JHI
81		PHC Koipuram	Sheela M S	LHI
82			Binu	JHI
83			Jayan C	JHI
84		PHC Mullapuzhassery	Nissi Narayanan	JHI
85			Sheeba C P	JPHN
86		PHC Narangam	Sindhu Cleetus	JPHN
87			Sumi S	JHI
88		PHC Omallur	Kala V J	JHI
89			Rekha S	JPHN
90		PHC Othara	Manju K	JHI
91			Maya K	JPHN
92			Lathakumari	JPHN
93			Sini Manoj	JHI
94		PHC Puramattom	Saseendran K	JHI
95			Sreekumar	JHI
96			Sreelatha	JPHN
97		PHC Thelliyoor	Vinod T G	JHI
98			Icy Kurian	JPHN
99		PHC Thottapuzhassery	Shiny Thomas	JHI
100			Sreelatha B	JPHN
101	**Alappuzha**	C H C Arookutty	Rajesh M.K	JHI
102			Sumadevi	LHS
103			Raju Kottapally	JHI
104			Dr.Deepa.N.Shenoy	MO
105		C H C Perumbalam	Sheenamma CP	JPHN
106		C H C Thuravoor	Saiju S	JHI
107			Sobhakumari	PHN
108			Geethakumari.K.S	JPHN
109			Rekha P.P	JPHN
110		C H C Thycattussery	V Pushpalatha	JPHN
111			Madonna Antony	JPHN
112		C H C Veliyanad	M Abhayakumar	JHI
113			KM Suresh Kumar	HS

114			Dr.S. Anil Kumar	MO I/C
115			Shalini R	JPHN
116		P H C Aroor	Roopa Abraham	JHI
117		P H C Ezhupunna	Vijayalekshmi.R	JPHN
118		P H C Kavalam	Seema G	JHI
119		P H C Kodamthurathu	Sureshbabu.O.P	JHI
120		P H C Muttar	Baiju R S	JHI
121			Anitha MS	JPHN
122		P H C Neelamperoor	Subimol S	JPHN
123			Dr.Shilpa Sasi	MO I/C
124		P H C Pallipuram	Sreekanth A.G	JHI
125			Dr.Anju.M.S	MO I/C
126			Nitha S	JPHN
127		P H C Pallithodu	Sateeshkumar C	JHI
128		P H C Panavally	Pushpalatha G	PHN
129			Santhosh K	JHI
130			R Krishnakumar	JHI
131		P H C Ramankary	C.B Valsalakumari	JPHN
132			Bijuprasad	JHI
133			Surendranath M	HI
134		P H C Vayalar	Usha J	PHN
135			Asha Sasidharan	JPHN
136		T H Q H Pulinkunnu	VG Das	JHI
137	**Kottayam**	PHC Kaduthuruthy	Somashekharan	JHI
138			Geetha. B. Nair	JPHN
139		BPHC Athirampuzha	Ambili A K	JHI
140			Simi Kurian	JPHN
141		CHC Arunoottimangalam	Minimol K	JPHN
142			Sabu	JHI
143		CHC Kumarakom	Jose	HS
144			Nirmala	LHI
145		CHC Ramapuram	Minimol C T	JPHN
146			Lissy Alex	JPHN
147		CHC Thalayolaparambu	Suprabha G	JPHN
148			Alex Paul	JHI
149		PHC Aymanam	Vinitha	JHI
150			Bidhu Thankappan	JPHN
151		PHC Kallara	Jossy Joseph	JHI
152			Sudha. P	JPHN
153		PHC Kanakkary	Jayaprakash M B	JHI

154			Geethadevi P N	JPHN
155		PHC Kattampak	Cimily Jose	JPHN
156			Biju Thomas	JHI
157		PHC Kuruppumthara	K. K. Girija	JPHN
158			Jaimohan	JHI
159			Bijo V Sugathan	JHI Gr1
160		PHC Marangattupally	Sambath K V	HI
161			Biji Suresh	JPHN
162		PHC Onamthuruthu	Devarajan S	JHI
163			K V Shibu mon	JHI
164		PHC Peruva	Kusumakumari N	JPHN
165			Manoj	JHI
166		PHC Thiruvarppu	Sreekumar	JHI
167			Sheheeda	JPHN
168		PHC Veliyanoor	Ancy K. Abraham	PHN
169			Suma T D	JPHN
170		PHC Velloor	Smitha Aravind AK	JPHN
171			Ashokan M V	JHI
172	**Idukki**	CHC Chithirapuram	Dr Sherin Mary Mathew	MO
173			TV Salomi	PHN
174			Pradeeshkumar	JHI
175			Baburaj CG	HS
176		CHC Muttom	KS Jelja	PHN
177			Laila TI	JPHN
178			Shibu PK	JHI
179		CHC Purapuzha	Lalitha VJ	PHN
180			Thulasi M	JHI
181		DH Thodupuzha	Peter K Abraham	JHI
182			Deepa Krishnan	JPHN
183		PHC Baisonvally	Mini James	JPHN
184			Sindhu K Pillai	JHI
185		PHC Deviyarcolony	Suja NK	JPHN
186			Gayathri VK	JPHN
187			Royichan TC	JHI
188		PHC Edavetti	Dr Reshmi VR	MO
189			Mary George	JPHN
190			Shibumon B	JHI
191		PHC Kallarvattiyar	Mayadevi PK	JPHN
192			Shilumon SG	JHI
193		PHC Karimkunnam	Ginil Kumar	JHI

194			Bindhumol PB	JPHN
195		PHC Konnathady	Anil O	JHI
196			Sajeev S	JHI
197			Bindhumol KT	JPHN
198		PHC Kumaramangalam	Manoharan P	JHI
199			Prashanth V Senan	JHI
200		PHC Manakkadu	Dr Rahul Raghavan	MO
201			Remya KR	JPHN
202			Sumesh M	JHI
203		PHC Vellathooval	Thressya AU	PHN
204			Jayakumar PA	JHI
205			Lekha PS	JPHN
206		THQH Adimali	Omana AD	PHN
207	**Ernakulam**	CHC Kalady	Maya P P	JPHN
208		CHC Keechery	Sajitha Pavithran	JPHN
209			Raina Vijay	JHI
210		CHC Pambakuda	Prasitha K N	JHI
211			Lissy A V	JPHN
212		CHC Poothotta	Vinodini ILN	JPHN
213		CHC Ramamangalam	Arun Somanath	JHI
214			Elsy John	JPHN
215		PHC Chottanikara	Pushpakumar N V	JHI
216			Sheeba V K	JPHN
217		PHC Chowara	Mani T T	JHI
218		PHC Kanjoor	Binod B R	JHI
219		PHC Maneed	Retheesh Kumar C S	JHI
220		PHC Manjapra	Uma Krishnan R	JHI
221		PHC Mookkanoor	Narayanan K P	JHI
222		PHC Palakuzha	Biji C Luke	JHI
223		PHC Palissery	Bindu V	JHI
224		PHC Thirumarady	Sophyamma P T	JHI
225			Shamma K A	JPHN
226		PHC Thiruvankulam	George Joseph	JHI
227		TH Angamaly	Mohammed Ashraf M V	JHI
228		TH Kothamangalam	Sathi N V	JPHN
229			Vanajamol M N	JHI
230		TH Tripunithura	Aneeshkumar T	JHI
231	**Thrissur**	CHC Anandapuram	Dr. Prabu K Namboothiri	Asst.Surg
232		CHC Pazhanji	Mini Mathew K	JPHN
233		CHC Valapad	Athira C S	JPHN

234			Jency Jose	JPHN
235		CHC Vatanappilly	Ramesh	JHI
236			Alphonsa	JPHN
237			Dr. Noorjahan H	Asst.Surg
238		PHC Arthat	Renjith P	JHI
239		PHC Choondal	Binju Jacob C	JHI
240			Sini P B	JPHN
241			Dr. T K Subi	Asst.Surg
242		PHC Chowanoor	Mercy P Y	JPHN
243		PHC Engandiyur	Prince T J	JHI
244			Sanitha K M	JPHN
245		PHC Kadangode	Mahesh V	JHI
246			Dhanya T A	JPHN
247			Dr. Sobha	Asst.Surg
248		PHC Kandanasserry	Rajkumar P K	JHI
249			K M Shameena	JPHN
250		PHC Karalam	Shiju V V	JHI
251		PHC Nattika	Haneesh	JHI
252			Jayalakshmi V M	JPHN
253		PHC Parappukkara	C Prasad	JHI
254		PHC Perumbilavu	Robinson	JHI
255			Ambika V P	JPHN
256		PHC Porkulam	K T Haridasan	JHI
257			Sholly C P	JPHN
258		PHC Thalikkulam	P M Vidhyasagar	JHI
259			Remya K B	JPHN
260		PHC Velur	Bijay P	JHI
261			Saritha T R	JPHN
262	**Palakkad**	CHC Agali	Ayisha	JPHN
263		CHC Koppam	Yeshodha M	JPHN
264			Ramakrishnan M	HS
265			Ajitha A	JPHN
266			Sudheer Raj	JHI
267		PHC Anakatty	Ratheesh Chandran P R	JHI
268			Achamma K C	JPHN
269			Anitha P V	JPHN
270		PHC Elumbulassery	Jayakrishnan P	JHI
271		CHC Kadambazhipuram	Leela P	JPHN
272		PHC Karakurissi	Bindu T	JHI
273			Dr.Honey Rose	Medical Officer

274			P K Sreedevi	JPHN
275		PHC Kottappuram	Seena S	JPHN
276			Priyan A	JHI
277			Dr. Ashwathy Soman	Medical Officer
278			P Muhammed Ali	HI
279		PHC Kulukkallur	Prasad V P	JHI
280		PHC Muthuthala	Unnikrishnan	JHI
281			Shilaja A	JPHN
282		PHC Ongallur	Saji B	JHI
283			Ramla A M	JPHN
284		PHC Pallippuram	Prabhavathi L	JPHN
285			Sreejith V C	JHI
286		PHC Pookkottukavu	Jayasree K G	JPHN
287			Suresh K	JHI
288			Dr. Girija Sajan	Medical Officer
289		PHC Pudur	Premalatha T	JPHN
290		PHC Sholayoor	Rajesh Kumar K	JHI
291			Chithra T C	JPHN
292		PHC Sreekrishnapuram	Vinod V K	JHI
293			Leja C J	JPHN
294		PHC Thiruvegappura	Beerankutty	JHI
295		PHC Vellinezhi	Sheeja P	JPHN
296			Santhosh C N	JHI
297		PHC Vilayur	Muhammed Shaffeq	JHI
298	**Malappuram**	CHC Kalikkavu	Dr Fathima M	Assistant surgeon
299			Saleena M	JPHN
300			Sudheesh U	JHI
301		CHC Karuvarakkundu	Dr Sanju MP	MO
302			Anil P	JHI
303			Ligi George	JPHN
304		PHC Alamcode	Thamasa N Nair	JPHN
305			Sonash Mankuzhiyil	JHI
306		PHC Amarambalam	Rugmini P	JPHN
307			Haseena TV	JHI
308		PHC Athanikkal	Suvrinda PN	JPHN
309		PHC Chokkad	Jayabharathy KK	JPHN
310			Muhammed Anvar VK	JHI
311		PHC Edapatta	Kumudam P	JPHN
312		PHC Kadalundi Nagaram	Jayasree T	JPHN
313			Sasikala B	JPHN

314		PHC Karulai	Nisha K	JPHN
315			Indulal V	JHI
316		PHC Marenchery	Raju RK	JHI
317			Sunanda KP	JPHN
318			Dr Ajmal Rahman VM	MO
319		PHC Moonniyur	Dileep Kumar KK	JHI
320		PHC Nannambra	Pradeep Kumar P	JHI
321		PHC Nannamukku	Sajeev Kumar C	JHI
322			Fathima S	JPHN
323		PHC Palapetty	Sheeba MS	JPHN
324		PHC Peruvallur	Bindu UK	JPHN
325			Premajan MP	JHI
326		PHC Velliyancode	Biju KN	JHI
327			Suni IP	JPHN
328		CHC Kodenchery	Saji Varghees	JHI
329		CHC Kunnummal	Anilkumar M P	JHI
330			Maya K S	JPHN
331		CHC Narikuni	Alice Chacko	JPHN
332		PHC Kakkody	Sujith Kumar	JHI
333			Nisha Jerald	JPHN
334		PHC Kakoor	Ussain K A	JHI
335			Asha E G	JPHN
336		PHC Kattipara	Jayaprakashan	JHI
337			Sheena T C	JPHN
338		PHC Kayakkody	Rajeesha K V	JHI
339		PHC Kooderanji	Johnson George	JHI
340	**Kozhikode**		Salija C G	JPHN
341		PHC Kulathoor	Girija Babu	JHI
342			Sheeba K J	JPHN
343		PHC Marthomkara	Rathika M	JHI
344		PHC Omassery	Mini K V	JPHN
345		PHC Puthupady	Shibu K V	JHI
346			Marrykutty Thomas	JPHN
347			Lissy Jacob	JPHN
348		PHC Thiruvampady	Krishna Prakash	JHI
349			Beena K Joseph	JPHN
350		PHC Velom	Shiju K G	JHI
351		TH Kuttiyady	Joby Augustin	JHI
352			Vimala V P	JPHN
353	**Wayanad**	CHC Ambalavayal	Girijamani K K	JPHN

354			P K Sivaprakash	HI
355		CHC Meenangadi	Binu Abraham	JPHN
356			Babu M V	JHI
357		CHC Panamaram	Lissy Mathew	JPHN
358			Hameed P K	HI
359			Mani K C	JHI
360			Dr. Merin Baby	Asst. Surgeon
361		CHC Pulpally	Nawsha M P	JHI
362			Shyla Francis	JPHN
363			Lissy P P	JPHN
364			Dr. Abdul Jaleel	MO
365		PHC Cheeral	Suma T	JPHN
366			Lybin Joseph J	JHI
367		PHC Chethalayam	Babu T P	HI
368			T S Viji	JPHN
369			Jinesh Babu S	JHI
370		PHC Chulliyode	Sujamol P K	JPHN
371			Muthu K	JHI
372		PHC Mullankolly	Manoj Kumar P V	HI
373			Bineesh Peter	JHI
374		PHC Noolpuzha	Soumani N A	JPHN
375			Jiji K Alex	JPHN
376			Murali N R	HI
377		PHC Pakkam	Shibu Bhaskar M B	JHI-Gr I
378			Manjumol K S	JPHN
379		PHC Poothadi	Janardhanan P	JHI
380			Sudheesh A P	JHI
381			Dr. Mufsheer K C	Asst. Surgeon
382			Bindhu K K	JPHN
383		PHC Varadoor	Jayaprakash T M	JHI
384			Sunil Kumar R K	JHI
385			Philomina	PHN
386		PHC Vazhavatta	Raghunandhan T V	JHI
387			Rosa A T	JPHN
388		TH Sulthan Bathery	Ummer K A	JHI
389	**Kannur**	PHC Chittaripparamba	Balakrishnan P	HI
390			Viswanathan C	JHI
391			Mini Abraham	JPHN
392		PHC Kanichar	Santhoshkumar M	JHI
393			Baby K J	HI

394			Catherine Joseph	JPHN
395		PHC Kottayam Malabar	Preetha A M	JHI
396			Silvia Baby	JPHN
397		PHC Kottiyoor	Hashim A	JHI
398			Cicilykutty M M	JPHN
399		PHC Kunnothuparmba	Jithesh P	JHI
400			Padmini P	JPHN
401		PHC Maloor	Rajesh V V	JHI
402			Sudhir T V	JHI
403			Nazeema P	JPHN
404		PHC Mangattidam	Sheeba Das	JPHN
405			Baburajan K	HI
406			Shijithkumar P	JHI
407			Prameela A T	JHI
408		PHC Muzhakkunnu	Beena Joseph	JPHN
409			A K Krishnan	HI
410			Suvikumar	JHI
411		PHC Pattiam	T Surendran	JHI
412			V G Padmini	LHI
413			Indira V	JPHN
414		PHC Peruva	K T Lasakan	HI
415			Swaja D	JHI
416			Ammed M C	JHI
417			Shylaja M S	JPHN
418		PHC Triprangottur	P Sujatha	JPHN
419			Sreejith K K	JHI
420			Mujeeb Abdul Salim	JHI
421		T H Kuthuparamba	Shobhana P R	JPHN
422			Meera K	JHI
423		T H Peravoor	Shabana M S	JPHN
424			Pradeep S	HI
425			Shennings	JHI
426	**Kasaragod**	PHC Ajanur and Anandasramam	Sathyabhama K	JPHN
427			Prasad AV	JPHN
428			Sethunarayanan	JHI
429			Vinodkumar	JHI
430			Sreenivasan M P	JHI
431		PHC Madikai	Prasad Kannoth	JHI
432			Nisha K C	JPHN
433			Seema M V	JPHN

434			Anilkumar V	JHI
435		PHC Pallikkare	Sushama	JPHN
436			Shiny P K	JPHN
437			Vinod T	JPHN
438			Sreekumar A	JHI
439			Suvasini K	JHI
440		CHC Periya	Asokan M V	JHI
441			Pushpalatha V V	JPHN
442			Bindu P K	JPHN
443			Madhu P K	JHI
444			Asma	JPHN
445		PHC Udma	Libin K I	JHI
446			Vilasini K	JPHN
447			Sheena PV	JPHN
448			Gopinadh K V	JHI
449			Lalitha P	JHI

Summary: Number of health institutions and staff attended the training

District	No of health institutions	No of health staff
Thiruvananthapuram	23	33
Kollam	14	33
Pathanamthitta	14	34
Alappuzha	17	36
Kottayam	17	35
Idukki	14	35
Ernakulam	18	24
Thrissur	17	31
Palakkad	19	36
Malappuram	16	30
Kozhikode	15	25
Wayanad	14	36
Kannur	13	37
Kasaragod	5	24
Kerala Total	**216**	**449**

Annexure 22

Details of ASHA Training

Sl. No.	Name of district	Number of Batches	Name of Grama Panchayath	Total strength of ASHAs	No of ASHAs attended
1	Thiruvananthapuram	8	Parassala	47	20
2			Aryancode	23	20
3			Perumkadavila	21	20
4			Kollayil	31	20
5			Kunnathukal	24	20
6			Vellarada	44	20
7			Poozhanadu	15	12
8			Kallikkad	17	13
			Sub Total	222	145
9	Kollam	6	Clappana	19	19
10			Mantrothuruthu	11	11
11			Kundara	20	20
12			East Kallada	20	20
13			Perumon	27	20
14			Perinadu	19	19
			Sub Total	116	109
15	Pathanamthitta	7	Omalloor	13	13
16			Cheneerkkara	15	15
17			Elanthoor	11	11
18			Cherukole	9	8
19			Kozhencherry	13	13
20			Mallapuzhasherry	7	7
21			Naranganam	12	12
22			Kozhipuram	21	20
23			Ayroor	12	12
24			Eraviperoor	20	20
25			Thottapuzhassery	10	8
			Sub Total	143	139
26	Alappuzha	7	Veliyanad	28	22
27			Arookutty	13	8
28			Pallipuram	26	11
29			Thuravoor	19	19
30			Panavally	20	19
31			Thycattussery	23	1

32			Neelamperoor	12	12
33			Muttar	12	11
34			Pulinkkunnu	4	4
35			Ramankary	15	11
36			Pallithodu	9	9
37			Vallethodu	12	11
			Sub Total	193	138
38	Kottayam	7	Thiruvarppu	28	10
39			Kumarakom	19	8
40			Arpookara	14	10
41			Aymanam	29	10
42			Athirampuzha	38	9
43			Neendoor	18	10
44			Veliyannur	11	9
45			Ramapuram	20	18
46			Uzhavur	15	9
47			Kanakkaril	20	18
48			Kuravilangad	16	14
49			Marangattupally	14	13
50			Kadaplamattam	10	10
			Sub Total	252	148
51	Idukki	6	Purapuzha GPI	10	10
52			Pallivasal GPI	20	20
53			Karikkunnam	11	10
54			Adimali GPI	34	20
55			Basonvalley	11	10
56			Konnathadi	31	20
57			Muttom	10	9
58			Edavetty	11	9
			Sub Total	138	108
59	Ernakulam	8	Karukutty	17	17
60			Sreemoolanagaram	24	20
61			Mookkanoor	17	14
62			Kanjoor	20	19
63			Udayamperoor	38	20
64			Ramamangalam	11	11
65			Chottanikkara	16	13
66			Ampallur	22	20
			Sub Total	165	134

67	Thrissur	7	Choondal	29	29
68			Nattika	17	17
69			Valappad	28	28
70			Kandanissery	23	23
71			Kattakampal	18	18
72			Kadavallur	25	25
73			Porkulam	12	12
			Sub Total	152	152
74	Palakkad	8	Sholayoor	21	19
75			Karimpuzha	17	17
76			Sreekrishnapuram	20	20
77			Vilayur	22	21
78			Vellinezhy	14	14
79			Karakkurissi	25	19
80			Pookkottukavu	11	11
81			Muthuthala	26	22
			Sub Total	156	143
82	Malappuram	8	Kalikkavu	28	26
83			Chokkad	30	28
84			Karulai	14	14
85			Edapetta	14	14
86			Peruvallur	34	30
87			Moonniyur	36	32
88			Perumpadappu	22	18
89			Maranchery	21	17
			Sub Total	199	179
90	Kozhikode	8	Kunnummal	20	20
91			Kakkodi	22	20
92			Kakkur	20	20
93			Puthupadi	20	20
94			Kattippara	21	20
95			Kuttiyadi	17	15
96			Velom	19	15
97			Maruthomkara	15	10
			Sub Total	154	140
98	Wayanad	7	Poothady	38	20
99			Meenanagadi	32	20
100			Pulpally	33	20
101			Nenmeni	41	20

102			Panamaram	30	20
103			Noolpuzha	17	15
104			Mullamkolly	24	20
			Sub Total	215	135
105	Kannur	7	Pattiam	28	20
106			Kunnothuparamba	37	20
107			Maloor	13	11
108			Muzhakkunnu	24	20
109			Peravur	18	18
110			Chittariparambu	23	20
111			Triprangottur	22	20
			Sub Total	165	129
112	Kasaragod	5	Ajanur	47	20
113			Periya	21	20
114			Uduma	44	20
115			Madikkai	22	20
116			Pallikkare	38	30
			Sub Total	172	110
	Grand Total	**99**		**2442**	**1909**

Details of ASHA workers training

District	No of batches	No of panchayaths	Strength of ASHs	No of ASHAs attended	Percentage Trained
Thiruvananthapuram	8	8	222	145	65.3
Kollam	6	6	116	109	94.0
Pathanamthitta	7	11	143	139	97.2
Alappuzha	7	12	193	138	71.5
Kottayam	7	13	252	148	58.7
Idukki	6	8	138	108	78.3
Ernakulam	8	8	165	134	81.2
Thrissur	7	7	152	152	100.0
Palakkad	8	8	156	143	91.7
Malappuram	8	8	199	179	89.9
Kozhikode	8	8	154	140	90.9
Wayanad	7	7	215	135	62.8
Kannur	7	7	165	129	78.2
Kasaragod	5	5	172	110	64.0
Kerala Total	99	116	2442	1909	78.2

Annexure 23

In-depth Interview Guidelines

The Government of Kerala has envisaged a 'Health Protection Agency' with the Chief Minister and all other ministers as its members. This agency is expected to be an umbrella authority to bring various other line departments such as water and sanitation, environment, social justice, food safety etc that have a bearing on health to work together. The Achutha Menon Centre for Health Science Studies, SCTIMST is undertaking a research study on the possible structure and functioning of such an agency. As part of this study, I am undertaking some interviews of eminent persons who will be able to offer guidance on this. Given your expertise in health policies and programmes, we would like your opinions on the potential architecture and functions of such an agency.

- What,in your opinion, are the potential line departments that should be within the ambit of such an Health Protection Agency? Why do you think these departments are relevant for this purpose?
- What would be the best way in which such an agency should be organised? Should it be within the health department or within the chief minister's office or independent of existing departments? Why do you think it should be organised in this way?
- What kind of authority (powers) should such an agency have? To what level of governance (meaning only state or district or even block level) should such an agency function?
- What sort of functions should this agency perform? Would it be regulatory or would it be a coordinating agency or would it have direct administrative authority? Why do you say so?
- Is there any existing agency(ies) currently performing similar roles for health?
- What are the advantages of having a single authority to oversee all these multiple roles? What are the potential disadvantages in having such an authority?
- What are the likely challenges in setting up such an agency in Kerala? How can one mitigate against it?

- What should be the relationship between existing line departments and this umbrella authority called Health Protection Agency?
- How will the existence of such a Health Protection Agency affect the functioning of the line departments under it?
- How can existing line departments be strengthened to achieve the goal of coordinated functioning across departments for health without setting up this health protection agency?

Thank you very much for sharing your expertise with us. We have documented all that you said to the best of our abilities. Should we need some further clarifications, would you permit us to get in touch with you either by email or phone?(If permission granted, note Email id or contact number.)