

# Isfahan Healthy Heart Program (IHHP)

External evaluation 12.5.-18.5.2009

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## 1. Purpose of the evaluation

The purpose of the evaluation was to assist Isfahan University of Medical Sciences officials' and policymakers' future plans to disseminate and nationally implement elements of Isfahan Healthy Heart Program (IHHP) interventional activities. This evaluation was done based on the request of Isfahan University of Medical Sciences (IUMS) to the National Public Health Institute in Finland (now the National Institute for Health and Welfare) to evaluate the implementation and results of IHHP.

The main tasks were to:

1. Review the performance of interventional activities done in the context of different projects in the program.
2. Review the type of research used to determine the effectiveness, research organization, tools used and quality of data collection and management.
3. Review the scientific outputs (articles, reports and some final results)

We have reviewed 18 scientific articles published in English (annex 1). During our one week visit to Isfahan we had detailed discussions with 10 subprogram officials and intervention personnel, scientists doing the data collection, analyses and intervention evaluation, laboratory staff, university officials and program leaders. List of the meetings and key informants are in annex 2.

## 2. Health examination survey before and after the program in adults

### 2.1. Study design

The main aims of the program are to prevent cardiovascular diseases by improving risk factors and related behaviours, diet, knowledge, attitudes and practises (KAP).

The study uses a classical quasi-experimental design where two communities are intervention areas (Isfahan and Najaf-Abad) and one community is a reference area (Arak). The design and methods have been published earlier and are not repeated here (1). This design is most commonly used in community-based studies. Ideally one likes to randomize communities to intervention and control areas. This usually leads to large sample size when often 10-15 communities are needed for both intervention and control groups and makes intervention practically impossible to perform.

The effect evaluation of risk factors, behaviours, diet, and KAP among adults is based on cross-sectional two-stage cluster random samples, where first was randomly selected administrative area clusters and secondly randomly households from those clusters. Sample was stratified to represent the population based on census data in 1996 both in baseline and post intervention surveys. Surveys were done before and after the intervention. Sample is correctly taken and the sample size (12 600) is large enough to enable the assessment of intervention effects.

To follow the behavioural changes during the intervention an annual sample of about 6000 was selected from intervention and reference area. The sample was representative to the area

in a similar way than the baseline and final survey except that it was stratified also according to gender and 10 years age groups. To be able to compare these surveys an aged standardization was used. Because of financial difficulties it was not able to do the survey in the control area in the 4<sup>th</sup> year. However the first three years are comparable. To compare the 4<sup>th</sup> year in intervention area and 3<sup>rd</sup> year in the control area is a little questionable. On the other hand changes on the population level are relatively slow and it is unlikely that one makes totally misleading conclusions by this comparison.

## **2.2. Measurements**

### *Serum lipids*

Standardisation of laboratory methods and level is critical factor in following the population lipid levels. Between routine lipid laboratories a 5-10% differences can be found in lipid levels. In the population level a 5-10% change is a large one and has meaningful public health effects. Ten percent decline in serum cholesterol level reduces 20% coronary mortality. Also 10% decline in the mean of population serum cholesterol level, require major changes in diet. In this study, the critical issue is if the laboratory level was the same in 2000 and 2007. Laboratory has been regularly standardized against national reference laboratory in Teheran that is related to the Ministry of Health. In addition single quality control rounds have been carried out with other laboratories (Belgium, Finland and Germany). During our visit we did not get information what are the laboratory quality control procedures in the Teheran laboratory. Ideally, in the future, the laboratory should be standardized also against a standard international scientific laboratory like CDC in Atlanta. For serum total cholesterol the used laboratory method was the same in both surveys and in both areas. However the machine has been changed between the baseline survey in 2000 and the post intervention survey in 2007. LDL was determined using Friedewald formula in 2000 and by direct method in 2007 and comparison between methods must be done before any conclusions on the population changes can be made. In comparisons the Friedewald formula should also be used in 2007. Usually the changes in HDL cholesterol levels in populations are smaller than what can be measured by laboratory. Conclusions on changes in HDL level should be done with caution.

Apolipoproteins were analysed for a subsample in year 2000 and for all adults in 2007. Apolipoproteins are important from scientific point of view. In theory they may be better predictors for coronary diseases than lipids. However more studies are needed to assess their added value to clinical practise or monitoring population risk for coronary disease risk. We encourage the team to keep apolipoproteins in their research agenda.

### *Smoking*

Smoking was measured with WHO's standard set of questions which is based a long term experiences on monitoring of smoking. The excellent study done by Isfahan Cardiovascular Research Centre to validate the self-reported smoking by serum cotinine measurement indicated that women are underreporting their smoking habits (3). Among men the self reports are reliable. This is a usual case in societies where smoking is culturally not accepted among women. We have done similar validation studies in Finland and in Russia. In Finland, where female and male smoking are equally accepted self-reports are reliable while in Russia where female smoking is not culturally or morally accepted the self-report underestimates the smoking prevalence. There is not a simple solution to this problem. Maybe during the

interview the interviewer could better explain this to women and encourage them to give a correct answer.

### *Blood pressure*

Blood pressure was measured by physicians according to standard protocol used in the WHO MONICA Project. Also the quality control during the surveys was adequate with double measurements of part of the participant. One day training on blood pressure measurement is however relatively short. In the Finnish health monitoring approach the National FINRISK Study we use nurses to measure the blood pressure. It will take one to two weeks to get all the nurses to measure the same blood pressure level. Also we are circulating the nurses between the areas to be sure that the differences between the areas are not because of the nurses are measuring different level but the real differences in blood pressure between the populations. In many countries and survey settings this is not feasible. However, the team may consider this possibility in the future surveys. A few analyses can be done to assess if the doctors are measuring the same level: in large samples all the doctors should get the same population mean level. Also the last digits preference can be analyzed. Most people have a preference to round the last number to 0 or to some other number. All the last digits in blood pressure readings measured by a sphygmomanometer (0, 2, 4, 6 and 8) should be equally distributed (20% each) (see the WHO MONICA project quality assessment, [www.ktl.fi/monica](http://www.ktl.fi/monica)). Unfortunately, the automatic blood pressure devices are not a solution to the difficulties in the blood pressure measurements. They are measuring different levels and the technique is all the time developing and one can not be sure that the devices used in the beginning will measure the same level after ten years.

Height, weight and waist circumference have been measured according to standard protocol (the WHO MONICA project protocol). Use of the same scales is important. Ideally one should use classical beam-balance scales that can be calibrated. Also these anthropometric measures were measured again by the coordinating team from part of the participants.

### *Dietary assessment*

Dietary intake was measured by 49 item food frequency questionnaire adapted to Iranian diet. In the baseline study the low and high fat milk products were not categorized separately, but since 2003 there is a possibility to analyse them separately. In the future dairy products should be classified separately to low fat and high fat dairy in all surveys. Milk products can be important source of saturated fats. If there are any possibilities the validation of food frequency questionnaire against three or 7 day food diary could be of a great value for the future research in the country. Factor and cluster analyses from food frequency questionnaire could be of great interest to assess possible different dietary lifestyles in the population.

Three day food diary was used to assess the nutrient intake of adolescents and 24-hour dietary recall was used for adults. Fat intake is low, which is fitting to relatively low cholesterol values. However intake of trans fatty acids was high at the baseline. The food composition data base is mainly USDA- food tables with some modification to Iranian circumstances. It could be very useful to get Iranian validated food composition data base for different needs in research and public health.

### *Health interview surveys during the intervention*

The sample sizes to assess the changes during the intervention were adequate especially when the surveys were repeated. In all these health behaviour interviews similarly to the baseline and post intervention surveys lifestyles such as diet and physical activity and in addition stress management and quality of life were assessed

### **2.3. Effect evaluation**

The preliminary results seem to be very promising. The Global Dietary Index based on food frequency questionnaire indicated clear effect on dietary habits. Serum total cholesterol and triglycerides declined as well as systolic blood pressure. Program effect on obesity measured by BMI remains just over 5% risk level. Positive effect was observed also to stress coping skills. Dietary effects should be analysed also more detailed to see which components in the diet were changed most. A decline in smoking was observed in men in both intervention and control areas. The decline was statistically significantly greater in the intervention area.

### **2.4. Process evaluation**

Extensive process evaluation was done to all major interventions using triangulated method (2). Information was collected on how the planned interventions were implemented and on barriers and reinforcing and enabling factors of the intervention. Both qualitative and quantitative methods were used. The findings were immediately used to develop the programs by giving feedback to program directors. Based on findings of the evaluation some of the interventions were stopped, some were modified and successful interventions were continued and enlarged. This is an excellent tool for program leader and managers to develop the program. Although the main benefit of process evaluation is to support the program personnel, one paper has also been published in an international journal. Because a large amount of data has been collected, preparation of a few more papers to international journals could be useful. Process evaluation is useful also for persons who are planning and developing their own programs. Process evaluation is a labour intensive work, in the future the cost effectiveness should be taken into account also in process evaluation. It will be very useful if it is possible to publish a book in English on the main interventions, results and the process evaluation of the programme. Process evaluation results should be an important part of the book. It allows to get process evaluation results available to national and international audience when usually it is not easy to get process evaluation data published in international journals. The book will serve as documentation of the project and can be very helpful for development of projects in other parts of the country and also internationally, especially in low and middle income countries all over the world.

### **2.5. Isfahan Cohort Study**

The basic tools to evaluate community based programs are independent random samples before and after the programme as described above. In addition, a cohort design can be used, where same people are followed during the programme. This gives a possibility to analyze individual changes during the program and it gives deeper understanding on the change

process. All participants 35 years and older have been or will be followed four times in the Isfahan Cohort Study until 2011. Health examination survey was done in baseline, in 2007 and will be repeated in 2011. In addition to evaluation of the program this gives a very rich data base for analytical epidemiology to assess risk factors for diseases. The study and its documentation are professionally done.

## ***2.6. Children, adolescents, parents and teachers surveys***

To assess the intervention effect on adolescents 11-18 years olds were randomly selected from randomly selected schools for each survey year. Smaller children between 2 to 11 years of age have been studied since 2002. Several papers on the baseline results have been published in international journals. This has given a good basis for the intervention planning. The final survey analyses are not yet available. The study was well done and enables a reliable effect evaluation. The only main problem is the assessment of smoking. In Iranian culture it seems not to be possible to get reliable data on smoking of minors by interview or self-administrative questionnaire obviously, because smoking is culturally not accepted and children are afraid that parents or teachers will see their answers. One possibility to assess the smoking in adolescents could be a totally anonymous survey. It must be carried out in a way that the children can be absolutely sure that nobody is able to link the answers to individual children. Even a small uncertainty in children's mind that others get to know their answers will destroy the survey.

Parents' and teachers' surveys were done each year. These surveys will give a comprehensive picture of the effects and feasibility of the interventions.

## ***2.7. Myocardial infarction and stroke mortality and incidence***

Hospital based stroke and ischaemic heart disease register have been carried out in all hospitals in Isfahan, Najaf-Abad and Arak. For both diseases hospital admissions have been increasing. However, this do not necessarily indicate that incidence of diseases are increasing. To be able to measure the incidence mortality statistics and hospital admission must be linked on individual basis, because the first event for each individual is needed to assess the incidence. In Isfahan this can be done by individual identification code. To be able to control the cardiovascular epidemic it is essential to know if the incidence is increasing, stabile or declining. This register allows also different analyses on case fatality, treatment and related factors.

Mortality statistics is available in both intervention and reference areas. This data should be analyzed to get the trends in the population level. Both these populations are large enough to determinate both myocardial infarction and stroke trends. It is important to know if the CVD epidemic is still increasing, when you have the possibility to prevent at least part of the epidemic, or if the epidemic is fully developed and the only possibility is to try to control the epidemic.

## **2.8. General comments on the surveys**

In general the many surveys and process evaluation will give a comprehensive picture of the IHHP. Sampling techniques are adequate, data collection and management are professionally done and all the relevant documents are available. The original questionnaires and other documents are systematically filed and can be used later if needed. Blood, serum and other biological samples are stored in -70 °C and can be easily used in the future. The next challenge for the team will be the data analyses and reporting. The data bases are very rich and in addition to the primary analyses on the effects of the programme they can be used in many descriptive and analytical epidemiological studies. It could be of a great value to public health and science to continue the main surveys and registers also in the future.

## **3. Intervention projects**

### **3.1. Healthy food for healthy community project (HFHC)**

In the programme component aiming at healthier nutrition of intervention area population main emphasis was put on activities changing the dietary environment of the population. Several activities with wide range of stakeholders were made to improve the food for example served in restaurants, produced by food industry.

One of the main sources of blood cholesterol increasing fat in diet in Iran is hydrogenated oil that is used in cooking. In Environmental Health Unit of Isfahan Provincial Health Centre (EHUIPHC) is responsible for food safety issues related to restaurants, sandwich shops, pizzerias and similar. IHHP had close collaboration with EHUIPHC and Restaurants Association, trying to find the ways to substitute the hydrogenated oil used in restaurants, sandwich shops, pizzerias and similar resulting a circular letter recommending the substitution and in addition also changes in food preparation methods (avoidance of frying) and preference for vegetable margarine use instead of butter. As EHUIPHC has continuous regular supervision of restaurants the recommendations were rapidly enforced. All restaurants have omitted hydrogenated oil in food preparation except 15% that use it in cooking rice. This, first a voluntary action, became quickly a rule in Isfahan province and later also a national action.

At the time of the beginning of the IHHP over 50% of population used mainly hydrogenated oil in food preparation at least one time per week. Solid hydrogenated oil contained 34% trans fatty acids and hard margarine contained 40% trans fatty acids. Food producing industry in Isfahan is under the supervision of Vice-chancellor for Food and Drug Supervision in the Isfahan University of Medical Sciences and Standard Office. IHHP and the University Department collaborated with food industry finding the ways to change the production to create healthier food products. A fat factory in Isfahan stated their willingness to change their production gradually more towards liquid oil. Such changes require some investments as the machinery used in liquid oil production differs from solid fat. Production of liquid oil was increased from 17% to 60%. Labels indicating the content of fatty acids were also added to products. At the same time consumption statistics in Isfahan showed remarkable increases in liquid oil consumption. The distribution of liquid oil increased from 18% in year 2000 to 52% in 2007 based on commerce office.



IHHP has collaborated with Isfahan Grain Office and the Quality Control of Grain office to improve the fibre content of flour used in the province. All the flour used in Isfahan province comes through the Isfahan Grain Office. At the moment 55% of flour used is 88% extract and 45% is 93% extract indicating that the fibre content in flour in Isfahan is higher than in other areas of Iran.

Production of high fibre and more traditional bread needed development of baking methods and time. One bakery in Isfahan started collaboration with IHHP to produce high fibre and less salty bread. He has developed new procedures and protocol for bread baking including resting time, baking time, replacement of soda with yeast and also created standards for bakery workers. He has expanded his business and as a head of the Bakeries' Business Association he has also started training of other bakers to adopt new techniques to produce high fibre bread. Starting from one bakery Isfahan has now over 400 "Healthy Bread" bakeries.

IHHP has also advocated the production of other types of healthy foods. Wide range of collaboration with local food industry has resulted variety of products with healthier nutritional content for example beverages with less sugar, canned fish with olive oil and vegetable, cookies and other sweet bakings produced with oil low in saturated fat and trans fatty acids and also in some products soya protein is used instead of meat.

Food production regulations request the use of food labels in all products. In the beginning of IHHP an evaluation was done to assess the awareness, use and understanding of these labels by a consumer. In the evaluation only 7% reported to read the labels regularly mainly because they are too complicated. Together with the food producers IHHP has started an initiative to simplify the labels (contents only total energy, total fat, saturated fat and trans fatty acids, sugar and salt) and to place the labels by the production date to increase consumers attention.

IHHP has also organized training for restaurant managers and workers. Altogether 15 education classes were organized in 2-3 month period were 90 restaurant workers were trained. In addition 60 have received face-to-face education. Two larger seminars have been carried out for restaurant staff.

Also some other activities have been carried out including the establishment of so-called healthy brand into restaurants, cafeterias and pizzerias and introduction of half-portions into restaurant menu with also the possibility to take the rest of the food home in "doggy bag".

IHHP in collaboration with Isfahan University of Medical Sciences has also worked intensively to issue and enforce legislation. In addition to the ban to use the hydrogenated oil in restaurants there has been lobbying of prices of healthy food products mainly by requesting decrease in the subsidies of unhealthy food products and increase in healthy food products. Through the National Standard Office a legislation to label the trans fatty acid content in the products and the limitation not to exceed the proportion of 10% trans fatty acids in oil products has been acted. Also media pressure has been put to decrease the advertisement of junk food. Some of these initiatives have been successful and some not (like pricing of low fat milk). Related to these issues there has been large correspondence from the IHHP through the Isfahan University of Medical Sciences to the Ministry of Health and thus some of these initiatives have been implemented also on national level.

#### Comments

Healthy food for healthy community project (HFHC) has clearly targeted on issues relevant from the cardiovascular health point of view as the major dietary issue to increase the population cholesterol level in Iran is the high intake of trans fatty acids. Also the strategy to try to make major changes in environment is very valid in terms of ensuring the effects population wide. Regarding the coverage of the population by the intervention the HFHC has probably been the most successful component of the whole IHHP demonstration programme and has also had largest national impact. Dietary interventions have mainly targeted on intake of trans fatty acids and sugars. In future more attention should also be paid on salt intake and sources of saturated fats. Trans fatty acid problem can be solved by food industry technology, but in the future natural saturated fats are likely to be a public health problem and thus should be addressed more in the interventions.

### ***3.2. Isfahan exercise and air pollution control project (IEAP)***

In the programme component aiming at increasing the leisure time physical activity in the intervention area and combining the messages of physical activity and reduction of air pollution several intervention activities have been carried out during the IHHP programme years.

From the initiative of IHHP in collaboration with the Provincial Office of Physical Activity Education, Isfahan municipality and the police special stations to organize exercise activities in parks were developed. In the beginning 5 stations were established and by the end of the project up to 100 stations (60 for men and 40 for women) are working. Stations are marked with signs also indicating the activity hours. Special coaches are trained to supervise daily exercise sessions in different stations. In addition to supervised training sessions these stations also have special equipment for exercise.

In Isfahan also bicycle track were build (5 km). For some period certain roads were closed from motor vehicle traffic once a week to raise awareness and attention on physical activity and air pollution issues. Also some special campaigns like “clear air day” and “earth day” were organized.

Since 2004 a regular TV programme “Health Path” has been broadcasted on weekly basis and in the series of these programmes promoting physical activity has been prominent. There have also been other programmes including education on physical activity. Altogether 75 programmes have included an exercise component. Also special CDs for women and worksites on possibilities to exercise at home and at worksite has been published and delivered through other intervention activities in IHHP.

Recently more attention has been paid to air pollution issues. Isfahan is an industrialized area and also 800 000 out of 900 000 motor vehicles in Isfahan province are in the city of Isfahan. Monitoring of air pollution has been started by the Environment Protection Agency and the daily data is online visible in their websites. There are altogether 16 observation stations at the moment in the City of Isfahan. Campaigns combining the message to promote physical exercise and to decrease air pollution have been organized and are planned in future.

In the IEAP there has been altogether 6 organizations collaboratively implementing activities and in addition 20 other collaborators.

### Comments

To increase the physical activity in modern society is difficult task. Greatest part of the population is office workers. Environmental and norm and attitude changes are important to support every day and leisure time physical activity. New innovative programmes are needed. In a long run the city environment should be developed to support in a best possible way the everyday physical activity.

### **3.3. Women healthy heart project (WHHP)**

In the IHHP there has been an active intervention component targeting women in all age and socioeconomic groups.

The District Health Centres are responsible in organizing the pre-marriage educational classes to couples planning to get married. These classes are mandatory for all men and women getting married. Usually also some family members attend these classes. The training is altogether 4 hours. In Isfahan about 100 couples attend these classes daily (there are about 25 000 marriages per year in Isfahan). Since 2001, 30 minutes health education on physical activity, obesity, nutrition and smoking was integrated to these training by IHHP. Also other health education material was delivered (some brochures and CDs on PA and cooking for those who showed special interest). Couples are also informed about the possibility to visit the nearest health centre especially on family planning and vaccination purposes.

Health centres provide family planning, vaccination and other health education services. About 45 000 women seek these services yearly in Isfahan and Najaf-Abad either on their own or their children's issues. Nurses and other health workers trained by the IHHP give a short health education session (PA, obesity, smoking, nutrition, diabetes, stress management and prevention of CVD from childhood) for all the women visiting the centres. A special check list is filled for each woman to guarantee that the education is given. During the visits also blood pressure and BMI is measured and a referral made to a physician if the values are elevated. In mean, women make about 3 visits per year to the health centre. During the IHHP altogether 1 769 000 women has received the education.

There are about 14% illiterate people in Iran who are mainly women and elderly. Literacy Campaign Movement organizes training for illiterate people. Starting from 2002 IHHP has collaborated with the movement and integrated health education to the training. A special book has been published in collaboration with IHHP and Literacy Campaign Movement about smoking, obesity, stress management, physical activity, diet, risk factors (lipids, blood pressure) and cardiovascular diseases taken into account the capacity and understanding level of illiterate people. This book is used as an education material in literacy training courses both in Isfahan and Najaf-Abad. Students in the courses have also a test after training to check their understanding. Literacy training is given during 1,5 years having 2 hour sessions twice a week. IHHP personnel trained 549 trainers to use the material and to deliver the health education during these training courses. Also CDs for trainers were prepared. In Isfahan province 28 areas out of 40 are involved in this training. In a year about 1500 persons receive this tailored health education.

There have also been a large number of media activities targeting especially women. Since 2002 about 20 TV programmes on healthy cooking and physical activity of women have been

broadcasted. Also 12 special radio programmes have been broadcasted. Between 2004 and 2006 a weekly radio programme about NCDs and exercise for women was run where women had also possibility to ask questions online.

IHHP has published a cookbook and a CD on healthy cooking. Books and CDs are in sale.

IHHP has also collaborated with several organizations mainly by training the key persons in the organizations on health issues and encouraging them to deliver the information further among their members and participants. Personnel of the Provincial Health Centre have been responsible for training. Through this collaboration in Imam Khomeini Relief Committee 10967 persons has received the education. Respectively the number of persons taken up the intervention through other organizations is: 1366 in Women's Commission of Isfahan Province Governorate, 6315 in Cultural Houses, 2384 in Retirement Association, 1469 in Basij Movement and 1860 in Theology School for Women.

### Comments

Women healthy heart project (WHHP) has been very extensive targeting widely different population groups and taking into account also the literacy level and other capacity of the target population. In this project component the existing structure in the society are utilized in an innovative way achieving a good coverage of the intervention. Embedding the health education on CVD prevention as a routine part of services, guarantee that the message is also repeated to the target population regularly.

### **3.4. Heart health promotion from childhood project (HHPC)**

The intervention activities for the target population of this programme component, children, has been mainly carried out through the kindergartens, schools and maternity and child care. Also some activities to entire community i.e. through mass media have been organized and some special groups such as children in high risk have been targeted separately.

Schools in Iran are under supervision of the Provincial Training and Education Organization. However, the health issues at schools are supervised by the Health Unit of Provincial Health Centre. There are 3934 schools in Isfahan and Najaf-Abad out of which 3654 have been involved in the activities carried out by IHHP. Altogether there is about 410 000 pupils in the intervention area.

The school staff has regular mandatory education organized by the Provincial Training and Education Organization. In collaboration the IHHP training modules on healthy lifestyles and CVD prevention from childhood has been integrated to these trainings. The training of these components is given by the Provincial Health Centre. In 2001-2002 about 45% of schools were involved in the training and until 2004 the proportion of schools increased to 92%.

In schools several activities were organized by the IHHP and the school personnel. For children health education and different campaigns (writing, painting) were carried out. Health education was delivered mainly integrated to other education. Some IHHP material was even integrated to other subject textbooks. Pupils in different levels at school have a special homework book, where also health related material and homework on different topics was

integrated. All children starting the school attend to a special information session during the first day. In these sessions also health education material was delivered.

At each school some pupils (altogether 5300) were trained as role models. The task of these health role models is for example to help in guiding the morning exercise sessions and also monitor school environment and support their peers in following healthy lifestyle (school buffet, diet, snacking etc.).

A health screening is organized to all pupils starting the school. In these health screenings IHHP health education brochures are delivered both to children and their parents.

All schools organize regular gatherings for parents. These gatherings are organized 8 times during elementary school, 6 times during middle classes and 6 times during high school. It is more or less mandatory for parents to attend these gatherings (highly recommended + pressure from children themselves). In these gatherings information produced by IHHP was delivered. Parents also attend the information session organized for first graders and receive material at these sessions. As a whole delivering the health messages at school has obviously been a good venue to raise the attention of parents. For example 6 out of 10 Quit and Win contest winner had received the message and registering information through their children from schools.

In Iran the schools are recommended to organize morning exercise. IHHP together with the School Health Unit of Provincial Health Centre has enforced this recommendation and in Isfahan province it is now mandatory to organize daily morning exercise at each school. Afternoon exercise sessions are also organized to those pupils attending school later in 40% of schools.

In Iranian school system the curriculum included earlier 1 hour/ week physical education. In Isfahan obligatory 3 hours physical education was introduced to the curriculum. Through regular contact with the Ministry of Education by the IHHP this has become a national recommendation. Also earlier schools did not need to have a special PA teacher. In Isfahan through the activities it became a rule to have a special PA teacher in each school since 2004. This has also been later implemented on national level and since 2008 it has been mandatory that schools have to employ a special teacher to deliver physical education.

In Iran school lunches are not provided, but children buy snacks from school canteen or bring food from home. The surveys in the beginning of IHHP showed that 40% of pupils ate regularly salty or otherwise unhealthy snacks during the school days. IHHP has collaborated with several companies to produce healthy snacks for schools and appropriate small packages for sales (i.e. less salty and non-fried nuts and dried fruit). This has enabled to have more healthy snacks available in school canteens. IHHP also introduced to schools in Isfahan and Najaf-Abad a “only healthy snacks at school” policy. All snack sold at school canteen should be healthy and also food brought from home is controlled to be healthy. This has also later become a national recommendation.

Kindergartens in Isfahan are under the supervision of Welfare Association. From Welfare Association the head of all kindergartens have actively collaborated with IHHP throughout the years. There are 1200 kindergartens in Isfahan province (900 urban and 300 rural) with altogether 50 000 children that is about 20% of all pre-school aged population.

IHHP has developed special health education material for pre-school children such as puzzles, songs etc. to be used in kindergartens regularly. Material is also produced for parents. Provinces are themselves actively producing different education material for 3-6 year old children. After approval this material is introduced and sometime also taken up by other provinces and also for national use. IHHP together with Welfare Association in Isfahan has produced a material package on healthy lifestyles and nutrition that will be next year adapted to 5 other provinces. The evaluation of this health education material showed that the knowledge on healthy nutrition increased among children and they even started to select healthy options of snacks available at kindergartens during the day.

IHHP has trained kindergarten personnel by organizing them special seminars. Also four meetings every year on provincial level have been organized for directors of kindergartens. In collaboration with kindergartens gathering and training has been provided to parents as well.

A special publication for kindergartens has been published by IHHP including information on IHHP activities and also health messages to be delivered through kindergartens to children and their parents. Four issues of this newsletter are published per year.

IHHP has enforced in kindergartens a policy to recommend that the food and snacks brought from home should not include potato chips, soft-drinks or similar.

IHHP has also introduced a high risk strategy for children. In CCUs and cardiology departments in hospitals all patients under 55 years of age are recommended to refer their children to visit the high risk clinic developed in ICRC (Isfahan Cardiovascular Research Centre). In ICRC clinic these children are screened for their risk factors and given health education. All children with elevated risk (obesity etc.) are referred to further treatment. So far about 300 children have attended these consultations.

ICRC has also a special clinic for obese children. These children are referred to this clinic through school health checks and from health centres. So far 3000 obese children are registered in ICRC pediatric obesity clinic.

### Comments

The programme component for children has been very comprehensive. Involvement of schools, kindergartens and maternity and child care has been successful and has resulted large uptake of intervention. Effective innovative strategies such as increasing PA in curriculum, introducing healthy foods policy in schools and preparing special education material on nutrition for pre-school and school aged children has also received national attention and some of them become national rules or recommendations. At the moment health education is part of the other subject at schools. In the future health education could be an independent subject in school curriculum.

### **3.5. Youth intervention project (YIP)**

Youth intervention component has addressed mainly on smoking prevention and also promotion of healthy nutrition and physical activity among population aged 19 to 25 years.

The main stakeholders in the IHHP Youth intervention project have been the ICRC Mental Health Unit, Isfahan Provincial Health Centre, Red Crescent Society in Isfahan and Military Health Unit in Military Services.

IHHP has since 2002 actively collaborated with the Red Crescent Society by training the trainers of the society to integrate CVD prevention and healthy lifestyle education in the training courses on first aid. An extra CD (first aid training material included earlier 9 CDs) has been prepared on IHHP topics such as physical activity, risk factors, nutrition, smoking, stress management etc. and added to the training material of Red Crescent Society. Out of 50 hours total training on first aid and rescue, 4 hours have been devoted to IHHP. Altogether 32 volunteer trainers have been trained in the Red Crescent Society. In 2002, Red Crescent Society organized 289 sessions including IHHP material for 7226 volunteer participants. In later years the respective figures have been; 2003: 416 sessions for 8918 participants; 2004: 469 sessions for 9663 participants; 2005: 596 sessions for 13603 participants and 2006: 637 sessions for 14781 participants. These training activities that started in Isfahan and Najaf-Abad have scaled out first on provincial and then on national level.

IHHP has also collaborated with military services where during the 2 year service 5 special training sessions on healthy lifestyles have been carried out for all servants. Together with the Military Health Unit also changes in the menus of military restaurants have been enforced by omitting the use of hydrogenated oil and soft drinks and recommended to reduce the use of salt. The substitution of hydrogenated oil with liquid vegetable oil was realized in two garrisons. Every 1<sup>st</sup> Tuesday of a month a health day is organized for servants.

In Isfahan province about 50% of youth attend university level training. Together with the Student Association training of trainers on health education was organized. These trained students organized training for their peers.

Also in Universities there was an initiative to change restaurant policies. During the programme two university restaurants (40%) stopped using hydrogenated oil in food preparation.

A special Quit and Win campaign has been organized for university students. In years 2002 and 2003 altogether 300 students participated the Quit and Win contest.

In university campus also some environmental changes have been tried to encourage physical activity among students. Special places to carry out physical activity have been developed as well as lights have been put on walking tracks between student dormitories and other buildings to promote walking.

One of the main approaches targeting mainly youth and young adults by the IHHP has been the enforcement of anti-smoking legislation. Together with the Provincial Health Centre IHHP pushed the legislation to ban the coffee shops to serve water pipes that are culturally more accepted form of smoking in the country even for minors. The regulation for the ban was acted, but after complains by coffee shops owners it was finally withdrawn. However since 2006, new coffee shops and tea houses do not anymore get permission to serve water pipes. According to the surveys by IHHP the prevalence of water pipe use is about 5-7%.

In the health services there are special units for student health care that have been involved In IHHP activities especially in smoking prevention issues.

## Comments

IHHP has innovatively search venues to reach adolescent population and young adults and created long term collaboration with institutions out from health services such as military services and NGOs to reach large numbers of target population. According to the process evaluation and discussion with the key informants there has been reluctance from the young population to accept and adapt the intervention. In future, larger involvement of youth themselves and new concepts for intervention in addition to health education could help to overcome these types of barriers.

### **3.6. Worksite intervention project (WIP)**

The strategy of the Worksite intervention project in IHHP has been to reach largely the working aged population through the main employers and deliver them health education, but also together with worksites develop the worksite policies and environment to support healthy lifestyles.

In Isfahan there are 120 offices and in Najaf-Abad 25 offices (altogether 14 000 employees) of which 73 have actively participated in the project. First contact was made to office managers by a meeting organized by IHHP to introduce the programme. From those offices that were interested to participate a volunteer contact persons were selected and trained to carry out IHHP education and other activities in worksites. Each contact person attends a two day training seminar each year and in addition 2 hour training classes per month. Altogether 176 contact persons have been trained form 73 participating offices representing about 50% of all offices in the intervention area. These contact persons organized training sessions in their own offices in intervals that were feasible for them and the office. According to evaluation in mean about 10 sessions per year were organized in each office. In Najaf-Abad 75% of employees in participating offices received the training.

Four offices out of these 73 serve lunch to their employees. IHHP collaborated with the worksite restaurants pushing through policies to reduce the use of soft drinks, salt, omit totally the use of hydrogenated oil and increase the use of vegetables and white meat. The use of hydrogenated oil was totally substituted by liquid vegetable oil in all of the four office restaurants.

Employers were encouraged to give subsidies for their employees to use swimming pool and sports clubs. Some offices even regarded the time used in these activities as working time. In some offices morning exercise was organized.

Quit and Win campaign was organized for office workers as well 80% of offices participating. Prizes were given both by IHHP and the offices themselves. All offices are smoke-free and enforcement of this legislation was carried out by IHHP.

Eleven out of 73 participating offices organized CVD risk factor screenings for their employees. In these 11 offices all employees were screened.

There are 227 factories in Isfahan and 64 in Najaf-Abad with altogether 27 000 employees. Out of these, 128 participated (with 13418 employees) in the IHHP representing 56% of



factories (most of them private). The procedure in involving the factories in the programme was similar to offices contacting first the managers, recruiting contact persons and implementing training for them except that in factories the IHHP contact persons were physicians and other health workers in occupational health. These health professionals are under the supervision of Environmental Health Unit in Provincial Health Centre.

In factories, the health workers organized training sessions for employees approximately once a month and face to face education was given to employees by physician and health workers when visiting the occupational health care. Occupational health care also organized the screening of risk factors: blood pressure, lipids, BMI and glucose for all employees.

Physical activity was promoted by giving stretching education and organizing morning exercise in factories. Sports facilities were built in some factories including indoor sports fields and swimming pools. Some factories covering large area even bought bicycles for the use of their employees. Also some factories gave subsidies to their employees to use outside sport and exercise facilities. The worksite exercise CDs were distributed free of charge for factory employees.

IHHP collaborated with the worksite restaurants in factories pushing through policies to reduce the use of soft drinks, salt, omit totally the use of hydrogenated oil and increase the use of vegetables, white meat and high fibre bread. The use of hydrogenated oil was totally substituted by liquid vegetable oil in restaurants of 43 out of 128 factories. Also cooking methods were modified. In the largest factory in Isfahan also a Healthy Heart Restaurant was established.

Also in factories anti-smoking policies were enforced by the programme and Quit and Win campaigns organized.

IHHP has prepared special articles to be included in the worksites newsletters, papers and other publications. Over 50 different articles and stories were prepared and integrated to worksites (both offices and factories) publications.

### Comments

The worksite component of the project has been very successful in achieving the participation of large proportion of both offices and factories in the interventions. It seems that participating factories and offices have realized the need for health promotion and are ready to invest on their employee's health. Such large networking and community participation ensure the high coverage of the intervention and support the sustainability.

### **3.7. NGOs and volunteers project (NGOV)**

This component of the programme has involved the third sector in the IHHP activities. The main aim has been to try to improve the lifestyles of population and increase the knowledge on NCDs through NGOs and health volunteers. The main collaborators in this programme component have been the Council for Coordination of NGOs in Isfahan Province, Vice-chancellery for Health of Isfahan University of Medical Sciences and Health Volunteers Organization.

In Iran there is a national system of health volunteers that are usually women working voluntarily in health centres providing health consultancy to families. There are 4180 health volunteers in Isfahan and Najaf-Abad. Each volunteer is responsible for about 40-50 families living in certain area. Volunteers receive 2 hours training per week in health centres. Their tasks are mainly to help families in family planning and child care issues. They visit in gathering in the society they are responsible for to meet the families. On average a health volunteer meets the members of one family 1-2 times per month. Collaboration between health volunteers and IHHP started in the beginning of the programme in 2001. IHHP produced special material for health volunteers in intervention area. This material, booklets, was integrated to regular training of health volunteers. Some of this material is now in use on national level. Some health volunteers were also further trained on first aid of heart attack (200 health volunteers called “heart protectors”), for instructing in physical exercise (120 volunteers) and also some to carry out blood pressure measurements. In some centres educated health volunteers provide blood pressure measurements for public on three days a week. According to the evaluation 3280 health volunteers have been trained in urban and about 100 in rural intervention areas.

There are about 211 NGOs in Isfahan and Najaf-Abad out of which 67 work on health related issues. IHHP started the collaboration with NGOs already in 2001 when some anti-smoking activities were run in collaboration. The Council for Coordination of NGOs in Isfahan Province was established in 2004 and has since collaborated with IHHP. During two years a 3 hour training sessions once per month were carried out for 70 contact persons representing 37 NGOs. The idea in working was that these contact persons transfer the messages learned to the other members in their organizations. Some of the NGOs have also actively participated in the competitions and campaigns organized by IHHP such as health days. Some sports and exercised related NGOs have organized for women PA sessions at schools after school hours. These exercise sessions have been free of charge for women.

### Comments

The utilization of existing network of health volunteers in heart health promotion work has been an excellent strategy to reach the general public also through other channels than media and provide them even face to face education. This most probably is especially important regarding low socioeconomic groups and rural populations. The involvement of health related NGOs has been very good. However, the activities have mainly been health education of contact persons in NGOs assuming that the message transfers further among the members in NGOs. Programme could have involved NGOs more in their other activities and encourage them to organize own activities on health promotion following the IHHP approaches.

### **3.8. Health professionals education project (HPEP)**

The Health professionals’ education project component of IHHP has aimed to educate wide spectrum of health professionals on CVD prevention. Close collaboration have been done especially with the Provincial Health Centre, Isfahan health centres 1 and 2, Najaf-Abad health centre, Isfahan University Nursing Faculty, Vice Chancellor for Treatment in IUMS and the Medical Education Development Centre.

The health professionals’ education project started in the beginning of IHHP in 2001. Education on CVD prevention has been targeted to GPs and specialists working with cardiac

patients, primary health care providers and other health workers, nurses and volunteer members of the Assembly for Education of Physicians and Health Professionals. In normal curriculum of nurses and physicians the training on CVD and other chronic disease prevention is integrated. A training module has been prepared for each of the above mentioned groups. The training was organized by educating a core group of all these health professional groups that then further organized training to other health professionals. Also special books and other publications have been prepared for nurses, GPs and health workers (both urban and rural). For nurses also a special newspaper is published with 3 issues per year on cardiovascular disease prevention.

In Provincial Health Centres continuous training is provided for nurses and other health workers. In average this training is about 30 hours per year. The training material prepared by IHHP has been integrated to these training sessions. The evaluation shows that in Isfahan 2129 nurses and in Najaf-Abad 116 nurses have received this training. Almost 100% of primary health care providers have been trained and 100% of nurses working in CCUs, and in cardiology and internal medicine departments in hospitals. IHHP material has also been integrated to training of nurses in Isfahan University Nursing Faculty.

Rural health workers receive 4 training sessions per year and corresponding workers in health centres they receive training on IHHP approaches through integrating the prepared materials into their training sessions. In this system also a continuous auditing of rural health workers performance is embedded. All rural health workers have received the training and it is estimated that altogether 200000 people in rural areas have been consulted by these health workers.

All physicians in Iran have to regularly take part to continuous qualification education (national continuous medical education programme, CME) that is organized by Medical Education Development Centre. In collaboration with IHHP, a permission was applied from the national level to integrate a module on cardiovascular disease prevention and healthy lifestyles to this training in Isfahan province. These training sessions were tailored attractive for GPs by good quality training material, guidelines and good trainers. In the CME system at least 1-2 CVD prevention modules have been carried out each month. These sessions have also been free of charge. So far almost 5000 medical doctors have been trained in Isfahan and Najaf-Abad through this system (60% of GPs and 80% of cardiologists). As an example there is about 3600 GPs in Isfahan out of who 2300 has been trained.

IHHP training courses have been integrated to the training of employees organized by the Isfahan University of Medical Sciences. Training up to 40 hours/year is obligatory to all employees and usually employees attend 3-4 seminars per year. There are altogether 21 000 employees in the Isfahan University of Medical Sciences.

Some other smaller innovations have been created in the health service system to promote primary prevention. For example the waiting tone in telephone of health centres has been replaced from traditional music to short health messages. Also a telephone help line on health issues has been established including also topics on primary prevention.

### Comments

Training needed for program delivery has been well integrated into existing training and education structures. Special training was offered when the existing training system was not

able to cover the needs of the program. Training seems to cover all health personnel needed in prevention.

### **3.9. Healthy lifestyle for high-risk groups project (HLHR)**

In this programme component the IHHP has figured out ways to get appropriate information on CVD prevention for high risk patients and to improve the screening and treatment of their risk factors.

Active screening of high-risk persons is organized mainly through the worksites where employees attend the health checks regularly. In the health checks blood pressure, cholesterol, weight and height are measured. Passively high-risk patients are screened by population education informing and encouraging public to get their risk factors screened and get regularly in contact with health services. IHHP in collaboration with the Vice Chancellery for the Treatment of Isfahan University of Medical Sciences has trained physicians, laboratory workers and pharmacist on non-communicable disease risk factors and prevention of diseases in high-risk individuals.

There are more than 200 laboratories in the Isfahan and Najaf-Abad area. IHHP introduced to the laboratory service system a component on cardiovascular disease prevention education. During the visits in laboratories health education material is delivered to patients and also all the laboratory test result documents sent to patients included general messages on risk factors and prevention.

IHHP has trained retired employees through their respective business associations on prevention of CVD and awareness of being in high-risk in collaboration with the Center for Retired Workers and Employees. There are about 60 000 members in association of retired employees.

IHHP has reinforced the health service system in registering the risk factors of patients and thus improving the identification of high-risk individuals visiting health services. Also in some hospitals in Isfahan special clinics to treat high-risk individuals have been established

#### Comments

Factory workers health screening seems to be well organized. Office employees are more dependent on passive screening in routine clinical practise. Screening of the office workers should also be considered, especially when in the future most of the employees will work in the offices.

### **3.10. Healthy lifestyle for cardiovascular patients (HLCP)**

This programme component has targeted on cardiac patients and their families, but also to hospital personnel and reinforced structural changes to increase preventive services.

In Iran the health insurance has not covered preventive services or rehabilitation. Through the collaboration of IHHP and the largest insurance company in Isfahan part of the rehabilitation is now covered by the insurance (24 sessions during 8 weeks).

Rehabilitation is organized by rehabilitation departments. The uptake of rehabilitation is not usually very high. In the Isfahan Heart Health Centre taking part to the rehabilitation has been made mandatory for the patients. Patients and their families are given education of CVD, its treatment and prevention at the time of discharge and also during rehabilitation period. These rehabilitation sessions are continuously evaluated and patients are followed up in 6 months intervals. In Isfahan special rehabilitation units have also been established to hospitals where cardiac patients are treated.

Special health education material has been prepared for cardiac patients. During their visit each patient receives a folder including material on secondary prevention of CVD and rehabilitation. Also a patient card has been introduced. This pocket size folded card includes relevant information on patients and their treatment and also some health education messages. All patients in CCU receive this patient card.

The Nutrition Unit in supervises the hospitals in nutrition issues: both hospital restaurants and diet of patients. The Unit also monitors the restaurant food supply. IHHP in collaboration with the Unit has sent a circular to all intervention area hospitals to reduce the use of saturated fat in hospital kitchen and restaurants. The purchase of fat used in hospitals in year 2000 was mainly hydrogenated oil. Through the circular the policy changed and now all fat purchased to hospitals is liquid vegetable oil. Also other changes have happened in hospital kitchens and restaurants: sales and offering of soft-drinks have been omitted, in cooking frying has been replaced by boiling, steaming and barbequing.

IHHP has also developed a system to collect data on cardiovascular disease patients on electronic form. This has further been developed to a basis for MI and stroke register (see chapter on MI register).

In collaboration with the Deputy Vice Chancellor for Treatment in the Isfahan University of Medical Sciences the IHHP has organized education for nurses working in CCUs and cardiology departments. In each hospital a group of nurses have been trained by the project (“training nucleus”). These trained nurses then organize further training to their colleagues in each hospital. This guarantees that the cardiac patients in hospitals receive adequate information on primary and secondary prevention of CVD.

### Comments

The training component of health professionals involved in the treatment of cardiac patients is well established and the coverage is good. The environmental and structural changes such as changing the food supply in hospitals and getting insurance coverage to rehabilitation services ensure the sustainability of intervention effects.

### **3.11. Mass media activities**

Mass media activities have been embedded to all the 10 intervention projects. There has been a special team to plan and implement the mass media contacts and activities.

In the beginning of the IHHP a special newsletter was published including information on the programme and special health messages. Altogether four issues of these newsletters were

published. Newsletters were delivered by Provincial Health Centre and through different IHHP projects. Based on the impact evaluation of the newsletter and also the costs (difficulties to get sponsors) and practical difficulties the publishing of the newsletter was finished. Instead the IHHP started to produce stories and articles that were published in papers and newsletters of stakeholders involved with the programme such as worksites, offices, NGOs etc. Altogether 50 different articles were prepared and delivered to be published in these different media.

Also irregular TV broadcasts and radio programmes were prepared in the beginning of IHHP. For example in 2002 in the daily children programme was developed to talk about healthy lifestyles for children. Also to a weekly radio programme on healthy life that was started before 2001 IHHP messages were integrated and the conductor of the programme became one of the IHHP Directors in media activities.

In 2004-2006 a weekly radio programme on exercise for women was broadcasted. Each programme lasted about 15-20 minutes and included information on physical activity and also a possibility for women to ask questions. About 150 programmes were broadcasted during those three years.

Since 2006 IHHP has had a contract with IRIB to produce TV programmes to local TV in Isfahan province on health issues. Altogether 100 programmes (Healthy Path), each 30 minutes have been prepared and broadcasted weekly in local TV. These programmes have different topics, but majority is related to CVD (36). Other issues covered are air pollution, diabetes, cancer, obesity, skin problems, medication and geriatrics. According to the evaluation by IRIB about 50% of population in Isfahan has seen at least one of these programmes. Evaluation carried out by IHHP showed that from randomly selected 50 persons 30% knew IHHP and 29% had seen the Healthy Path programme. From those seen the programme, all were able to state the topics, 60% liked the programme and 50% had distributed the messages learnt from the programme to their families.

In addition to TV and radio programmes a large amount of different brochures, newsletters, books and other health education material was prepared during IHHP.

### Comments

In the later phase of IHHP the media activities have been quite intensive with weekly broadcasts and the coverage is reasonably good. In future new innovative forms of media use are needed to keep the attention of public i.e. use of internet and new forms of broadcasts.

### **3.12. Anti-smoking activities**

In Iran Provincial Health Centre is responsible for smoking policies and anti-smoking activities. In Iran smoking is banned indoors and tobacco sales are prohibited to minors (under 18 years of age). Advertisement of tobacco products is prohibited and tobacco companies can not sponsor activities such as sports in Iran. All restaurants are smoke-free following the legislation on indoor smoking and tobacco packages have health warnings.

The anti-smoking activities by IHHP have mainly been Quit and Win campaigns biannually since the beginning of the programme and enforcing anti-smoking legislation in worksites and

general health education on tobacco in other projects. Also efforts were made to prohibit water pipe smoking in tea rooms and coffee shops. This was not fully successful.

The Quit and Win campaigns have been organized in Isfahan province in 1998, 2000, 2002, 2004 and 2006. The number of participant have varied between about 4 400 in 2004 to about 15 000 in 2006.

### Comments

Medical and public health community should make major effort to stop the water pipe epidemic. It is not part of traditional Iranian culture and when water pipe users are only 5-6%. There is now a possibility to stop the epidemic; the higher is the prevalence of users the more difficult it is to stop the epidemic. The fact that also children are allowed to smoke water pipe is an in instigator that parents do recognize that water pipe is tobacco, children will be addicted to nicotine and smoking inhalation to lungs is even deeper than in cigarette smoking. New innovative programmes are needed to prevent smoking in adolescent and help quitting among adults. In the program activities addressing the dangers of passive smoking in families could be intensified.

### **3.13. General comments on the interventions**

One of the main successes in the programme has been the deep involvement of various stakeholders and the large integration of activities on existing community structures. Almost every sector in society is one way or another involved in the programme. This guarantee that the developed interventions will continue and become a sustainable part of practise even after the programme has been finished. IHHP team has also been able to involve the major community formal and informal leaders to support the interventions. Most of the activities were carefully planned and the implementation and success was extensively monitored and assessed by process evaluation. Feedback from the evaluation findings were actively given back to the programme directors and used to modify and improve the interventions. The coverage and the intensiveness of most of the interventions have been adequate to achieve impact on population level.

## **4. Program organization and personnel**

The program organization seems to be quite large but effective. For the programme success it seems to have been important to integrate the key stakeholders from health services, NGOs, environmental administration, large employers, food industry and private business into the program organization. Networking seems to be extensive, which is the key component for the success in community based programs.

Leadership in IHHP by ICRC and the Provincial Health Centre has been excellent and the management of the personnel in ICRC is well done. Research personnel in ICRC are enthusiastic and committed to work for the program. In team members the level of experience varied from very senior persons to junior ones, which is a sign of well developing team.

## 5. Scientific publications

We got a list of 18 research papers on IHHP published in English. They mainly reported the baseline level risk factors and behaviours in cross-sectional surveys among adults and adolescents. Most of the papers are well written and published in international journals, some of them in the leading ones. To great extend the IHHP is internationally recognized based on these papers and many abstracts presented in international scientific conferences and other meetings.

## 6. Overall impact of the programme

Isfahan Healthy Heart Program is the first large scale and professionally performed community based programme in developing world. The preliminary analyses indicated positive effects on life styles and cardiovascular risk especially on diet and serum cholesterol levels. The program will be a mile stone in chronic disease prevention in low and middle income countries, where the chronic disease epidemic is increasing. International co-operation will be essential to spread the knowledge and know-how to other countries. Experiences from the IHHP have already improved chronic disease prevention in Iran when numerous activities and policies have already been implemented on national level or other areas of the country. Impact of the program can be greatly increased in the future by wide reporting of the results and experiences to scientific and public health communities both on national and international level.

## 7. Summary

### 7.1. *Effect and process evaluation*

1. Study design, survey methodology, data collection and management are adequate and professionally performed.
2. Different surveys and process evaluation will give a full picture of the program and evaluation questions can be answered by the collected data.
3. Mortality from cardiovascular diseases should be monitored using national statistics. This monitoring should be systematic and regular.
4. Incidence follow-up require development of myocardial infarction and stroke registers on the community level. This can be mainly done by linking data from hospitals and mortality registers on individual level. Registration should be continued annually.
5. More attention should be paid to systematic standardization of laboratory level.
6. Extensive scientific reporting in national and international journals can greatly increase the value of the program. Networking with scientific communities is essential to be able to fully use the large data base.
7. Description of the interventions and most of the process evaluation can be more easily published as a book than in scientific journals. It should also include main results and description of interventions. This could be a great value for international audience especially in public health community.



8. Adequate nutrient intake analyses require development of Iranian food composition data base. This should be a national effort to serve all the dietary studies in the country.

## **7.2. Interventions**

1. Strategies to decrease the use of trans fatty acids have been successful and they can have a major contribution to the population health. In future more attention should be paid on salt intake and sources of saturated fat.
2. When the physically active work is quickly decreasing in the society new innovative approaches are needed to increase every day and leisure time physical activity. Environmental policy and the city environment should be changed to support physical activity.
3. The programme component targeting women has been very extensive and comprehensive reaching all different women population groups.
4. Many of the activities developed especially in the project component targeting children have been later implemented also on national level.
5. Project activities in military services cover almost all young men and pre-marriage classes and other activities the majority of young women. In future larger involvement of youth themselves in intervention planning and new concepts of interventions should be developed to better raise the interest of younger population.
6. Worksite component of the programme has been very successful in achieving the participation of large proportion of both offices and factories in the programme.
7. In the programme component involving health volunteers and NGOs the health volunteers have been able to reach also the families with low socioeconomic status and families living in rural areas. Programme has been able to involve the NGOs in large scale. However, they could have been used more also to develop and implement their own activities following the IHHP strategies.
8. Training of health professionals has been well integrated to existing education structures and covered most of the professionals working in chronic disease prevention.
9. The screening of high risk individuals is well covered in the factories. Similar regular health screening would be needed also in offices as in future the number of office workers is supposed to increase.
10. The decision to cover rehabilitation services by the health insurance is a big improvement and could have a major impact on implementation of secondary prevention among cardiac patients.
11. Programme has done extensive work with media. In future new concepts should be developed and new venues such as internet should be used.
12. Smoking prevention activities in future should target on young population preventing the initiation of smoking including extensive efforts to fight against the increase of the use of water pipe. The danger of passive smoking to children should be addressed.

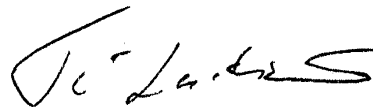
## Acknowledgements

We like to thank the IHHP team for the hospitality and organizing all the meetings and materials needed to do our evaluation work. We have had access to all the documents, files and data. We are also thankful to all the officials, most of them in senior positions and thus busy with their every day work, who allocated their time to this process. The discussions have been open and honest and this has been also a good learning experience for both of us. We hope that this report will be useful for your future work.

Isfahan 18.5.2009



Erkki Vartiainen



Tiina Laatikainen

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## **Annex 2. Evaluation timetable and list of key informants**

**Tuesday 12<sup>th</sup> May, 2009**

### **Isfahan Cardiovascular Research Centre (ICRC)**

#### **Meeting with PI and other key personnel of the programme**

Nizal Sarrafzadegan. MD, Cardiologist, Professor in Medicine. Director, Isfahan Cardiovascular Research Center (ICRC). Principle Investigator (PI) of Isfahan Healthy Heart Program (IHHP).

Gholamhossein Sadri MD. MPH. Pharmacist. Research Manager, Deputy of Research, Isfahan University of Medical Sciences (IUMS), Former Head of Isfahan Provincial Health Center. Co-PI of (IHHP)

Ahmad Bahonar MD. MPH. Manager of Administration and Financial Affairs, (ICRC). Chief Executive Officer of 3rd Phase of (IHHP)

Abdalmehdi Baghaei. MD. Head of Outcome Evaluation Committee, (IHHP), Director of High Risk Project

Mohamad Talaei, MD. Head of Data Entering and Management in (IHHP), Director of Isfahan Cohort Study

Noushin Mohammadifard. MS in Nutrition. Manager of Research, and Head of Nutrition Dept. (ICRC). Director of Healthy Food for Healthy Community Project (HFHC)

Roya Kelishadi. MD, Pediatrician. Pediatric Preventive Cardiology Department. Director of Heart Health Promotion from Childhood Project (HHPC). Executive Manager of 2d Phase of IHHP

Katayoun Rabiei. MD, MPH. Head of Process Evaluation Unit, ICRC. Director of Healthy Lifestyle for Cardiovascular Patients Project (HLCP)

Arash Ramezani. MD, Community Medicine Specialist. Head of Surveillance Department, (ICRC). Member of Statistics and Analysis Committee, (IHHP).

Maryam Boshtam MSc in Physiology. Manager of Laboratories and Quality Control. (ICRC). Director of Worksite Intervention Project. (WIP)

### **Isfahan Cardiovascular Research Centre (ICRC)**

#### **Sampling**

Abdalmehdi Baghaei. MD. Head of Outcome Evaluation Committee of (IHHP). Director of High Risk Project.

Mohamad Talaei, MD. Head of Data Entering and Management in (IHHP), Director of Isfahan Cohort Study

**Isfahan Cardiovascular Research Centre (ICRC)**  
**Survey methodology**

Abdalmehdi Baghaei. MD. Head of Outcome Evaluation Committee of (IHHP). Direction of High Risk Project

Hossein Heidari, MD. Executive manager of (IHHP) 3d Phase Survey.

Roya Kelishadi. MD, Pediatrician. Pediatric Preventive Cardiology Department. Director of Heart Health Promotion from Childhood Project (HHPC). Executive Manager of 2d Phase of (IHHP)

Noushin Mohammadifard. MS in Nutrition. Manager of Research, and Head of Nutrition Dept. ICRC. Director of Healthy Food for Healthy Community Project (HFHC)

Mohamad Talaei, MD. Head of Data Entering and Management in (IHHP), Director of Isfahan Cohort Study

Katayoun Rabiei. MD, MPH. Head of Process Evaluation Unit, (ICRC). Director of Healthy Lifestyle for Cardiovascular Patients Project (HLCP)

Gholamhossein Sadri MD. MPH. Pharmacist. Research Manager, Deputy of Research, Isfahan University of Medical Sciences (IUMS), Former Head of Isfahan Provincial Health Center. Co-PI of (IHHP)

Ahmad Bahonar MD. MPH. Manager of Administration and Financial Affairs, (ICRC). Chief Executive Officer of 3rd Phase of (IHHP)

**Isfahan Cardiovascular Research Centre (ICRC)**  
**Laboratory Analyses and Storage of Samples**

Maryam Boshtam MSc. Manager of Laboratories and Quality Control, (ICRC).

Gholamali Naderi PhD in Biochemistry. Associate Professor. Technical Manager of Laboratories, (ICRC).

Sedigheh Asgari PhD in Pharmacognosiy. Associate Professor. Head of Basic Research Dept. Former Manager of ICRC Laboratories. (Absent)

Nizal Sarrafzadegan. MD, Cardiologist, Professor in Medicine. Director, (ICRC). Principle Investigator (PI) of (IHHP)

Gholamhossein Sadri MD. MPH. Pharmacist. Research Manager, Deputy of Research, Isfahan University of Medical Sciences (IUMS), Former Head of Isfahan Provincial Health Center. Co-PI of (IHHP)

Ahmad Bahonar MD. MPH. Manager of Administration and Financial Affairs, (ICRC). Chief Executive Officer of 3rd Phase of (IHHP)

Noushin Mohammadifard. MS in Nutrition. Manager of Research, and Head of Nutrition Dept (ICRC). Director of Healthy Food for Healthy Community Project (HFHC)

**Isfahan Cardiovascular Research Centre (ICRC)**  
**Mortality surveillance and MI and stroke registers**

Arash Ramezani. MD, Community Medicine specialist. Head of Surveillance Department, (ICRC). Member of Statistics and Analysis Committee, (IHHP).

Mrs. Shidokht Hosseini. MB in Nursing, Executive Manager of MI and Stroke Registers

Mrs. Neda Dorostkar, MB, nurse working with MI and stroke registers

Mrs. Mahtab Sepahifar, MB, nurse working with MI and stroke registers

**Isfahan Cardiovascular Research Centre (ICRC)**  
**Isfahan Cohort Study**

Mohamad Talaei, MD. Head of Data entering and Management in (IHHP), Director of Isfahan Cohort Study

## **Wednesday 13<sup>th</sup> of May, 2009**

### **Isfahan University of Medical Sciences (IUMS) Meeting with Chancellor and Vice-Chancellors**

Shahin Shirani MD. Associate Professor in Medicine, Chancellor of (IUMS)

Peyman Adibi MD. Associate Professor in Medicine, Vice-Chancellor of Research, (IUMS)

Mohammadreza Shanesaz MD. Vice-Chancellor of Financial Affairs, (IUMS), Former Vice-Chancellor of Food & Drug, (IUMS)

Mojtaba Karbasi MD. Vice- Chancellor of Students, IUMS (Absent)

Mohammadhosein Hosseini MD. Manager of Treatment, Vice-Chancellory of Treatment, IUMS. Director of (HLCP)

Gholamreza Masoumi MD. Anesthesiologist, Assistant Professor. Vice-Chancellor of Treatment, Isfahan University of Medical Sciences. Director of (HLCP) (Absent)

Masoud Pourmoghadas MD. Professor in Medicine. Head of Cardiology Department, Faculty of Medicine, (IUMS), Head of Scientific Committee of Isfahan Healthy Heart Program (IHHP). Director of Chamran Heart Hospital

Nizal Sarrafzadegan MD. Professor in Medicine. Director of Isfahan Cardiovascular Research Center. Principle Investigator (PI) of (IHHP)

Kamal Heidari MD. Vice - Chancellor of Health and Head of Provincial Health Center, (IUMS). Co-PI of (IHHP) (Absent)

Javad Heydari BS. Head of Nursing Office, (IUMS)

Gholamhossein Sadri MD. MPH. Pharmacist. Research Manager, Deputy of Research, (IUMS), Former Head of Isfahan Provincial Health Center. Co-PI of (IHHP)

Ahmad Bahonar MD. MPH. Manager of Administration and Financial Affairs, (ICRC). Chief Executive Officer of 3rd Phase of (IHHP)

Noushin Mohammadifard MS. Head of Nutrition Dept. and Research Manager of Isfahan Cardiovascular Research Center (ICRC)

### **Isfahan Cardiovascular Research Centre (ICRC) Healthy Lifestyle for Cardiovascular Patients Project (HLCP)**

Katayoun Rabiei, MD. MPH Head of Process Evaluation and Environmental Health Units, Isfahan Cardiovascular Research Center (ICRC). Director of (HLCP)

Abbas Feizbakhsh, MD. Head of Treatment Monitoring Unit, Health Insurance Company. Director of (HLCP)



Masoud Pourmoghadas MD. Professor in Medicine. Head of Cardiology Department, Faculty of Medicine, IUMS, Head of Scientific Committee of Isfahan Healthy Heart Program (IHHP). Director of Chamran Heart Hospital. Director of (HLCP)

Nizal Sarrafzadegan, MD. Professor in Medicine. Director of ICRC, Principle Investigator Direction of (HLCP)

Javad Heydari, BS. Head of Nurse Office of Deputy of Treatment, Isfahan University of Medical Sciences (IUMS). Collaborator of (HLCP).

Rezvan Kazemi, BS. Head of Nutrition Office of Deputy of Treatment (IUMS). Collaborator of (HLCP)

Gholamhossein Sadri MD. MPH. Pharmacist. Research Manager, Deputy of Research, IUMS, Former Head of Isfahan Provincial Health Center. Co-PI of IHHP

Ahmad Bahonar MD. MPH. Manager of Administration and Financial Affairs, (ICRC). Chief Executive Officer of 3rd Phase of IHHP

**Isfahan Cardiovascular Research Centre (ICRC)  
Healthy Lifestyle for High-Risk Groups' Project (HLHP)**

Abdalmehdi Baghaei. MD. Head of Outcome Evaluation Committee of (IHHP). Director of High Risk Project

Mojgan Gharipour, MS. in Biochemistry. Head of Scientometry Unit, ICRC, Director of (HLHP)

Katayoun Rabiei, MD. MPH Head of Process Evaluation and Environmental Health Units, ICRC. Director of (HLHP)

Nizal Sarrafzadegan, MD. Professor in Medicine. Director, (ICRC). Principle Investigator (PI), (IHHP)

Gholamhossein Sadri MD. MPH. Pharmacist. Research Manager, Deputy of Research, (IUMS), Former Head of Isfahan Provincial Health Center. Co-PI of (IHHP)

Abbas Feizbakhsh, MD. Head of Treatment Monitoring Unit, Health Insurance Company. Collaborator of (HLHP)

Mohammadhosein Hosseini MD. Manager of Treatment, Vice-Chancellory of Treatment, IUMS. Director of (HLCP)

Ahmad Bahonar MD. MPH. Manager of Administration and Financial Affairs, (ICRC). Chief Executive Officer of 3rd Phase of (IHHP)

**Isfahan Cardiovascular Research Centre (ICRC)  
Youth Intervention project (YIP)**

Hamidreza Roohafza MD. Psychiatrist, Faculty Member. Head of Mental Health and Tobacco Control Units in Isfahan Cardiovascular Research Center (ICRC). Director of (YIP)

Jafar Ilbag BS. Expert in Health Education, Responsible for Public Health Relation Unite of Isfahan Provincial Health Center. Collaborator of (YIP)

Khatereh Azad BS. Director Representative from Red Crescent Society. Collaborator of (YIP)

Mohamad Jafarianaraki MD. Administrative and Financial Deputy of Isfahan Provincial Health Center. Director of (YIP)

Abdulhamid Ansarian MD. Head of Military Health Center. Director of (YIP) (Absent)

Nizal Sarrafzadegan, MD. Professor in Medicine. Director, Isfahan Cardiovascular Research Center. Principle investigator (PI), (IHHP)

Gholamhossein Sadri MD. MPH. Pharmacist. Research Manager, Deputy of Research, (IUMS), Former Head of Isfahan Provincial Health Center. Co-PI of (IHHP)

Ahmad Navab MD. Director of Isfahan Red Crescent Society. Director of (YIP) (Absent)

Mohammad Jalali, PhD in Public Health. Former Vice-chancellor of Students, (IUMS). Collaborator of (YIP) (Absent)

Ahmad Bahonar MD. MPH. Manager of Administration and Financial Affairs, (ICRC). Chief Executive Officer of 3rd Phase of (IHHP)

**Isfahan Cardiovascular Research Centre (ICRC)**  
**Isfahan Exercise and Air Pollution Control Project (IEAP)**

Katayoun Rabiei MD. MPH. Head of Process Evaluation, Physical Activity & Environmental Health Units, (ICRC). Director of (IEAP)

Mehrzad khalilian MD. Director of Iranian Sport Medicine Federation, Director of (IEAP)

Ahmadreza Lahijanzadeh MS. Head of Isfahan Environmental Protection Agency. Director of (IEAP)

Helena Kaabi MS. Head of Human environment Office. Isfahan Environmental Protection Agency. Collaborator of (IEAP)

Nizal Sarrafzadegan MD. Professor in Medicine. Director of (ICRC), Principle Investigator (PI) of (IHHP)

Gholamhossein Sadri MD. MPH. Pharmacist. Research Manager, Deputy of Research, IUMS, Former Head of Isfahan Provincial Health Center. Co-PI of (IHHP)

Ahmad Bahonar MD. MPH. Manager of Administration and Financial Affairs, (ICRC). Chief Executive Officer of 3rd Phase of (IHHP)

Gholamreza Shiran PhD. Member of Isfahan City Council. Director of (IEAP) (Absent)

Hamidreza Toloee MD. Anesthesiologist. Former Deputy of Provincial Health Center. Director of (IEAP) (Absent)

**Isfahan Cardiovascular Research Centre (ICRC)  
Health Professionals Education Project (HPEP)**

Ahmad Bahonar MD. MPH, Manager of Administration and Financial Affairs, Isfahan Cardiovascular Research Center (ICRC). Director of (HPEP) and Chief Executive Officer of 3<sup>st</sup> Phase of IHHP

Alireza Khosravi MD. Associate Professor in Cardiology, Head of High Blood Pressure Unit, ICRC, Director of (HPEP)

Pouya Daneshvar MD. Former Head of Education Unit, Continuous Medical Education (CME), Isfahan University of Medical Sciences. Director of (HPEP)

Zari Eslamieh MS. Manager of Behvarz (Trainee's) Training Center of Isfahan Number 2 Health Center. Collaborator of (HPEP)

Fariba Taherinejad MS. Manager of Behvarz (Trainee's) Training Center. Isfahan Number 1 Health Center. Collaborator of (HPEP)

Nizal Sarrafzadegan MD. Professor in Medicine. Director of (ICRC), Principle Investigator (PI), (IHHP)

Gholamhossein Sadri MD. MPH. Pharmacist. Research Manager, Deputy of Research, IUMS, Former Head of Isfahan Provincial Health Center. Co-PI of (IHHP)

Mahboubeh Jazestani MS. Health Expert. Responsible for Expanding System, Isfahan No 1. Health Center Collaborator of (HPEP)

Azam Azad, Faculty of Nursing & Midwifery School, Isfahan University of Medical Sciences, Collaborator of (HPEP)

Zahra Enteshari MS. Manager of Behvarz (Trainee's) Training Center of Najaf Abad, Collaborator of (HPEP) (Absent)

**Thursday 14<sup>th</sup> of May, 2009**

**Isfahan Cardiovascular Research Centre (ICRC)  
Healthy Food for Healthy Community (HFHC)**

Noushin Mohammadifard MS. Head of Nutrition Department, Research Manager, Isfahan Cardiovascular Research Center (ICRC), Director of (HFHC)

Ali Moatarian BS. Head of Private Health Education Company. Former Director of Isfahan District Health Center. Director of (HFHC)

Farhad Iraj BS. Head of Environmental Health Unit, Isfahan Provincial Health Center. Collaborator of (HFHC)

Firozeh Sajadi BS. Nutrition Department (ICRC). Collaborator of (HFHC)

Hassan Alikhasi BS. Nutrition Department (ICRC). Collaborator of (HFHC)

Mohammad Reza Khaje. Faculty Member, School of Public Health, Isfahan University of Medical Sciences. Manager of Khaje Zefre Co. Chief of Bakery Association in Isfahan Province. Director of (HFHC)

Mehran Foroudestan Bs. Owner of Shahrzad Traditional Restaurant, Representative of Restaurants Association in Isfahan. Collaborator of (HFHC)

Nasrolah Nouri BS. Head of Grain Office of Isfahan Province. Collaborator of (HFHC)

Reza Torabian BS. Responsible of Laboratory of Grain Organization of Isfahan Province. Collaborator of (HFHC)

Hassan Yousefi BS. Environmental Health Unit, Isfahan Provincial Health Center. Collaborator of (HFHC)

Hamze Tabai BS. Economic Section of Isfahan Commercial Office. Collaborator of (HFHC)

Nizal Sarrafzadegan MD. Professor in Medicine. Director of (ICRC), Principle Investigator (PI), (IHHP)

Gholamhossein Sadri MD. MPH. Pharmacist. Research Manager, Deputy of Research, (IUMS), Former Head of Isfahan Provincial Health Center. Co-PI of (IHHP)

Ahmad Bahonar MD. MPH. Manager of Administration and Financial Affairs, (ICRC). Chief Executive Officer of 3rd Phase of (IHHP)

**Isfahan Cardiovascular Research Centre (ICRC)  
Women Healthy Heart Project (WHHP)**

Masoumeh Sadeghi MD. Associate Professor in Cardiology. Head of CVD in Women Unit. Isfahan Cardiovascular Research Center (ICRC). Director of (WHHP)

Pejman Aghdak MD. Head of Family Health and Population Depart. of Isfahan Provincial Health Center. Director of (WHHP)

Mohammad Ali Fahami MSc. Head of Education Department, Isfahan Literacy Campaign. Director of (WHHP)

Fereshteh Bigham BS. Expert in Education Department, Isfahan Literacy Campaign. Collaborator of (WHHP)

Nizal Sarrafzadegan MD. Professor in Medicine. Director of (ICRC), Principle Investigator (PI) of (IHHP)

Gholamhossein Sadri MD. MPH. Pharmacist. Research Manager, Deputy of Research, (IUMS), Former Head of Isfahan Provincial Health Center. Co-PI of (IHHP)

Ahmad Bahonar MD. MPH. Manager of Administration and Financial Affairs, (ICRC). Chief Executive Officer of 3rd Phase of (IHHP)

**Isfahan Cardiovascular Research Centre (ICRC)  
Heart Health Promotion from Childhood Project (HHPC)**

Roya Kelishadi MD. Associate Professor in Pediatrics, Head of Pediatric Dept. Isfahan Cardiovascular Research Center (ICRC), Director of (HHPC) and Chief Executive Officer of 2<sup>nd</sup> Phase of IHHP

Rezvan Pashmi MS. Manager of School Health Office. Isfahan Provincial Health Centre. Director of (HHPC)

Efat Najafpour BS. Director, Bureau of Kindergartens. Isfahan Provincial Welfare Association. Collaborator of (HHPC)

Raziyeh Omidi BS. Senior Expert, School Health Office, Isfahan Provincial Health Center. Collaborator of (HHPC)

Nizal Sarrafzadegan MD. Professor in Medicine. Director of (ICRC), Principle Investigator (PI), IHHP

Gholamhossein Sadri MD. MPH. Pharmacist. Research Manager, Deputy of Research, (IUMS), Former Head of Isfahan Provincial Health Center. Co-PI of (IHHP)

Ahmad Bahonar MD. MPH. Manager of Administration and Financial Affairs, (ICRC). Chief Executive Officer of 3rd Phase of (IHHP)

Mrs Mina Mirshams BS. Expert of School Health office, Isfahan District Health Center. Collaborator of (HHPC)

Saeid Bagheri MS. Head of Health Office of Isfahan Provincial Education and Training Organization. Collaborator of (HHPC). (Absent)

**Isfahan Cardiovascular Research Centre (ICRC)  
Worksite Intervention Project (WIP)**

Maryam Boshtam MSc in Physiology. Manager of Laboratories and Quality Control. Isfahan Cardiovascular Research Center (ICRC). Director of (WIP)

Mohammadreza Chami BS. Head of Health Education. NajafAbad District Health Center. Director of (WIP)

Shahriyar Sadeghi BS. Expert in Health Education. Isfahan Provincial Health Center, Director of (WIP)

Bagher Rezaali BS. Expert in Health Education, Isfahan Provincial Health Center. Collaborator of (WIP)

Karim Zarea BS. Responsible for Occupational Health. Isfahan Provincial Health Center, Director of (WIP)

Shahnaz Shahrokhi MD. Community Medicine Specialist. Head of Quit & Win Antismoking Campaigns in (ICRC). Director of (WIP) and Chief Executive Manager of 1<sup>st</sup> Phase of (IHHP)

Iraj Dorosti BS. Responsible for Occupational Health. Najafabad Health Center, Collaborator of (WIP)

Nizal Sarrafzadegan MD. Professor in Medicine. Director of (ICRC), Principle Investigator (PI) of (IHHP)

Gholamhossein Sadri MD. MPH. Pharmacist. Research Manager, Deputy of Research, (IUMS), Former Head of Isfahan Provincial Health Center. Co-PI of (IHHP)

Ahmad Bahonar MD. MPH. Manager of Administration and Financial Affairs, (ICRC). Chief Executive Officer of 3rd Phase of (IHHP)

**Isfahan Cardiovascular Research Centre (ICRC)  
NGOs' and Volunteers' Project (NGOV)**

Hamidreza Roohafza MD. Faculty Member. Psychiatrist, Head of Mental Health and Tobacco Control Units in Isfahan Cardiovascular Research Center (ICRC). Director of (NGOV)

Rezvan Pashmi MS. Head of School Health Office, Isfahan Provincial Health Centre. Director of (NGOV)

Raziyeh Omid BS. Senior Expert, School Health Office, Isfahan Provincial Health Center. Collaborator of (NGOV)

Mitra Rezaei BS. Community Participation Unit, Isfahan Provincial Health Center. Collaborator of (NGOV)

Shahla Taheri. Health Volunteer, Sajad Health Center. Collaborator of (NGOV)

Irاندokht Leilamian. Health Volunteer. Sajad Health Center. Collaborator of (NGOV)

Nizal Sarrafzadegan MD. Professor in Medicine. Director of (ICRC), Principle Investigator (PI) of (IHHP)

Gholamhossein Sadri MD. MPH. Pharmacist. Research Manager, Deputy of Research, (IUMS), Former Head of Isfahan Provincial Health Center. Co-PI of (IHHP)

Ahmad Bahonar MD. MPH. Manager of Administration and Financial Affairs, (ICRC). Chief Executive Officer of 3rd Phase of (IHHP)



## **Saturday 16<sup>th</sup> of May, 2009**

### **Isfahan Cardiovascular Research Centre (ICRC) Mass media activities**

Katayoun Rabiei, MD. MPH. Director of Process Evaluation and Environmental Health Units, Isfahan Cardiovascular Research Center(ICRC). Head of Mass Media Activities of (IHHP)

Rokhsareh Iranipour, MD. Coordinator for Mass Media Interventions in (IHHP)

### **Isfahan Cardiovascular Research Centre (ICRC) Process evaluation of IHHP**

Katayoun Rabiei, MD. MPH. Director of Process Evaluation and Environmental Health Units,(ICRC).

Gholamhossein Sadri MD. MPH. Pharmacist. Research Manager, Deputy of Research, (IUMS), Former Head of Isfahan Provincial Health Center. Co-PI of (IHHP)

Nizal Sarrafzadegan MD. Professor in Medicine. Director of Isfahan Cardiovascular Research Center. Principle Investigator (PI) of (IHHP)

Ahmad Bahonar MD. MPH. Manager of Administration and Financial Affairs, (ICRC). Chief Executive Officer of 3rd Phase of (IHHP)

### **Isfahan Cardiovascular Research Centre (ICRC) Data and Results of IHHP**

Nizal Sarrafzadegan MD. Professor in Medicine. Director of Isfahan Cardiovascular Research Center (ICRC), Principle Investigator (PI), of (IHHP)

Gholamhossein Sadri MD. MPH. Pharmacist. Research Manager, Deputy of Research, (IUMS), Former Head of Isfahan Provincial Health Center. Co-PI of (IHHP)

Bahram Soleimani PhD, Former Chief of Biostatistics Dept. School of Public Health, Isfahan University of Medical Sciences. Head of Statistics and Analysis Committee of (IHHP)

Mohammad Talaei MD. Director of Isfahan Cohort Study. Member of Statistics and Analysis Committee of (IHHP).

Arash Ramezani MD. Community Medicine Specialist. Head of Surveillance Department of (ICRC). Member of Statistics and Analysis Committee of (IHHP)

Abdolmehdi Baghaei MD. Head of Outcome Evaluation Committee, member of Statistics and Analysis Committee of (IHHP)

Hamidreza Roohafza MD. Psychiatrist, Faculty Member. Head of Mental Health and Tobacco Control Units in (ICRC). Director of (YIP)

Gholamali Naderi PhD in Biochemistry. Associate Professor. Lab Technical Responsible, (ICRC)

Roya Kelishadi MD. Associate Professor in Pediatrics, Head of Pediatric Dept. (ICRC), Director of (HHPC) and Chief Executive Officer of 2<sup>nd</sup> Phase of (IHHP)

Maryam Boshtam MSc in Physiology. Manager of Lab and Quality Control of (ICRC). Director of (WIP)

Ahmad Bahonar MD. MPH. Manager of Administration and Financial Affairs, (ICRC). Chief Executive Officer of 3<sup>rd</sup> Phase of (IHHP)

Noushin Mohammadifard MS. Head of Nutrition Department, Research Manager, (ICRC). Director of (HFHC)

**Isfahan Cardiovascular Research Centre (ICRC)**  
**Lunch meeting with Najaf Abad Key Personnels**

Mohammadreza Rafieian MD. Head of Najaf Abad District Health Center. Collaborator of (IHHP)

Ahmadreza Ghasemi. Health Expert, Non- Communicable Disease Unit. Najaf Abad District Health Center. Collaborator (HLCP)

Cirous Ziaei. Health Expert. Environmental Health Unit. Najafabad District Health Center, Collaborator (HFHC)

Zahra Enteshari MS. Manager of Trainees Education Unit. Najaf Abad District Health Center. Collaborator of (HPEP)

Ibrahim Hadipour MD. Former Head of Najaf Abad District Health Center. Collaborator of (IHHP) (Absent)

**Isfahan Cardiovascular Research Centre (ICRC)**  
**Nutrition and dietary surveys**

Noushin Mohammadifard MS. Head of Nutrition Department, Research Manager, (ICRC). Director of (HFHC)

Hassan Alikhasi, BS. Nutrition Department (ICRC). Collaborator of (HFHC)

Maryam Maghroon, BS. Nutrition Department (ICRC). Collaborator of (HFHC)

Firoozeh Sajjadi, BS. Nutrition Department (ICRC). Collaborator of (HFHC)

Mohammad Talaei, MD. Director of Isfahan Cohort Study & Head of Data Management of (IHHP)

### **Sunday 17<sup>th</sup> of May, 2009**

#### **Isfahan Provincial Health Centre**

Kamal Heidari, MD. Vice-Chancellor of Health and Head of Provincial Health Center, Isfahan University of Medical Sciences (IUMS) Co-PI, (IHHP)

Nizal Sarrafzadegan. MD, Cardiologist, Professor in Medicine. Director, Isfahan Cardiovascular Research Center (ICRC). Principle Investigator (PI) of Isfahan Healthy Heart Program (IHHP).

Gholamhossein Sadri MD. MPH. Pharmacist. Research Manager, Deputy of Research, (IUMS), Former Head of Isfahan Provincial Health Center. Co-PI of (IHHP)

Ahmad Bahonar MD. MPH. Manager of Administration and Financial Affairs, (ICRC). Chief Executive Officer of 3rd Phase of (IHHP)

### **Monday 18<sup>th</sup> of May, 2009-05-23**

#### **Isfahan Cardiovascular research Center**

Revision of the Report

**Isfahan University of Medical Sciences (IUMS), Vice-Chancellor of Research**