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# Pitkäranta project: Health collaboration across the Karelian border

REPORT



**Report 23/2014**

**Editors: Vesa Korpelainen, Tiina Laatikainen,  
Alfred McAlister & Pekka Puska**

**Pitkäranta project:  
Health collaboration across  
the Karelian border**



**NATIONAL INSTITUTE  
FOR HEALTH AND WELFARE**

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## Preface

In Finland, the North Karelia Project was launched in 1972 to reduce the extremely high cardiovascular mortality in the province of North Karelia in Eastern Finland. The project carried out comprehensive preventive work and public health innovations and was successful in reducing cardiovascular disease (CVD) rates by close to 70% between 1972 and 1992. The reduction has thereafter continued to over 80 % and the Project has been a model for national action with remarkable public health improvements.

In the early 1990s the Republic of Karelia, a neighbouring area of Russia, was also afflicted with very high rates of CVD and an alarming public health situation. After the opening of the border following historical developments associated with Perestroika, Russian Karelian health authorities asked leaders of the North Karelia Project for assistance in establishing a similar set of innovations there. To assist the Republic of Karelia in this significant challenge the district of Pitkäranta was jointly chosen as a pilot or demonstration area for the preventive work. The work was soon initiated, including risk-factor monitoring, health promotion actions and ancillary epidemiological studies of other public health problems.

In this report we describe the history of this work, its main accomplishments, and the lessons we have learned from this bi-national collaboration across a border with a huge health divide and relatively different cultures, though geographically and historically close to each other.

Our conclusions are that this kind of work is motivated both by direct and indirect advantages, that incompatibilities can be resolved through creative adaptation, and that informal social contacts that build personal relations are essential for effective bi-national collaboration. The historical situation has changed greatly since the time this work began, but the lessons we have learned are instructive for future efforts to disseminate and implement public health innovations cross-nationally.

We want to express our deepest gratitude to all our Russian collaborators, of whom we can name only a few here. First of all we wish to thank Dr Mihail Uhanov, Dr Svetlana Pokusajeva, Dr Tamara Gumina, Dr Vladimir Pantelejev, Mrs Ljubov Raiskio,

Dr Katarina Kurilovich, Dr Svetlana Tsvetkova and Mrs Tamara Semenyk from the Central Hospital of Pitkäranta for the long-term fruitful collaboration. We also warmly commemorate the head of the laboratory Dr Nina Moisejeva, who passed away a few years ago. Without all the work done in the schools, worksites and city administration of Pitkäranta, the activities in the project would not have been possible. The Ministry of Health and Social Development in the Republic of Karelia and the ministers throughout the years—Anatoly Artemjev, Gennadi Ogloblin, Elmira Zilber and Valentina Ulich and deputy minister Ervand Hidishjan—have enabled fluent collaboration and dissemination of the experiences. The Heads of the Centre of Preventive Medicine in Moscow, Rafael Oganov and Sergey Boytsov, have actively supported the collaboration and participated in many activities.

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*Alfred McAlister, Tiina Laatikainen, Vesa Korpelainen & Mihail Uhanov*

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# PITKÄRANTA PROJECT: DISSEMINATION AND IMPLEMENTATION OF PUBLIC HEALTH INNOVATIONS FROM THE FINNISH NORTH KARELIA PROJECT TO RUSSIAN KARELIA: 1992–2013

Alfred McAlister, Tiina Laatikainen, Vesa Korpelainen & Mihail Uhanov



*Chief Physician Mihail Uhanov, Professor Pekka Puska, Health Minister Anatoly Artemjev and Academician Rafael Oganov at the Karelian Medical Conference in Pitkäranta in 1994.*

# 1 Background and history

Non-communicable diseases (NCDs) and especially cardiovascular diseases (CVD) have long represented the major health burden in the industrialised countries and are now a rapidly growing problem in the developing countries. Since the beginning of the 1990s extremely high coronary heart disease (CHD) mortality rates have been continuously recorded in Russia, in other New Independent States (NIS), and in the Baltic countries. The highest peak in CVD mortality in Russia was seen in 1994. Since then the trend has declined, though CVD mortality among both men and women in Russia remains almost three times the mean mortality in western European countries. High CVD and NCD rates in general have been the cause of a very serious public health crisis in Russia.

The Republic of Karelia, formerly part of the Soviet Union, is now an autonomous part of the Russian Federation. Located in northwest Russia, the region is neighboured in the west by Finland, in the north by the Murmansk region of Russia, in the east by the Archangels and Vologda regions, and in the south by the Leningrad region. In the Republic of Karelia there are 18 districts: 2 urban and 16 rural. The area is very sparsely inhabited. The total population is about 780 000 inhabitants. As is the case in many parts of the Russian Federation, NCDs and, in particular, CVD mortality rates are high in the Republic of Karelia. In 1996, 55% of total mortality was due to cardiovascular diseases, with the diseases significantly affecting also relatively young people.

Just across the border, in the North Karelia area of Finland, a public health project to prevent cardiovascular diseases has been in operation since 1972. By 1992, the project had yielded approximately a 70% decrease in cardiovascular diseases through the implementation of public health innovations in population-risk monitoring and comprehensive population-based preventive and health promotion activities aimed at reducing cigarette smoking, decreasing consumption of saturated fats and salt, and increasing vegetable and berry consumption as well as improving preventive services for the control of hypertension.

The border between Finland and Russia marks one of the sharpest differences in living standards and also health in the world. The Republic of Karelia in Russia was almost completely closed to Finnish visitors during the Soviet era. Nevertheless, leaders from the North Karelia Project had close contacts with public health officials at the national level, particularly Professor Raphael Oganov in the Russian Institute for Preventive Cardiology, and the idea of disseminating elements of the North Karelia Project to Russian Karelia had been discussed during the 1980s – though it was considered impossible at that time. International visitors to North Karelia often asked about public health conditions across the border, but nothing was known.

Things changed dramatically with the advent of Perestroika in Russia, when official delegations from Russian Karelia began visits to establish contact with various ele-

ments of the Finnish government. At that time, Professor Puska was a Member of Parliament and was invited by a visiting delegation to Petrozavodsk, capital of the Russian Republic of Karelia, where he was asked to give a lecture about the North Karelia Project. Regarding reactions to that lecture, Professor Puska commented, “I could have come from the moon”, as the population-based public health concepts from North Karelia were initially quite strange for local health leaders, familiar only with the traditional clinically oriented, individual, patient-based model of health care.

During the visit, Professor Puska had made critical first considerations towards a straightforward dissemination of the innovations from North Karelia. Dr Anatoly Artemjev, who was Minister of Health for Russian Karelia at that time, had asked Professor Puska for help in establishing in Russian Karelia a similar project to that in North Karelia, having heard about the success of the North Karelia Project and also having been acutely aware of the high rates of cardiovascular diseases in Karelia. As the very first step, Puska and his colleagues suggested Dr Anatoly Artemjev carry out a risk-factor survey among police officers in Petrozavodsk. This small survey was to be a pilot to learn about the feasibility of such risk-factor surveys. At that time the Finns were also planning the next large national risk-factor survey for 1992, and Puska decided that the pilot survey in Petrozavodsk could be done concurrently to enable the Russians to become familiar with the basic elements of risk-factor surveys, in preparation for a wider application. As Puska notes, “We also became quite well known and welcome among the law enforcement personnel there.”

The next step suggested by Puska and accepted by Artemjev was the selection of a single and relatively restricted area as a “demonstration” site, as it was considered unfeasible to immediately attempt a survey or intervention project covering the entire area of the Republic of Karelia. As practical criteria for the survey, Puska suggested that at least some of the participants would be people of Finnish origin who speak Finnish, that the study population should be more or less typical of populations in the Republic, and that logistics for transportation should be reasonable, given the potential challenges of poor roads and difficulties in winter travel. This meant ideally locating the demonstration area between Joensuu (the main city of North Karelia) and Petrozavodsk, the capital of the Republic of Karelia. Considering the populations that fit these criteria, Artemjev suggested the region of Pitkäranta for consideration, which was on the shores of Lake Ladoga and between Joensuu and Petrozavodsk, and where Artemjev knew of a highly capable chief public health official by the name of Mihail Uhanov, who was the chief physician at the Central Hospital of Pitkäranta. The responsibilities of that position meant that Dr Uhanov was not only in charge of the hospital but of the entire health services in that district. Puska and his colleagues examined demographic data from Pitkäranta and other potential locations and were pleased to find that the population of Pitkäranta was indeed rather typical for the region.

On his next trip to Petrozavodsk, Puska joined Artemjev in a first meeting with Uhanov, in which he enthusiastically agreed to collaborate in a risk-factor survey to be

conducted in spring 1992. This was followed by a series of planning meetings in Helsinki and Petrozavodsk, in which Uhanov gave Dr Svetlana Pokusajeva and Dr Nina Moiseva (who spoke Russian and Finnish) the practical responsibilities for organizing the work. On the Finnish side, Dr Pekka Jousilahti and later Dr Tiina Laatikainen took responsibility for the collaboration. The survey in 1992 was successfully carried out and will be described later – though not without many expected and unexpected challenges.

Following the baseline risk-factor survey, the next step was to organize health promotion activities based on those used in North Karelia. Dr Uhanov established a “Pitkäranta Project” office and asked Dr Tamara Gumina to take responsibility for organizing the work, assisted by nurse Ljubov Raiskio. After the baseline survey in 1992, follow-up risk-factor surveys were carried out in 1997, 2002 and 2007, and additional behavioural surveys were conducted, starting in 1994, to monitor and assess the development. Preventive and health promotion activities aimed at reducing cigarette smoking and improving nutrition and health care services began in 1993 and continued thereafter. In addition, the close collaborative contacts that were developed for this work made it possible for a number of additional behavioural and epidemiological studies to be conducted – also described later in this report.

The implicit overarching goals of the Finnish work in the Russian Republic of Karelia were to make official and personal contact with a largely unknown neighbour area and to demonstrate the potential for effective health work relationships across a previously closed border. The history of the Karelia region, now divided across international borders, includes centuries of conflict, with the most recent border determined by the outcome of the Continuation War (1941–1944 – part of the Eastern Front of World War II), with many Finns being displaced. On the other side of the border, the share of the Russian population grew rapidly and native Karelians became a minority in areas that prior to World War II were Finnish territory. With the border sealed during the Cold War, Finns had little knowledge of real conditions in Russian Karelia, other than the fact of a large military presence.

With the opening of the border for commercial and tourist transit in Karelia, Finnish public health leaders found themselves able to make contacts and build relationships with their peers on the Russian side. As they took stock of this possibility, Professor Puska and his colleagues were highly aware of a prevailing cultural context in Finland. Embarking on this highly visible collaboration with officials in Russian Karelia, the Finnish team explicitly aimed to show that an effective cross-cultural, cross-border working relationship could be established with their Russian peers. As a result, it was hoped to build confidence in the potential for good relations with a vast and very near neighbour.

Another aspect was that it was hoped that this kind of collaboration with neighbouring Karelia would also be a stimulus for continued work in the Finnish North Karelia. It was well known that when teaching others, you learn yourself and that when working in different cultural settings you better realise the essential factors of your own interventions.

## 2 General principles and methods

### Adoption and support

The work in Pitkäranta for the preventive interventions and their dissemination was based on the basic concepts of Rogers' classic theory of innovation and diffusion, on Bandura's social cognitive theory, and on newer concepts regarding dissemination and implementation. These included the *modelling* of innovations in North Karelia and *trial-ability* in the pilot work in Pitkäranta, stressing the *relative advantages* of collaboration, confronting barriers to *compatibility* between what could be done in Finland and limits to similar work in Russia, and the *adaptation* of innovations to fit the Russian context. Other important concepts were the use of *guided practice* in the initial implementation and, of course, the question of *fidelity* to essential aspects of the innovations.

Although not part of the academic models for dissemination of innovation, Professor Puska and his team believed it was also necessary to build strong personal relations with Dr Uhanov and his team. This was accomplished by organizing and cooperating on informal social events to accompany technical meetings and training sessions, essentially small parties with refreshments, music, dancing and sports like table tennis and five-a-side football – including saunas whenever possible. The Finnish team found their Russian colleagues in Pitkäranta to be eager to get to know them personally. It was important that the work together included also an enjoyment of informal time together – for example in visits to the hard-to-reach island of Valamo, where historical churches from a time when Finland was part of Russia were reviving cultural functions. The Finnish team also realised how building trust between the partners is important for success.

Supported by the rapidly growing mutual interest in personal contacts and working together, the Finnish proposal for dissemination and adoption of innovations was based on the evidence of their effectiveness. Thus the first messages focused on the relative advantages and potential benefits of innovation, particularly on their demonstrated impact on chronic disease rates in North Karelia, where conditions had been somewhat similar to the present conditions on the Russian side. With presentations of data the Finnish team sought to convince their Russian colleagues that adoption of the proposed innovations could similarly improve health in the population of Pitkäranta. Another important initial message accompanying the presentation of methods and results from North Karelia was that the proposed innovations were feasible, trial-able and could be accomplished with guidance by the team in Pitkäranta through a series of small and easily attainable steps in capacity development.

The Russian partners for this project accepted the idea that the proposed innovations were potentially effective and that the necessary capacity developments were

feasible. But it is fair to say that full understanding of what the initially abstract ideas would mean “on the ground” developed only gradually during the implementation processes. In their initial decision to accept the proposal for collaboration other factors that were also important, including the warm personal relations and the opportunity for travel to Finland, with modest but important financial support from the Finnish side. As soon as was feasible the Finnish team arranged for a series of meetings and training sessions in Joensuu and worked to assist their Russian colleagues in obtaining visas, etc.

Collaboration with Finland also included direct delivery of medical equipment and supplies, and anti-hypertensive and other medications that were in short supply. There were other potential indirect financial benefits for the Russian side connected to lodgings and Finnish expenditures during visits to Pitkäranta. Taken together, these diverse “ancillary” incentives were influential in the Russian authorities agreeing to adopt the Finnish proposal for collaboration.

Any international dissemination project depends on support from the public. As noted previously, for the Finnish team this project had an overarching goal of demonstrating not only that the approach of the North Karelia Project would work also in the Russian setting, but that effective collaboration on the Russian side was feasible – with an underlying message of the possibility of harmonious cross-cultural relations with a newly re-introduced neighbour. Thus an important part of the dissemination project was to obtain publicity about the collaboration and to bring Russians and Finns together co-operatively, as these are well-known ways to reduce prejudices. The Finnish public were eager for news from Russian Karelia and curious about its conditions and culture. Thus the Finnish team found it easy to obtain frequent and wide publicity for the many different collaborative activities, all emphasising a positive message about the feasibility of cross-cultural collaboration.

To bring Russians and Finns together in direct co-operation, the project partners organized the first Karelian Medical Conference in North Karelia in 1993. About 100 Finns participated, with 50 experts from the Russian Republic of Karelia participating. Since then the Conference has been organized 12 times, five times in Russian Karelia and seven times in Finland. Participants from the Republic of Karelia have been doctors, nurses, other health professionals and politicians. The agenda of the Conferences has dealt with prevention and treatment of NCDs, social protection, exchange of experiences, as well as the practical aspects of collaboration. Both the Karelian Medical Conferences and other project activities received considerable publicity on both the Finnish and Russian sides, magnifying the impact of this collaboration on public perceptions of the feasibility of cross-national co-operation in both populations. Furthermore, the events strengthened personal contacts and trust, which have been essential in enhancing the collaboration.

It should be emphasised that in contrast with formal western aid projects, the Finnish side had no special grant or large financial resources for this project. The work

was done in association with similar work in Finland; small funds were received from different sources and many partners in Finland were asked to contribute as part of their own work.

## Implementation guidance

The basic challenge to implementing the activities in Pitkäranta was the lack of personnel who were familiar with this kind of work as well as the lack of infrastructure to support the necessary work. The local co-ordination of the Pitkäranta project has been carried out with very scarce extra resources. For most of the duration of the collaboration, there has been only one full-time worker for the project office and all the other activities have been carried out through the enthusiastic work of the physicians and nurses in the Central Hospital of Pitkäranta and the health stations of the district outside of their normal duties.

The processes for implementation were based on the social cognitive principles of learning via modelling and guided practice with feedback, as learners build skills gradually and adapt them to their own capacities. The procedures can be summed up as showing how an innovative activity is implemented in North Karelia, discussing how the same or similar activity could be adapted and accomplished in Pitkäranta, planning concrete actions, providing necessary materials and supplies, guided practice (with Finnish leadership in the first steps), culminating in independent action with monitoring and feedback for capacity development.

While the innovations to be disseminated from North Karelia were easy to describe and show on the ground in site visits for Russian colleagues, their transfer and implementation required adaptation to local physical and cultural conditions and capacities in Pitkäranta. The main factor influencing all actions was the scarcity of financial resources, leading to decisions to scale back objectives to smaller sample sizes than in North Karelia. Specific adaptations for the various activities are described in later sections. In general, these adaptations were primarily adjustments to communication channels and to locations for action, that is, conducting televised health promotion within the limits of local programming capacities, outreach to workers at factory gates, etc.

The provision of essential materials and supplies was critical to successful implementation. The Finnish team travelled to Pitkäranta in large buses loaded with both materials and supplies for screening and preventive services, blood pressure and other medications, and various other relief supplies (e.g., clothing and personal items). Printing supplies and related communication material were also provided with Finnish assistance. During most of the project, the laboratory analyses for population surveys, concerning blood lipids and other indicators from blood samples taken in Pitkäranta were done in Finland at the laboratory of the National Public Health Institute in Helsinki (KTL, and later THL).



When concrete actions were planned and the necessary materials assembled, the very first actions were often taken by members of the Finnish team, with members of the Russian team working in co-operation, often following a Finnish initiative. For example, in organizing group counselling for people who wanted to quit smoking, the Finnish team members planned the materials and carried out the first sessions. In the introduction of the project to the media, Professor Puska and his colleagues were introduced to key reporters and managers by Dr Uhanov and his colleagues – they were then asked to describe what the team was trying to do and take a lead in negotiating how it could practically be done in Pitkäranta. When the practical steps to be taken became clear, with the first steps taken together, members of the Russian team were encouraged to continue on their own.

Follow-up meetings consisted of a “show and tell” by the Russian team members, describing what has been done and providing the data or documentation, along with a narrative story of what happened. These de-briefings often led to the identification of problems with commitment to plans for action, sometimes requiring a renewed start, led by the Finnish team member. For most innovations it required as long as a year or more for a series of actions and de-briefings to result in satisfactory accomplishments. For example, the sampling methods for population surveys used in Finland were initially completely unknown on the Russian side. It required not only new kinds of paperwork and outreach, but also a new vision of what a population survey needs to be in order for a satisfactory risk-factor monitoring system to be established.



*”Signing of the collaboration agreement at the Karelian Medical Conference in 1995. Professor Pekka Puska handing over the documents to the Minister of the Republic of Karelia Anatoli Artemjev. Also pictured is the Finnish Health Minister Jorma Huuhtanen and Professor Alfred McAlister ”*

## 3 Project activities and experiences

The working-level objectives for the Pitkäranta pilot project were to disseminate and implement the evidence-based innovative preventive activities that had already been established in Finnish North Karelia, as a demonstration in the Russian Republic of Karelia. The main innovations to be disseminated were I. Risk-factor monitoring, II. Preventive health promotion activities, and III. Both cross-national and local epidemiological research on diverse public health problems. Experiences in each of these areas are briefly described below.

### Risk-factor monitoring

One of the main aims in the collaboration between the Republic of Karelia and Finland was to build up an internationally comparable health monitoring system to serve the needs of disease prevention, health promotion and health policy planning in the Republic. Survey activities were carried out in the Pitkäranta district, which was the selected demonstration area. In keeping with the strategy carried out in Finland since the 1970s, population risk-factor surveys have now been carried out in Pitkäranta every fifth year since 1992, paralleling the Finnish respective annual surveys, as well as the CINDI Health Monitor surveys for modelling health behaviour every second year since 1994.

The risk-factor surveys conducted in Pitkäranta in 1992, 1997, 2002 and 2007 followed the FINRISK Study protocol and later also adopted the new recommendations of the European Health Risk Monitoring project. Surveys were carried out in March–April, which is concurrent with the National FINRISK Study in Finland. For each survey a stratified random sample of 1000 persons aged 25–64 years was drawn from the population register or electoral lists. Surveys were carried out by trained teams that included nurses and physicians from both Finland and Russia. Surveys included self-administered questionnaires, physical measurements and laboratory tests. Health behaviour surveys following the idea of the Finnish Health Behaviour Among the Adult Population Survey were carried out in Pitkäranta in 1994, 1996, 1998, 2000 and 2004. These surveys were conducted by mailed self-administered questionnaire.

The population of the Pitkäranta district was approximately 28 000 when the project began – with half of those residing in or very near the small city of Pitkäranta. At the outset there was no population registry and the concept of a random population survey was a completely new idea. To achieve this objective it was necessary for Dr Uhanov and his colleagues, with guidance from the Finns, to create a population registry for city residents. At the Central Hospital in Pitkäranta, officials had files with the names and addresses of everyone eligible for official health care. Although it was very

time-consuming, the Pitkäranta team was able to create a list of all known residents, from which the Finns then drew the random samples.

According to the first population survey in Pitkäranta in spring 1992, smoking among men was very prevalent. The body mass index was high among women and over one-third of them could be regarded as obese. Blood pressure levels and prevalence of hypertension were high both among men and women. Cholesterol levels in Pitkäranta were reasonably low. These and subsequent findings have been published in numerous reports detailing baseline conditions, risk-factor trends, and comparisons of data from Pitkäranta with data from North Karelia and elsewhere.

The risk-factor monitoring included also surveys of young people. Kuopio University in Finland has also actively collaborated with the Pitkäranta project, involving a few schools in Pitkäranta since 1994. The aim of this youth programme is to support the healthy development of young people. The first risk-factor survey was conducted in Pitkäranta district in 1995 among children (aged 15 to 16 years) and another survey was done in 2005. The surveys included laboratory tests, self-administered questionnaires and physical measurements. Several other questionnaire-based studies have been conducted in the schools in Pitkäranta during the period of collaboration. Several publications present findings from this research.

Building up the health monitoring system in Pitkäranta has been very successful. A very comprehensive and reliable database on NCD risk factors and related health behaviours among the adult population has been collected from the Pitkäranta district. The database includes already 15-year follow-up data from the area. Reliable data has also been collected regarding school health and the oral health of children. The data have been rather widely utilised both for research purposes and preventive health planning. This kind of reliable data describing the health risks of a population has certainly affected also health policy in the Republic of Karelia and been of interest in all of Russia.

This does not mean that there were not problems and constraints in conducting the surveys. Transportation and communication were often very difficult, due to road conditions and lack of electronic technology. From time to time it was not possible to use mass media or even mail to inform about the surveys or other activities. In several surveys the invitations and questionnaires were delivered by hand by the health care personnel of the Pitkäranta district. In the beginning, the idea of an epidemiological survey was unknown both among health personnel and the population. It was difficult for ordinary people to understand why a healthy young man from a family was invited to the survey rather than the grandmother with several serious diseases. The Finnish group had repeatedly to emphasise the nature of a random representative population sample. Financial restrictions easily overloaded the work of survey staff. Despite all the practical constraints and restricted budget, all the surveys were conducted successfully.

## Health promotion and disease prevention work

Numerous health promotion and disease prevention activities have been carried out in the Finnish–Russian Karelian collaboration. Many of these initiatives were of Finnish origin, but in Pitkäranta and elsewhere in the Republic of Karelia they were organized in close collaboration with the Pitkäranta project team. Dr Tamara Gumina and coordinator Ljubov Raiskio, working in the project office located in the Central Hospital of Pitkäranta, have been the key persons in making the local arrangements, recruiting people, keeping contacts with the media, producing and delivering materials and supporting all the activities in many other ways. Some key activities established in the early phase of the collaboration are briefly described here. More detailed descriptions of these and several other activities can be found in later chapters.

### Health fairs, Karelian Medical Conferences and training seminars

Several educational activities have been carried out in collaboration throughout the years. The most important ones have been the health fairs, Karelian Medical Conferences, and training seminars for health professionals.

The North Karelia Project organized the first health fair in Finland in 1990. The health fair succeeded in bringing together representatives from industry and other private sectors, NGOs, health services, as well as the ordinary population. In health fairs, visitors can see and taste new products, have their cholesterol, blood pressure, blood glucose and body fat measured. Following the first successful experience, health fairs in Joensuu are now organized regularly.

Representatives from Russian Karelia have participated in health fairs in Joensuu since 1994. The Health Ministry of the Republic of Karelia and the Central Hospital of Pitkäranta, including the Pitkäranta project, have had their own stands in these health fairs. The first Russian Karelian health fair was organized in Pitkäranta in 1998. Since then, several others have been held. Through wide publicity, health fairs have had an important role in raising people's interest in health and healthy lifestyles and promoting economic activity to support prevention and health promotion.

The Karelian Medical Conferences were established in 1993 and the first conference was organized in Huhmari, in North Karelia, Finland. The idea of these conferences was to bring together health professionals, administrators and other stakeholders interested in health promotion and disease prevention so as to share information on various health topics and to discuss joint activities across the border. These conferences served as a platform to share the results and experiences from the different joint activities. These conferences have had attendees from other areas of Finland and Russia and beyond.

Some nursing colleges from Finland have been active participants in the Finnish–Russian Karelian collaboration. One of the main activities organized by nursing col-

leges has been training seminars for nurses aimed at exchanging expertise. The first training seminar was organized in 1996.

At the beginning of the collaboration the methods of epidemiological research and principles of population-based health promotion programmes were taught to the physicians and nurses working in the Pitkäranta project. Later on, the key persons in the Pitkäranta project have taken part in several international training courses and conferences and have also themselves acted as trainers in national and international seminars.

### Smoking Cessation: Quit and Win

Quit and Win is a cost-effective population-based smoking cessation method developed in North Karelia, later expanding into a broad international activity. The first Quit and Win contest was organized in Pitkäranta in 1994. The contest was aimed at smokers aged over 18 years smoking daily for at least one year prior to the contest. Later the Quit and Win campaign has been organized every second year in Pitkäranta, up to 2002.

In 1996 an innovative smoking cessation intervention was carried out in Pitkäranta to test the feasibility and effectiveness of smoking reduction methods that have proven useful in Finland and in several other countries. These methods consist of smoking cessation competitions combined with communication campaigns featuring stories about local role models who have quit smoking. These methods were adapted for use in a 1-year pilot programme in the district of Pitkäranta. The work included an international Quit and Win smoking cessation contest in May 1996 and a continuous smoking cessation campaign conducted from September 1996 to March 1997. Before the campaign in February 1996 a group of 12 persons from the district of Pitkäranta was set up to work as a role model group for the campaign.

The staff of the Central Hospital carried out local activities in Pitkäranta. The North Karelia Project and the National Public Health Institute in Finland provided help in training and technical assistance. International consultants with experience in communication and community organization methods were used in programme planning. The process and effects of the campaign were evaluated by a baseline survey and 1-year follow-up of a panel of smokers from Pitkäranta and the neighbouring district of Suojärvi. The experiences and results of these interventions have been published in several papers.

### School-based promotion of healthy nutrition

The North Karelian Housewives' organization (Martha) has had close a collaboration with the Central Hospital of Pitkäranta since 1993. The main aim of the collaboration

has been to improve dietary habits in the Pitkäranta district. From 1996 to 1998 the “Healthy school programme” was carried out in the rural village of Rämälä. The main components of the programme were improvement of school lunch, development of health education lessons and practical training in growing vegetables in the school grounds. Pupils from the Rämälä school have had a very active role in these activities, for example, by taking care of the school vegetable garden themselves. Rämälä school has acted as a pilot and demonstration school for the whole district of Pitkäranta.

### Berry juice to increase ascorbic acid levels

In connection with the risk-factor survey in 1992, plasma ascorbic acid levels were studied in 117 men. Ascorbic acid levels turned out to be surprisingly low and the study was repeated a year later. The blood concentration was confirmed to be low and a controlled intervention study was planned to show the dietary origin of the low ascorbic acid concentrations and to assess possibilities to increase them in the Russian Karelian population.

The intervention study was carried out in April 1993 among men who had severe vitamin-C deficiency, randomising men to either a treatment or control group. The persons selected for the treatment group were given blackcurrant–strawberry nectar for 4–5 weeks. Plasma ascorbic acid levels were determined from both the intervention and control groups after the treatment period. Almost 50% of men in the treatment group reached the normal plasma ascorbic acid levels after the intervention, compared to 5% in control group.

### Health education materials and work with the media

In addition to special projects and events, plenty of health education materials and also material to support the work of physicians in controlling NCD risk factors have been produced through the collaboration. A Russian version of the “Keys to Health” book was published in 1995. Health prescriptions that have been innovated in Finland have also been produced in Russian. Training material for smoking–cessation group leaders were modified for local circumstances. Leaflets, posters and other education material on healthy nutrition, smoking cessation, harms of alcohol use and benefits of physical activity have been produced.

Throughout the years the activities of the Pitkäranta project have been very visible in the local media. Moreover, Finnish and some international newspapers have written a lot about the collaboration and about the results obtained from the surveys. Both the local Pitkäranta newspaper and the Republic of Karelia level newspapers have written about the activities, and the Russian Karelian TV has featured the collabora-



tive work and interviewed the leaders of the project, as well as Professor Puska several times.

## Epidemiological and behavioural research

The close collaboration has made it possible for Russian and Finnish colleagues to conduct a large number of additional studies covering diverse health problems. These include studies of the smoking cessation process among adults and of factors related to tobacco and alcohol use among young people. Other studies have examined socioeconomic differences in the consumption of dairy fat, and fruits and vegetables. Reports on seasonal variations in ascorbic acid levels and the relationship between low ascorbic acid levels and periodontitis were also published.

Other studies have reported differences in self-reported health and examined how behavioural and psychosocial risk factors have influence East–West European differences in self-reported health in comparisons between populations in Finland (North Karelia), Germany and Spain with those in Russia (Pitkäranta), Poland and Hungary. The latter study found that the very low levels of reported health in Pitkäranta could



*Free-time together at Dr Mihail Uhanov's dacha at Impilahti after the CINDI Summer Seminar in 2007.*

be attributed to both behaviours (tobacco use and very low fruit and vegetable consumption) and psychosocial factors (stress and perceived control).

Additional epidemiological research that grew out of this project has examined allergy and asthma and their environmental and genetic risk factors.

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# INTERVENTION ACTIVITIES OF THE PROJECT



*Pitkäranta project  
information poster.*

## 4 Actions of the Pitkäranta project office

Tamara Gumina & Ljubov Raiskio

The collaboration between the National Public Health Institute and the North Karelia Project in Finland and the Pitkäranta Central Hospital in the Republic of Karelia, Russian Federation started in 1991 through the initiative of Anatoly Artemjev, the Minister of Health. One of the key components of the collaboration was the evaluation of population health and risk factors in border regions. After agreement between the Ministry of Health in the Republic of Karelia and the National Public Health Institute in Finland, the collaboration was proposed to Pitkäranta Central Hospital. Dr Mihail Uhanov was the chief of the hospital at that time.

As cardiovascular diseases were the major cause of the disease burden in the Republic of Karelia, the first surveys were carried out to study cardiovascular disease risk factors: arterial hypertension, serum cholesterol level, smoking, diet, and behavioural risk factors. The first study was carried out in 1992. The study was co-ordinated by Dr Pekka Jousilahti from the National Public Health Institute and in Pitkäranta by the



*Dr Ljudmila Uhanova, Chief-nurse Tamara Semenyk and Dr Tamara Gumina in the Pitkäranta project office.*

local co-ordinator, Dr Svetlana Pokusajeva, Deputy-Chief Medical Officer at the Central Hospital of Pitkäranta.

Pitkäranta Central Hospital had no previous experience with this research work. It was a completely new task for us and so the Finnish research team had to spend a lot of time and resources in educating the study team in Pitkäranta.

The population was not familiar with such health examination surveys. There was a need for wide preliminary work to explain the concept and purpose of such surveys. Initially, everybody wanted to participate in the examination. People did not understand what a random sample was and why a wife would be included in the sample when the husband's health status was worse. Of course in the subsequent studies, there was less time spent in education.

We appreciated the responsibility of Finnish colleagues who educated us and explained even the smallest details and addressed the importance of these to the quality of the surveys. Even though the Russian study team members were experienced medical workers, they were not familiar with survey protocols and methodology.

The results of the first study showed high risk-factor levels for cardiovascular diseases. Educational programs were developed in response to these results.

With the help of the Martha Association from North Karelia and Northern Savo dietary education programmes were carried out (See Chapter 10). Participation in the international Quit and Win contest supported many people to quit smoking. The Quit and Win contest was co-ordinated by public health nurse Eeva-Liisa Urjanheimo from the North Karelia Project. In Pitkäranta, the project co-ordinator was pulmonologist Tamara Gumina. The contest was conducted annually with various interesting activities and prizes. A meeting of winners from two regions, North Karelia and Pitkäranta, was also organized. People were able to communicate despite the language barrier. A large input in the planning of the non-smoking activities was done by Professor Alfred McAlister (USA), who is an expert in psychological and psychosocial methods in lifestyle change. The co-ordinator of the contests, Tamara Gumina, has presented the results of the Quit and Win contest at international conferences in Helsinki (Finland) and in Gran Canarias (Spain), at various conferences in Russia and at Karelian Medical conferences in North Karelia and in the Republic of Karelia.

People were suspicious in the first Quit and Win contest about whether the results would be evaluated objectively and if the prizes would be distributed. When it was time to test the lottery winners, all participants (100 people) came for testing rather than the 15 who were randomly chosen. We therefore decided to administer the exhaled carbon monoxide test to all participants. Sponsors helped a lot with the prizes. The Finnish collaborators organized visits to Finland for the winners and their supporters. In Finland we met with winners of the Finnish Quit and Win contest. Those meetings helped a lot in the future work, as people believed in the objective results and shared their opinions and experiences in smoking cessation. There are many people

who stopped smoking completely and did not return to cigarettes. Some of them said: “I would never have managed to quit smoking alone”.

As there was a high prevalence of smoking among children and adolescents, we conducted similar contests also in the schools. The work with youth turned out to be harder than with adults. Young people typically join the contest easily and like the process itself – the release of posters, thematic shows, poetry and song composition, gratitude and prizes. However, when the contest ended they continue smoking. There is a need for constant work with children and youth, and not only with children, but also with their parents and friends. There is also a need for a stricter governmental anti-smoking policy.

The Pitkäranta project office organized health counselling groups for the population. Dr Klimenkova talked about diabetes mellitus, Dr Gnilova about the prevention of cardiovascular diseases and Dr Gumina about smoking and its consequences. The aim of the health counselling groups was to support people in taking care of their health.

Annual nursing conferences were organized by public health nurse Eeva-Liisa Urjanheimo in collaboration with other actors. The aim was to report the results of the collaboration both to Finnish and Russian nurses participating in the project. Those meetings stimulated further collaboration between the regions and nursing colleges.

Health fairs were the most popular practical activities in our collaboration. The organization was co-ordinated by executive manager Vesa Korpelainen and neighbourhood area collaboration co-ordinator Tiina Vlasoff from the North Karelia Project. Many medical and educational organizations from Finland and Pitkäranta contributed to the health fairs. People participated actively: They had the possibility to have their blood sugar, cholesterol and arterial pressure measured. They were also able to receive specialist’s consultations, recommendations on proper diet and even taste freshly prepared food, juices, teas etc. People learned about caries prevention, harms of alcohol use, and smoking.

The Karelian Medical Conferences were special meetings to present the results of collaboration and joint programs conducted in the Republic of Karelia and in North Karelia. In the conferences, data on the health situation on both sides of the border have been presented. Many research reports on the latest results achieved in the collaborative studies have been presented and specific health topics discussed. Representatives from the ministries and governmental and public organizations have participated actively in the conferences.

The studies among school children started parallel to studies among adults. The first survey and health promotion intervention was the oral health programme, under the guidance of dentist Svetlana Svetkova from Pitkäranta and Professor Hannu Hausen and dentist Anne Hiiri from the University of Kuopio. The youth risk-factor studies were co-ordinated by Professors Kerttu Tossavainen and Erkki Vartiainen, in collaboration with paediatrician Vladimir Panteleev; asthma and allergy studies were also

organized during the collaboration and were co-ordinated by Dr Tiina Laatikainen. An intervention programme to reduce smoking and substance use was carried out in schools (see Chapter 6). Children have been actively participating in all the activities, but there is a need for more active work with parents and teachers with a view to creating sustainable results. This is a very challenging task. Not all of the parents are able to act as a good role model in terms of healthy lifestyles.

In later years the co-ordinator of the Pitkäranta project has been Ljubov Raiskio, specialist in health promotion. She has been the only person responsible for the Pitkäranta project office, but she has also had other responsibilities. The lack of normative laws has led to difficulties in the preventive work.

In addition to the official collaboration, friendship ties have also been created, from which an understanding has grown that we share similar problems and have similar targets and points of view, but experience different life conditions and political and social circumstances. Unofficial meetings, joint travel, studies on the culture and traditions of our countries have brought us closer to each other and helped to maintain the communication beyond the completion of the projects.

We are thankful to our Finnish colleagues Pekka Puska, Vesa Korpelainen, Tiina Vlasoff, Tiina Laatikainen, Pertti Puhakka, Eeva-Liisa Urjanheimo, Erkki Vartiainen and many others. Thanks to them we have expanded our possibilities as practical doctors and nurses and have come to value the role of preventive measures and healthy lifestyle.

Our project could not have happened without the contribution of the personnel at Pitkäranta Central Hospital, as well as that of the main co-ordinators chief physician Mihail Uhanov and deputy chief physician Svetlana Pokusaeva, pediatrician Vladimir Panteleev, dentist Svetlana Svetkova, pulmonologist Tamara Gumina and health promotion specialist Ljubov Raiskio. Current chief physician Galina Lazutkina has supported every preventive initiative of our doctors.

A lot of communication and work has depended on our unofficial interpreters Klara Kobzareva and Dr Nina Moiseeva and Dr Ekaterina Kurilovich. They have also participated actively in the research work.

## CINDI programme

One of the most interesting projects that Pitkäranta Central Hospital took part in was the international program CINDI, co-ordinated by WHO EURO. Professor Rafael G. Oganov, a member of the Academy of Medical Sciences in the Russian Federation, has led the Russian section of this program. In Russia, there were about 20 regions who participated in the project, with Pitkäranta Central Hospital being the sole representative from the Republic of Karelia.

The aim of the CINDI program was to approve the practical application of preventive programs. Studies showed that many non-communicable diseases have common risk factors: smoking, arterial hypertension, inappropriate diet, alcohol misuse etc. Russian health care was directed mainly at disease treatment, while preventive programs were not properly supported by government.

Over the ten-year period of the collaboration, we, the clinicians, learned a great deal and passed on a lot of this new knowledge to our colleagues in Pitkäranta. Systematic monitoring of chronic disease risk factors allowed us to develop the methods of risk-factor control and educational programs for medical specialists and for the general public as well. Many patients understood the necessity of proper diet and systematic control of arterial pressure, cholesterol and blood glucose.

In the context of the Russian CINDI programme, educational activities for patients were organized: a diabetes school, an asthma school, a quit smoking school and an arterial hypertension school. These were new working methods for us and this was done by medical specialists without additional payments, practically in their own time, though it helped a lot in the practical work with patients and gave good results.

The participation in the scientific conferences with presentations and communication with other enthusiastic researchers from Moscow, Saint-Petersburg, Arkhangel'sk, Electrostal, Chelabinsk, Tomsk and Vologda were especially important.

We are clinicians and our main target is not to carry out scientific research. However, it has been fruitful to share the results of our investigations within the scientific arena. The years spent working in the Pitkäranta Project and CINDI project were interesting and full of new impressions, meetings with new and interesting people, new working methods; this has been a very important time in our lives and work. We would be very willing to use our experience in some new projects.

## 5 Educational activities

Vesa Korpelainen, Tiina Vlasoff, Tamara Gumina, Ljubov Raiskio, & Tiina Laatikainen

Preventive health services should be linked to the daily work of primary health care and hospitals. Doctors and nurses need to understand the importance of systematic screening, counselling, persuasion and the follow-up of health-related habits among their patients. Updated information about NCDs and their risk factors, implementation of various preventive activities, and guidelines for prevention and treatment have been included in the training and motivation of personnel in Pitkäranta. Most of the training of health professionals has been organized via seminars on current topics. These seminars have also been very important forums for exchanging experiences in work between the health professionals in Russia and in Finland. The Karelian Medical Conferences are described in Chapter 6 and the other most important educational activities below.



*Deputy Major of City of Pitkäranta Vladimir Zvesdin, Professor Sergey Boytsov, Minister Valentina Ulich and Director General Pekka Puska in City Hall of Pitkäranta during Summer Seminar in 2011.*



## Training seminars on nursing

Some nursing colleges in Joensuu, Kuopio, Savonlinna and Tampere in Finland have been active participants in the Finnish–Russian Karelian collaboration. One of the main activities organized by nursing colleges has been training seminars for nurses aiming at an exchange of expertise. Training seminars were organized in Pitkäranta from 1996 almost annually until the mid-2000s. Seminar topics have covered the wide field of nursing, such as midwifery home care, childcare, rehabilitation, laboratory work, hygiene etc. There have been about 150 participants in every seminar, one-third coming from Finland and two-thirds from the Republic of Karelia. The organization of the nursing seminars was co-ordinated by public health nurse Eeva-Liisa Urjanheimo from the North Karelia Project and chief nurse Tamara Semenyk from the Pitkäranta project office. Nursing seminars stimulated further collaboration between the regions.

## Training of Pitkäranta project staff in research and health-promotion-planning methodology

At the beginning of the collaboration the methods of epidemiological research and the principles of the population-based health promotion programmes were taught to the physicians and nurses working in the Pitkäranta project. Later, the key personnel in the Pitkäranta project have taken part in several international training courses and conferences and have also themselves acted as trainers in national and international seminars. One of the dentists in Pitkäranta has taken part in the Master's in Public Health training at the University of Kuopio in Finland and passed the Master of Public Health Degree. Several others have taken part in the CINDI Winter School held in Helsinki at the National Public Health Institute of Finland (now the National Institute for Health and Welfare), in the North Karelia International Visitor's programme in North Karelia and in PhD courses at the University of Kuopio.

There have also been a very large number of training sessions for health professionals in Pitkäranta as part of various practical interventions. Key personnel in the Pitkäranta project have organized training about disease prevention and health promotion for representatives of other regions in the Republic of Karelia. Results and experiences of the Pitkäranta project have been utilized by the Ministry of Health of the Republic of Karelia, but also directly by the Pitkäranta Central Hospital and the Pitkäranta project.

## Health education material

The use of printed health education material has been rather limited compared to that used in the North Karelia Project. However, the small book detailing a healthy lifestyle and the main risk factors of chronic diseases – Keys to Health – was translated and 2000 copies printed for distribution to health care personnel and patients. The Finnish innovation ‘Health Prescription’ has also been translated into Russian for use by health professionals. In various activities, training materials in Russian for trainers were produced. Materials used in the Quit and Win campaigns have consisted of posters and participation forms. Printed health education material on healthy nutrition, the risks related to alcohol use, smoking cessation and the benefits of physical activity has been used in various intervention activities. Leaflets with role model stories have been used especially in smoking cessation activities and hypertension interventions.

## Pitkäranta Summer Seminar

Pitkäranta Summer Seminar, sometimes called the Pitkäranta CINDI Seminar, has been organized annually since the end of the 1990s in Pitkäranta, with the exception 2013, when it was organized in Ilomantsi, North Karelia.

The CINDI Programme was a WHO EURO led collaboration programme (“Countrywide Integrated Non-communicable Disease Intervention Programme”) that followed pretty much the protocol of the North Karelia Project. Over 30 countries took part in the CINDI collaboration. Russia had its own CINDI programme and a network with about 20 centres participating around the country, Pitkäranta being one of them. Participation in the CINDI programme very much inspired the work of the Pitkäranta project staff (see Chapter 4).

In the Pitkäranta Summer Seminars, discussions have centred around the practical aspects of disease prevention, health promotion and collaboration. Professor Rafael Oganov, director of the Federal Medical Prevention Center and director of the Russian CINDI programme, often took part in Pitkäranta Summer Seminars. Later, the new director Professor Sergey Boytsov has been an honoured guest in the seminars.

## 6 Karelian medical conferences and health fairs

Vesa Korpelainen, Tiina Vlasoff, Ljubov Raiskio, Hanna Heikkilä & Pekka Puska

### The Karelian Medical Conference

The first Karelian Medical Conference (KMC) was organized in Huhmari in North Karelia in 1993. Of the 150 participants, about 50 came from the Republic of Karelia. Participants from the Republic of Karelia were doctors, nurses, other health professionals and politicians. The agenda of the first Karelian Medical Conference addressed the prevention and treatment of NCDs, social protection, the exchange of experiences, as well as the practical aspects of the collaboration.

Since 1993 the Conference has been organized twelve times, 5 times in Russian Karelia, once in Pitkäranta and four times in Petrozavodsk, and seven times in Finland. Each conference has gathered from 120 to 150 participants representing research institutions, health and social services, ministries of health and social welfare and other political actors, universities, non-governmental organizations and neighbourhood area collaboration organizations.

Conferences have included plenary sessions and separate sessions covering different topics. The most important topics of the Conferences have been health promotion



*Audience of the Karelian Medical Conference in “White Springs” in Petrozavodsk in 2004. On the front row Academic Rafael Oganov, Professor Aulikki Nissinen and Co-ordinator Tiina Vlasoff. At the second row from the left, Co-ordinator Ljubov Raiskio, Dr Valentina Zaparidze, Dr Mihail Uhanov, Dr Katarina Kurilovich and Dr Vladimir Pantelejev.*

in different ages, organization and function of primary health care, disease and risk-factor trends, prevention and treatment of chronic diseases, infectious diseases, the Health in All Policies approach, and the practical aspects of the collaboration.

The Karelian Medical Conference has always included a key topic, but discussions have likewise focused on the most important aspects concerning the prevention of chronic diseases and health promotion, the treatment of infectious and chronic diseases and their risk factors, as well as the development of primary health care and specific questions regarding the collaboration between Russia and Finland. Many times the collaboration agreements between the National Public Health Institute and the North Karelia Project in Finland and the Ministry of Health and Social Development and Central Hospital of Pitkäranta in the Republic of Karelia have been signed during the conference.

The Karelian Medical Conference has established a flagship position in health-related collaboration between Finland and Russia.

## Health fairs

The North Karelia Project organized the first health fair in Finland in 1990. The main idea of health fairs was to collect together both local populations and various stakeholders who are actively working to improve healthy lifestyles and working in preventing key public health problems. The health fair succeeded in collecting together representatives from NGOs, health services and industry as well as the ordinary population. In health fairs visitors are able to have their cholesterol, blood pressure, blood glucose and body fat measured and to see and taste new products. There has also been a possibility to become familiar with many new health-related innovations.

The second health fair was organized in 1992 in Helsinki, the third in 1994 in Joensuu; following a break of some years, the fairs were organized annually in Joensuu from 2000 until 2008. Through wide publicity health fairs have had an important role in raising people's interest in health and healthy lifestyles.

Representatives from Russian Karelia have participated in the health fairs in Joensuu since 1994. The Health Ministry of the Republic of Karelia and the Central Hospital of Pitkäranta including the Pitkäranta project have had their own exhibitions at these health fairs.

Health fairs have also been organized in Pitkäranta in 1998, 1999, 2001, 2003, 2004, 2005 and 2006. In Pitkäranta some health promotion activities have been connected to health fairs, such as smoke-free discos for youth, health education lessons in schools, cholesterol screenings, physical activity demonstrations etc.

Health fairs in Pitkäranta have raised a great deal of publicity. At each event, some 500 persons have participated in the fairs. Some organizations from Finland have also participated, but the majority of the stands have been managed by various organiza-

tions from Pitkäranta, such as health care, City of Pitkäranta, library, Pitkäranta project, schools, NGOs etc.

According to the experiences of the Pitkäranta project, the health fairs have been the most popular practical intervention in the collaboration between Pitkäranta and Finland. The people of Pitkäranta have participated actively in the fairs, probably because they have had the possibility to have their cholesterol, blood pressure, blood glucose and respiratory capacity measured, as well as the possibility to meet health professionals and receive health counselling. Seeing and tasting new products has also drawn the interest of the local population.



*Professor Pekka Puska and Professor Igor Glasunov at the media conference of the health fair in Joensuu in 1994.*



*The exhibition stand of the Republic of Karelia at the health fair in Joensuu in 1994. In picture: Chief Physician Mihail Uhanov and Professor Pekka Puska.*



*Health fairs at the culture house of Pitkäranta in 2006.*

## 7 Tobacco control interventions

Alfred McAlister, Vesa Korpelainen, Pekka Puska, Tamara Gumina, & Tiina Laatikainen

The high prevalence of smoking among men in Pitkäranta as well as in other parts of Russia is one of the greatest concerns regarding non-communicable disease morbidity and mortality. According to the 1992 risk-factor survey 65% of men were smokers. Smoking was even more prevalent in the youngest age group. Among men aged 25 to 34 years, 77% reported being regular smokers. Among women smoking prevalence was reasonably low in 1992, at 11%, but in later surveys it was observed that smoking increased among women similarly to observations in many Eastern European and former Soviet Union countries. From the very beginning, smoking cessation activities were key elements of the Pitkäranta project.



*Dr Tamara Gumina with the smoking cessation group in Pitkäranta: Role models from Quit and Win 1996.*



## Quit and Win

Quit and Win is a cost-effective population-based smoking cessation method. The first Quit and Win contest was organized in Pitkäranta in 1994. The contest was aimed at smokers aged over 18 years, who smoked daily for at least one year prior to the contest. Later, the Quit and Win campaigns were organized every second year in Pitkäranta. The organization of the first contest was well supported by the Finnish collaborators and especially by nurse Eeva-Liisa Urjanheimo. Later, staff at the Pitkäranta project office have taken responsibility for the practical organization, particularly Dr Tamara Gumina, Dr Katarina Kurilovich and nurse Ljubov Raiskio.

The principles of Quit and Win have worked well in Pitkäranta and participation rates have been relatively high: about 200 participants in 1994, 106 in 1996, 162 in 1998, 306 in 2000 and in 2002 a little over 250 participants. Registration forms have mainly been distributed by health care personnel during contacts with various patient and clients. The form has been printed also in the local newspaper Novaja Ladoga.

The Quit and Win contest in Pitkäranta has several times been a part of the national campaign for smoking cessation in Russia co-ordinated by the National Centre for Preventive Medicine in Moscow. Results from Pitkäranta were included in results from many other Quit and Win contest locations in the publication about the 1996 campaign. After the 1996 campaign a one-year follow-up survey was organized for the participants. Over 90% participated in the follow-up in Pitkäranta and almost 35% of them reported abstinence from smoking after one year.

In the Quit and Win approach the cross-border collaboration has been active. Similar contests were also organized regularly in Finland with special activities in North Karelia. Some joint material was used and experiences were actively changed. Many times the prizes of the Pitkäranta Quit and Win contest were given out during the health fairs. Sometimes the winners from the Republic of Karelia received the possibility to travel to Joensuu as part of the prize.

## An innovative anti-smoking intervention

In the context of the EU project “Bridging the East-West Health Gap”, an innovative smoking cessation intervention was carried out in 1996 in Pitkäranta to test the feasibility and effectiveness of smoking reduction methods that have proven useful in Finland as well as in several other countries. These methods consist of smoking cessation competitions that combine with communication campaigns featuring stories about a local role model who is quitting smoking. Interpersonal support for quitting was provided by distributing leaflets and promoting imitation of the role models by both health care workers and laypeople.

These methods were adapted for use in a one-year pilot programme in the district of Pitkäranta. The work included an international Quit and Win smoking cessa-

tion contest in May 1996 and a continuous smoking cessation campaign conducted from September 1996 to March 1997. The international Quit and Win contest in May 1996 was announced in local newspapers, while leaflets with entry forms were also distributed through health care centres, schools and informal social networks. Participants were asked to register for the contest before the 1st of May. The contest period was one month and the lottery for prizes and the testing of winners was organized on the last day of May. In the continuous smoking cessation contest participants were able to register whenever they wanted throughout the campaign period from September to March. All those who were able to abstain from smoking for at least 4 weeks during this time were eligible for prizes. A draw was organized once a month and possible winners were tested by a carbon monoxide meter. There were 105 smokers who participated in the International Quit and Win contest, and 68 smokers in the monthly competitions.



*Alfred McAlister visiting Dr Mihail Uhanov at the Central Hospital of Pitkäranta in 1997.*

Before the campaign in February 1996 a group of 12 persons from the district of Pitkäranta was selected to work as a role model group for the campaign. The group consisted of 10 smokers and 2 ex-smokers representing different genders, age groups and occupations. The group members committed themselves to trying to quit smoking and stay non-smokers with support from the group, while health personnel worked as the group leaders. Group leaders were trained in communication methods and in giving practical skills and support in attempts to quit. The group gathered together 4 times before the international Quit and Win contest and 5 times later during 1996. The group members were followed up and used as role models to support the campaign. The role model stories, featuring these persons who had stopped smoking, were presented in the local newspaper and in leaflets which also announced the Quit and Win competitions. The stories featured all stages in the lifestyle change and the important change processes. Different leaflets were delivered through health care workers, schools, worksites and through informal social networks.

The staff at the Central Hospital carried out local activities in Pitkäranta. The North Karelia Project and the National Public Health Institute in Finland provided help in training and with technical assistance. International consultants with experience in communication and community organization methods were used in the programme planning.



The process and effects of the campaign were evaluated by a baseline survey and with a one-year follow-up of a panel of smokers from Pitkäranta and the neighbouring district of Suojärvi. A random population sample of 1500 persons aged 25–64 years was surveyed at the outset (April 1996) in both areas. There were 730 survey participants in Pitkäranta and 899 in Suojärvi. In Pitkäranta 47% of men and 6% of women were daily smokers. In Suojärvi the respective rates were 55% and 8%. The daily smokers were surveyed one year later with standard questions about their current tobacco use. These panels of daily smokers consisted of 176 persons in Pitkäranta and 202 in Suojärvi. In Pitkäranta 102 smokers and in Suojärvi 89 smokers participated in the follow-up survey. If all the non-respondents were assumed to have continued smoking, the cessation rate in the population was 7% in Pitkäranta and 0.5 % in Suojärvi .

Tamara Gumina, co-ordinator of smoking prevention activities in Pitkäranta, has presented the results of the Pitkäranta Q&W in international conferences in Helsinki (Finland), in Gran Canarias (Spain), in Moscow (Russia) and in several Karelian Medical Conferences in Finland and in the Republic of Karelia.

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## 8 A school and community based tobacco and substance abuse prevention intervention

Hanna Heikkilä & Tiina Laatikainen

Based on the risk-factor surveys it was observed during the Pitkäranta project that the substance abuse rates were rapidly increasing among the youth in the late 1990s and early 2000s; for example smoking prevalence among girls doubled during those years.

Even though substance abuse prevention targeting youth is heavily researched, and numerous research-based models for this have been developed, there was little research available on the prevention of substance abuse in Russia. It could be said that there was a lack of evidence-based substance use methodologies in Russia in general. This was the case also in Pitkäranta. By the time the idea of the school intervention started to form, there was little in the way of prevention tools, materials, expertise, and



*Children presenting the play “Say no to tobacco, alcohol and drugs”, at health fairs in Pitkäranta in 2007.*

other resources, such as institutional support, available to the schools to address this problem. Substance use still clearly affected the day-to-day work of the schools according to the teachers and had a visible presence in the local communities. The prevention materials that the schools had access to were in general not based on evidence or research. Furthermore, at that time there were no national or regional policies for developing and implementing a prevention response for the growing drug use epidemic in Russia.

A school program was tailored for the project in Pitkäranta, consisting of a skills-based classroom curricula addressing some of the key risk and protective factors for substance use, such as social normative beliefs, social pressure, resilience skills, comprehension of the short-term consequences of substance use and other social and emotional skills. School-wide efforts to change the school policies and cultures and to engage also the parents were planned as part of developing a comprehensive response to the substance use situation among youth in Pitkäranta, and later on in the whole Republic. As a result, the ‘Together against substance abuse’ -project was carried out over a period of three years (2006–2008) in four schools within the district of Pitkäranta.

The implementing body of the project was Finland’s National Public Health Institute, and the collaboration bodies were the Universities of Helsinki and Kuopio, the Central Hospital of Pitkäranta and the North Karelia Center for Public Health. The project was funded by the Ministry for Foreign Affairs, Finland. A very central role was left to the schools of Pitkäranta, out of which four participated in the pilot project, dedicating their time and energy in testing the program and its materials and providing essential feedback on the pilot on a continuous basis. The remaining schools joined the project after the pilot phase; at the start of the prevention program implementation, they were tutored and supported by the four pilot schools: the Second School of the City of Pitkäranta and the Schools of Läskela, Salmi and Räimälä. In a follow-up project (2009–2010) the program was disseminated to the whole Republic, in co-operation with the Institute for Continuing Education for Teachers in the Republic of Karelia. A study component was included in their curricula for training teachers to use this skills-based prevention method.

## Intervention

The classroom intervention targeted 6th–8th graders, and ten lessons were organized for them in the course of the year. Lessons included role plays in which children practiced refusal skills and participatory activities that supported the children to process information on the physiological, psychological, social, economic and societal reasons and the consequences of substance misuse. Lessons allowed them also to practice a

wide array of personal and social skills, such as goal setting, problem solving, communication and team work.

At the school level, activities included elaborating smoking policies within the schools in collaboration with the personnel, parents and pupils. The goal was to establish preventive work as a permanent part of school practices and curriculums. Also non-smoking competitions (Quit and Win, Smoke-Free Class), acting and drawing competitions and theme days on a substance-free lifestyle were organised in each of the pilot schools. At the community level, the project aimed to raise awareness through the media, to produce and distribute posters and organize a public health fair in cooperation with the pilot schools. Two meetings were organized for the parents at each school, in which the project and the ways to support substance-free lifestyle at home were discussed. Later, an information letter was sent to them that also included some practical guidance for example on how to discuss the substance use issues with children. One of the goals of the project was to establish networks of co-operation between the schools, families, health care professionals and other relevant actors in the communities.

Each school nominated a person or two among their staff to be responsible for carrying out the intervention in their school, and training seminars were organised for this project group throughout the intervention. One central aim of these seminars was to allow the schools to network with each other, share their best practices, and above all to plan the intervention activities together with the project co-ordinator. These project-group members facilitated the intervention lessons in their schools with the support of the project. They were also in charge of organising the school-level activities, such as parents evenings, competitions and various theme days. Furthermore, they took an active role in planning the implementation modalities of the various intervention components and provided continuous feedback on the intervention.

This continuous feedback and the close involvement of the project group in all of the activities enabled the adaptation of the materials and activities to the local circumstances. As an example, the project group expressed a concern that the students were not used to interactive teaching methods and as a result, a set of interactive games and exercises was added to the teachers' manual. Another example was the recognised need to seek to address substance use even in less stigmatising and judgemental ways, as almost every class had students who faced severe substance use in home.

## Evaluation of the outcomes with a school survey

To assess the effectiveness of the pilot intervention, a survey of health habits and attitudes related to alcohol and tobacco was conducted before and after the intervention in the four project and four control schools, via an anonymous questionnaire. Three cohorts took part in the study between February 2007 and April 2009, with altogether

er 605 pupils from the total of 698. In total, 506 of them participated both in the baseline and follow-up survey and this sample was used for the comparative analysis. During the pilot the comparison schools were receiving 'treatment as usual', as they were implementing their own prevention programs and classes.

Although the study population was relatively small, the results of the survey indicate that the intervention had a somewhat positive impact on substance-use-related behaviours and attitudes among the target group. For example, after the pilot, experimenting with tobacco was less common among girls in the intervention schools in comparison to the control schools, and similarly tobacco cessation among boys was more common in the intervention than in the control schools. Further, attitudes towards smoking and smoking-related self-efficacy had changed in a favourable direction among the girls in the intervention schools.

When it comes to the use of alcohol, the intervention seemed to have positively influenced the frequency of use. The frequency of use grew among the boys in the control schools more than in the intervention schools, and in the intervention schools a decrease in the frequency of use was more common. The changes among girls were similar but smaller. The attitudes towards alcohol use changed favourably among girls in the intervention schools in comparison to the control schools.

Also, the children in the intervention schools reported more positive attitudes towards prevention education and activities, reporting a higher satisfaction with, and perceived impact of, the curricula.

**Table 1. Some selected results on tobacco and alcohol use**

	Intervention	Control	
<b>TOBACCO</b>			
GIRLS experimenting with tobacco during the intervention (% out of students who had not tried tobacco at baseline) (n=173)	31%	47%	p=0,063
BOYS increasing the frequency of smoking during the intervention (% of students who had initiated smoking at baseline) (n=246)	26%	42%	p=0,096
BOYS smoking less in follow-up than in baseline (% of students who had initiated smoking at baseline) (n=246)	23%	2%	p=0,005
<b>ALCOHOL</b>			
BOYS initiating alcohol use during the intervention (% out of students who had not tried alcohol at baseline) (n=157)	48%	27%	p=0,007
BOYS who's frequency of use grew during the intervention (% out of students who had tried alcohol at baseline) (n=68)	75%	93%	p=0,029

## What was achieved

All in all, even though the effects on substance use behaviour were small, they were in general in the right direction.

In the feedback collected after the pilot project all the school personnel stated that the implementation of the prevention activities, especially of the prevention curricula, had become significantly easier during the project. The confidence and self-efficacy of the local project group grew, as they learned to use these new methods, and adapt them according to the situation.

According to this feedback, among the most valuable benefits of the project was the building of professional networks within the district. All the participating school personnel named the systematisation of the prevention work as the single most valuable outcome, referring to the benefits of having a well thought out evidence-based prevention approach that was approved and acknowledged by the whole school and shared also between the schools. Previously, prevention efforts were more based on the vision, motivation and capabilities of individual teachers, and they were not consistent within or between the schools, or based on research results on effectiveness. International contacts were mentioned as being among the valuable benefits gained from the project.



*Produced project material.*



*Co-ordinator Hanna Heikkilä collecting data at Läskelä school in 2008.*



All the project schools continued the project activities also after the pilot phase, as well as after the support from the project had ceased. The project group in the intervention schools took an active role in tutoring the rest of the schools of the district in adopting the methods and materials developed and tested during the pilot. This sustainability of the project activities, without any external support, can be seen as one main outcome of the project.

After the pilot phase, the support materials created during the project – a student workbook and a teachers' guide for the 10 lessons, and a guide on creating school-wide policies and activities – were finalised based on comments given by the project group in the pilot schools, by project personnel in the Central Hospital of Pitkäranta, by the collaborating partners on the Finnish side, and by colleagues in the Institute of Continuing Education for Teachers in the Republic of Karelia, with whom a follow-up project of this school intervention project was undertaken. The materials are in the public domain and can be accessed at THL's website.

Project material: [www.thl.fi/fi\\_FI/web/fi/tutkimus/tyokalut/nuorten\\_paihteiden\\_kayton\\_ehkaisyojhelma](http://www.thl.fi/fi_FI/web/fi/tutkimus/tyokalut/nuorten_paihteiden_kayton_ehkaisyojhelma)



*Dr Tiina Laatikainen and Co-ordinator Hanna Heikkilä in the meeting with Irina Zabrodina, Irina Gabelko and Nadezda Maksimova, at the Institute of Continuing Education for Teachers in Petrozavodsk.*

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## 9 Intervention on non-pharmacological treatment of elevated blood pressure and serum cholesterol

Tiina Vlasoff, Tiina Laatikainen, & Vesa Korpelainen

The risk-factor surveys organized in Pitkäranta in 1992 and 1997 showed that a high prevalence of hypertension is one of the main health concerns in the area. Even though serum cholesterol levels were lower in Pitkäranta compared to North Karelia, there was a significant proportion of persons with hypercholesterolemia. At the same time, the economic situation was extremely difficult and health care as well as the population were struggling with the supply of pharmaceuticals and other resources. In 1997, it was decided to try a non-pharmacological intervention among high-risk individuals in Pitkäranta to lower blood pressure and cholesterol levels.

In this study, the effects of non-pharmacological treatment of elevated blood pressure and elevated serum cholesterol were studied in the Pitkäranta district in 1997 and 1998. The participants for the intervention were selected based on their risk-factor levels as recorded in a 1997 risk-factor survey. Persons with systolic blood pressure 140 mmHg and/or diastolic 90 mmHg or total cholesterol 6 mmol/l or more were eligible for the study. Altogether 250 persons were invited to participate, with baseline measurements carried out on 143 participants. These were randomized into the intervention (n=72) and the control groups (n=71).

The main element of the intervention was health counselling given by health personnel, including personal goals for a change in lifestyle agreed together with the participant and the health professional. For the intervention group with elevated blood pressure, the recommended lifestyle changes were to decrease salt intake, lose weight, increase physical activity and decrease intake of saturated fats and increase the intake of unsaturated fats. In the group with high serum cholesterol, the recommendation was to decrease the use of saturated fats, increase the use of unsaturated fats, increase the use of fruits, berries, vegetables and whole grain, decrease the use of foodstuffs high in cholesterol, lose weight if needed and increase physical activity.

The practical interventions consisted both of individual counselling and group meetings. During the first study visit, goals for lifestyle changes were set in conjunction with clients. The change process was followed during the visits. For all members of the intervention group, a health counselling group meeting was organized three times

during the intervention. The counselling material was edited and translated from the material used in Finland for same kind of purpose.

The practical implementation of the health counselling was supported by the Finnish Martha Association. They helped in planning the content of nutrition counselling, trained a number of health professionals in the Central Hospital of Pitkäranta and rural health clinics in providing counselling, and also provided health education in group sessions directly to the participants of the intervention.

The differences in CHD risk factors and in lifestyle connected to risk-factors were minor between intervention and control groups. In both groups blood pressure decreased similarly and changes in serum cholesterol levels were small. Favourable lifestyle changes were more common in the intervention group compared to the control group. Weight decreased in the intervention group and slightly increased in the control group, but the difference was not statistically significant. Physical activity increased more in the intervention group compared to the control group. When using an intervention index, the intervention group was more influenced by health promoting and health supporting measures.

The results achieved in the intervention were modest. When participants were asked about the main constraints to changing their lifestyles, they reported a lack of strong motivation and not feeling the need to change. The very difficult economic situation and stressful situations at work were seen as restricting especially for changes in nutrition. It could be that population awareness relating to health-related risk factors at that time in Pitkäranta was still very low and the brief intervention was not enough to create the intention for more active lifestyle change.

Nevertheless, decreasing the CVD mortality remains a very significant public health challenge in Russian Karelia. The model of non-pharmacological treatment for elevated blood pressure and elevated serum cholesterol that was developed and studied in Pitkäranta was a first step to promoting the health and well-being of high-risk individuals. The use of preventive action in health care, the teaching of practical skills to change lifestyles and health information through mass media are the channels for increasing a populations' knowledge of healthy lifestyle and risk factors, methods that were not previously in use in Pitkäranta.

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## 10 Activities aiming to promote healthy nutrition – Collaboration with the Martha organization

Ilona Tossavainen, Ljubov Raiskio & Vesa Korpelainen

The North Karelia district branch of the Martha Association has collaborated with the North Karelia Project since its inception in 1972. The aim of the work of the Martha Association in its collaboration activities has been to teach practical skills on how to obtain an optimal diet and change the unhealthy dietary habits observed in the data collected in the North Karelia Project. Supported by the experiences and results of the co-operation with the project, it was easy for the Martha Association to extend the collaboration to also include the Pitkäranta Project. The practical activities of the Martha Association were a Nutrition and Hygiene Programme in 1993–1994, the continuation of the Nutrition and Hygiene Programme in 1997–1998 and the Cholesterol and Blood pressure intervention in 1997–1998. The work of the Martha Association was focused particularly on nutrition counselling aimed at decreasing health risks.

In the programmes carried out in the Republic of Karelia, the plan was for the nutrition counselling to be very practical. Due to the short duration of the programmes, the number of contacts with participants was limited. Experiences of the counselling were positive and it was found to be an essential part of the programme. The collaboration between Finnish and Karelian partners was seen as useful and according to the feedback, it activated and created new ideas for health promotion.

### Nutrition and Hygiene Programme in 1993–1994

The partners in the Nutrition and Hygiene Programme were the North Karelia Martha District Association, the North Karelia hospital district, the North Karelia Project, and the Home Economics School in Joensuu. The programme was funded by the Ministry of Social Affairs and Health of Finland and also by the partners mentioned above.

The Nutrition Programme was based on the results of the health behaviour survey among adults and the risk-factor survey carried out by the National Public Health Institute, as well as on other surveys and experiences of the North Karelia Project. The studies showed for example that vitamin C levels were extremely low among adults in Pitkäranta and cooking and food preservation methods were such that they destroyed vitamin C during the process. People were not interested in taking care of their health. It was also realised that there was no home economics teaching in the schools and

therefore people had poor knowledge about nutrition in general. Knowledge about the connection between diet and health was low even among health care personnel. The high price of fruit, vegetables and berries, as well as difficulties in preserving and distributing them limited their use.

The aims of the programme were:

- 1) to teach participants in the courses how to make effective and healthy use of food products, with a special emphasis on vitamin C supply and preserving vitamin C in cooking
- 2) to educate on cleaning (equipment, detergents and working methods) and to raise awareness of the role of hygiene in the quality and nutritional value of food
- 3) to train public health nurses to act as nutrition counsellors in their own work and for different target groups.

Target groups of the programme were paramedical practitioners, kitchen staff in schools, hospitals and children's day-care centres and people preparing food for children at home.

Training material was prepared by participating partners and consisted of leaflets on *healthy nutrition* and another on *preservation and use of wild vegetables and herbs*, as well as a *nutrition and health* handout and a *food circle* poster.

Seventy participants took part in the courses. Slightly over 60 people took part in the two educational meetings arranged for citizens. About 80% of them said that they can use the information they gained from the training in their everyday work. Participants said that political and financial problems were the most important reasons that



*Russian collaborators at Martha's cooking classes in Joensuu.*

prevented the establishment of healthy nutrition in the Republic of Karelia. Therefore the activities and recommendations of the state and ministries to improve teaching of nutrition and nutrition counselling would be of great importance.

## Continuation programme of nutrition and hygiene in 1996–1997

The Nutrition and Hygiene Programme from 1996–1997 was a part of the Pitkäranta project. It was based on the experiences of the previous programme as well as on surveys carried out in Pitkäranta by the National Public Health Institute in Finland and the North Karelia Project. The programme's partners were the same as previously.

The aim of the programme was to increase the growing of vegetables and enlarge the variety, to improve life habits in childhood and adolescence, to increase the activity of civil society, and to take better care of the environment. The pilot and demonstration school was Raimälä school in the southern part of the district. The practical intervention consisted of teaching 9th graders, their parents, teachers and school health personnel about nutrition, the growing of vegetables and environmental hygiene. During the summer vacation pupils took care of a vegetable garden in the school yard. Lectures about the same topic were also given to doctors and nurses in the Pitkäranta hospital.

Experiences of the programme were positive. Participants felt that their knowledge about healthy nutrition improved and that they gained insight into how to renew cultivation.

## Cholesterol and hypertension intervention in 1997–1998

In the cholesterol and hypertension intervention the task of the Martha Association was to demonstrate by lecturing and by other practical means the connection between nutrition and health, especially regarding intake of fats, sodium, and fibre. In counselling, information was given on how to decrease the use of fats, how to replace saturated fats with unsaturated fats in cooking and baking, how to increase the use of berries, vegetables, roots and wholegrain products and how to decrease the use of salt in cooking and preserving.

# 11 Vitamin C surveys and intervention

Tiina Laatikainen, Laura Paalanen, Vesa Korpelainen & Pekka Puska

In connection with the first risk-factor survey carried out in Pitkäranta (see Chapter 13), plasma ascorbic acid i.e. vitamin C levels, were measured and compared with corresponding analyses from North Karelia, Finland. The vitamin C levels were measured only among men in both areas. The results from the survey were surprising. In Pitkäranta, 93% of men had severe vitamin C deficiency and none had an optimal plasma concentration, whereas in North Karelia only 2% of men were classified as having vitamin C deficiency. This finding made the researchers suspicious that the samples had not survived the long transport from Pitkäranta to the biochemical laboratory of the National Public Health Institute in Helsinki in optimal condition prior to the analyses being made.

The measurements were repeated from the same men in Pitkäranta again in spring 1993, with results showing only slightly higher concentrations than in spring 1992. This confirmed that the observed and alarmingly low plasma vitamin C levels were real. Based on these results a nutrition intervention was planned for Pitkäranta. From the group of men who participated in the risk-factor study, 60 persons with very low plasma vitamin C concentrations were selected for the intervention and randomized to treatment and control groups. The treatment group obtained daily 200 ml strawberry-blackcurrant nectar with very high content of vitamin C for a period of



*Nurse Seija Lipponen, Ms Tiina Matilainen (Dr Laatikainen) and staff from Pitkäranta Central Hospital during the vitamin C survey data collection in 1993.*

4–5 weeks. After the intervention the plasma vitamin C levels were assessed again for both the treatment group and the intervention group.

After the intervention 46% of men in the treatment group reached the normal level, while in the control group only one man had a normal plasma vitamin C level. The intervention confirmed that lack of vitamin C in the diet was the reason for the low vitamin C levels. The finding was supported by the results of self-reported use of fresh vegetables, fruit and berries in Pitkäranta. Use of all the food items was very infrequent in early 1990s.

In 1997, plasma vitamin C levels were measured again from participants of the risk-factor survey; this time from both men and women. The levels were still very low, though better among women compared to men. In connection with the 1997 risk-factors survey, periodontitis among the participants was also assessed. The association of very low plasma vitamin C levels with periodontitis was clear.

The very low vitamin C levels in the region were disturbing. However, even though the prevalence of periodontitis was high among participants, the health professionals in the Pitkäranta region reported that they very seldom observed clinical cases of scurvy. It was hypothesised that the period of very low plasma vitamin C levels must be rather short, being concentrated in the spring months when all the body reserves have been used and the supply of vitamin C from foods is minimal.

In 1997, the plasma vitamin C assessments were repeated also in the autumn (September) from 43 men and 56 women who also participated in the measurements in April. The seasonal difference was striking. The mean concentration among men was 8-fold and among women 4-fold compared to concentrations in spring. Obviously the intake of vitamin C rich foods is notably higher during summer and autumn compared to winter and spring.



Figure 1. Plasma ascorbic acid concentration in spring and autumn 1997.



There were many challenges and exciting experiences related to the data collection for vitamin C analyses. As the vitamin C samples are very vulnerable to changing conditions, the whole process, including the transport of samples, needed to be well planned and standardised. One of the most important issues is that after blood is drawn, the serum samples need to be immediately frozen and kept well frosted during transportation to the analysing laboratory. For this, in field circumstances, dry ice is often used to enable rapid freezing of the serum samples and to guarantee a low enough temperature during transport. In spring 1997, the weather was cold when the collection of samples was started. Officers in customs were very interested in the big box that had been carefully sealed with plastic tape and asked about the content. When they were informed that the box is filled with ice they shook their heads and said: "Isn't it cold enough without bringing more ice here?"

In general, as vitamin C is one of the important antioxidants and its deficiency is associated with a higher risk of inflammation and even the risk of cardiovascular diseases, the high seasonal variation in vitamin C levels in the Pitkäranta region is clearly a public health challenge. The monitoring of vitamin C levels has been continued in connection with the risk-factors surveys and even in spring 2002, very low levels were measured. The availability of vitamin C rich foods all year round seems to be challenging in this location and a clear target for public health interventions.

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## 12 Oral health promotion among children in Russian Karelia

Anne Hiiri, Svetlana Tsvetkova & Hannu Hausen

Due to the concern of the local authorities over the oral health situation among children in the Pitkäranta district, the then Finnish National Public Health Institute (KTL) proposed that oral health promotion be included in the collaboration. In 1993, preparations for an oral health promotion program were started in collaboration with the authorities of the Pitkäranta district and also with experts from the Department of Community Dentistry at the University of Kuopio. As a first step, it was decided to carry out a community analysis with a special emphasis on determining oral health status and its determinants among children and adolescents in the Pitkäranta district. The contents of the oral health promotion programme were to be based on the results of this baseline community analysis.

Dr Mihail Uhanov, the Chief Medical Officer of Pitkäranta district took responsibility for the local management of the oral health program, while kindergarten, school and health care personnel were entrusted with taking care of the daily activities. Dr Svetlana Tsvetkova, the Chief Dental Officer of the District, had a central role in both the planning and implementation of the different phases of the program. The team of Finnish experts was led by Professor Hannu Hausen. The members of the team included Associate Professor Viljo Nyssönen, Dr Anne Hiiri, and Dr Sakari Kärkkäinen.

### The goals for the program were derived from the baseline community analysis

The baseline analysis of the community included clinical dental examinations and questionnaire surveys for children. In addition, interviews with stomatologists and dentists, observations at local shops, kiosks, schools and dental clinics, and determinations of fluoride levels in drinking water were carried out. Previous information on oral health and its determinants among children in the Republic of Karelia was gathered from the literature, from local statistics, and from patient records kept in the dental offices of the target area. The results of the baseline community analysis revealed that the occurrence of dental diseases among children and adolescents was indeed high. Behaviours related to oral health were generally unfavourable, and professional preventive activities were practically non-existent at dental offices.

The results of the situation analysis called for enhancing healthy lifestyles, re-orienting the modes of action of the oral health care system, creating a health-conducive environment and empowering community actions, as recommended in the Ottawa

Charter. It was decided to attempt to achieve at least the same level of oral health and oral health behaviours as those found in 1992 among the children and adolescents residing in the Finnish reference areas: the cities of Kuopio, and Jyväskylä. The intermediate objectives were to improve self-care and re-orient the modes of action of the oral health care system. This was to be done by developing the knowledge and skills needed to lead a healthy life. Health counselling was especially aimed at increasing the frequency of tooth brushing and the use of fluoridated toothpaste, as well as decreasing the use of sugary snacks in between meals. The intervention also aimed at an increased demand for and supply of proper toothbrushes and fluoridated toothpastes in the local shops and kiosks.

## Implementation of the program

The actual intervention program was started in autumn 1994 in the town of Pitkäranta. Dr Tsvetkova was the local co-ordinator who took responsibility for the practical management of the various activities included in the intervention. In the beginning, five workshops on oral health problems, their causes and their prevention were arranged for the oral health care personnel and five workshops for the school and kindergarten personnel. The purpose of these workshops was to provide all sectors with sufficient information and to engage them in collaboration. As part of the training and engagement with the program, a Finnish dentist and a dental nurse visited all kindergartens in the town area during a two-week period and gave the teachers hands-on counselling on proper oral self-care.

As the next step, the intervention was implemented in grades 1–3 of one school and in two kindergartens. During the school year 1994–1995, the health education for schoolchildren in the town of Pitkäranta consisted of six lessons on the causes and prevention of oral diseases. The lessons were planned and carried out by the teachers.



*Dr Svetlana Tsvetkova teaching children how to take care of their teeth at the health fair in Pitkäranta in 2006.*

Similar information, though adapted to the ages of the children, was given at the kindergartens. A dental nurse attended parental meetings at schools and kindergartens and informed the parents about proper self-care, as well as informing about the progress of the program of oral health promotion in the area. At kindergartens, the children also practiced tooth brushing with fluoridated toothpaste every day after their nap. With the help of the parents as well as the local industrial plants and authorities, proper toothbrushes and fluoridated toothpastes were delivered to the kindergartens.

During each child's dental visits, a dental nurse gave the same information on oral health that was given in school and provided the child with hands-on instruction on the proper way to brush his/her teeth. She then checked the mouth, excavated the open cavities and filled them with temporary filling material and encouraged the child to see a dentist. In addition, the dental nurse applied fluoride varnish twice a year and kept a record of all preventive procedures conducted at the dental office.

From early on, the Ministry of Public Health and the Chief Dental Officer of the Republic of Karelia were regularly informed about the status of the program. They also participated in Finnish–Russian seminars, where issues related to the program was discussed. The local TV-channel and newspaper provided information on the program for the population. The preliminary experiences on the feasibility of the program were promising, and in 1997 the intervention spread into the remaining areas of the Pitkäranta district, with

teachers incorporating oral health education as a part of the school curriculum.



*Excited boys waiting for the tooth examination.*

## Good progress demonstrated in the follow-up community analysis

In 2001, a follow-up community analysis was carried out using the same methods that had been used in 1993. The results were used to monitor the changes during the period 1993–2001 and to assess the strengths and weaknesses of the program.

The improvements in oral health and in oral health-related behaviours among children as well as other developments in the community were impressive. The occurrence of caries had decreased and the percentage of caries-free (DMFS=0) children had increased significantly. The presence of visible plaque had also decreased among children in all age groups. In 2001, two-thirds of the children believed that they are able to prevent oral diseases by their own means; and their behaviour had also become more favourable, except for the reported use of sugary snacks, soft drinks and experimentation with smoking. The majority of the children had been satisfactorily informed about the most common determinants of dental decay. Children knew that frequent use of sugary snacks is related to dental decay, that dental decay can be prevented with regular tooth brushing and the use of fluoride products. This information had been obtained mainly at home or at school.

The supply of toothbrushes, fluoridated toothpastes and other oral hygiene materials was much more abundant in local shops and retail stands in 2001 than it was in 1993. In 1993, these had been available only in the town area and even there for a high price, and only a few of the toothpastes included fluoride. In 2001, most of the toothpastes were fluoridated and were available throughout the Pitkäranta district.

The changes in behavioural patterns related to oral health were equally encouraging as those for oral health. In regard to tooth brushing frequency, the objective was reached and even exceeded. The daily frequency for the intake of sugary snacks remained virtually unchanged among children and adolescents in the Pitkäranta district. This was probably due to the fact that information about the benefits of decreasing the frequency of sugary snacks among children was not accepted by the parents and teachers. This resistance was explained as being due to the hard economic times of the 1990s. The parents wanted to compensate for the discomfort due to deprivation by giving children ample sweets.

Experimentation with smoking before the age of 12 increased alarmingly between 1993 and 2001, which also called for further actions. Positive changes were also seen in the attitudes of the key local authorities and in the implementation of oral health education at schools and kindergartens. In 2001, 87% of the teachers reported having implemented campaigns for oral health education, which was 17 percentage points more than in 1993. Teachers and oral health care personnel considered the joint efforts of schools and oral health services to be valuable for promoting oral health. Both teachers and oral health personnel, however, still considered the role of the parents to be the most important. Between 1993 and 2001, the oral health services did not manage to

change their modes of action towards emphasising health promotion. So far, the program has also failed to develop collaboration with child and maternity welfare clinics.

## Concluding remarks

In the beginning of the 1990s in the Pitkäranta district the need for promotion of oral health was urgent. At the same time, the whole of Russia was struggling with huge problems in public health and health care. In such a situation, oral health is often given a low priority. Nevertheless, promotion of oral health is part of general health promotion and should be valued similarly to other aspects of health. This program of oral health promotion has succeeded rather well in putting the principles of health promotion into practice; the improvements in oral health and in oral health-related behaviours among children as well as other developments in the community were impressive between 1993 and 2001. Still, more work to promote oral health was needed to decrease the frequent use of sugary snacks and soft drinks, to increase the use of fluoridated toothpaste and to decrease smoking among adolescents in the Pitkäranta district.

The current program has been carried out with existing resources, and no extra investments have been made. This can be interpreted as a strength of the program. The active and enthusiastic contribution and involvement of all participants, and especially the role of the local co-ordinator from the beginning, was essential for this program. It made the program both acceptable to and applicable in the target area.

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# HEALTH MONITORING AND RESEARCH



*Nurse Eeva-Liisa Urjanheimo conducting the pilot survey among policemen in Petrozavodsk in 1991.*



## 13 Risk-factor surveys and monitoring in Pitkäranta

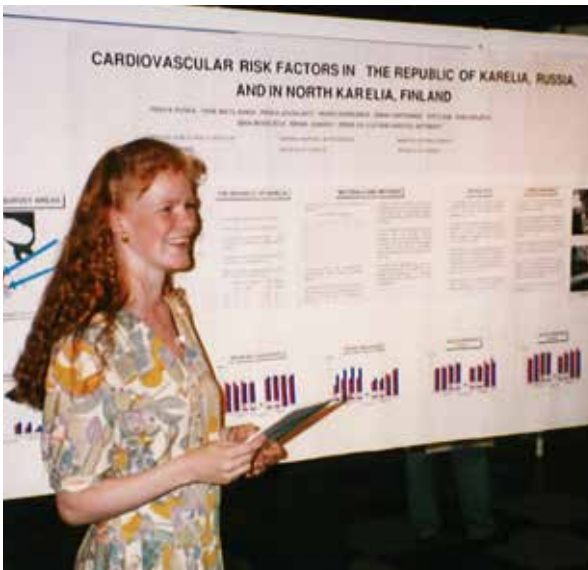
Tiina Laatikainen, Tiina Vlasoff, Svetlana Pokusajeva, Erkki Vartiainen, Mihail Uhanov & Pekka Puska

One of the very early and key approaches in the Pitkäranta project has been the development of non-communicable disease (NCD) risk-factor monitoring in the area. During the first year of collaboration between the National Public Health Institute, the North Karelia Health Promotion Centre in Finland and the Ministry of Health in Russia, a pilot study was organised among policemen in North Karelia and Petrozavodsk. In this pilot study the feasibility of carrying out population risk-factor surveys in the Republic of Karelia and the comparativeness of results across the border were tested.

In Petrozavodsk 70 policemen were invited to participate in the pilot study in April 1991 and 49 of them participated. Participating policemen were aged 20–59, 53% of them were smokers and 20% reported not having any type of leisure time physical activity. The mean total serum cholesterol was 5.1 mmol/l, the mean BMI 25 kg/m<sup>2</sup>, the mean systolic blood pressure 126 mmHg and the mean diastolic blood pressure 83 mmHg.

In 1991, the Pitkäranta district was chosen as a study area for the risk-factor surveys from the Republic. Based on statistics from the Republic, the Pitkäranta region was regarded as quite representative of the whole republic when demographics and economic structure were considered. The planning of the survey was started in autumn 1991 and involved several visits by Russian collaborators to working group meetings in the National Public Health Institute in Helsinki. The key persons involved in the planning of the first survey from the Central Hospital of Pitkäranta were

several visits by Russian collaborators to working group meetings in the National Public Health Institute in Helsinki. The key persons involved in the planning of the first survey from the Central Hospital of Pitkäranta were



*Ms Tiina Matilainen (Dr Laatikainen) presenting the first results of the risk-factor surveys in the Third International Congress of Preventive Cardiology in Oslo in 1994.*

chief physician Mihail Uhanov, internist Svetlana Pokusajeva, head of the laboratory Nina Moisejeva and nurse Irena Kallio. In Finland, the planning of the survey was led by Professor Pekka Puska. Other key researchers were Professor Erkki Vartiainen, researcher Pekka Jousilahti, who co-ordinated the FINRISK survey in 1992, and Tiina Laatikainen (née Matilainen), who was a medical student at that time.

Since then, four cross-sectional NCD risk-factor surveys have been carried out in Pitkäranta in 1992, 1997, 2002 and 2007. In addition one survey has been carried out in Aunus in 2003. All surveys were conducted during the spring, mostly in April. The surveys were carried out by a Russian–Finnish collaborative team and co-ordinated with the respective large FINRISK surveys carried out concurrently in Finland. The co-ordination involved adherence to the same standardised methods and quality control as in the Finnish studies, which provided the possibility for comparisons. In many papers the risk-factor levels observed in Pitkäranta have been compared with corresponding results from North Karelia, Finland, that is the closest Finnish province across the border.

Independent random samples (n=1000) of the population aged 25–64 years were taken from the best possible source of population information in each study year. In 1992, the nurses in the Central Hospital of Pitkäranta, in regional hospitals and in outpatient clinics collected the population list of the target population from patient records kept in the form of booklets in the hospital and outpatient clinic archives. Many of these collected lists were handwritten. The sample was drawn in the National Public Health Institute by marking the gender and age strata for these lists and using random number selection. In later years the sample was drawn from electronic population records. The sample was stratified so that 125 persons for each sex and 10-year age-groups were chosen from the district. The total number of respondents in four surveys was 2672. The response rate varied from 84% to 55%.

All surveys included a self-administered questionnaire, physical measurement and blood sampling. The protocol and methods have in all surveys been as identical as possible with the FINRISK studies, following the WHO MONICA project and later the European Health Risk Monitoring project recommendations. The data collection has in all surveys been carried out by a trained research team with both Finnish and Russian nurses and physicians. The survey subjects have been invited to attend health check-ups at their closest hospital or outpatient clinic. Participants have also had the chance to fill in the questionnaires assisted by survey nurses at the survey sites.

The international survey team has had many exciting moments during the field work of the surveys. Sometimes in April the gravel roads have been in such condition that nurses have had to help push the ambulance that was transporting them out of the mud. Short interruptions in electricity supply have also created anxious moments in the survey laboratory. At one point, problems with customs forced the Finnish survey team to transport the survey equipment through Vaalimaa in South Eastern Finland, and included an 11-hour wait at the customs, causing several days delay to the start of the survey. However, all the difficulties were overcome and enriched the experiences of those working in the collaboration.



## Main findings from the risk-factor surveys

In 1992, some alarming cardiovascular risk-factor levels were observed in the Pitkäranta region, but some risk factors were also on a lower level compared to North Karelia in Finland. Especially smoking among men was very common in Pitkäranta, being 65% compared to 31% in North Karelia. Smoking was especially high among the youngest group aged 25–34, at 77%. Among women, smoking was relatively uncommon in 1992, with only 11% of women reported to be regular smokers. However, the cotinine (metabolite of nicotine) measurements showed that women were more likely to underreport their smoking. Obviously smoking was culturally not fully accepted among women in the early 1990s.

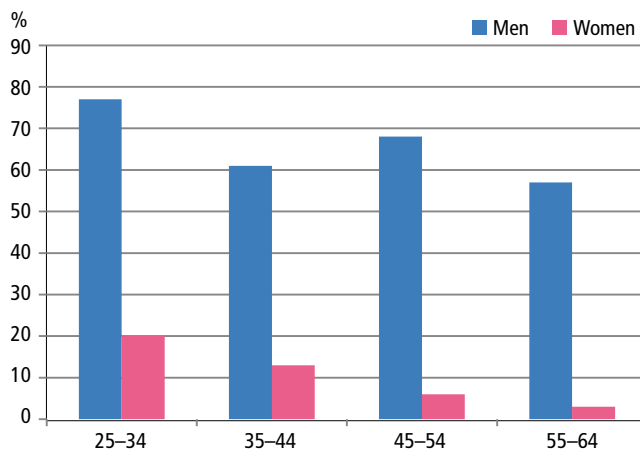


Figure 2. Proportion of regular smokers by age group among men and women in Pitkäranta in 1992.

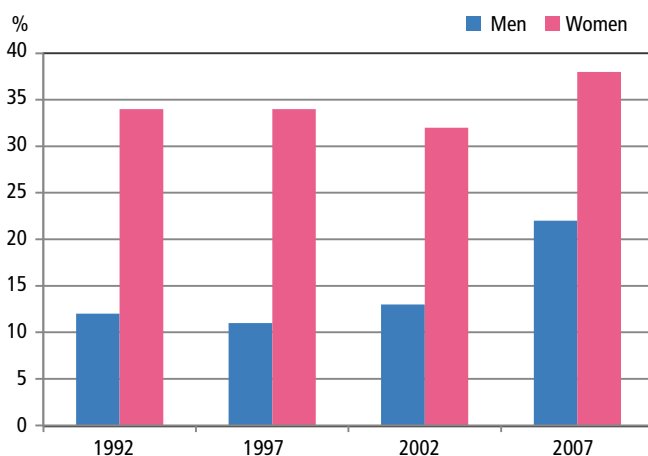
Blood pressure levels and body mass index (BMI) among women were also reasonably high. Mean systolic blood pressure among women was 144 mmHg and mean BMI 28.0 kg/m<sup>2</sup>. In contrast, the mean serum cholesterol levels in Pitkäranta were lower compared to North Karelia, both among men and women. In Pitkäranta, mean serum cholesterol was 5.2 mmol/l in men and 5.3 mmol/l in women, while the respective levels in North Karelia were 5.8 mmol/l and 5.6 mmol/l.

During the 15 years of risk-factor monitoring from 1992 to 2007, systolic blood pressure levels decreased in both sexes. Further, diastolic blood pressure declined in women but increased in men. The prevalence of high blood pressure levels has however decreased during the project. In 1997 a slight decline was observed in mean cholesterol levels, but since then, cholesterol levels have increased in both sexes to levels higher than in 1992. BMI increased in both sexes, though more among men than among women. The proportion of obese (BMI  $\geq$  30) doubled in fifteen years among men, though obesity was still more common in women than in men. More than 60% of men were still smokers in 2007. Daily smoking doubled in women over a fifteen year

**Table 2. Changes in main cardiovascular disease risk-factors between 1992 and 2007 among men and women aged 25 to 64 years in Pitkäranta**

	Men				Women			
	1992	1997	2002	2007	1992	1997	2002	2007
SBP (mmHg)	145.4	143.2	139.5	143.0	147.5	140.2	136.0	136.8
DBP (mmHg)	83.7	86.1	81.6	87.5	83.0	83.3	77.6	81.9
Cholesterol (mmol/l)	5.19	5.09	5.34	5.28	5.32	5.11	5.48	5.52
BMI (kg/m <sup>2</sup> )	25.2	24.8	25.3	26.5	28.0	28.0	27.8	28.7
Smoking (%)	65	63	66	61	11	15	21	20
Alcohol use (g/week)	45.2	65.0	72.0	59.2	9.4	15.0	12.2	16.5
GGT (U/l)	27.0	33.6	43.4	49.3	22.3	26.6	29.3	33.4

SBP=systolic blood pressure, DBP=diastolic blood pressure, BMI=body mass index, GGT=gammaglytamytransferase

**Figure 3. Prevalence of obesity (BMI  $\geq$  30 kg/m<sup>2</sup>) among men and women aged 25 to 64 years in Pitkäranta.**

period. A marked increase was observed in the mean GGT and alcohol consumption among both men and women.

## Conclusions

In the beginning of the project, the most alarming risk-factors in Pitkäranta were an especially high smoking prevalence among men, obesity among women and hypertension in both sexes. During the years some modest changes occurred in risk-factor levels, both positive and negative. Blood pressure levels decreased slightly among men

and more among women, most likely due to improved screening and treatment of hypertension in the area. Smoking decreased slightly among men and increased among women, but not to the extent seen in many Eastern and also Southern European countries. Further, serum cholesterol levels increased slightly, clearly following improvements in the economy and increased availability and popularity of food products high in saturated fats. Obesity rates have remained more or less similar in women, but an increase was observed among men in the latest survey. Most likely the improved economy and change from physically active work among men in 1992 to office type and machinery assisted work in 2007 partly explains this reasonably rapid change in obesity prevalence.

In Russia, there is very little data on non-communicable risk-factors and their trends. The surveys carried out in Pitkäranta have produced well-standardised data that can also be utilised in international comparisons. The approach has been acknowledged by Russian researchers in cardiovascular disease epidemiology and the experiences have been utilised for example in the Russian WHO CINDI (Countrywide Integrated Non-communicable Disease Intervention) network, which aimed to develop both risk-factor and health-behaviour monitoring related to non-communicable diseases.

Both the information and experience gathered by the risk-factor surveys in Pitkäranta have been very useful. The challenge has been how to best utilise the survey results and how to sustain the monitoring approach. In Pitkäranta and in the Finnish–



Russian collaboration the survey results have been actively used. Some projects have also been carried out in the Republic of Karelia to develop the utilisation of health data in decision-making and development activities. However, this development is just beginning.

*Co-ordinator Tiina Vlasoff teaching blood sampling in Pitkäranta Central Hospital in 2007. Dr Nina Moisejeva and Mr Vesa Korpelainen watching.*



*Blood sampling in the 2007 risk-factor survey.*

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## 14 Monitoring health behaviors

Tiina Laatikainen, Tiina Vlasoff & Ljubov Raiskio

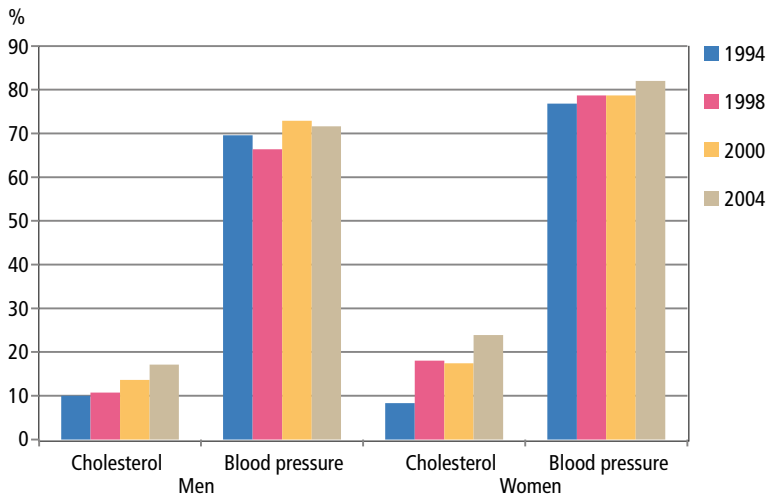
One of the main aims in the collaboration between the Republic of Karelia and Finland has been to build up an internationally comparable health monitoring system that serves the needs of health promotion and health policy planning in the Republic. Even though the risk-factor survey approach was started already in 1992 (see Chapter 13), more frequent monitoring of health behaviours was considered important. The model was adopted from Finland, the Baltic countries and other European countries belonging to the WHO CINDI network. In the CINDI programme, active development of a common CINDI Health Monitor approach and core questionnaire was ongoing from the mid-1990s. In Finland and the Baltic countries, the FINBALT Study had already started earlier, building on Finnish experiences from the Health Behaviour and Health among the Finnish Adult Population (AVTK) survey carried out in Finland annually since 1978. All these approaches aimed at monitoring self-reported health behaviour data to obtain frequent information on changes in behaviour.

The Pitkäranta region was involved in this development in the very early phase. The first health behaviour survey was carried out in spring 1994. The next survey was carried out in connection with the “Bridging the East–West Health Gap” project, funded by the European Union Biomed2 programme. The project was co-ordinated by the National Public Health Institute in Finland and Pitkäranta was one of the six collaborating areas. In addition to the Republic of Karelia and Finland, the other four were Poland, Hungary, Catalonia in Spain, and the Heidelberg region in Germany. In 1996, data were collected also from Suojärvi. Since then, surveys have been organized in 1998, 2000 and 2004. The survey in 1994 was done for an age- and sex-stratified sample of population aged 15–64 years. The sample size was 1250. Since then a simple random sample of population aged 25–64 has been drawn from electoral rolls or other sources with as representative a population as possible. The sample size in 1996 was 1500, and thereafter it has been 1000 persons.

Survey data were collected using a self-administered questionnaire including questions on socioeconomic factors, health behaviour (smoking, diet, physical activity, alcohol consumption), use of health services, symptoms, current status of health and medical history. The survey questionnaires were nearly identical in all the survey years.

Especially in the first surveys, conduction the study was challenging. Researchers could not rely on mail delivery and systems for return envelopes were not available. Local health professionals actually visited all the persons selected in the sample and advised them on how to fill in and return the questionnaires.

The health behaviour surveys provided data on non-communicable disease-relevant behaviours, but also on health service use and symptoms. In Pitkäranta, only 15% of men and 25% of women reported in 2004 that they had visited a physician in the central hospital or other specialised care during the previous year. Half of men and 60% of women had however visited the regional outpatient clinics. Visits to specialised care increased among women from 1998, but were stable among men. No change was observed in outpatient clinic visits. Visits to a dentist increased especially among women. In 2004, about 60% of women and 40% of men reported that they had visited a dentist at least once during the previous year. Risk-factor screenings were performed very differently for blood pressure compared to serum cholesterol. Even the proportion had increased since 1994, with 70% of men and 59% of women reporting in 2004 that their blood cholesterol had never been measured or that they are unaware whether it had been measured. In 1994, the proportion was 80% both among men and women. In contrast, blood pressure had been measured for over 90% of both men and women, being more or less similar to the level recorded for 1994. Over the period, some increase was seen in the use of different medications both among men and women. Especially the use of anti-hypertensives and vitamins increased.



**Figure 4. Proportion of those participants who reported that their serum cholesterol or blood pressure had been measured during the previous year.**

Commuting physical activity is quite common in Pitkäranta. About 50% of both men and women reported having spent at least 30 minutes in commuting activity daily in surveys carried out in the late 1990s. In men the proportion however decreased by 2004. Having frequent leisure time physical activity is uncommon. Only about 20% of respondents reported having medium intensity leisure time activity at least twice a week. No major change was observed between the surveys.

Smoking rates reported in health behaviour surveys were in line with those observed in risk-factor studies. About 60% of men reported being daily smokers. In women the smoking prevalence increased from 10% in 1994 to 20% in 2004. Half of the smoking men and over 60% of smoking women reported that they would like to quit smoking. Interestingly the proportion of smokers who had tried to quit during the last year decreased among men from 17% to 8% between 1998 and 2004. In 1994, the respective proportion was 14%. Among women the respective percentage remained unchanged (about 25%).

Major changes were observed in dietary habits. Especially the use of butter as a spread on bread and the use of vegetable oil in cooking changed remarkably in the mid 1990s. Clearly, availability and pricing issues affected the use of these products during the major economic crisis. Further, the effect of new products coming into markets was seen for example in milk consumption. Since 1994 the proportion of participants using mainly low fat milk increased from 0% to 30% in 2004.

Among men about 10% reported daily use of fresh vegetables. The proportion did not change between the survey years. Among women there is a slight increase in

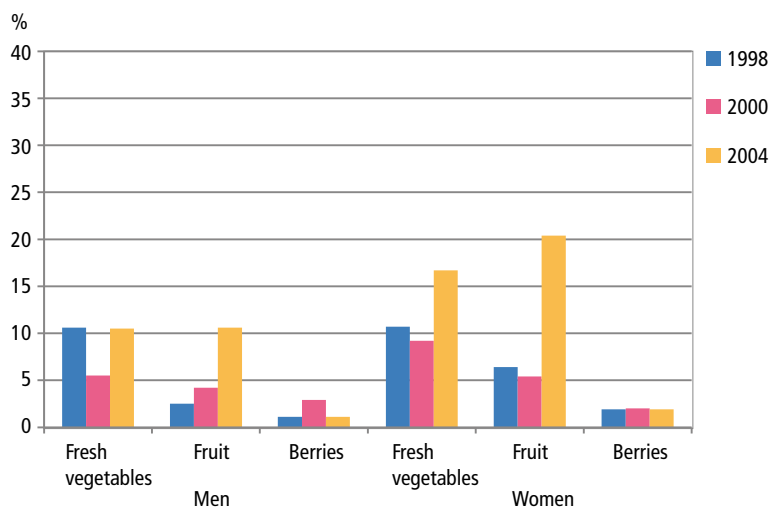


Figure 5. Proportion of participants who reported daily or almost daily use of fresh vegetables, fruit and berries.

the use of fresh vegetables and in 2004 about 15% reported daily use. Daily use of fruit was extremely low in the 1990s, but slightly increased in the beginning of the 2000s, being 10% among men and 20% among women in 2004. Use of berries did not change between the survey years and only about 2% of both men and women reported daily use of berries.

Participants were also asked about the reasons for high morbidity in the Republic of Karelia. Both men and women (about 40%) regarded stress as the most important reason. Moreover, high consumption of alcohol was recognised as the main reason by 20% of participants.

The health behaviour surveys organized in collaboration have been important learning opportunities for the local health professionals to gather information on health and health-related behaviours within their society. The Pitkäranta region was quickly acknowledged also by the Russian CINDI network co-ordinators and their expertise in health-behaviour monitoring was asked for to develop the CINDI Health Monitor approach in other Russian CINDI regions.

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## 15 School health surveys in Pitkäranta

Kerttu Tossavainen, Erkki Vartiainen, Ulla Kemppainen, Kirsi Bykachev & Vladimir Panteleev

### Background and history

At the beginning of the 1990s Russia underwent significant changes. Different environmental factors together with economic variables influenced adolescent health behaviour in Russia. Adolescent attitudes toward education, family life, wealth, drugs, equality and politics changed rapidly. These changes affected the lives of youths across the country and were visible at school and at home. Adolescents in the Pitkäranta district had to adapt to these same changes in life. Regional changes affected their living environment and their ability to understand health-related issues.

Through several decades Finnish health professionals have been interested in regional health differences and health changes in North Karelia and in the Republic of Karelia among adolescents. Many organisations have conducted collaborative interventions concerning health promotion in the Pitkäranta district and in Eastern Finland. The National Public Health Institute (now part of the National Institute for Health and Welfare) has a long history of conducting surveys in the region: The first surveys concerning adolescent cardiovascular health were conducted in 1984, 1987, 1988 and 1995 in Eastern Finland. Many cross-national studies and projects took their initiative from the Pitkäranta Youth Study back in 1995.

The University of Eastern Finland has demonstrated a long-term interest in studying adolescent health in the Pitkäranta district. In 1996, a Master's thesis study called "Smoking behaviour of ninth-form pupils in Pitkäranta, Karelian Republic of the Russian Federation" was written by Ulla Kemppainen at the University of Kuopio (since 2010, called the University of Eastern Finland). In 2003, Mika Kumpulainen wrote a Master's thesis study called "Learning about drug-abstinent behaviour of seventh-form pupils in Pitkäranta, Republic of Karelia –The Russian Federation", and in 2005 Olga Ruohonen wrote a Master's thesis called "Girls perceptions of sexual health and sexual education in Russian schools in the Republic of Karelia", while studying at the University of Kuopio. These Master's theses helped to develop health education planning in schools in the Pitkäranta district. The study findings highlighted the need for preventive actions in adolescent regional health behaviour and the current need for further research.

## Preventing adolescents' risk behaviours in the Pitkäranta district

The Master's theses findings encouraged Ulla Kemppainen to continue studying adolescent health in the Pitkäranta district. In 2007, a comparative and predictive cross-cultural study called "Ninth-grade adolescents' health behaviour in the Pitkäranta district (Russian Karelia) and eastern Finland" was published by the University of Kuopio. Kemppainen's doctoral dissertation was supervised by Professor Kerttu Tossavainen from the Department of Nursing Science at the University of Eastern Finland, and by Professor Erkki Vartiainen from the National Public Health Institute.

Kemppainen's study described and compared ninth-grade adolescent health behaviour in the Pitkäranta district and in Eastern Finland. The study described and compared adolescent smoking patterns and the use of alcohol and other substances in these two regions in 1995. The purpose of the study was to examine how adolescent smoking and alcohol use could be predicted. In total, 385 ninth-grade pupils from the Pitkäranta district and 2098 same-aged pupils from eastern Finland participated in this survey, which was also a part of the cardiovascular health surveys conducted by the National Public Health Institute and part of the Pitkäranta Youth Study.

In 1995, Pitkäranta was considered a region in need health-supported growth and going through environmental changes. Politicians, teachers and nurses were in a key role in influencing adolescent health and the living environment. Smoking was at a surprisingly high level among adolescents in the Pitkäranta district: 29% of boys and 7% of girls smoked on a daily basis at home or at schools. The study findings suggested that a lack of preventive healthcare, the smoking of parents or friends, and a common health situation regionally were the reasons that urged adolescents to start smoking.

The following genuine fragments from the diary of researcher Kemppainen and Professor Tossavainen during the fieldwork in the Pitkäranta district describe the environment in Pitkäranta in 1995:

*"The Karelia region is full of war memorials. I've already seen buildings and a lot of forest, too. While we're driving, I can't stop admiring the landscape. Forests around here look like they're in a peaceful natural state. Every now and then we come across little curvy rivers and rapids. Luckily the road we are driving on is new and wide. It's also wet and bumpy. I think it will be paved next spring. It's good that Aimo drives very skilfully across obstacles..." (2.4.1995, Pitkäranta)*

*"There's a tomato plant growing by the window. If you look outside you can see Lake Ladoga and a school surrounded by rocky ground. I can see a lot of forest, too. I would go to the forests and pick strawberries if it was July. When telling people about this idea I get confirmation that there are a lot berries and mushrooms in the forest. The village I see looks inhabited. I wonder why the number of students in schools has decreased. I can see a bunch of boys working outside. They are carrying wooden boards to a platform behind*

*a tractor. When asked what they are doing, I'm told that the boys are students in a rural school.” (7.4.1995, Pitkäranta, Impilahti)*

The health behaviours of adolescents in Pitkäranta were affected by social, cultural and physical environmental factors. Adolescents' relationships with their parents and friends had a significant meaning to their health-related choices. Adolescent attitudes to smoking and alcohol use could be predicted by recognising these factors. It was noticed that the risk to start smoking or using alcohol was seemingly high when parents or friends smoked or used alcohol. The risk was even higher if a youngster could buy tobacco from convenience stores or get it from friends.

Schools had a significant role in adolescent health behaviour. Many schools prohibited smoking in school areas but were incapable of controlling it. The reaction of teachers to smoking among students was negative although many teachers smoked in the area of the school themselves. Different problems with teachers or other school staff also had an effect on adolescents' health choices and willingness to commit themselves to healthy lifestyles.

Health problems associated with parents and schools were encountered more in town areas than in the countryside. The study showed that there was a real need in Pitkäranta for different health-related programs. Adolescents needed more health promotion actions at schools and home. Schools were then undergoing change and the results from this study helped them to acknowledge the need for health actions concerning adolescent health behaviour.

Further notes from the diary of researcher Kemppainen and Professor Tossavainen describe a school in Pitkäranta and a moment with a local:

*”A look to a classroom tells me about the common appearance. There are pictures on the classroom wall and the room looks cosy. The lower part of the corridor wall is painted light blue and the top part is painted white. There are thin curtains by the windows. There are a few drawn pictures on the corridor walls; they look like pictures from fairy tales. The whole atmosphere is peaceful and pleasant. Olga told me that school was renovated last autumn. I get a good contact with pupils. Many of them speak English quite fluently and some can even speak Finnish. Pupils are playing in the corridors. I can see that everybody is behaving nicely.” (3.4.1995 Pitkäranta, School number 1)*

*”We were in a sauna at Tyyne's country house (“dacha”). She told us her unbelievable life story with its exciting twists. I think everybody here has a story to tell. The sun shone warmly towards Lake Ladoga. The snow and ice layers must be melting. Tyyne had her tomatoes growing. She is an eager vegetable planter like everyone we have met here. People live close to nature. They know how to preserve vegetables without freezers or minigrip-bags. I haven't seen dispensable products in convenience stores. I hope that the western consumption craziness doesn't break this style of living close to nature.” (13.4.1995 Pitkäranta)*

There have been many health-related studies, surveys and projects among adolescents in the Pitkäranta district between 1995 and 2004. Surveys from 2004 show that there were changes in the health behaviour of the ninth-grade students compared to the 1995 study. In 1995, 29% of boys smoked daily and in 2004 the number of daily smokers was 31%. Among girls, daily smoking doubled from 7% to 15%. Adolescents' alcohol use had also grown since 1995. The 2004 surveys also showed that there were prominent changes in alcohol-related behaviour; youngsters started using alcohol earlier in their lives. There were also changes in adolescents' blood pressure, serum lipids and height, weight and body mass index (BMI) compared to the 1995 results.



*Dr Anastasiya Verho (née Rogacheva) with children by Pitkäranta school number 2.*

*Height measurement in the 2004 youth survey. Sometimes straight walls need to be made.*

## New survey on adolescent health behaviour – exploring the trends from the 1990s to 2013

In 2013, the Department of Nursing Science at the University of Eastern Finland launched a new Karelia ENPI CBC project called "Addressing challenging health inequalities of children and youth between the two Karelias" (AHIC), 2013–2014. The main objective of this project is to promote the health and well-being of children and adolescents in the two Karelias, in North Karelia in Finland and in the Republic of Karelia in Russia.

Up-to-date information about the current health situation of children and adolescents is needed for planning effective health promotion intervention. Therefore, a new survey on the current health behaviour and lifestyles of adolescents was carried out in North Karelia (Finland) and in the Pitkäranta district (Russia) in April 2013 by doctoral student Annamari Aura and the research team of the AHIC project, instructed by Professor Kerttu Tossavainen. The survey aimed at providing information about the trends of adolescent health behaviour between and within the two regions, and producing longitudinal data about the trends in the two different cultures between 1995 and 2013. The aim of Annamari Aura's doctoral dissertation "Multicultural comparative longitudinal study – The challenge of adolescents' health behaviour and health inequalities in two Karelias" is also to recognize adolescent health behaviour from different socio-ecological circumstances and produce information for tackling the growing inequality in health behaviours.

The 2013 survey included eighth- and ninth-grade adolescents from eight schools in the Pitkäranta district and ninth-grade adolescents from eight schools in North

Karelia. The adolescents filled in a self-administered questionnaire that asked about smoking habits, substance abuse, nutrition, exercise, health-related choices and social relationships. Russian adolescents were also measured for height and weight. The fieldwork in the Pitkäranta district was carried out with the invaluable help of the Project Co-ordinator, Mrs Ljubov



*Project Manager Kirsi Bykachev, Mrs Annamari Aura, Professor Kerttu Tossavainen and Co-ordinator Ljubov Raiskio at Salmi school in 2013.*

Raiskio, and kindly supported by the Chief Physician, Dr Galina Lazutkina in the Central Hospital of Pitkäranta.

The gathered data have been analysed for cultural or gender differences in health behaviours. The main findings show that Finnish adolescents today seem to smoke and use more alcohol than their counterparts in Russian Karelia, whereas the Russian adolescents start experimenting with these earlier. The good news is that in the Pitkäranta district both smoking and drinking were at a much lower level in 2013 than in 2004, i.e. almost at the same level as in 1995.

The results of the 2013 survey were disseminated to the schools in the Pitkäranta district in March 2014, when the research team met teachers from all eight schools in the seminars organized in Läskelä, Salmi and Pitkäranta. The discussion over the results was vivid, and the conclusion clear: A lot has already been done to promote healthy lifestyles, but a lot still remains to be done if equality of health is to be achieved among the adolescents of the two Karelias. The future is open for new Finnish–Russian collaboration projects for health promotion in the border areas.

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## 16 Hunt for the origin of allergy – comparing the Finnish and Russian Karelias

Tiina Laatikainen, Erkki Vartiainen, Leena von Hertzen & Tari Haahtela

### Why did we start?

In Finland, an active Asthma Programme to improve the treatment of asthma and to reduce the burden of disease in society was carried out between 1994 and 2004. During the period both mortality due to acute asthma and hospital admissions reduced markedly. However, the increase in the prevalence of asthma and allergy, noticed in Finland from the early 1960s, continued. A similar increase has been observed also in other industrialised countries and the gap in asthma and allergy prevalence between the developed and developing world has become evident.

These observations invited the question as to whether the increase in prevalence is real or mainly explained by improved diagnostics and awareness of the population and of health care professionals. In connection to the National FINRISK 1997 Study a special allergy sub-study was carried out in North Karelia (FinAllergia). A similar data collection was organized in the Pitkäranta region in the Republic of Karelia, Russia. In spring 1998 additional asthma and allergy questions were added to the main survey questionnaire and a separate data collection for the age group 25–54 years was arranged. The participants completed the more detailed questionnaire, while skin prick tests as well as blood sampling was done to allow analysis of allergen specific IgE levels in serum.

### Adults appeared different

Self-reported allergic symptoms and asthma were much more common in North Karelia compared to Pitkäranta. In North Karelia, over 20% of participants reported having hay fever, almost 25% allergic eye symptoms (conjunctivitis), and over 25% atopic eczema. A little more than 5% reported physician-diagnosed asthma. In Pitkäranta the respective proportions were less than 5% for hay fever and allergic eye symptoms, slightly over 10% for atopic eczema and 2% for physician diagnosed asthma.

The more objective measures, skin prick tests (SPT) for atopic IgE-associated sensitisation to common allergens, confirmed the observed differences between the countries. Positive SPT reactions showing sensitisation for pollen allergens (birch and



timothy grass) as well as for cat were much more common in North Karelia compared to Pitkäranta. The percentage of those having at least one positive SPT reaction was nearly 35% in North Karelia compared to 20% in Pitkäranta. These differences were partly explained by the different seropositivity to various pathogens, such as *H. pylori*, *A. actinomycetemcomitans*, *T.gondii*, *H. simplex* etc., suggesting that an active immune process against pathogens may improve the immune tolerance to harmless environmental particulates like pollens or animal danders.

## ...and children even more so

These findings in adults raised an interest in assessing whether these differences between the countries exist already among children. In 2003, around 500 children aged 7 to 15 years from both areas and their mothers were invited to take part in a survey analysing asthma and allergy prevalence and its environmental and genetic determinants. In the survey families completed a questionnaire and the children and mothers participated in a health check-up, where SPT and blood sampling, including DNA collection, were performed. Dust samples from homes were also collected. In addition, the study team collected water samples from all those schools attended by the participating children.

The difference in sensitisation to common allergens was even more pronounced among children. Almost 45% of Finnish children had at least one positive SPT reaction compared to 16% of Russian children. Among mothers the respective percentages were 36% and 18%. The risk of having atopic sensitisation was related to the amount of microbes in the home dust. Atopy was most readily observed among those who had the smallest index for chemical microbial markers, i.e. these subjects had microbiologically poor dust in their homes. In line with that, the microbial cell count for the drinking water in Pitkäranta was almost ten times higher than in North Karelia. Taking into account all confounding factors, the atopy preventive effect of the microbe-rich drinking water in Pitkäranta remained.



*Professor Peter LeSoëuf, Professor Tari Haahtela, Professor Mika Mäkelä and Executive Manager Vesa Korpelainen in front of Pitkäranta Hotel in 2003.*



## Genetics did not explain the difference

The genetics of the two populations were compared. Surprisingly, the Finnish vs. Russian environment appeared to exert an effect via opposite alleles on the risk of allergic diseases. This was especially visible in adult women. In children, living in the Finnish and Russian environment was associated with a different genetic profile linked to asthma and allergy. Several innate immunity genes that were associated with asthma-related phenotypes in Russian Karelian children tended to have an opposite effect in Finnish Karelian children. Altogether, it was obvious that the individual genetic background does not determine whether the subject will develop sensitisation or clinical allergy. It is more dependent on environmental factors and adaptation to them.

## The younger, the more allergic in Finland, but not in Russia

In 2007, a survey among the 25–54-year-old adult population was repeated. It was anticipated that the difference in adult atopy between the two areas might have decreased over the ten-year period. But this was not the case. The prevalence of positive allergen specific IgE levels to common allergens in North Karelia had increased, while there was no change in Pitkäranta (Fig. 6). Analyses of these data by birth cohorts showed that in Finland the increase in prevalence occurred in younger generations. Among those born in the 1940s the prevalence was at the same low level in North Karelia and Pitkäranta, but among those born in the late 1970s the difference was already five-fold.

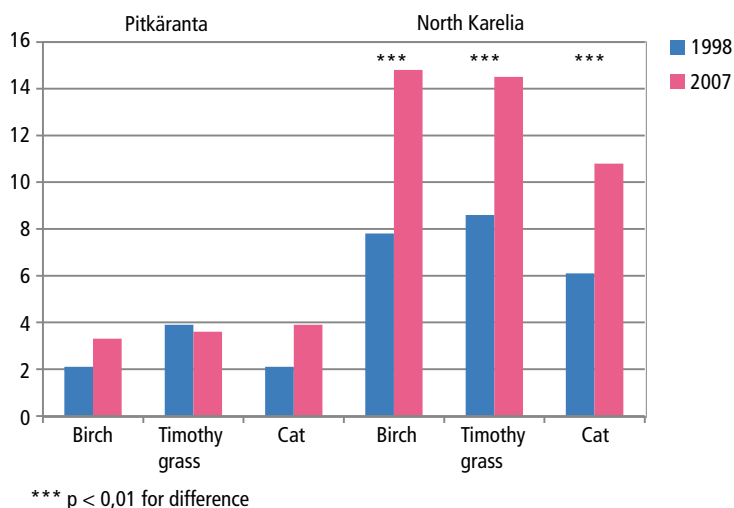


Figure 6. Increased allergen specific IgE levels ( $\geq 0,35$  IU/L) among 25-54 year old in Pitkäranta and North Karelia in 1998 and again 2007.

## Poor biodiversity explained immune dysfunction

After the war Finland experienced major economic growth and rapid urbanisation, creating a large socioeconomic gap between Finnish and Russian Karelia. As genetic differences between the populations could not explain the significant allergy difference, focus turned to environmental and lifestyle factors.

The Finnish population, similarly to many other western populations, seemed to have lost some factors fundamental to immune tolerance development. The young participants of the 2003 survey were examined again in 2010–2011, now being teenagers, with blood draws and skin swab samplings for microbiome studies. In 2010, the living environment of these children was additionally examined by assessing land use characteristics and the biodiversity of plants around homes. From blood samples, living cells were extracted and cytokine expression analyses were performed, activating cells with microbes. From skin swabs microbial DNA was analysed and the biodiversity of skin microbiota assessed. It was observed that healthy children in Finland had a more (bio)diverse living environment with green space, natural areas and plenty of flowering plants as well as larger counts and variation of microbes on their skin compared to atopic children. Healthy children also had a strong IL-10 expression (anti-inflammatory cytokine) related to the abundance of acinetobacteria, while the dose relationship was lacking in atopic children.

## Recent field studies

In 2012, a follow-up survey was organized also in the Republic of Karelia to assess allergies, collect samples (skin, nasal, blood) from teenagers, and to make the same environmental assessments as in Finland. Two key questions were addressed: What has happened to the atopy gap between the Finnish/Russian children-teenage populations since 2003? Secondly, what are the environmental influences on the indigenous microbiotas and further on immune tolerance on the Russian side?

## Change in thinking and an action plan

The Karelia allergy study has been instrumental in the development of new hypotheses for the reasons for the so-called allergy epidemic in modern societies. Changes in lifestyle, nutrition and the environment along with rapid urbanisation have all contributed to changes in the human microbiome, which mediates the cross-talk between man and environment. The Karelia results suggested that contact with a biodiverse natural environment with abundant bacteria (saprophytes, commensals), and probably with other microbes, can protect people from becoming sensitised to allergens by building up the immune system and tolerance. The biodiversity hypothesis, proposing that bi-

odiversity loss leads to immune dysfunction and disease, is changing our thinking and enlarging the focus from allergies also to other chronic inflammatory conditions, even to cancer, obesity and Alzheimer's disease. These inflammatory disorders are on the increase all over the world. In allergies the most rapid changes are seen now in the developing countries like China and India. In Finland, the Karelia results stimulated an important national action plan, the Finnish Allergy Programme 2008–2018. The first results have been most promising. A new track has been opened.

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# LESSONS AND CHALLENGES FOR THE FUTURE

Pekka Puska, Alfred McAlister, Tiina Laatikainen & Vesa Korpelainen

Given the very difficult economic and political situation in Russia, especially during the first five years of the collaboration, there were many practical obstacles that needed to be overcome during the implementation of the project. The financial situation during the early years of the project was so bad that there were times when the salaries of the health personnel were even months late – not to speak of the shortage of drugs and all kinds of medical supplies.

Due to the lack of resources the input in interventions was not always as effective as it should have been. High levels of economic distress meant both the health workers and population were not always fully interested in organized efforts to change lifestyles. However, with the enthusiastic work of the Pitkäranta project team the implementation of interventions was rather successful. It showed that such activities can be both feasible and effective even in a community in a very difficult social situation. The Finnish example and possibility to collaborate with the Finns clearly added to the motivation.

The health care system in the Republic of Karelia in the 1990s was very specialist-oriented and the health care strategy had focused almost exclusively on the medical care system, with no population-based preventive activities or health promotion approach. This also meant that there were not many existing resources or structures in the health care system that could be utilised effectively when building up health promotion activities. In the beginning of the collaboration there were practically no voluntary health organizations, which have in many countries been a powerful resource in preventive activities.

The recruitment of layperson networks and the establishment of citizen-based organizations was very difficult in the beginning because of the different health care systems, the different health policies and also the different history and culture in leadership. The birth of the first patient-association, a diabetes association, required a fair amount of international influence and also the support of the ongoing health care reform. Another early NGO in Pitkäranta was the Martha Housewives' Association, established with the help and initiative of the North Karelian Martha Association.

In general, the greatest challenge to implementation was the transformation of the Russian colleagues' perception of how health can be promoted and the concept of population-based prevention. Initially it was a question of learning the basic fact that NCDs are “lifestyle diseases” and lifestyle changes have great potential for the health of individuals and the public. Second, it was crucial to get through the message that in addition to health education it is crucial to make environmental changes to support the healthy changes. The concept of “population health”, in which the entire population becomes the “patient” was accepted in the abstract when the Russians decided to adopt the proposed innovations. The concept “community based prevention” that the North Karelia Project established already in 1972 was emphasized, meaning that for the needed environmental changes, various sectors of the community should be involved.

It was only when concrete actions were to be planned and taken that the necessary new ways of thinking became gradually apparent. More than any of the specific innovations, such as sampling from registers or conducting outreach in schools, the apprehension of the overall concept of population health was the key to successful implementation. At first the Russian partners were thinking in terms of the old system and this limited everything we tried to do, but as the Russians began to get the idea of what it means to try to improve the health of a whole population and involving the community, they began to adapt our innovations effectively and we started seeing good results.

In addition to the Pitkäranta Project and associated work, there were some other health and social sector collaborations that were established to disseminate innovations from Finland to the Republic of Karelia. There are some important lessons about dissemination and implementation that can be drawn from the experience. The first concerns the *relative advantage* provided by co-operation in the dissemination in Russia of innovations originating in Finland and the motivations that made this co-operation successful. Before the project got underway, the idea of a visit to Finland was a daydream. With the Project the opportunity to visit, and also the “image it created when the Russian media publicised the Russian leaders close contacts with Finns” was a very important motive for collaboration. The ability to visit Finland provided the Russians with the possibility of obtaining important supplies that were not available in Russia, including, just as one practical example, tires for the ambulance in Pitkäranta.

There were many other ancillary material benefits that motivated collaboration. Due to the difficult economic circumstances in Russia in the mid-1990s, the Russian partners had months with no pay. The Finns brought many kinds of materials and supplies. For example, more than 10 000 bottles of Finnish vegetable oil that were near their expiration for sale were trucked to Pitkäranta. Many surplus medical supplies and materials were also provided, and the Finnish expeditions to Pitkäranta also frequently contained relief supplies, including clothing, blankets and other personal necessities donated by Finns. This all increased the trust in the collaboration. In Pitkäranta, Dr Uhanov turned one floor of the Central Hospital into a hotel that provided lodging for the Finnish project team in a city with little other suitable accommodation. Later, this became lodgings for Finnish tourists to the area, and all of this provided much-needed income for the authorities there.

Another lesson concerns *compatibility* and *adaptation* of innovations that were disseminated. Initially the innovations were certainly not compatible with the Russian health care context. This required a sustained and intensive learning process: “From the beginning they had no idea—it was so different. It wasn’t initially compatible—they had to go through a total change in their way of thinking”. For example, for the recruitment and training of community leaders to promote healthy innovations, the Russians were asked to engage people from diverse occupations. Initially they only in-

vited individuals from the health care sector and it required quite a bit of discussion and feedback before a more diverse group from different sectors became involved.

A very important facilitator for adaptation of initially incompatible innovations was the establishment of a Pitkäranta Project office which “provided an intermediary between us and the health care system there.” Dr Gumina and her associates were able, once they fully understood the nature and purposes of various innovations, to explain what can be done and “what can’t be done that way” and how the things that were done in North Karelia could be done in Pitkäranta. For example, mass media publicity and peer leaders’ organization outreach were the primary means for enrolling smokers in the Quit and Win contests in North Karelia. In Pitkäranta the Russian project leaders decided to enrol men who smoke and want to quit by canvassing at the gates of the local factories at closing time.

A related concept from which an important lesson was learned concerns the *fidelity* of implementation of the random sampling in the risk-factor surveys. Although the sampling appeared to conform to expectations in the 1992 and 1997 surveys, there was a problem in 2002: A number of individuals who failed to appear to have their blood drawn and to have their blood pressure and weight measured were replaced with hospital workers of the same gender and approximate age. This was almost not discovered by the Finns, but eventually the Finnish team started to suspect something and realised what was being done. At first the Russian collaborators asserted that this was an acceptable way to increase response rates. But Puska and his colleagues threatened to end the collaboration unless the proper sampling framework was restored. This led to a decision by the Russian team to remove the “non-sample” participants, resulting in lower reported response rates but much greater fidelity to the proper sampling procedure.

The emphasis on informal contacts in official meetings and training sessions, which took the form of well-planned parties and social events, played a very important role in building strong—and warm—working relationships between the Russians and Finns. In the Finnish North Karelia Project there was a long tradition of mixing formal meetings with informal social events—what we have described as “3/4 formal and 1/4 informal: drinking with the doctors and dancing with the nurses... when they become your friends it is hard for them to say ‘no’”. In the Pitkäranta Project, Professor Puska describes the mix as “2/3 formal and 1/3 informal”—with sauna parties and other social events playing an essential role in the cementing of an effective collaborative relationship between the Russians and Finns. The common joke was “small meeting, big party.” We firmly believe that the emphasis on getting to know and enjoy one another’s company in sauna parties and other informal gatherings was essential to building trust and to achieving sustainable results and the success of this project.

In the Republic of Karelia during the 1990s, the difficult social situation, the rapid and often negative changes in politics and economy, and the rise of unemployment and poverty had some negative influences on health behaviour. Alcohol consumption increased and this unfavourable development concerned also women. This has been

followed by increasing rates of alcohol-related diseases, accidents and injuries and a wide range of social problems. Tobacco use is also, of course, closely associated with social hardships.

One of the main challenges in Russia is to find effective ways to decrease the high alcohol and tobacco use. This task is not an easy one, as alcohol use in Russia is closely embedded in the social norms of society, while tobacco use is common. However, the most recent Russian alcohol policies appear to be quite progressive, e.g., higher taxes on vodka and the banning of beer sales at hours when sales of other alcoholic beverages are prohibited. Recent national tobacco legislation has also been quite progressive.

The present economic problems and restricted supply of foodstuffs as well as the increasing marketing of Western cigarettes and the advance of the Western alcohol industry also pose further threats to the future health of the people in the Republic of Karelia. The current situation could deteriorate further without strong health work, as a stronger economic situation means the population has more money to spend on unhealthy products and on cigarettes that are being very effectively marketed. Encouragingly, Russian policies regarding tobacco have strengthened and are moving toward greater conformity with EU standards. The recently passed tobacco law is quite strict and is a very encouraging development.

Much has changed in Russia and the Republic of Karelia since the time the project reported here began, which was more than 20 years ago. At that time Russia was near the peak of a cardiovascular disease epidemic that has since declined since the mid-1990s. The economic situation was at its lowest point and the financial situation of many Russians has improved considerably in recent years. Where Russian Karelia was once a low-cost tourist destination for Finns, Finland and its Karelian region is now a good tourist destination for newly affluent Russians. In Finnish Karelia, the real estate market now has Russians seeking second homes, while recreation centres and shops in Finland now see many Russian visitors. We are proud to have played a helpful role in the transition period, but in the future we expect Russian public health policy to evolve favourably and thus we look forward to a time when Finns will learn lessons from Russia regarding innovations in public health.

In the broader context we promoted the work in Russian Karelia by making frequent reference to the great Russian problem, often stated by President Putin: "The demographic problem", which points to the diminishing of the Russian population due to an exceptionally high NCD mortality and low birth rate. Finnish experts contributed to the World Bank report "Dying too Young". The report cites President Putin: "*I am deeply convinced that the success of our policy in all spheres of life is closely linked to the solution of our most acute demographic problems.*" ... "*Our work must result in the young generation recognizing the need for a healthy lifestyle and physical exercise. Each young person must realize that a healthy lifestyle means success, his or her personal success.*"

Looking at the development during the most recent years we can see many positive signs of change in the Russian public health situation that are in line with the prin-



principles and work of the Finnish–Russian project described here. In keeping with the innovation–diffusion theory, we start to see upper-class Russians increasingly adopting healthy lifestyles. This, while supporting a positive trend, will unfortunately also lead to greater socioeconomic health differences. Such differences were very small during the years of the Pitkäranta project compared to Western countries. While there is no question of the need for economic development for the Russian population, recent history has also shown that this does not automatically lead to better public health. Negative trends can emerge without successful promotion of healthy behaviours and policies as economies improve. The real challenge, which the Russian Karelian project endeavoured to face, is to combine economic growth with sustainable improvement in public health. This can take place only with favourable changes in people’s lifestyles and in the environmental and social determinants.

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