SH/8/1 Swiss-Hungarian Cooperation Programme:

„Public Health Focused Model Programme for Organising Primary Care Services Backed by a Virtual Care Service Centre”

Final Report

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We say special thanks to the Governments of Switzerland and Hungary for consistently supporting the creation and completion of the Model Programme. We regard the results of the Programme as the success of the two country's cooperation

CONTENT

ABREVIATIONS

GP	General Practitioner
GPC	GPs Cluster
HSA	Health status assessment
NVT	National Vocational Training Register
WHO	World Health Organization
NIHD	National Institute of Health Development

A. EXECUTIVE SUMMARY

A.1. FOREWORD

The Hungarian health system faces several challenges, among which the most worrying is the bad health status of the population in international comparison, regarding the life style related health risks and the high level of resulting NCDs morbidity and mortality, while the mass emigration of health workers makes the provision of health services increasingly problematic. Among these circumstances, the need for an efficient primary health care (see also as PHC) is unquestionable. So far the traditionally organised primary care with single handed GPs and minimal support staff could not fulfil its preventive, public health focused duties. The goal of the new Swiss-Hungarian Primary Health Care Development Model Programme was to address this problem with the implementation of an innovative pilot project between 2013 and 2017, which increased the competency of primary care with the organized cooperation of GPs, as well as with the involvement of dieticians, physiotherapists, psychologists, public health professionals, and so-called Roma “health mediators”. These newly established complex primary care units were called GPs Clusters. The objective of this study was to evaluate the impact of the Model Program from a health policy perspective.

The evaluation was carried out according to the health policy objectives of access, efficiency and sustainability, based on the analysis of the utilisation data of group practices, a population survey, a survey of the employees of GPs Clusters and unstructured interviews with them, as well as of the relevant databases of the social health insurance system.

Although the short time period is a serious limitation from a methodological perspective, the Model Program has provided tangible improvements in terms of each of the health policy objectives mentioned before, while it has successfully mobilised and involved the Roma population in their own care. In conclusion, our first results support the continuation of the Program, but it is necessary to extend the evaluation to a longer time period in order to establish and understand the full impact of the Model Program on the performance of the Hungarian health system.

A.2. INTRODUCTION

Health systems all around the world face several challenges as the result of the changing demographical, cultural, economic and technological environment and Hungary is not an exception either. The situation of Hungary is even more difficult because in international comparison Hungary is amongst the worst performing countries in terms of life style related risk factors, chronic non-communicable diseases and deaths, while the massive emigration of health professionals and the aging medical society threatens the sustainability of the health system. Therefore, primary care services are becoming more and more appreciated, whose strengthening could address some of these challenges and problems, although so far their preventive and public health functions have remained largely unutilized in Hungary. In this vein the renewal of primary care system has crucial importance both in improving the poor health status of the citizens and in solving the health human resource problems.

Within the framework of the Swiss Hungarian contribution between 2013 and 2017 a pilot primary care model program was implemented in the most disadvantaged territories of the Northern Hungary and Northern Great Plane regions, in the frame of 4 functionally enhanced and reorganized primary care centers, the so-called GPs Clusters (Jászapáti, Heves, Borsodnádasd, Berettyóújfalu).

The 4 GPs Clusters have been offering additional new services (health status survey, lifestyle counselling, physiotherapy, preventive services, dietetics, health psychology counselling, community health promotion programs) for the local population with special attention to the Roma minority.

The main aims of the program were the following:

- The improvement of citizens' health status through a more prevention focused primary care system as well as improving equity in access to services
- Improving quality, effectiveness, and efficiency in primary care
- Ensuring equity in access to primary care services with special regard to the Roma minority
- Widening the range of services offered in the primary care setting through the establishment and development of GPs Clusters.

As the model program comes to its end, in this health policy summary we evaluate the attainment of these goals and on the basis of our findings we formulate recommendations

regarding the continuation and extension of the Model Programme.

A.3. METHODS

The impact of the model program was evaluated from the perspective of health policy, along the health system objectives of access to health services, the efficiency of interventions (effectiveness vs. costs) and the sustainability of the model. Answers were searched for the following questions:

- Has the program contributed to the improvement of patients/clients access to services with special attention to the Roma minority?
- Were the interventions successful in improving the health status of the population?
- Where it was possible to measure, were the implemented interventions cost-effective in comparison with similar non-intervention geographical areas?
- Has the necessary attitude change among clients and service providers, which is of key importance to sustainability and feasibility, been achieved to justify government support for the reform of primary care?

It is important to mention that the 4.5-year (in the case newly introduced services 3.5-year) timespan of the project in many respects is too short to detect changes, especially health status improvement and behavioural and attitude changes. Nevertheless, the analyses have produced tangible results in surprisingly many areas. The evaluation was based on the analysis of the utilisation data of GPs Clusters, a population survey, a survey of the employees of GPs Clusters and unstructured interviews with them, all generated in the frame of the model program, as well as of the relevant routine databases of the social health insurance system.

A.4. RESULTS

In line with the methodological framework outlined before, 8 health policy questions were formulated. These are presented in Table 1, along with the summary answers to them. In the following sections, each of the 8 questions is discussed in more details.

T1. Health Policy evaluation of the model program

	Health policy aspects/Questions	Answers
1	Has the access to health services of the local population improved during the project?	Improved significantly
2	Have the program interventions changed the attitude of clients?	Yes, positive attitude change has been attained, however further intervention is needed
3	Has the project altered the attitude of general practitioners, mother-and-child health nurses (health visitors)?	Yes positive attitude change has been assessed
4	Have the new, additional services been effective, can any improvement in the health status of the population be detected?	Yes, positive attitude change has been attained, however further intervention is needed
5	What was the impact of the model program on the utilization of specialist in- and outpatient services?	The utilisation rate of services has not increased significantly , only in the case of laboratory referral
6	How much additional costs were generated by the Health Status Assessment (in the inpatient, outpatient, pharmaceutical sub-budgets of the Health Insurance Fund)?	The Model Program has not increased significantly the expenditures
7	Is the model program cost-effective?	The first results are promising: the cardiovascular risks has been lowered
8	How much would a national roll out of model program cost?	Apr. 40 billion HUF (depending on the several options)

A.4.1. DETAILED PRESENTATION AND DISCUSSION OF THE RESULTS

The model program has transformed the local primary health care in two main respects. First, it considerably enhanced the public health, health promotion and prevention competencies of primary care by the involvement of qualified health professionals, including physiotherapists, health psychologists, dieticians and public health experts. The employment of Roma health mediators (in Hungarian segéd-egészségőr) can also be considered a key component of the intervention. Second, the single handed GPs, which is the typical

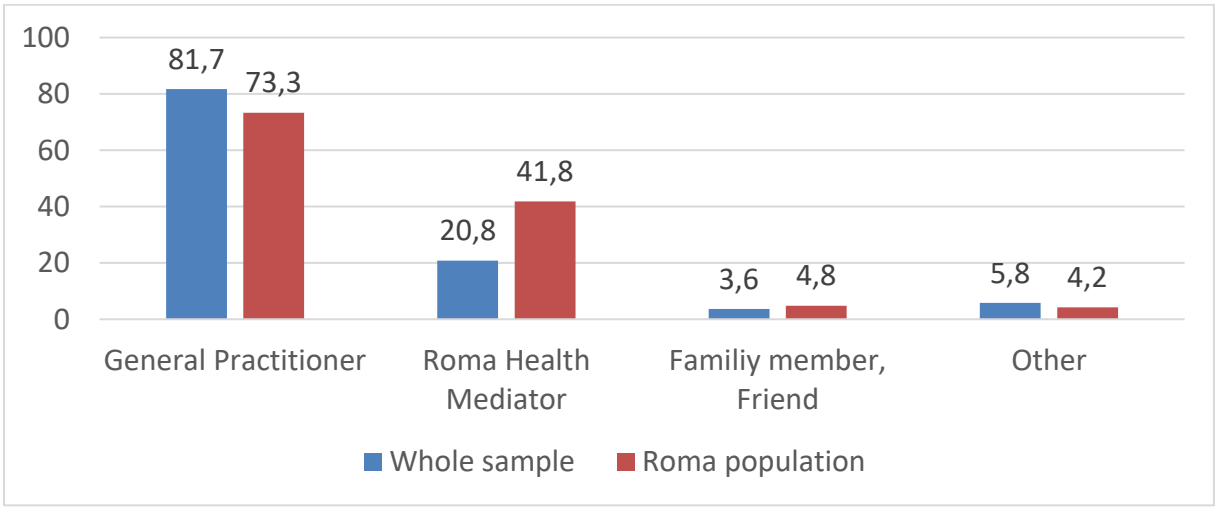
operational form of the provision of family doctors services in Hungary, were functionally integrated into group practices with shared working processes and patient data, enhanced collaboration with other service providers, as well as by the introduction of innovative IT solutions, altering the overall attitude of GPs.

A.4.2. QUESTIONS AND ANSWERS

Question 1: Has the access to health services of the local population improved during the project?

Two types of services were investigated: the participation rate of the comprehensive health status assessments among the adult population, and the utilization of additional services. The results of the Health Status Survey in international comparison show a remarkable high level of participation, 80%. In terms of the role of Roma health mediators, it is also important to mention that in the total population 80% of the clients were persuaded to attend the screening programs by their GPs and 20% by the health mediators, while in the case of the Roma population the corresponding figure was found to be 40%.

F1. Who recommended the participation on the screening programmes? (more options)



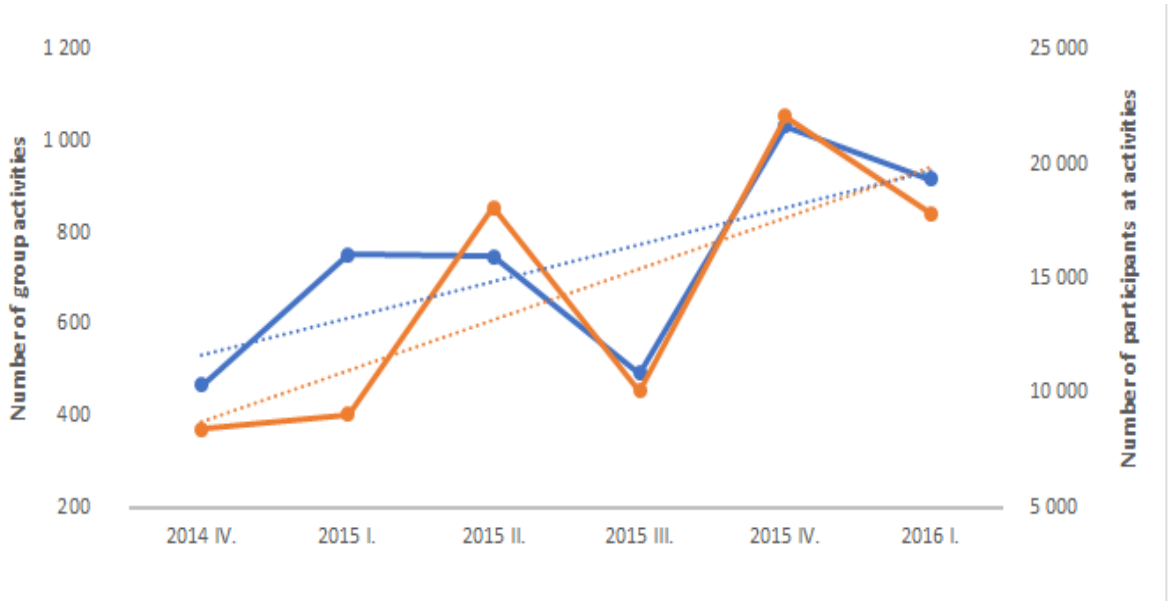
The utilisation of new, additional services (physiotherapy, health psychology and dietetic counselling) was also high: between September 2014 and March 2016 in the 4 GPs Clusters altogether 5,565 group sessions were implemented with 114,684 participants. During the same period the health professionals provided 5,352 sessions on an individual basis.

Taking into account that the local population covered by the model program, comprised 42,828 registered inhabitants, on average, 2.8 sessions were provided per capita.

Question 2: Have the program interventions changed the attitude of clients?

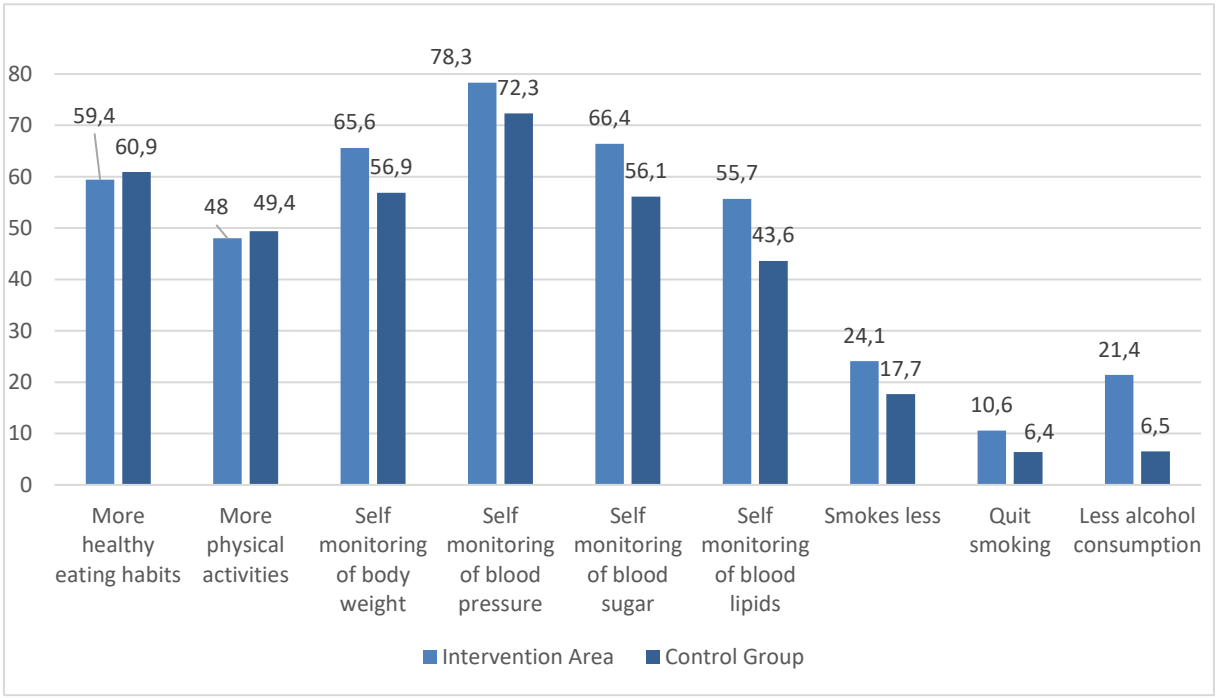
The high frequency of the utilisation of additional services, in itself, could be interpreted as a positive attitude change. In comparison with other programs, where the willingness to attend was high only initially and abated with time, in this model program we found increasing client activity during the whole project period.

F2. The number of group sessions and participants between October 2014 and March 2016.



The Health Services Management Training Centre of Semmelweis University (HSMTC) implemented a survey among the clients, which measured behavioural change on the basis of self-assessment. The results indicate several positive changes especially in the field of alcohol consumption, and smoking.

F3. Results of the population Attitude Survey regarding lifestyle change



It is important to mention that these results in some cases differ from the results of the basic and final surveys carried out by the University of Debrecen. The differences can most probably be attributed to the fact that the respondents were different in the HSMTC survey, which targeted only patients suffering from chronic diseases.

Question 3: Has the project altered the attitude of general practitioners, mother-and-child health nurses?

Based on the analysis of in-depth interviews (# 90) as well as of self-administered questionnaires, we found that:

- the model program successfully changed the attitude of GPs: they look at their patients/clients in a different way as well as they know them better,
- members of the GPs Clusters learned to work in a team, they are not isolated anymore, they were able to overcome on the initial mistrust and learned to share even their problematic cases with each other,

- the involvement of the mother-and-child health nurses (also see as: health visitors) was also beNIHDcial in terms of the establishment and strengthening of cooperation, especially in the case of pregnant women.
-

Question 4: Have the new, additional services been effective, can any improvement in the health status of the population be detected?

The analysis of GP indicators carried out by the University of Debrecen indicates significant improvements among patients with high blood pressure, and among diabetics in the 40-54 years age group. Improvement in the other age groups was also detected, however, the change was not found to be statistically significant.

According to physical measurements, tests and surveys carried out by the University of Pécs, physiotherapy sessions were effective: significant improvement was observed in all of the 8 dimensions of lifestyle. The findings of the University of Pécs are also promising regarding dietetic counselling. Compared to the beginning of the project the researchers have found a reduction in the BMI, in, and in the level of blood sugar and cholesterol.

Question 5 & 6: What was the impact of the model program on the utilization of specialist in- and outpatient services? How much additional costs were generated by the Health Status Assessment (in the inpatient, outpatient, pharmaceutical sub-budgets of the Health Insurance Fund)?

The answers for these questions have great importance especially for policy makers to decide about the extension of the project. With propensity score based matching we selected for the purpose of the budget impact assessment, such a control group, whose main demographic, socioeconomic, health economic characteristics had been similar to the GP practices of model program ex ante.

The results were again surprising: there was no significant cost increase detected compared to the control group, despite the fact that the population screening identified new patients. Neither the patient turnover in the outpatient specialist setting increased significantly. The exception was laboratory tests, but this latter finding is not at all surprising, as GPs sent their patient to complementary examinations as a consequence of the population screening. Because the reimbursement of the examinations related to the Health Status Assessment was low, we detected no significant impact on the HIF expenditures. The client

turnover at the GPs has increased, because they had to take the patients, who had been identified in the frame of the screening, into care (Table 2).

Although the additional services offered by the health psychologists and physiotherapist reduced the referral ratio of the GPs in the relevant specialisation areas, this did not have impact on the utilisation of outpatient specialist care. One potential explanation is that the patients, whom were diagnosed before the intervention, kept visiting the outpatient specialist providers.

T2. The results of panel regression estimation regarding the impact of the intervention on the utilization of health services (HSMTC analysis based on National Health Insurance Fund data)

Number of cases – Dependent Variable: Monthly number of cases/100 capita						
	Total	Dietician	Physiotherapist	Health psychologist	Diagnostic	Laboratory test
GP-Patient encounters	2.27*					
	(1.30)					
Referral to outpatient specialist care	0.60	-0.034	-0.11**	-0.031**	0.030	0.85***
	(0.43)	(0.028)	(0.057)	(0.015)	(0.063)	(0.30)
Utilization of outpatient specialist care	-0.46	-0.040	0.021	-0.084	0.071	
	(0.48)	(0.029)	(0.26)	(0.068)	(0.095)	
Expenditures – Dependent Variable: log HUF (labor: log german point)						
	Outpatient specialist sub-budget	Laboratory sub-budget	Inpatient sub-budget	Pharmaceutical sub-budget		
Expenditure	0.024	-0.030	0.017	0.017		
	(0.018)	(0.032)	(0.027)	(0.025)		

The results of random-effect panelregression models. Sample: model program and control group adult and mixed GP practices together (total 133 adult and mixed practices, 15 quarters). Intervention period: 2014 1st Q - 2016. 1st Q. Standard errors in parenthesis. Levels of significance: *** p<0.01, **: p<0.05; *: p<0.1. Codes: dieticians – 0103, 0123; physiotherapists – 5700, 5711, 5722, 5712, 5703, 5704, 5708, 1400, 1401, 1402, 1404; health psychologists – 1800, 1801, 1804, 1805, 1806, 1811, 1821, 180C, 2300, 2301, 2302, 0512, Q18, Q41, Q43, Q44, Q45, 7100, 7101, 7102, 7104, 7105. The utilisation of outpatient specialist services do not include laboratory tests.

Question 7: Is the model program cost-effective?

As it was expected, answering this question was the most complex and challenging from a methodological perspective, mainly because at the moment there is no existing method, which can comprehensively cover this variety of diseases and therapeutic options. Therefore, we have decided to focus our economic evaluation on the area of cardiovascular risks. The first step is the estimation of effect size based on the cumulative incidence of selective cardiovascular events, from which the relative risk reduction could be estimated. In the second phase the number of life years saved will be calculated by using a health economics model, which is followed by an estimation concerning cost vectors and resources use (supported by a cost effectiveness modelling framework developed for the evaluation of public health interventions)[1].

For the purpose of the analysis, the GP practices of the Primary Care Morbidity Data Collection Program was selected as comparator, as these practices could provide a good estimate for the effect of intervention free primary care on cardiovascular events. Having the estimates on incremental costs and health benefits it is possible to calculate the incremental cost-effectiveness ratio (ICER) and derive conclusions on the cost-effectiveness of the intervention, by comparing the ICER to the cost-effectiveness threshold expressed as the multiple of the per capita gross domestic product (as stated in the Guideline [9] for such analyses). This latter step in the analysis has not yet been carried out due to the lack of time, the cost-effectiveness of the model program in the area of cardiovascular diseases is still a work in progress.

However, the results of the initial step (that is, estimating the effect size of the intervention) can be presented hereby. In terms of health outcomes, an improvement in the risk of stroke and acute myocardial infarction (AMI) was detected in the last observed year (2015Q2-2016Q1) compared to the first observed year (2012Q3-2013Q2) (see Table 3): a relative risk reduction of 24% (CI90% 10%-38%) was achieved in the case of stroke, and the respective figure for AMI was 29% (CI90% 2%-57%). If these estimates are compared to the risk of events for the comparator, the difference in relative risk reductions are 18% and 41% for stroke and AMI, respectively, however, it has to be mentioned, that the confidence intervals calculated for these estimates are wide.

[1] Nagyjánosi L., Martos É., Bödönyi D., Vokó Z. Health-Economic Impact of the Hungarian Salt Intake Reduction Program. Abstract in: Value in Health, 2011 14:A376. DOI: http://dx.doi.org/10.1016/j.jval.2011.08.787

It is clear that these impressive results could not have been reached without improvement in the care for high blood pressure patients. A proper measure of hypertensive care is the proportion of patients on target in the total hypertensive population. Another important measure is the use of platelet aggregation inhibitors. With respect to the fact that the University of Debrecen identified significant improvement in both the proportion of patients on target and platelet aggregation inhibitor use compared to the control group, the relative risk reduction in stroke and AMI is a promising impact of the model program, with further research recommended for clarification.

T3. Risk estimation results based on cumulative incidence (HSMTC evaluation based on National Health Insurance Fund data)

	Model program		Control group	
	Stroke			
KI (first year)	0.45%	(0.40% – 0.50%)	0.35%	(0.33% – 0.37%)
KI (last year)	0.34%	(0.29% – 0.39%)	0.33%	(0.31% – 0.37%)
Change	0.11%	(-0.18% – -0.04%)	0.02%	(-0.05% – 0.01%)
Relative Risk Reduction	24.1%	(9.9% – 38.3%)	6.1%	(-1.7% – 13.9%)
Difference	18.0% (1.8% – 34.2%)			
	AMI			
KI (first year)	0.13%	(0.10% – 0.16%)	0.11%	(0.10% – 0.12%)
KI (last year)	0.09%	(0.07% – 0.11%)	0.12%	(0.11% – 0.13%)
Change	0.04%	(-0.08% – 0.00%)	0.01%	(0.00% – 0.03%)
Relative Risk Reduction	29.5%	(2.4% – 56.6%)	11.9%	(-22.6% – -1.1%)
Difference	41.4% (12.4% – 70.4%)			

Question 8: How much would a national roll out of model program cost?

According to the experiences of the model program, and taking into account an improvement in the efficiency of resource use, the nation-wide implementation of would cost around 37 billion HUF (Table 4). The assumption of this model is that 10 GPs form a GP cluster, with the employment of one full-time public health expert and physiotherapist, as well as one half-time dietician and health psychologist.

T4. Estimation of the costs of a nation-wide roll-out of the model program

Number of GPs Clusters in operation	**4**	**25**	**50**	**100**	**300**	**650**
Number of GP practices	38	246	493	985	2955	6403
Number of MHC nurses	02	181	363	725	2176	4715
Population (thousand)	96	350	700	1 400	4 200	9 100
Proportion of the covered population to the total population	1,99%	3,56%	7,12%	14,24%	42,72%	92,57%
Total operational costs (million HUF)	**91**	**1 413**	**2 826**	**5 651**	**16 954**	**36**

A.5. CONCLUSION

The model program proved to be successful in many fields. Despite the short time period analysed there is evidence for a significant health status improvement especially in the case of hypertension, diabetes care and physiotherapy.

Although the program has not covered all forms of integrated primary care services, both the implemented vertical (physiotherapy, psychology, dietician) and the horizontal (MCH nurses) integration have proved to be successful, as the overall utilisation of higher level health services has not increased significantly. It seems that primary care with the new,

additional services has been able to deal with the increased number of patients identified by the health status assessment.

Lifestyle counselling and other new, additional services became considerably popular amongst citizens as well as the interest in these services has not decreased with time. Thanks to public health experts, dieticians, physiotherapists and psychologists, new and so far missing services have appeared in primary care.

Based on the results it can be postulated that primary care could be successfully reorganized along the model program evaluated here. The first findings also suggest that the program is cost-effective, but the economic evaluation of the program is a work in progress, which needs to be completed.

A.6. RECOMMENDATIONS

- The local population covered in the project has noticeably taken a liking for the model program. They fought for its continuation with petitions sucessfully. The Hungarian government approved to sustain the operation of the GPs Clusters in 2017.

- It is also unquestionable that there is an unmet need for public health services – close to home.

- As the result of the health status assessments previously undetected diseases and risks were identified. The health status assessment has proved to be an appropriate tool to detect early risks as well as discovering hidden diseases.

- Therefore, it is recommended to renew client records regarding the whole population using the health status assessment tool. According to the professional board of the model program the primary care registry of clients should be refreshed in every three years in order to have up to date information. To reach this goal the introduction of the new Electronic Service Space (ESZT) will support the GPs Clusters in the fall of 2017.

- The main obstacle to the rapid extension of the program is the HR problems amongst GPs and MCH nurses. Although these problems could be partly mitigated by the

nation-wide introduction of the program, as substitution in a GP cluster is much easier than in an single handed practice.

- Shortages not only plague GPs and MCH nurses, but the other qualified health professionals offering the new, additional services, which is a serious limitation to roll out the project, especially to rural settlements. To overcome the HR problems, it is recommended to raise the number of student quotas in medical and health sciences, both in the capital and in other regions. The filling of vacancies is in strong correlation with the distance of medical universities.

- Obtaining the extra money needed for the roll out of the model program (37 billion) does not seem problematic as this amount does not even reach 25% of the annual sub-budget of primary care. In the case of such an important project (especially that the introduction will last for several years) the provision of the necessary financial resources does not have to pose a serious challenge for the government, as the required amount will unlikely upset the fiscal balance of the state budget. This budget estimation is based on the data of the GPC human resource and service reports. The budget estimation is calculated for a case of 75 % efficiency of working hours of health care professionals involved (much better than in the Model Programme) and 14.000 registered clients for each GPC in average (similarly to the Model programme).

- The service report standards (elaborated by Semmelweis University EMK in collaboration with the GPC public health coordinators, head GPs and the WP5 experts of the Programme) should be maintained and reporting should be continued during the sustainment and dissemination of the Model. The same is recommended for the monitoring methodology that was elaborated by the related consortium partners. A strong, authorized, coordinating- monitoring, evidence providing methodological centre is inevitable on national level in case of dissemination and further developments in primary health care. This centre and its coordinative activity should be built upon the base of primary health care related national institutions and medical university collaborations.

B. INTRODUCING THE INFRASTRUCTURE AND RESOURCES OF THE GPs CLUSTERS

B.1. HUMAN RESOURCES

Members of the GP cluster were formally employed or contracted by the National Institute for Health Development. Direct supervision of those new members who have been added to the existing primary care (screening team, dietitian, health psychologist, physiotherapist, health mediators) was carried out by the public health coordinator. The capacity of the four teams at the four locations was originally planned in a unified manner, however, later modifications had to be introduced: it became clear that the capacity of the screening team must be adjusted to the size of population.

Filling up job positions was not without problems in the case of dietitians, health psychologists, and physiotherapists: on average, these three positions was filled up to 73%, 78%, and 83% of the time between July 2013 and March 2016 (seriously limiting service provision as well from time to time). Fluctuation rate was also high in these positions (20-75% annual rate). Higher than average fluctuation characterised screening team members and health mediators as well, however, filling up their positions was much less problematic. Consequently, filling up the positions for a wider scale implementation of the model might prove to be difficult. Experience from the pilot shows that locally recruited employees (with deeper connections to local communities) are less likely to quit.

Recommendations for the future implementation are summarized as follows. Formal inclusion of the team members is needed, so that the operation of the cluster will be based on contractual relationships rather than informal. Further extension of the model towards dentists, pharmacists, home care, and social care is recommended. While central employment was adequate for the pilot, in the future a locally governed organisational structure and local leadership are needed. Due to their role in primary care, future models should be developed in a way that includes local governments. Composition of workforce must be determined in a more flexible way, taking population size and available local health care capacities and competencies into account. Tasks to be carried out and results to be achieved should be the

cornerstones of regulation so that local planning will be able to match human resources to requirements.

B.2. THE IT DEVELOPMENT AND SUPPORT OF THE GPS CLUSTERS

Within the framework of the public health focused SH/8/1 Project the IT work package (WP3) was responsible to plan and assure IT support for the Model Program members as well as implementing new IT software solutions of the GPs Clusters. After establishing the GPs Clusters in the first phase a software was developed, supporting citizen's health status assessment and team working mechanisms - the IT development named as eDoki - has been serving GP Cluster members since its implementation. In the second phase the software named ZAFIR was developed providing comprehensive solutions for all of the GP Cluster members. ZAFIR constitutes of three layers:

A) Subsystem supporting GPs and practices
B) Subsystem supporting the employees of the GPs Clusters and the administration of additional services
C) Virtual Health Centre - providing information for the citizens

(The three subsystems are able to support the introduction of a new primary care model)

A) The GP and practice subsystem embraces the functionalities of the software currently available in the market, complemented with new functions such as supporting the redesigned Health Status Assessment Surveys, real time monitoring of the National Health Insurance Fund's indicator system, as well as adopting unified forms. Additionally, the cloud based central architectures enable horizontal data flow and continuous real time monitoring for decision makers, while the connection to the National eHealth System (NeHS) supports vertical dataflow.

B) In the practice community subsystem the new IT functions are providing solutions for the challenges of the innovative GP Cluster forms, assuring effective teamwork in line with the operation of the GPs Clusters, the administration of additional services, and the direction and follow up of patient pathways.

C) The Virtual Health Centre offers venue for citizens to contact caregivers and provides health related information and guidance about more than 500 illnesses. Additionally, by using health status assessments surveys eases the burdens of the GP Cluster members.

The Zafir system was integrated with the MeNTA Mobil application (Mobile e-Log and Notifying Therapy Application - realized within the framework of the SROP 6.2.7 Project) in order to support chronic care in an innovative way as well as assisting users to protect their own health. During the last phase of the project the currently available services of the NeHS (National eHealth System): e-referral, event catalogue, EHR repository were also incorporated into the ZAFIR System.

It can be concluded that within the framework of the Primary Care Model Program significant IT improvements were realized and implemented: supporting the administration of additional services and the operational working mechanism of the GPs Clusters, as well as providing cloud based solutions. Additionally, based on the implemented software solutions an accreditation register was also developed providing guidance for companies of the IT market about the basic functionalities of the IT systems and central requirements in order to assure unified and effective solutions. Through the Model Program such standards, guidelines and datasets have been developed that are essential for the future improvement of the primary care system.

B.3. THE INFRASTRUCTURE NEEDS OF THE GPS CLUSTERS

B.3.1. Introduction- the commitments of the project

The basic infrastructure need of a GPC is the following:

- diagnostic and preventive equipments and tools for additional services
- rooms and premises
- communication and IT equipment, vehicles to support co-operation and collaboration
- office tools for administration.

The minimum requirements for primary care services as laid down in the relevant ministerial decree (60/2003. ESZCSM decree) were a pre-requisite for each praxis to join the programme. In addition to that level, the Feasibility Study of the project determined the needed extra infrastructure:

- the project shall ensure the tools and equipments for additional services (PC, tablet, active network tools, smart phones, notebook, beamer, screen, car);
- the GPC shall buy preventive, diagnostic and telemedicine equipment from the budget ensured by the project at their own disposal.

However, already in the beginning of the implementation period it became clear that the model of the Feasibility Study with the supposed economic independence of the GPCs is infeasible due to public procurement rules and prudent financial management of the consortium members being central government institutions. The members of the GPCs are employees or contractors of the National Primary Care Institute then its successor, the National Institute of Health Development (see as NIHD in the followings), thus, no financial independence could be delegated to them. NIHD is subject to the national public procurement rule that could not be ignored at the spending of the originally planned level of monthly GPC budget (ca. HUF 560.000/GPC). That is why the management decided to launch central (public) procurements in order to purchase the necessary tools and equipments, and only a minor monthly budget was allowed to be spent on site on a limited scope of goods (e.g. cleaning supplies, tissues) at ex-post refund.

B.3.2. Implementation – the supply of infrastructure needs indicated in the feasibility study

1. The **minimal portfolio necessary for additional services** of the GPCs was purchased in 2013 by National Primary Care Institute. This portfolio was renewed and supplemented by a bigger purchase of NIHD in May 2016.

2. The purchase of **IT devices** was managed through centralised public procurements within WP3 and WP5. The purchase of printers and copy machines were extremely prolonged due to procurement deficiencies (mistakes in the procedure, inadequate public procurements expertise). Until the delivery of these machines in September 2016, the local municipalities supported the printing and copying needs of the GPCs.

3. In order to foster the **transport** between the GPC premises and settlements, the purchase of 4 cars was planned. However, most of the staff owns a car, and preferred the reimbursement of travel costs. As calculated by the management, the two solutions would have ended up at the same level of spending, so it decided to skip the car purchase.
   To help local transport, 86 bicycles were purchased by NIHD in September 2015, and two rounds of service were also provided. In order to move larger groups of staff to certain project events (e.g. trainings, conferences) or purchased goods to sites, bus transfer services were ordered several times.

4. In case of large **diagnostic and telemedicine devices** the management soon faced with a complex problem. First, the planned portfolio would have required a community level public procurement with time-consuming procedure, second, the poor liquidity condition of the responsible consortium member did not let the launch of procedure on time, and thirdly, the management lacked the necessary technical knowledge to prepare a proper technical specification. In addition, the post-project maintenance requirements also mean a burden on most of the institutions. In 2014 the National Health Insurance Fund initiated the reallocation of the dedicated fund to National Primary Care Institute, who then contracted the national institution responsible for marketing and quality assurance of health devices (National Institute for Pharmacy and Nutrition) in order to prepare a proper technical specification.

The scope of purchase radically decreased compared to the planned due to the following reasons:

- the time remained until the project closure would not have allowed for a community level public procurement procedure,
- NIHD would lack the national financing necessary for the maintenance period, and neither the users could take over this burden (e.g. in cases of some telemedicine devices, the fees of constant supervision and professional support),
- NIHD lacked the adequate liquidity to finance a big purchase.

5. The necessary **supply of health promotion activities at community settings** was ensured in several ways:
   - MAVE as a consortium partner participating in community health promotion activities and being a civil association not subject to national public procurement rules undertook to buy small-value supplies (e.g. fruit, pearls, pencils, etc.)
   - the information tools and small presents necessary to attract the public to health development programmes (e.g. leaflets, brochures, balls, stickers, key-holder, tooth brush, etc) were procured by the NIHD and delivered to the GPCs in summer 2015.

6. Premises needed to offer the additional services by the different health professionals were leased from the local municipalities. In case of Jászapáti and Berettyóújfalu, a whole building was offered to the project. **The supply of services at a single setting turned to be much more effective considering the recruitment of patients for health screenings, and also boosted internal communication and co-operation of the staff**. Unfortunately, we also had to experience the lack of appropriate rooms at several settlements, while the restoration of these premises could not be financed from the project budget.

B.3.3. Successes and failures, and their reasons

Although the majority of commitments on purchases are accomplished, the way of ensuring them varied compared to the plans due to some administrative and technical reasons, and in most cases they could be at the disposal of the GPS quite late, only in the second half of 2015. That means that the **project could operate with the intended level of equipment and infrastructure support only in the last 1-2 years of implementation**. The lack

of the daily use – or only a pilot – of telemedicine devices is a definite failure of the project. The reasons for late or non-delivery can be summarised as follows:

the launch of public procurements were set back by institutional changes and reallocation of funds between consortium partners;

- due to liquidity problems, some procurements had to be postponed;
- the partners lacked the appropriate public procurement expertise - especially in case of centralised procurements;
- the centralised employment/contracting of GPC staff justified for complex management of procurements at National Primary Care Institute /NIHD, where the cumulative amounts of purchases had to be taken into consideration when choosing the proper procurement procedure. This made flexible and prompt fulfilment of infrastructure needs impossible;
- due to the state budget prudency and strict eligibility rules of the project, not much room left for ex-post control of eligibility, so the majority of goods had to be purchased centrally (except for MAVE purchases).

B.3.4. Maintenance of equipments

Article 12 of the Programme Agreement states that equipments purchased from project budget shall be used only for project purposes and no ownership transfer is allowed within five years after the completion of the Programme without prior written approval of the Donor. Article 91. 7) of Gov. decree no. 237/2008 also declares that prior approval of the NCU and SCO has to be applied for in case of any change of ownership.

Taking into consideration the above, in case of tools and equipments used by GPC staff the following solutions shall be chosen after project implementation period:

1. equipments remain under the central disposal of NIHD and will be used by its staff for same or similar purposes the project had;

2. equipments remain in the inventory of NIHD, but kept and maintained at outside premises, i.e. under the disposal of ex-GPC staff or participating municipality in order to use them for

the same health development and prevention purposes as during the implementation period (mainly in case of tools for health screenings and physiotherapy);

3. with the prior approval of the Donor, equipment is sold to ex-GPC staff on market price (mainly in case if IT devices and bicycles).

B.3.5. Recommendations for dissemination

Thinking of the nationwide dissemination of GPC model, the supply of necessary infrastructure would be the task of the GPC itself, instead of central procurements. That would facilitate a much more flexible supply of equipments than the central solution, without the time consuming procurement and ex-ante control procedures. Some funding schemes (e.g. grant schemes of the regional operational programmes) offer financing for purchase of equipments for GPs. These schemes shall be harmonised fully with the goals and efforts of the primary care development policy. The costs of maintenance and renewal of infrastructure shall be taken into consideration in the financing model of the GPs. In the future models the central supply of goods have to be rejected due to its inflexibility and high costs; which together mean an impractical, unsustainable and rigid model.

B.4. THE REQUIRED SPECIAL TRAINING NEEDS OF THE MODEL PROGRAMME

B.4.1. Common challenges of the stakeholders and primary health care

Since the Alma-Ata Declaration of 1978, primary health care has faced a fundamental expectation to resolve societal health problems through the provision of appropriate health promotion, disease prevention, curative and rehabilitation services, as well as to provide information about the most frequently encountered health problems and methods for their prevention and control. After the turn of the millennium, it has been acknowledged more clearly at professional, social and political levels that primary health care operating as single practices is not able to fulfil these objectives.

Public health indicators of the Hungarian population (premature mortality rates of non-communicable diseases, trends of hidden morbidity, proportion of the inactive population due to disability, characteristics of health behaviour, prevalence of mental disorders, etc.) clearly indicate that Hungary is a country for which primary health care system reform appears inevitable.

The Swiss-Hungarian Cooperation Programme/8/1 entitled “Public Health Focused Model Programme for Organising Primary health care Services Backed by a Virtual Care Service Centre” is a pilot project which - according to base on the negotiations with representatives of the Swiss Agency for Development and Cooperation (SDC) in 2008 - targeted the foundation of the Hungarian primary health care reform that encourages an improvement in the general health status of the population, thereby substantially reducing social inequalities in health.

The government's intention to strengthen and renew primary health care, reflected by the CXXIII. Act of Primary Health Care offers a great opportunity for the further development of primary health care.

Determining and fulfilling of tasks requires thorough consideration; the planned changes need to be modelled in advance due to the sensitivity of the stakeholders and the health care service.

Communication, proper timing and administrative processes of changes need to be planned carefully on political, professional and residential levels alike.

The current structure of primary health care is rigid, the stakeholders and the health care professionals react sensibly to changes. Therefore, it is necessary to involve the relevant stakeholders to the planning and implementation process based on their competences and responsibility. The careful design of the content and communication of the training materials based on the experiences of the Model Programme, is a key element to successfully tackling the challenges.

The need for development is confirmed by the fact that the composition of human resources has been unfavourable for more than a decade, as a result of migration, aging and lack of new candidates, which led to an increase number of vacant practices. Meanwhile, the demand for health care services has increased and considerably this tendency will continue. The overload of primary health care is demonstrated by the indicators that in Hungary, 44% of the 130 million medical-patient contacts occurs at this level of the health care system. Because the missing health care professionals with the proper knowledge this kind of medical contacts are realized by the general practitioners and their nurse.

To increase the efficiency of primary health care service involvement of new health care professional, as dieticians, physiotherapists, public health specialists, clinical specialist psychologists, horizontal, vertical harmonization and coordination among the different health care providers and actors need to be carried out. Health mediators with the same cultural background like the local residents at disadvantage region can help to reach the clients and build trust between them and the health care providers.

B.4.2. Training results of the program

The trainings in the framework of the Programme focus on all fields of activity that are carried out in the GPs Clusters to serve the primary health care development needs. It was divided into various modules; each module covered specific areas of activity aimed at professionals and co-workers who carried out the designated activity.

The most important milestones in human resource development and training for working in GPs Clusters were the following:

1st milestone: recruitment and contracting with the presently missing GP cluster members; deadline for contracting

2nd milestone: development of training materials

3rd milestone: launching of the trainings for the new and old members of the GPs Clusters

4th milestone: providing supervision for the members of the GPs Clusters.

B.4.3. The structure of the trainings

1. **The core training introduced** the basics of the Programme, its aims, participants, organization, activities, and publicly available documents on the details of the Programme. This module covered the fundamentals of internal and external communication as well, providing a basic understanding of the concept of the Programme to all professional participants.

2. **The health promotion module** covered details on the development and organization of health promotion programmes in community settings to all professionals working at the cluster level.

3. **The health status assessment methodology module** was mandatory for the public health coordinators, public health specialists, and community nurses in order to make them familiar with the arrangement, the various methods and equipments used for the assessment of health status of the clients of each practice.

4. **The lifestyle counseling methdology** module was focusing on the state-of-the-art methods of behavioral change at the primary health care level in terms of psychoactive substance use, diet and physical activity; and was offered to all professionals who engaged in various forms of counselling in an individual or group setting.

5. **The medical risk assessment**, chronic care, and rehabilitation module was offered specifically for GPs and practice nurses in order to make them competent to use the latest techniques in these topics.

   Medical risk assessment was aimed exclusively to doctors who are expected to carry it out in practice. Chronic care and rehabilitation was offered for health professionals involved in these services.

6. **Special additional local trainings** were held during the phase of implementation in the field of communication, mental health protection (William LifeSkills), proper usage of

developed IT system. The list of all trainings activity and the number of trainees are collected at the Tabel 5.

7. **Training for co-workers** (health mediators, assistant health mediators): The health mediators participated in NTR (National Vocational Training Register; Országos Képzési Jegyzék - OKJ) trainings accredited by the Adult Educational Accrediting Corporation to get official qualification as assistant nurse or social worker. These health mediators were responsible to build the trust among the population and the health care providers, recruit local residents for health screening programs and other preventive services and for the training of the assistant health mediators under the supervision of the public health coordinator.

8. **Continuous education and upgrading trainings:** Written material from the above mentioned training modules was made available online and upgraded regularly for continuous use of the cluster workers. Supervisory visits were conducted regularly at each cluster.
9. **Training for stakeholders'** (e.g. local governments', NGOs') representatives: The scheduled training for GPs' cluster members and stakeholders' representatives was delivered by the professional leadership of the Program and the university teachers with substantial experience in public health and family medicine trainings.

B.4.4. Next steps of the future

The task of primary health care is also to strengthen the individual's responsibility for his / her own health and at the same time to involve the person in the decision-making and implementation process of health care services. It is also necessary to reorganize some of the competences from outpatient clinics to primary health care.

Besides the economical strengthening, it is also necessary to increase the prestige of primary health care, which is currently extremely low. This is shown by the fact that the vast majority of young doctors do not see a perspective in family medicine, so they do not choose this training program. As this attitude usually develops during the university years, the university curriculum should be the first stage of career model development. Primary health care focused training materials should be given a more prominent role, with special regard to preventive services, at any level from health promotion to chronic care and rehabilitation. The

primary health care centric renewal of graduate and postgraduate training can provide a basis for the future competence and service spectrum extension.

Significant differences exist in the professional content of nursing tasks between individual GP practices. The huge shift from professional duties to administrative tasks in the recent years and the missing health care professionals are considerable obstacle to a high-level, efficient nursing and prevention work.

Beside the increasing need for care and the growing shortage of doctors the health care system - including primary health care - will not be sustainable.

The structural and cultural changes, which means the involvement of health care professionals who reflect of the most burden health risks and problems (dieticians, physiotherapists, public health specialists, clinical specialist psychologists) are cornerstones of the development process.

B.4.5. Roadmap for training development and implementation at primary health care to increase the effectivity of health care services

I. Enhance the prestige of the primary health care

1. Incorporate the knowledge of primary health care responsibility and rights into public education
2. Strengthening the prevention as approach in public education, graduate, postgraduate trainings and at daily work and leisure activities
3. Emphasize the role of primary health care in the health science universities curriculum, launching targeted fellowships
4. Strengthening the residency training of general practitioners through operation of affiliated training practices and tutor network and the establishment of primary health care specific clinical and prevention training programs
5. Strengthening the pediatrician residency training program

II. Proposals for action to expand the competence of primary health care

1. Expanding the competences of general practitioners
2. Expanding the competences of health care professionals

3. The human resources needed to renew at the level of primary health care and their training program must to be developed
4. Mediating the effective cooperation of healthcare providers and stakeholders.

T5. All trainings activity and the number of trainees

	2013.II.	2014.I.	2015.II.	2016.I.	2016.II.	2017.I.
Core training	91					
Communicational training	122					
Health promotion methodology	18					
Lifestyle counselling methodology	18					
Health status assessment methodology	25					
Chronic care and rehabilitation methodology	77					
Health mediator training	48					
Nurse assistant training (National Vocational Training)	21					
Social care training (National Vocational Training)		2				
Stakeholder training		272				

Phase1 IT training	80					
Assistant health mediators			41			41
Local lifestyle counseling			38	172		
Local mental health training					64	35
Phase2 IT training					48	
Total number of trainees	500	774	853	1025	1137	**1213**

C. EVALUATION OF GPs CLUSTER SERVICES

C.1. HEALTH STATUS ASSESSMENT AND RECRUITMENT AMONG ADULTS OVER 18 YEARS OF AGE

C.1.1. Introduction. Commitments of the programme

The Swiss-Hungarian Cooperation Programme/8/1 is a pilot project targeting the foundation of a screening protocol in the Hungarian primary health care that encourages an improvement in the effectiveness of screenings and in the general health status of the population. This new primary health care model programme aims the introduction of new organizational measures in the form of GPs Clusters for the health status assessment – including various screening methods – of adults over 18 years of age[2].

The aim of the health status assessment is to facilitate the in-time recognition of exposure to avoidable (e.g. lifestyle related) risk factors and early stage disorders through screening. The primary health care screening is clearly separate from the acute and chronic patient care, i.e., it deals with neither patients complaining of symptoms who need acute treatment nor patients who have known illnesses who require chronic care management.

Beside the primary aim – improving screening quality – of the health status assessment, there is a special emphasis on the increase of the number of screening participants and on the improvement of accessibility to primary health care level screenings for adults with disadvantageous socio-economic status, especially Roma.

The primary health care based screening is carried out by the members of the GP cluster screening team, including the community nurse, the public health specialist and the GP, who are also responsible for the appropriate documentation.

[2] Ádány R. (szerk.) Működési Kézikönyv a Praxisközösségek Népegészségügyi Szolgáltatásaihoz. Népegészségügy. 2014;92(3–4):137–221.

The health mediators are responsible for recruitment and supporting participation of local community members in primary health care screenings. Health mediators receive special training, which will also be useful for their future career. With the guidance of the public health coordinator, health mediators mediate communication between healthcare providers and the local community, with special focus on adults with disadvantageous socio-economic status, especially Roma, in order to improve participation in health status assessment, screenings, prevention programmes, lifestyle counselling, health promotion programs, and in chronic care and rehabilitation[3].

C.1.2. Level of fulfilment

C.1.2.1. Participation in health status assessment

One year after the initiation of the programme (30 September 2014), the participation rate was 21%; in the following period recruitment and health status assessments were proceeded: 48% of the target population participated in the health status assessment between 01 October 2014 and 31 March 2016. During the total monitoring period (from November 2013 to March 2016) 22,652 adults took part in health status assessment out of the total number of adults registered in the GPs Clusters (according to the 2014 data of the National Health Insurance Fund of Hungary), which means a 70% participation rate.

Effectiveness of recruitment was measured based on the work of health mediators: consent rate of the target population to participate in health status assessment was 46% between 01 October 2014 and 31 March 2016. In this monitoring period, demographic features – gender, age – of the health status assessment participants were also studied. According to the aggregated results of the 4 GPs Clusters, more females (49%) than males (47%) participated in health status assessment. A significant difference was also seen according to age groups. The highest participation rate was seen in the youngest age group (18–19 years; 69%), who were followed by the oldest age group (over 80; 55%), and the lowest participation rate was peculiar to the age group of 40–49 and 50–59 (both 46%).

[3] Papp M. (szerk.) A praxisközösségek eljárásrendje verzió 5.0, SH/8/1 Svájci Hozzájárulás Program, 2015. június 15.

C.1.2.2. Result of the health status assessment

As a result of health status assessment, crude frequencies of risk factors and suspected diseases were studied based on the data of the eDoki software during the period of November 2013 – February 2016. The following crude frequencies were seen among participants of the health status assessment: regular and occasional smoking – 34.1%, low fruit and vegetable consumption – 22.0%, physical inactivity – 52.2%, addiction and endangerment caused by alcohol abuse – 4.2%; frequency of suspected diseases: obesity – 32.5%, cardiovascular risk (SCORE ≥3% for those not taking antihypertensive drugs) – 5.1%, high, very high risk of diabetes mellitus (according to FINDRISK) – 19.8%.

The public health specialist and the community nurse is responsible primarily for performing screening procedures among adult population. GPs are involved in the process of health status assessment at the point of GP preventive service. After health status assessment, the GP evaluates the documented screening results of the client and decides further steps in treatment (client's path). The result of health risk assessment was examined by proportion of need for further care, studied in the period of 1 October 2014 – 3 March 2016 on the base of data uploaded in the IT system. Average rate of persons need for further care was 95% (one client was usually referred to several health professionals). In the above-mentioned period from the 15,678 performed health status assessment 47,131 referrals were made. Majority of clients were sent to GP service (86%) and to dietician (75%), third of the clients having health status assessment was referred to health psychologist (39%), community nurse (37%) and public health coordinator (33%).

C.1.3. Success factors

Development and practical application of the new method for assessing the health status with screening feature itself was a success. The primary care team extended with health care professionals with public health knowledge or qualification was able to increase the screening participation rate of the general population including the highlighted Roma population. The participation rate was highly increased by achieving the population by recruitment and via other communication channels. The recognition of lifestyle risk factors revealed by health status assessment, detection of suspicion or early phase of some chronic diseases, identifying diseases requiring acute care, and the requisition of the necessary health care services (new services of the GPs Clusters, primary and secondary care) can all contribute to the improvement of health status of the population.

C.1.4. Untapped opportunities, that can be built upon during further improvement programmes

Further improvement of the already existing programme developed for registry and analysis of health status assessment would provide an up-to-date and online data basis for recruitment and monitoring, which can be helpful for every participant of the GPs Clusters and for people analysing the data, too. Standardized methodology of health status assessment wold be ensured by refining the evaluation protocols and by reconsidering the Operations Manual and Procedure Protocol.

C.1.5. Commitments not fulfilled and their reasons

When examining the screening participation rate differences between GPs Clusters it is important to consider the fact – calculated by estimation in the intervention area and surveyed in the control GP practices – that the rate of those clients who do not live where their health insurance is registered is approximately 10%, therefore their recruitment for health status assessment is impeded. Differences in fulfilment of commitments can be explained by different characteristics, structure, number of population of settlements belonging to GPs Clusters, by different recruitment methods used by GPs Clusters, and by different human resources available in GPs Clusters in periods of the programme.

C.1.6. Recommendations for extension of the programme

On the base of data and risk factors registered and identified by health status assessment it is possible to do individual and population level risk assessment, hereby measuring demands for prevention and therapy. For doing this, precise and reliable data and information are needed about the health status of the population, about the risk factors and frequency and accumulation of predisposing factors, and about local features and circumstances. Applying a screening procedure – health status assessment – and data collection done in the whole primary care it is possible to create a data base that picture the frequency of risk factors, effectiveness and deficiency of prevention, and show the quality of care.

C.2. PUBLIC HEALTH PROFESSIONALS IN THE PRIMARY CARE, THE PERFORMED COMMUNITY HEALTH IMPROVEMENT ACTIVITIES

Within the framework of the program the traditional primary care model was transformed into a new innovative organizational model. One of the key actors of the new structure is the public health coordinator.

During the investigated time period of the model program- between September 2014 and March 2016-, in the 4 GPs Clusters altogether 10.0000 services were realized with 120.000 attendants. The number of services and attendees has increased continuously proving that the services become more and more popular amongst the residents.

In the 4 GPs Clusters altogether 5,562 group sessions were implemented with 114,684 participants.

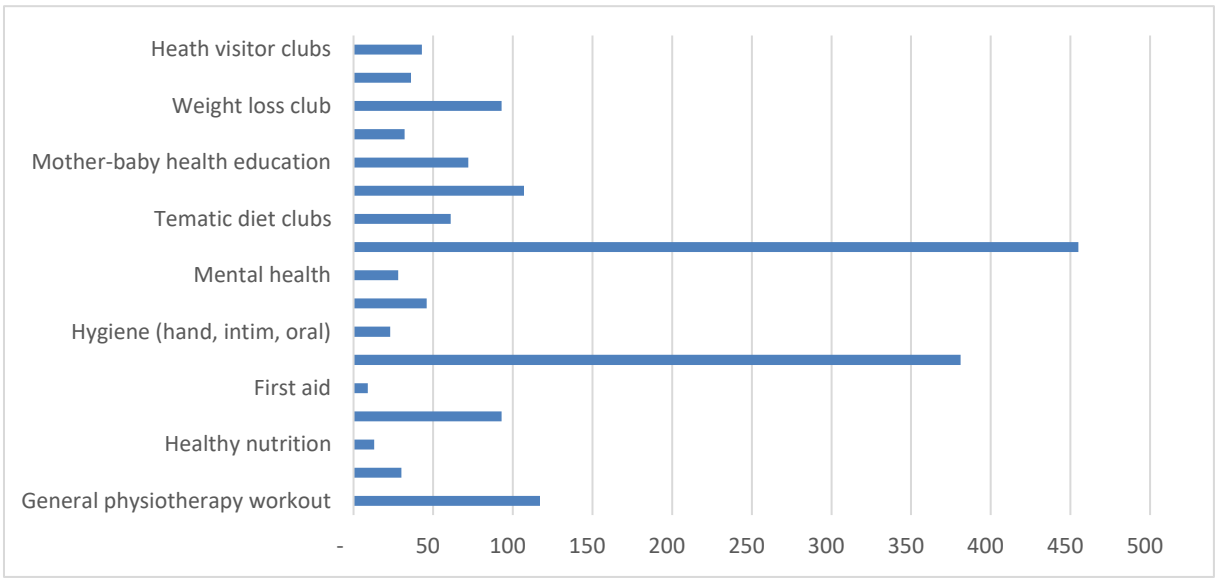
T6. All sessions/services by profession (19 Months)

Profession	All sessions/services by profession (19 Months)
Dieticians	2 656
Health psychologist	2 457
Physiotherapist	4 791
Public health coordinator*	379
Health Visitor**	464
Public health co-workers***	55
GPs Cluster nurses***	115
Total	**10 17**

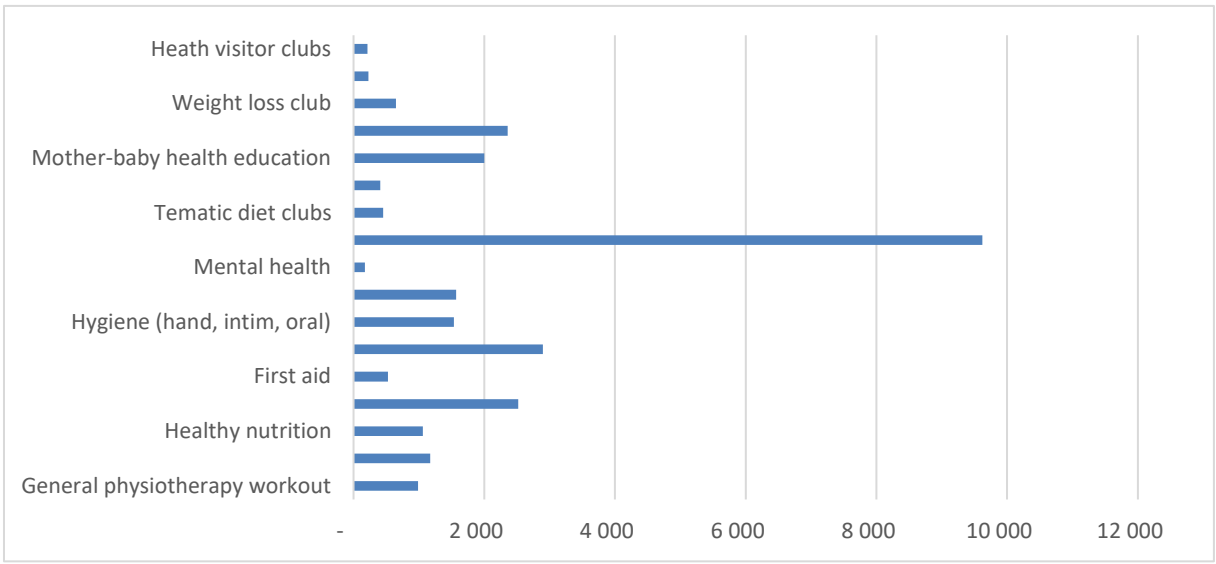
*** Over the monthly FULL FTE administrative and coordinative duties**
**** Activities partly overlapping the monthly duties of the health visitors**
***** Over the monthly screening activities**
Sources: monthly GP Cluster reports between 09 .2014 and 03.2016

From October,2015 a new reporting system has been introduced enabling personal ID connected data recording. The figures below display the number of thematic group GPC activities and the number of participants between October 2015 and March 2016. Below the age groups of the attendants are demonstrated at the different additional services in the same period.

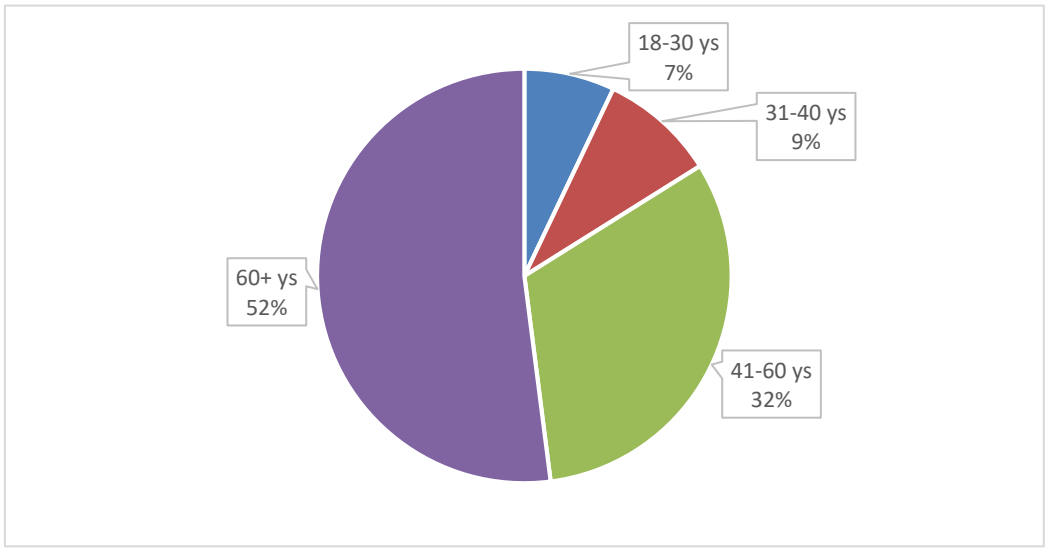
F4. Number of tematic group activities (2015 Oct- 2016 March)



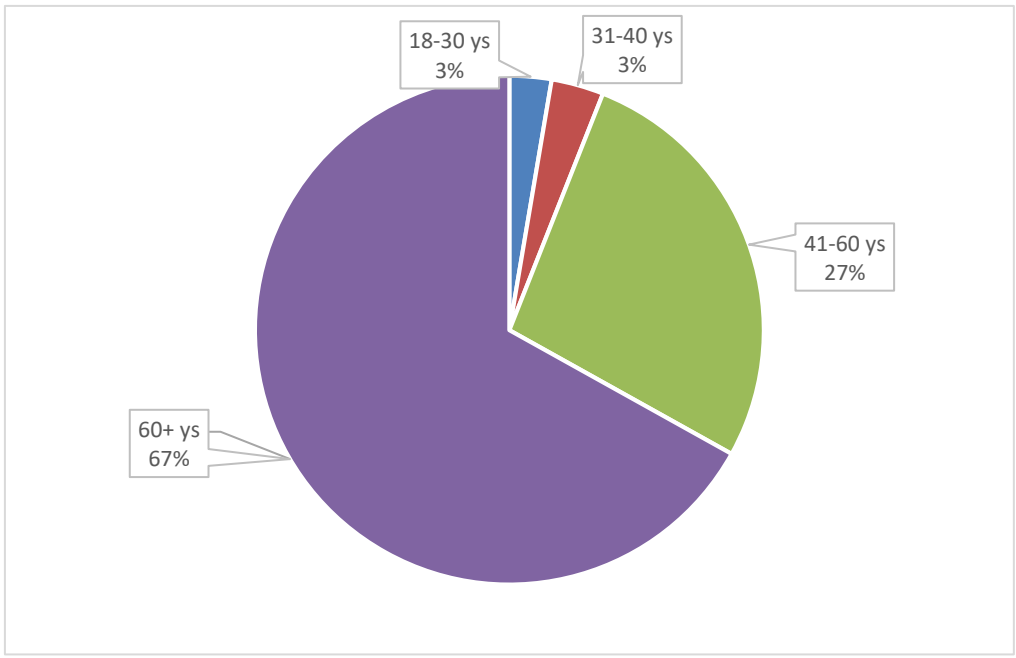
F5. Number of participants at tematic group GPC activities (2015 Oct- 2016 March)



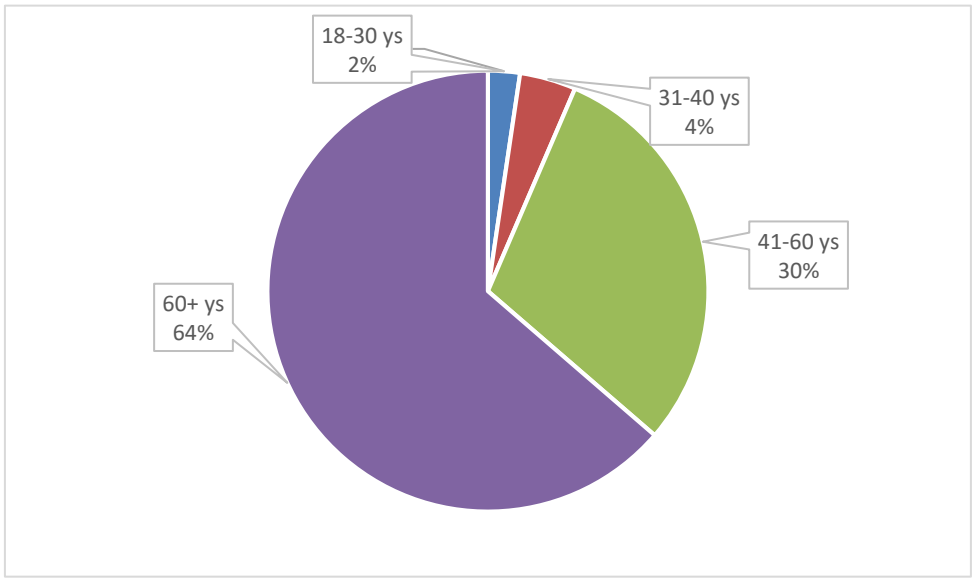
F6. Participants of dietetic GPC services by age groups (2015 Oct- 2016 March)



F7. Participants of GPC physiotherapy services by age groups (2015 Oct- 2016 March)



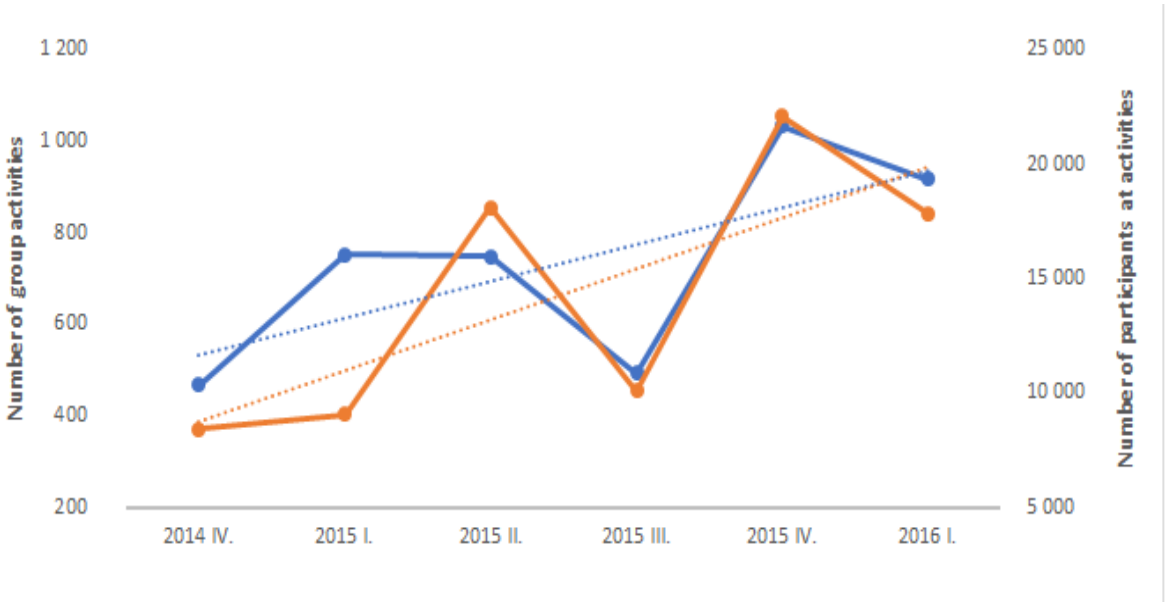
F8. Participants of GPC health-psichology services by age groups (2015 Oct- 2016 March)



Source: Reports of the GPCs 2015 October- 2016 March

Based on the examination of the data significant increase could be detected in the number of activities (with a seasonal drop due to the effect of the summer period).

F9. The number of group sessions and participants between October 2014 and March 2016.



Source: Reports of the GPCs 2014.September- 2016 March

From the data of the GPs Clusters it can be concluded that the popularity of the services has increased until the end of the project, therefore it is recommended to assure the services continuously (in line with the public health data and the citizens attitude surveys) by employing public health coordinators (beside establishing and sustaining the health insurance reporting and financing system).

C.3. GP'S PREVENTIVE COUNSELLING

GPs held regular preventive counselling hours (3 hours per week). Clients arrived either after health status assessment (app. 60%), or as part of their chronic care process (app. 40%). Between April 2015 and March 2016 (during a one-year-long period) 3796 adults participated in preventive counselling. In comparison to the population registered at the GPs Clusters, 12,1% of the population visited a counselling annually. GPs spent 41 minutes per client on average.

GPs also referred patients to outpatient care services during these visits. Annually, 2398 referrals were made, mainly for diagnostic services, eye exams, internal medicine, dietetics and diabetology, and cardiology. Altogether, 43,2 referrals were made per 100 completed health status assessments (without diagnostics: 25,6). It must be noted that further referrals made by specialists might increase the rate, however, the impact assessment of the utilization of outpatient care services did not detect a significant increase.

In the future the time to be spent with preventive counselling should be determined based on population size. If the 12,1 per 100 registered client rate served as a benchmark, it would increase the number of GP-patient visits by 1,8% annually. Because its time consumption is much higher than of an average visit, achieving this rate would require app. 380 person-years of extra work altogether at country-level. Consequently, introduction of this high-resource-use activity in a wider scale would require precise targeting of participating clients as well as additional financing for the time used.

C.4. PHYSIOTHERAPY SERVICES

C.4.1. Commitments and challenges

Chronic non communicable disease are the most important causes of morbidity worldwide[4]. Musculoskeletal disorders, or musculoskeletal consequences of other chronic diseases are important components of the disease burden in developed countries. The physiotherapist can significantly contribute to reducing the risk of certain musculoskeletal problems, improving the status of patients suffering in such diseases, and reducing the risk of other diseases by improving the musculoskeletal functionality of patients. Since such persons form the majority of patients in primary care, the participation of physiotherapists in the primary care is essential. The Primary-care Development Model Program also investigated the effect of employment of physiotherapists at the Practice Teams on the health status of the affected population[5]. They had a variety of tasks, according to the Operations Manual, including preventive and therapeutic approaches, primarily in the form of group level counselling and practice[6].

C.4.1.1. Monitoring the effects of the physiotherapy interventions

A baseline data collection was made with a selected group of participants before and after the physiotherapy intervention. The intervention was made according to the Manual. The main target groups of physiotherapy intervention are illustrated in in Table 7. Besides anthropometric data, validated questionnaires were used to assess the functional status of the patients/clients. The methods of data collection are shown Table 7.

[4] World Health Organisation. Global status report on non-communicable diseases 2010. Available from: http://whqlibdoc.who.int/publications/2011/9789240686458_eng.pdf

[5] Sándor J., Kósa K., Fürjes G., Papp M., Csordás Á. Rurik I., Ádány R. (2013). Public health services provided in the framework of general practitioners' clusters. European Journal of Public Health, 23(4), 5302–532.

[6] Ádány R., Csordás Á., Fürjes G., , Grósz A.., Gutási É., Henter I.., Kósa K., Morvai G., Papp M., Perczel-Forintos D., Rurik I., Sándor J., Somogyvári Zs., Vajer P., Veres-Balajti I. (2015). A praxisközösségek eljárásrendje. verzió 5.0. SH/8/1 Svájci Hozzájárulás Program, Budapest

T7. Target groups of physiotherapy intervention and measures of outcome

Target	Assessment method
Holding correction gymnastics, physical status development in kindergartens	Hungarian Spine Society, Holding correction: 12 tests
Correction/improvement of spine problems	Hungarian Spine Society, Holding correction: 12 tests
Physiotherapy program to prevent harmful consequences of sedentary lifestyle	SF-36 Low back pain: Oswestry Disability Index 2.1a – Hungarian version Back pain: Roland - Morris Disability Questionnaire Osteoporosis: WHO Fracture Risk Assessment Tool
Group exercise programs for the elderly	SF-36 Timed Up and Go walking test
Weight control program with lifestyle counselling	SF-36, Bio impedance, body fat%, muscle%, BMI
Incorporation of spine gymnastics into the everyday physical education	Hungarian Spine Society, Holding correction: 12 tests
Pelvic floor muscle training for adolescents and adults	King's Health Questionnaire (KHQ)
Individual exercise therapy of disabled people	FIM index

C.4.2. Most important results of physiotherapy interventions

Results of holding correction/prevention programs were measured with the Hungarian Spine Society holding correction test (12 tasks – correct performance 1 point, incorrect performance 2 points). The baseline score among adults was 16,35±2,23, while after the correction program it became 14,77±2,28 ($p<0.001$). From the studied 97 persons 64 showed an improvement in the score. Among children the results were 17,59 ± 2,22 and 15,75 ± 1,84, which was a significant improvement as well. From the 142 participants 110 children had improved scores after the program.

The life-quality questionnaire (SF-36) was evaluated in case of 139 clients, with different musculoskeletal problems. The results showed that all the different aspects (physical function; physical role; bodily pain; general health; vitality; social functions; emotional role; mental health) of self-assessed life quality improved statistically significantly ($p<0.001$, with the exception of mental health, where $p<0.05$) due to the physical training programs. The highest improvement was seen on the area of physical pain (15.7 points), the lowest in relation to mental health (3.25).

The TUG test was evaluated by using 43 data pairs (elderly physical exercise program) The initial value of 9,76±4,33 min decreased to 8,70±4,10 min, which was a statistically significant improvement ($p<0.001$).

The Oswestry Disability Index (61 persons) and the Roland-Morris Disability Questionnaire (58 persons) showed a significant ($p<0.001$) increase as well, indicating the success of physiotherapy programs in the management of back pain.

The individual training programs were also effective: the FIM index (14 persons, used to characterize the improvement of disabled people after individual exercise therapy) of the participants showed a statistically significant ($p<0.001$) improvement – from 101,29±20,00 points to 107,57±19,06 points. Thirteen from the studied 14 participants had improved FIM results.

While the number of participants in the of pelvic floor muscle training program (8 clients) and in the weight control program (9 participants) was relatively low, statistically significant improvement was seen in 6 dimensions of The King's Health Questionnaire, and concerning abdominal circumference.

C.4.3. Recommendations for the future

Since musculoskeletal disorders and musculoskeletal effects of chronic diseases give significant part of the disease burden, all the efforts in order to reduce prevent/cure these diseases are highly welcome in the health care system. The most appropriate professional in this area is the physiotherapist. The Primary-care Development Model Program demonstrated the efficacy of physiotherapy interventions, and the involvement of physiotherapists in the Practice Team. Extension of the program to the whole population would significantly contribute to the improvement in their health status, so the support of this effort is highly recommended. Further studies should be conducted in relation to those conditions where, in the lack of the appropriate number of participants, the efficacy could not be evaluated in the framework of the present program.

C.4.4. Summary

The physiotherapy intervention was proved to be highly effective in improving the functional status and life quality of the participants. Improvement was seen in relation to all the diseases involved in the monitoring, or in connection with all the studied preventive measures. Physiotherapists, – in certain cases in cooperation with dietitians – are useful members of the Practice Teams. Based on the results of the monitoring, employment of physiotherapists can highly increase the efficacy of primary care, and contribute to the improvement of the health status of the population.

C.5. DIETETICS

C.5.1. Commitments and challenges

Chronic non communicable disease are the most important causes of deaths worldwide[7]. Diet and nutrition is among the most important risk factors of these diseases, and plays an important role in their therapy as well[8]. Disease prevention programmes often focus on altering dietary habits, and therapy of chronic diseases is always almost associated with lifestyle changes including nutrition[9]. Dietitians are key persons in these programmes, but unfortunately – in contrast to their involvement in therapeutic processes – they are underrepresented in the primary care and primary prevention. The efficacy of their activity has been intensively investigated, and these studies showed that they could effectively contribute in the care of diabetic, hyperlipaemic patients and of others with certain chronic conditions.

[7] World Health Organisation. Global status report on non-communicable diseases 2010. Available from: http://whqlibdoc.who.int/publications/2011/9789240686458_eng.pdf

[8] Kontis V, Mathers CD, Rehm J, et al. Contribution of six risk factors to achieving the 25×25 non-communicable disease mortality reduction target: a modelling study. Lancet 2014; published online May 3. http://dx.doi.org/10.1016/S0140-6736(14)60616-4

[9] Battista M, Labonte M, Menard J, Jean-Dennis F, Houde G, Ardilouze J, Perron P. Dietitian-coached management in combination with annual endocrinologist follow up improves global metabolic and cardiovascular health in diabetic participants after 24 months. Applied physiology, nutrition, and metabolism, August 2012. 37;4:610-620
Delahanty L M, Sonnenberg L M, Hayden D and Nathan D M. Clinical and cost outcomes of medical nutrition therapy for hypercholesterolemia: A controlled trial. American Dietetic Association. Journal of the American Dietetic Association; Sep 2001; 101, 9
Willaing I, Ladelund S, Jørgensen T, Simonsen T and Nielsen LM. Nutritional counselling in primary health care: a randomized comparison of an intervention by general practitioner or dietician. European Journal of Cardiovascular Prevention and Rehabilitation 2004, 11:513– 520
Welty F K, Nasca M M, Lew N S, Gregoire S, Ruan Y. Effect of Onsite Dietitian Counseling on Weight Loss and Lipid Levels in an Outpatient Physician Office. Am J Cardiol 2007;100:73–75

This is why the Primary-care Development Model Program also investigated the effect of employment of dietitians at the Practice Teams on the health status of the affected population[10]. They had a variety of tasks, according to the Operations Manual, including preventive and therapeutic approaches both with individual counselling and group level actions[11]

C.5.1.1. Monitoring the effects of the dietary interventions

A baseline data collection was made with a selected group of participants before and after the dietary intervention. The intervention was made according to the Manual, either in group sessions or in the form of individual counselling. This data collection consisted of questions related to the health related knowledge, attitudes and health behaviour of the participants, and the change was measured. The questionnaires were constructed by the monitoring team, and tested in the actual target population. The self-reported quality of life was also measured by the SF-12 questionnaire. Certain laboratory parameters (e.g. lipid values, blood glucose level) were measured as well. A control group was also included, where no dietary intervention was made between the two data collection points. The monitoring focused on clients with obesity, ischaemic heart diseases, hypertension, and diabetic patients. In the lack of space, only the most relevant parameters will be included in this summary.

Most important results: Diabetics

The group consisted of 187 participants (137 interventional and 50 controls), 39.6 % of them were men, and 85.5 % had type 2 diabetes. There were no significant differences between the key biological parameters of the participants and controls.

Statistically significant ($p<0.05$) change in the BMI (34.5 vs. 33.6), abdominal circumference (109.02 vs. 107.08 cm), blood sugar level (8.23 vs. 7.6 mmol/l), total cholesterol (5.18 vs. 4.02 mmol/l) was registered. The participants changed their nutrition related habits as well: frequency of meals (3.61 vs. 4.30 /day) and fluid intake (1.96 vs. 2.24 l/day) increased significantly. Besides other favourable changes in the diet of the participants, e.g. the

[10] Sándor J., Kósa K., Fürjes G., Papp M., Csordás Á. Rurik I., Ádány R. (2013). Public health services provided in the framework of general practitioners' clusters. European Journal of Public Health, 23(4), 5302–532.

[11] Ádány R., Csordás Á., Fürjes G., , Grósz A.., Gutási É., Henter I.., Kósa K., Morvai G., Papp M., Perczel-Forintos D., Rurik I., Sándor J., Somogyvári Zs., Vajer P., Veres-Balajti I. (2015). A praxisközösségek eljárásrendje. verzió 5.0. SH/8/1 Svájci Hozzájárulás Program, Budapest

consumption of fruits and vegetables also increased (53.8 vs. 74.2 % at least daily vegetable consumption and 56.1 vs. 74.2 % regular fruit consumption).

Certain methods were more effective in influencing the dietary habits of the participants. Those who wrote a diary concerning their nutrition, all the above mentioned changes were stronger than in the rest of participants. Group level dietary interventions were more effective than individual counselling.

The self-reported quality of life has also improved, from 33.59 to 41.41 points ($p<0.001$), including almost all the investigated areas =with the exception of social function and bodily pain).

Most important results: Obesity

The group consisted of 212 participants, 32.5 % of them were men.

The BMI (35.37 vs. 37.88), abdominal circumference (112.30 vs. 109.33 cm) and total cholesterol (5.30 vs. 5.13 mmol/l) significantly decreased due to the intervention.

This was associated with favourable changes in the attitudes (e.g. importance of ideal body weight, healthy nutrition), dietary habits (e.g. frequency of meals, fruit and vegetable consumption, consumption of whole grain products), and nutrition related knowledge as well

The quality of life has also improved (35.91 vs. 38.37 points).

Most important results: Hypertension

This group consisted of 156 participants (plus 49 controls), 33.3 % of them were men.

Blood pressure of the participants have statistically significantly improved (143.54 vs. 139.68 systolic and 92.12 vs. 85.06 diastolic). This was associated with lower BMI (34.48 vs. 33.73) and abdominal circumference (110.43 vs. 108.53 cm).

The favourable changes in lifestyle, dietary habits (meal frequency, fluid intake, physical activity, fruit and vegetable consumption) and attitudes (e.g. importance of consuming less sugar, importance of optimal body weight) were present in this group as well.

The quality of life has significantly improved (38.32 vs. 47.20) as well.

Most important results: Ischaemic heart disease

The group consisted of 90 patients with ischaemic heart disease, 33.3 % of them were men.

The BMI (34.69 vs. 34.20) and abdominal circumference (109.38 vs. 108.40) statistically significantly improved, but there was no change in lipid levels.

The fluid intake (1.91 vs. 2.13 l/day) has improved, and the meal frequency (3.49 vs. 4.28) has increased as well. The nutrition related knowledge and attitudes were better after the counselling programme than before. The quality of life has improved as well (31.11 vs. 41.11).

C.5.2. Recommendations for the future

Involvement of dietitians in the primary care team highly improves the efficacy of therapeutical and preventive efforts. Since therapy and prevention of chronic diseases and conditions involves nutritional changes, dietary counselling programmes are highly effective in the management of these conditions. The dietitians proved to be useful members of the Practice Team, which is seen from the client satisfaction, opinion of other team members (such as GPs, public health coordinators) and from hard facts (improvement of the status of the clients) as well. The cooperation between dietitians and physiotherapists seem to increase the efficacy of the intervention, which emphasizes the importance of team work.

According to our experience, it is important to further improve the way how clients are referred to dietitians. Involvement of those who need the intervention seems to be a key point in the success of such programmes.

Since health economics analyses also support the efficacy, this pilot project should be extended, and dietitians should be involved in the primary care.

C.5.3. Summary

The dietetical intervention was proved to be effective in improving the diet related knowledge, dietary habits and attitudes of the clients. The favourable changes resulted in an improvement of the relevant biological parameters of the participants with chronic diseases

and conditions. Dietitians were useful members of the Practice Teams, and dietary counselling programs should be extended to make use of the services of dietitians.

C.6. HEALTH PSYCHOLOGY SERVICES

C.6.1. Commitments and challenges

The physical and psychological well-being of the Hungarian population is problematic in many respects; in a few areas it can even be considered severe[12]. Meanwhile, the priorities in public health policy have been continuously changing for the past 25 years. One important service area of the Primary-care Development Model Program is the employment of health psychologists[13]. According to the Operations Manual of the Practice Teams[14], roles of a health psychologist are:

- to provide individual and group therapy sessions
- to provide tailor-made lifestyle counselling in areas such as stress management, weight loss programs, quitting smoking, etc.
- to participate in the rehabilitation of patients with somatic diseases
- to participate in prevention and screening programs.

The health psychologist works under the supervision of the practice team's public health coordinator, as a member of the team.

C.6.2. Effects of the psychological interventions

From the group of patients receiving individual or group health psychology interventions between November 2015 and May 2016, the data of 137 patients (22 men, 125 women) was included in the analysis of the longitudinal assessment questionnaire evaluating the program. The below indicators were assessed two times. First, when the patient started

[12] Kopp, M. (Szerk.) (2008). Magyar lelkiállapot 2008. Esélyerősítés és életminőség a mai magyar társadalomban. Semmelweis Kiadó. Budapest
Susánszky, É., & Szántó, Zs. (Szerk.) (2013). Magyar lelkiállapot 2013. Semmelweis Kiadó. Budapest

[13] Sándor, J., Kósa, K., Fürjes, G., Papp, M., Csordás, Á. Rurik, I., Ádány, R. (2013). Public health services provided in the framework of general practitioners' clusters. European Journal of Public Health, 23(4), 5302–532.

[14] Ádány, R., Csordás, Á., Fürjes, G., , Grósz, A.., Gutási, É., Henter, I.., Kósa, K., Morvai, G., Papp, M., Perczel-Forintos, D., Rurik, I., Sándor, J., Somogyvári, Zs., Vajer, P., Veres-Balajti, I. (2015). A praxisközösségek eljárásrendje. verzió 5.0. SH/8/1 Svájci Hozzájárulás Program, Budapest p.38-39

using the health psychological services, and for the second time after the service was terminated.

- Depression (Beck Depression Inventory - Short version, BDI-S)
- WHO Well-Being Index (WHO)
- Perceived Stress
- Health behavior (smoking)
- Self-rated Health (SRH)

C.6.2.1. Main results of the intervention study

As a result of the interventions, all of the above indicators improved significantly (see Figure 10. and Table 8).

In case of depression (BDI-S), perceived stress (PSS) and emotional well-being (WHO Well-Being Index), the effect sizes were considerable: as a result of the health psychological interventions these indicators improved remarkably.

Both the individual as well as the group interventions effectively contributed to reducing the participants' depression and their amount of perceived stress. Furthermore, due to both types of interventions, the level of well-being has increased.

C.6.3. Focus group interviews

Altogether 9 semi-structured focus group interviews were made. In each group, patients and professionals from every practice team participated. Altogether 34 professionals and 21 patients were interviewed. Two main questions were examined during the interviews:

1. What are the effects of the applied health psychology interventions?
2. How can health psychology interventions be improved?

C.6.3.1. Main results of the focus group study

In the examined practice teams, both on the individual as well as on the community level, some highly positive mental health processes have been set in motion such as increased resource mobilization and empowerment.

Being aware of and accepting psychological help can become the norm in communities where previously it was rejected and considered as shameful.

Among elderly clients and clients living with chronic diseases, the feeling of isolation decreased, whereas perceived social support, self-confidence and activity increased. Additionally, clients' horizons broadened as a result of psychoeducation.

In addition to receiving support in maintaining their physical health (e.g. losing weight, quitting or decreasing smoking) participants experienced being part of a community, which provided them with the feeling of belonging and holding.

Patients reported an increased cooperation (compliance) regarding their general practitioners (GPs).

Uncared patients with identifiable health risks motivated the health psychologists to expand their activities, as these patients - considering their conditions - could not be referred further.

In order to increase the accessibility of health psychological services, a complex educational approach, individualized patient pathways and referral systems are needed. To this end, health psychologists participating in the current study suggest an even more intense cooperation with the GPs in the practice teams.

There is a need to flexibly shape the health psychological interventions described in the Operations Manual and to align these interventions to the given community's aptitude and values.

C.6.4. Recommendations for the future

Apparently, the population in the operating field of the practice teams has below-the-average or average mental and physical health. There is a significant amount of patients living with chronic diseases or some form of addiction. Therefore, the work of health psychologists is essential in primary care.

- The health psychologist's activities can only yield results when the psychologist is available on a regular basis.

- There is significant demand for on-site psychological services for children, as well as in clinical psychology and family therapy.

- The Operations Manual of the Practice Teams offers several appropriate recommendations regarding the framework and content of the health psychologist's work. On the other hand, the needs/problems present on the field are too diverse to be fully covered by one set of specialized psychological competencies only. In the long run, other types of competencies (e.g. family therapy) supplementing the health psychology knowledge are also needed in the primary care system.

- It is important for the health psychological service system to accomodate the local needs and obtain feedback on a regular basis.

- As a result of both the individual as well as the group interventions significant and obvious health beNIHDts were gained, as evidenced by the decreased depression and perceived stress indicators as well as the increased scores of well-being and subjective health. It can be expected that participation in the program will have a long-term positive influence on the health status of both the individuals as well as the community as a whole[15].
- These recommendations can only have a meaningful, community-level effect if the program can be operated steadily. Both professionals and clients participating in the

[15] Damen, N. L., Versteeg, H., Boersma, E., Serruys, P. W., van Geuns, R. J. M., Denollet, J., ... & Pedersen, S. S. (2013). Depression is independently associated with 7-year mortality in patients treated with percutaneous coronary intervention: results from the RESEARCH registry. *International Journal of Cardiology*, *167*(6), 2496-2501. http://www.sciencedirect.com/science/article/pii/S0167527312004494

DeSalvo, K. B., Bloser, N., Reynolds, K., He, J., & Muntner, P. (2006). Mortality prediction with a single general self-rated health question. *Journal of General Internal Medicine*, *21*(3), 267-275. http://onlinelibrary.wiley.com/doi/10.1111/j.1525-1497.2005.00291.x/full

Holahan, C. J., Pahl, S. A., Cronkite, R. C., Holahan, C. K., North, R. J., & Moos, R. H. (2010). Depression and vulnerability to incident physical illness across 10years. *Journal of Affective Disorders*, *123*(1), 222-229. http://www.sciencedirect.com/science/article/pii/S0165032709004662

Idler, E. L., & Benyamini, Y. (1997). Self-rated health and mortality: a review of twenty-seven community studies. *Journal of Health and Social Behavior*, 21-37.

Latham, K., & Peek, C. W. (2012). Self-rated health and morbidity onset among late midlife US adults. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, gbs104. http://psychsocgerontology.oxfordjournals.org/content/early/2012/11/29/geronb.gbs104.full

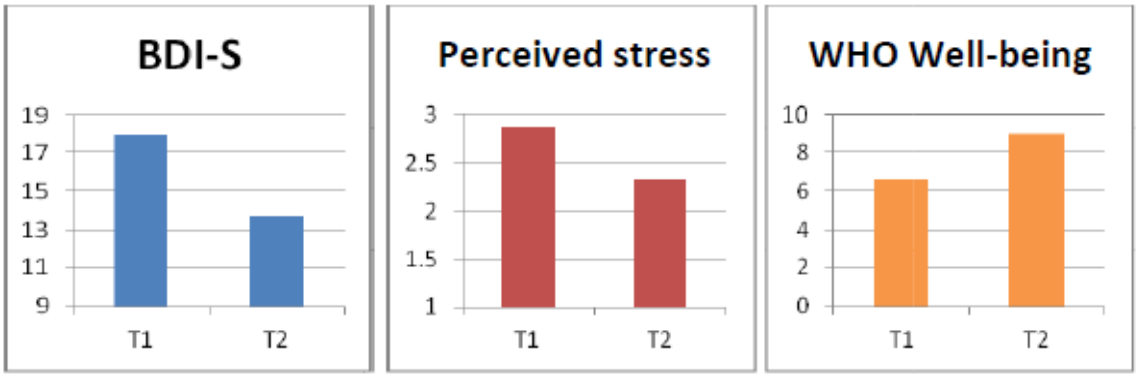
program expressed that the program could only fulfill its purpose if it continues by building on the positive elements of the pilot phase.

C.6.5. Summary

In conclusion it can be said about the health psychology sub-program of the Primary-care Development Model Program that making health psychology services available in primary care can play an important role in:

- maintaining the mental (and thereby the physical) health of the population,
- raising awareness about a preventive mindset and healthy lifestyle options,
- providing psychological help in the treatment of somatic diseases,
- screening and treating clients who may need psychology interventions.

F10. Change of the psychological health indicators pre and post intervention



Notes: T1 = scores at admission, T2 = scores at the end of the intervention
all changes are significant and of great effect size (Cohen d >=0,8)

T8. Comparing the results from individual and group sessions – repeated measures GLM

	T1		T2				
Variable	m	SD	m	SD	F (T1-T2)	F (individual vs. group)	eta-squared
BDI-S – individual	19,46	5,10	14,52	4,19	87,4***		0,393
BDI-S – group	16,40	6,16	12,90	3,30		11,6**	0,079
Percieved Stress– individual	3,11	0,74	2,52	0,61	64,1***		0,324
Perceived Stress - group	2,65	0,86	2,14	0,57		17,4***	0,115
WHO – individual	5,94	3,01	8,51	2,93	56,4***		0,295
WHO – group	7,29	3,31	9,40	2,25		8,5**	0,059

Notes: BDI-S = Beck Depression Inventory- Short version; WHO = WHO Well-Being Index

df= 135, ** p < 0,01, *** p < 0,001; in case of BDI-S descriptive statistics refer to the original scores, whereas test statistics refer to the root-transformed scores

C.7. Client satisfaction with complementary services offered by the Model Programme

C.7.1. Introduction and aims

Apart from clinical and cost-effectiveness or health financing, an important aspect of introducing an intervention in healthcare is client satisfaction. The only source of information on this can only be the person actually using these services, but reaching out for clients can be a demanding process due to high volumes and the services provided at numerous sites. Moreover, the information is needed in a structured format, limiting the options for data collection. This section is aimed to explore the client attitudes towards the new complementary preventive services (that is, physiotherapeutic, psychological, dietetic) offered by local care providers participating in the Model Programme.

C.7.2. Data and methods

A questionnaire was developed and finalized on the basis of a pilot survey carried out in the beginning of 2015. After finalizing the questionnaire, the data collection has been carried out continuously between November 2015 and May 2016. The questionnaire was distributed to clients by the nurse or assistant personnel working at each of the primary care provider. The questionnaire contained questions to gather information on basic demographic parameters (age, sex, educational levels); disease history (especially if certain cardiovascular, metabolic conditions or mental diseases are present); type of complementary services used; attitudes towards specific domains (timing, location, care provider) related to the provision of care. Data was analysed in MS Excel, CDC Epi Info (v7.1.5) and in the R statistical software package.

C.7.3. Results

A total number of 839 questionnaires were returned, and included in the primary analysis dataset. The mean age of respondents was 58.55 years, with 89% of respondents being females. In terms of education levels, the highest education level completed was

primary education for about 20% of respondents, somewhat more than half of them completed secondary education, while the remaining part (around 24%) completed tertiary education, yielding that the latter subgroup was over-represented among respondents compared to the national average (even for the population aged between 25-64, the average is around 21% in 2011). Respondents were mostly retired according to the answers on economic activity, although respondents who filled out the questionnaire on dietetics were more likely to be economically active.

The overall attitude of clients towards all services was very high with modest variation; most concerns were expressed regarding the venue, frequency and circumstances of counselling. Group sessions were more popular for physiotherapeutic consultations, regardless of exact subtype. The most popular physiotherapeutic consultation subtypes were offering spinal chord exercises and exercises for the elderly. The comparison of individual versus group sessions of psychological consultations is much more difficult, as the subtypes offered through these formats are completely different. By their nature, individual sessions were preferred to group sessions (21 mentions in total), among group sessions, the most frequently mentioned consultation type was the weight management group sessions (14 mentions), followed by the stress management group session (10 mentions). Impressively, the popularity of a female self-help group was significant (with 20 respondents mentioning the group), however, it was only offered in some of the primary care practices. A greater variability was observed in the popularity of the individual and group sessions of dietetic consultations; however, the most frequently mentioned consultation type was the group session on healthy lifestyle, presumably due to the popularity of healthy food tastings. Apart from this, two further can be considered popular: weight loss, and diabetic consultations, of which the group session was more popular (13 versus 7 mentions, and 11 versus 9 mentions, respectively).

Feedback on each of the consultations was positive in general, with respondents picking “fully content” reply in at least 87% of all consultations and attributes. However, replies on certain attribute-service pairs indicate further need for improvement. First and foremost, clients indicated a need for improving the venue of physiological and psychological consultations (with clearly mentioning heating and more spacious rooms). For dietetic consultations, more practical sessions (especially healthy cooking sessions) were mentioned as a need.

Other results indicate that the overwhelming majority of respondents indicated a clear need for the continuation of complementary preventive services. Most of clients were invited

to join consultations by a local public health assistant. Physiological sessions mostly attracted clients who reported a history of musculoskeletal diseases, rheumatoid arthritis, osteoporosis or obesity. Psychological sessions mostly attracted clients who reported a history of hypertension, obesity, cardiovascular diseases, diabetes or hypercholesterinaemia. Dietetic sessions mostly attracted clients who reported a history of obesity, cardiovascular diseases, diabetes or depression.

C.7.4. Conclusions

The results suggest that the newly offered services in the Hungarian primary care are highly welcomed by clients, especially physiological consultations. Although respondents don't necessarily represent the entire population covered by the Model Programme, their responses can help establish the evidence basis for introducing complimentary services in primary care, which suggest that clients are welcoming towards these services, and likely to use for improving their health. The services effectively targeted population subgroups suffering from chronic diseases with a high burden. The findings of this research can be used to provide comparable, structured and continuous feedback for caregivers. The analyses support the extension of the Model Programme to national level from the viewpoint of client satisfaction.

C.8. THE DUTIES CARRIED OUT BY THE HEALTH VISITORS WITHIN THE FRAMEWORK OF THE MODEL PROGRAM

Health visitor (HV) services within the framework of primary care has been offered for more than 100 years. There is a need to regularly evaluate the health status and development stadium of children, as according to scientific evidences- abnormalities detected and corrected in time will have positive impact on their future health status, as well as on their school and working productivity.

The prevention focused Hungarian Health Visitor system is unique all around the world. HV-s are offering services for people planning to have a child, for pregnant woman, and for children from the year of birth until the end of compulsory education age (6-16/18/22). Services are offered in health institution as well as family- home visits are also organized irrespectively whether abnormality was detected. During public health focused activities HV-s pay special attention to woman and families being in their reproductive age. Since 2015 health visitors have also been responsible for cervical screenings amongst 22-65-year-old women.

Nationally HV-s are working individually or in a professional collaboration with the GPs-from their geographical districts. During the model program HV-s became an active member of the professional Clusters, their relationship has significantly improved with the other health professionals. **During the Model Program additional HV services were introduced-** family surveys, risk surveys, and DIABETES2 risk assessment over **the traditional HV services (health status screenings, family visits, health education).** These new surveys were carried out between 01. January. 2015 and 31. March. 2016 (in the intervention areas).

- Parent questionnaires contain parents' perception and observation about their children' development in months 1,2,4,6, 9,12, 15 and in age 2,3,4,5,6. The results of the survey support the identification of possible abnormalities, the communication between health workers and parents, as well as the establishment of effective in-time services.

- **Risk Q.:** It is well-known that many risk factors are significant predictors of unwanted consequences. Risk factors are usually not isolated but rather they appear in a cumulative manner, thus can negatively affect recent health status. During the Model Program 740 pregnancy screenings and 717 newborn/infant screenings were carried out

- **Health Status Surveys**: 3724 children -between 0-6 year and 4658 children -between 7-18 year were screened.

The public health duties of the GPs Clusters are supported by health visitors as follows:

HV-s:

- are contributing to the recruitment of the health status and public health focused surveys (mammography, cervical screenings)
- realizing risk assessment
- offering lifestyle counselling for the risked population as well as supporting the attendance on additional services
- are supporting the establishment of thematic clubs, group activities, as well as are leading the mother-child groups

C.8.1. Collaboration- New opportunities

Health visitors are active members of the professional life of the GPs Clusters, as well as they contribute to the planning and recruitment processes of the screening activities. HV-s are in a strong professional collaboration with the other actors of the GP-Clusters: physiotherapists, dietitians, health- psychologists, public health experts and health district nurses. The work of health visitors is supported by health mediators and by GP Cluster coordinators. Before the establishment of the GPs Clusters HV-s were not able to reach or connect the other professionals. This professional collaboration is beNIHDcial to the families too as services are offered at the place of their residence and for free.

C.8.2. Recommendations

In the future in line with the GP Cluster experiences there is a need to further strengthen effective health communication- concerning individual counselling as well as group activities. The previously individual and isolated Health Visitors need to be further supported to actively became the essential part of the team in order to realize the highest level professional services.

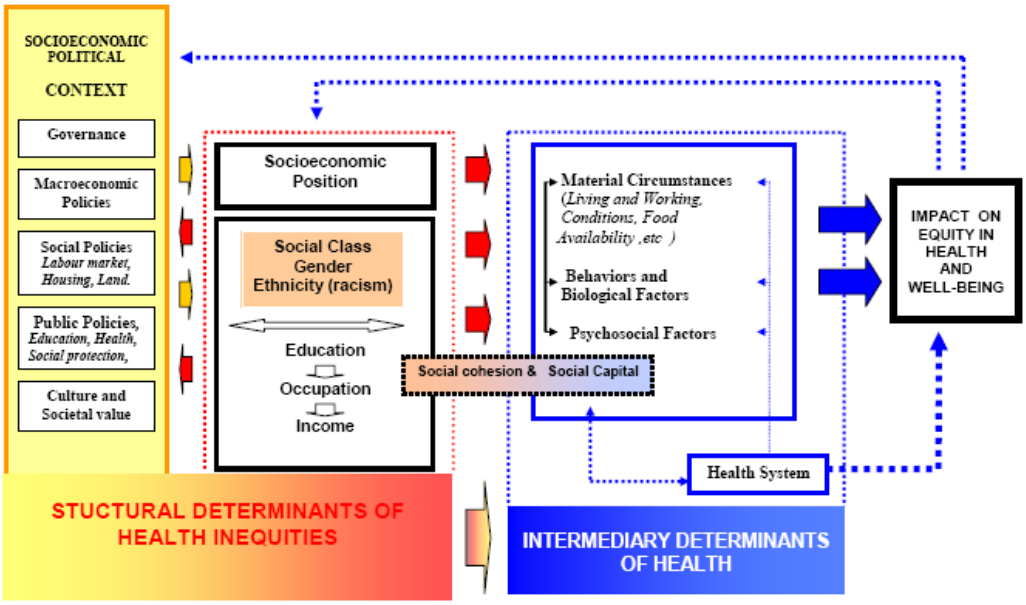
C.9. ACTIVITIES OF THE HEALTH MEDIATORS

C.9.1. Commitments and challenges of health mediators

The Swiss-Hungarian Cooperation Programme/8/1 entitled “Public Health Focused Model Programme for Organising Primary Care Services Backed by a Virtual Care Service Centre” as a pilot project aimed at developing a new organizational structure for delivering services in the Hungarian primary health care system not only to improve the health status of the population, but also specifically to substantially reduce social inequalities in health. These inequalities reflect the sum total impact of structural and intermediary determinants of health as modelled by the World Health Organization[16].

[16] Commission on Social Determinants of Health (CSDH): A Conceptual Framework for Action on the Social Determinants of Health. World Health Organization 2007
http://www.who.int/social_determinants/resources/csdh_framework_action_05_07.pdf

F11. Comprehensive framework of the determinants and processes that generate health inequalities



Source: World Health Organization

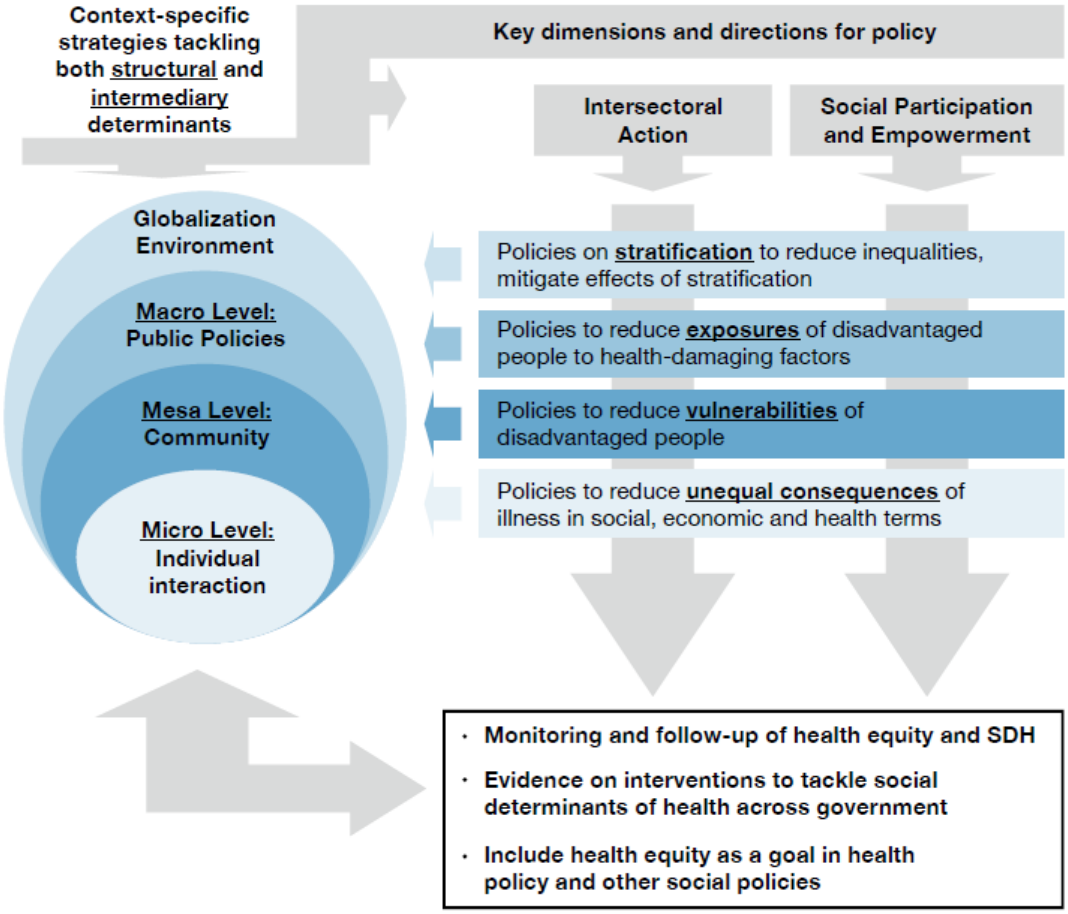
The largest group of disadvantaged people burdened by health inequalities are the Roma in Hungary as reflected – among others – by their unfavourable life expectancy, infant mortality, prevalence of tuberculosis and some non-communicable diseases mediated in part by more frequent health-risk behaviours, lower access to public services, lower education, higher unemployment and lower-standard housing compared to the general population[17]. Improving their health status has been a national priority as specified in the National Social Integration Strategy of 2011[18]. The Primary Care Model Programme was developed to reduce health

[17] Report on the health status of the Roma population in the EU and monitoring data collection in the area of Roma health in the Member States. European Union, 2014.
http://ec.europa.eu/health//sites/health/files/social_determinants/docs/2014_roma_health_report_en.pdf
Z Vokó, P Csépe, R Németh, K Kósa, Zs Kósa, Gy Széles, R Ádány: Does socioeconomic status fully mediate the effect of ethnicity on the health of Roma people in Hungary? Journal of Epidemiology and Community Health 2009;63:455–460. doi:10.1136/jech.2008.079715

[18] Nemzeti Társadalmi Felzárkózási Stratégia (National Social Integration Strategy).
romagov.kormany.hu/download/8/e3/20000/Stratégia.pdf

inequalities in line with the National Social Integration Strategy and the recommendations of the World Health Organization for tackling social health inequalities[19] (12. Figure).

F12. Framework for tackling social determinants of health according to the WHO



Source: World Health Organization [5]

The most important means to reduce social inequalities and reach disadvantaged populations in the Model Programme was the employment of so-called health mediators. Mediation as a means to settle misunderstanding and decrease mistrust between health care organizations and minorities with the ultimate aim of increasing the access and uptake of

[19] A conceptual framework for action on the social determinants of health. World Health Organization, Geneva 2010. www.who.int/.../ConceptualframeworkforactiononSDH_eng.pdf

health services has been used since the late 1990s. A number of projects employed health mediators during the international programme „Decade of Roma Inclusion" which, upon closing, recommended the institutionalization and professionalization of health mediation[20] .

C.9.2. Main achievements and successes

The Model Programme was designed to employ 12 person half-time in each GP cluster (altogether 48 persons) as health mediators. All of them were recruited from the serviced communities; most of them were middle-age Roma mothers with children who became equal members of the primary care teams. Altogether 57 persons were employed between July 2013 and January 2017 for a mean duration of 31 months. Most of those who left their jobs found full-time employment. 38% of those who were employed in January 2017 had been promoted to full-time positions due to their excellent performance, and to prevent them from leaving in search of full-time jobs providing higher income.

T9. Indicators of employment among health mediators

GP cluster	Mean duration of employment (month) Max: 43	Total number of work hours Max: 41 280	Proportion of work hours compared to the total number of work hours (%)	Proportion of job leavers (%)
Berettyóújfalu	28	42 880	104	50
Borsodnádasd	34	43 680	106	33
Heves	28	38 160	92	67
Jászapáti	35	41 840	101	38
Mean	**31**	**41 640**	**100**	**45**

Source of data: National Institute of Health Development (NIHD)

Health mediators had a crucial role in helping disadvantaged (Roma) persons access all services of the GPs Clusters as revealed in other chapters on service use. They were specifically responsible for increasing attendance at the health status assessment (HSA). Health mediators received a list of those who did not show up at the assessment in spite of receiving a written letter of invitation, and they made house visits to persuade non-attendees to participate. Their

[20] Roma Health Mediators: successes and challenges. Open Society Foundations, New York 2011. https://www.opensocietyfoundations.org/sites/default/files/roma-health-mediators-20111022.pdf

excellent work contributed to the HSA reaching the highest participation rate (80%) out of all population-based screening campaigns in Hungary.

Their dual status as members of the serviced communities as well as members of the GPs Clusters greatly facilitated information exchange and increased trust in primary health care in general. In addition, they carried out the majority of organizing work for community-based events at which they also participated, manning various posts during such events. Mediators had to prepare monthly reports of their work and participate at the meetings of the GPs clusters. Their work performance and perseverance with substantial help from the public health coordinators contributed to their acceptance as equal members of the clusters. However, it must be added that this took approximately one year, drawing attention to the importance of the proper duration of programmes aiming at reducing social health inequalities.

The Model Programme represents a breakthrough in Hungary and internationally as well in the sense that it addressed health inequalities affecting Roma people at all 4 levels recommended by the WHO (12. Figure). The creation of the Model Programme itself was made possible by policies such as the Swiss-Hungarian Cooperation Programme and the National Social Integration Strategy that both aimed at – inter alia – the reduction of health inequalities thereby mitigating effects of stratification heavily affecting Roma (strategy at environmental level). Reduction of exposure (strategy at macro level) was piloted within the Programme by employing health mediators and training them on the job. Most of the mediators at the time of entering the GPs Clusters had at most vocational education, and received job-related trainings fully paid for by the Programme during their employment. 22 persons completed vocational training in assistant nursing in 800 hours of duration, and all of them received a 3-day long training in health mediation twice in four years also paid for by the Programme. These trainings entered mediators into the job market so that they can get jobs even if their current employment is terminated for any reason – as 45% who had left the Programme found other work though most of them were unemployed before. In addition, a number of short courses of continuing education were developed for health mediators who completed these trainings during work hours as well.

The strategy to reduce the vulnerability of disadvantaged persons (strategy at meso level) was created, on one hand, for health mediators in the sense that they worked together (rather than alone) in the clusters that provided a strong sense of comradeship and support. Reduction of vulnerability was also extended to all disadvantaged groups cared for by the GPs

Clusters through the work of health mediators who facilitated the uptake of all services by reducing all sorts of anxieties and fears related to health service use among disadvantaged groups; and who also embodied the possibility of integration into the workforce.

At the micro level, individual interactions between mediators and members of the serviced communities focused on mutually delivering information (between professionals and clients), and providing targeted health education to which mediators received not only training and printed materials but tablets equipped with educational materials and health-related applications as well. Mediators helped break the barriers between highly educated health professionals and disadvantaged members of the serviced communities that so often hinder service provision and that – among others – led the WHO to define the health system as a social determinant of health [5]. Follow-up study of the health status of mediators showed improvements in subjective health and mental health, and a shift in ethnic identity which was especially pronounced among those who completed vocational training on the job.

C.9.3. Recommendations for the future

1. **The existing GPs Clusters should be maintained and their operations should be financed continuously.** Lack of financing even for a short period of time will result in the loss of workforce, especially the loss of non-traditional members of the GPs Clusters, and disruption of the professional community that will take a long time to re-create. New clusters should be created in disadvantaged small regions.
2. **All the existing services provided by the GPs Clusters should be offered continuously.** Health status assessment should be periodically repeated since HEA provides the data based on which further interventions can be planned and past interventions can be evaluated.
3. **Mandatory registration of data such as highest education and work intensity (as recommended by the EU) in primary health care to categorize socio-economic status of clients should be required.** This is the basis for targeting interventions and evaluating their impact.
4. **Development of a scholarship scheme for completing maturity exam (high school diploma) and/or health-related vocational training for adults living in disadvantaged regions.** Without such scheme, adults with low income, low levels of schooling, and with dependent families cannot improve their employability.

5. **Creation of a position for health mediators in primary health care.** This position could be filled by the vocational diploma of “assistant health promoter” registered in the National List of Vocations (3272001 OKJ).
6. **Development of a training course of 30 hours duration in health mediation for mediators (assistant health promoters) in health care.** Training should be repeated every 2 year.

D. THE IMPACT ASSESSMENT OF THE PUBLIC HEALTH FOCUSED MODEL PROGRAMME IN LINE WITH POPULATION, GP SERVICES AND SOCIAL SECURITY PERSPECTIVES

D.1. POPULATION LEVEL IMPACT OF GPC SERVICES ON THE BASIS OF BASELINE AND FINAL SURVEYS

D.1.1. Main findings

The utilization of preventive services based on the physical examination by GP became more frequent apart from the blood pressure measurement and the assessment (among mainly above 65 years old adults) of visual acuity impairment. Because the frequency of blood pressure check-up was quite high before the GPC services' introduction, its further increase was not expected at all. On the other hand, the observation make it obvious that the GPs involved in the GPC are as negligent in the respect of visual problems screening as the Hungarian GPs are in general.

Without additional provisions of GPCs, the counselling based services miss almost completely from the Hungarian primary health care. Essentially, this lack prevent provision of evidence based preventive services which can be provided at the level of primary health care (smoking cessation support, nutritional assessment and counselling, assessment of problematic alcohol drinking and organization of the secondary care for drinkers, counselling and medication related to cardio-metabolic disorders). Because this failure significantly accounts for the public health problems in Hungary, the service development of GPC in this field will significantly contribute to the reduction of the preventable health loss, if the services introduced will be maintained in the future.

On the other hand, the program was not able to improve remarkably the utilization of the laboratory examination based services. It can be explained by the fact that the secondary

care institutions responsible for the intervention area were not involved in the elaboration of the GPC protocols, and they did not built up the necessary additional capacities.

Similar improvement in preventive service provision and utilization was observed among Roma adult as in the general target population. Although, there were few services which showed improvement in general population without detectable improvement among Roma, this difference can be explained by the much smaller size of studied Roma sample (and the weaker statistical power achieved) compared to the general population surveyed. Further, the impact of the GPC services among Roma people and in the general target population did not deviate quantitatively from each other, if the impact measures reflected significant GPC influence in both samples.

Population level health promoting programs, and focused individual and group level interventions were provided by GPCs according to the protocols of the Operation Manual. These interventions reached the majority of the adult population of the intervention area as participants. Direct experiences got by participants from these interventions have been completed by the indirect impact on not participating adults having relative, friend, acquaintance who participated. Furthermore, since 80% of the adult target population participated in the organized health check, overwhelming majority of adults personally experienced that the preventive health check and the connected services of GPs are valuable. Due to these experiences, it was theoretically expectable that positive personal experiences led to modification of health attitude. It was also expectable that the interventions against harmful life style elements (overweighting, physical inactivity etc.) result in detectable life style change. According to the surveys' findings, the positive experiences have not achieved the critical amount yet, and detectable change of health attitude was not observed in the intervention population. It does not exclude that the attitude of adults who were exposed special interventions of GPC has been changed. This subgroup level attitude change has been investigated by different GPC-service-specific monitoring projects, and a large scale, distinct survey devoted to the detailed evaluation of the attitude and satisfaction among adults living in the intervention area. The results of these monitoring projects are presented by other chapters of the report.

Unfortunately, thorough nutritional assessment was not included in the surveys, because there was no available methodology could be inserted into the technical frame of the data collection. However, the knowledge on healthy nutrition was investigated. It showed

positive shifts in general population. Contrary, only negative changes have been observed among Roma in nutrition related knowledge.

Neither the prevalence of regular smoking nor that of overweighting was decreased in the intervention population. On the other hand, significant risk reduction was observed in the respect of problematic drinking. (OR=0.412, $p<0.05$). At first glance, this achievement could be evaluated as substantial. But detailed analysis of this observation was not carried out, and it cannot be excluded that uncertainties of alcohol consumption related data are responsible for this finding. Since, the questionnaire used to assess problematic alcohol drinking can yield different results in preconditioned (exposed to the GPC interventions) and in unconditioned groups.

Although, surveys could not demonstrate improvement in screening and care for diabetes among adults, the improved quality of screening and care for hypertension was evidenced. This observation was the first manifestation of direct health gain attributed to the GPC services. Taking into account that the leading cause of health loss is the hypertension in Hungary, the importance of this achievement cannot be overestimated.

D.1.2. Conclusions

The introduction of preventive services in the GPCs proved to be successful at population level according to the findings of the baseline and final surveys. Most of the indicators connected to the organized health check and the preventive services provided by GPs improved considerably. The unchanged outcomes are related to services of the usual primary care (e.g. influenza vaccination, breast cancer screening) which were not covered by the Operations Manual of the program. Altogether, those (and exclusively those!) services showed significant improvement which were covered by GPC protocols, and which did not require significant contribution of the secondary care.

It seems that positive experiences of the adults exposed to GPC interventions have not reached the critical amount yet, and/or the time elapsed was too short to internalize the experiences. It can explain the missing convincing change in health attitude of the GPC provided adults. There were only partial changes detected in subgroups. The positive shift in nutrition related knowledge observed in the general sample and the negative shift among Roma was the only example for the difference between the GPC service impact on health attitude and knowledge among Roma and among the general population.

There was no detectable significant alteration in any life style indicator investigated. To evaluate this discouraging experience it has to be taken into account that the operation time of the GPC was too short (2 effective years) to achieve this desired impact.

The direct indicators of health status were related to diabetes and hypertension. The therapeutic target value achievement was improved for some hypertension indicators. These results will be manifested in better prognosis of hypertension which will be detectable following the population. Knowing that the use of evidence based preventive GP services increased substantially (in a non-discriminative manner, since the pattern of changes observed in the general population is the same observed among Roma!), the expectation is that other indicators of direct health gains will become improved assuming that the GPC services will be maintained.

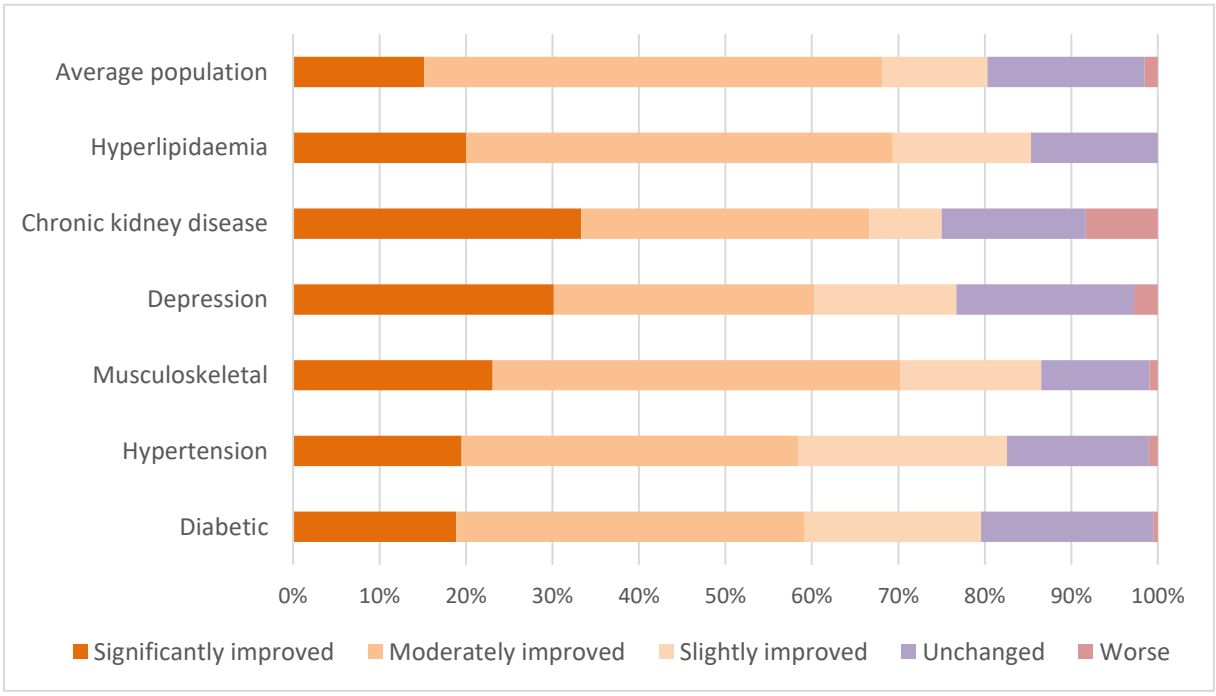
D.2. CLIENT'S SATISFACTION AND MAIN RESULTS OF THE POPULATION LEVEL ATTITUDE SURVEY OF THE INTERVENTION AND CONTROL AREA

The Model Programme has achieved a high level of public satisfaction:

94,1% of the 839 surveyed clients participating in the physiotherapy, dietetic or psychological consultancies were fully satisfied with the offered services. Additionally, 95,4% of respondents required to maintain the services further after the ending the project.

79% of the interviewed- 1022 patients stated that the quality of locally offered health care (offered in the place of the residents) has improved significantly.

F13. Self-rated changing of the health status

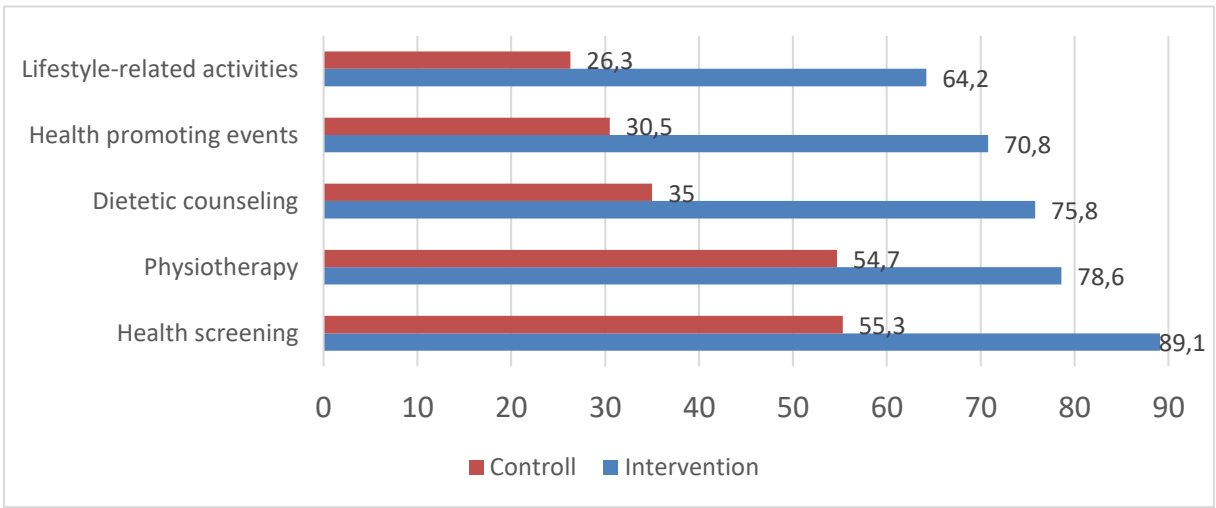


According to our research it can be declared that:

- **The programme has become widely known**: The vast majority of the affected population were familiar with the services of the Program used at their place of

residence (e.g. 89,1% knew about health screening). 53% of the respondents were also aware the additional services were implemented thanks to the Model Program. Patients living in the controll area had less access to such services.

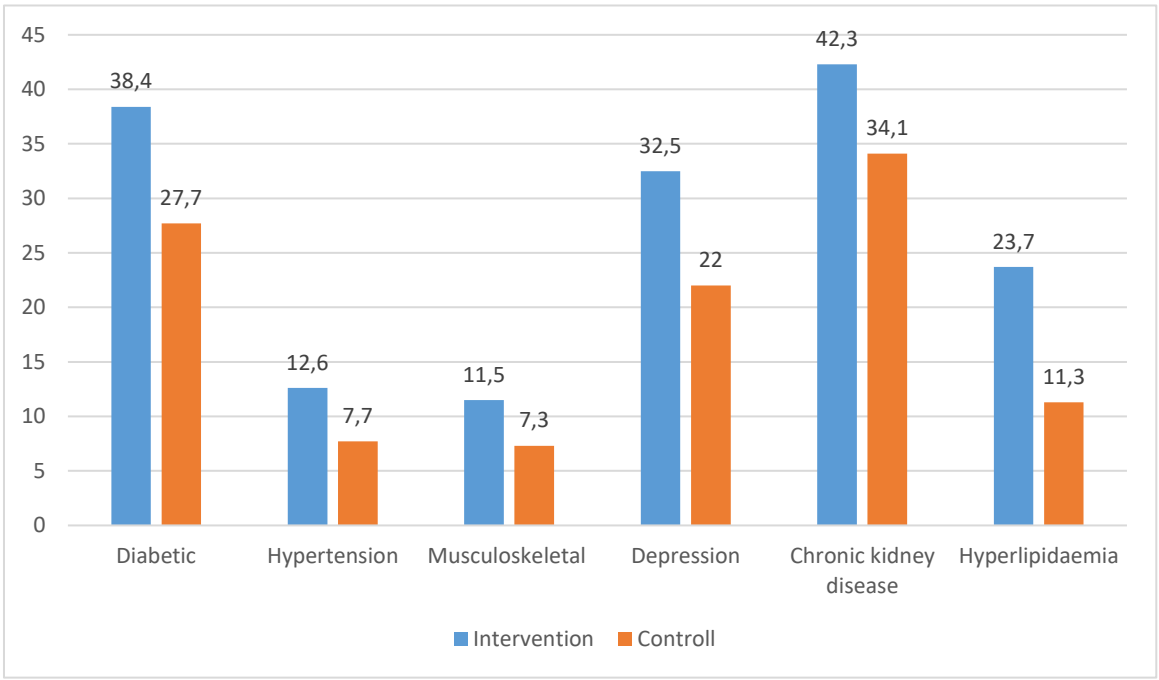
F14. Proportion of those clients, who aware the following health services opportunities at their residence



- During the program 13% of patients with hypertension, 14% of patients with diabetes, 20% of patients with hyperlipidaemia and 11% of chronic kidney disease (CKD) patients were screened by the Program's screening tests, instead of the usual general practitioner screening tests. Thus it can be concluded that by the new scrennning tests significantly more cases were identified. It is important that individuals screened did not have any symptoms.

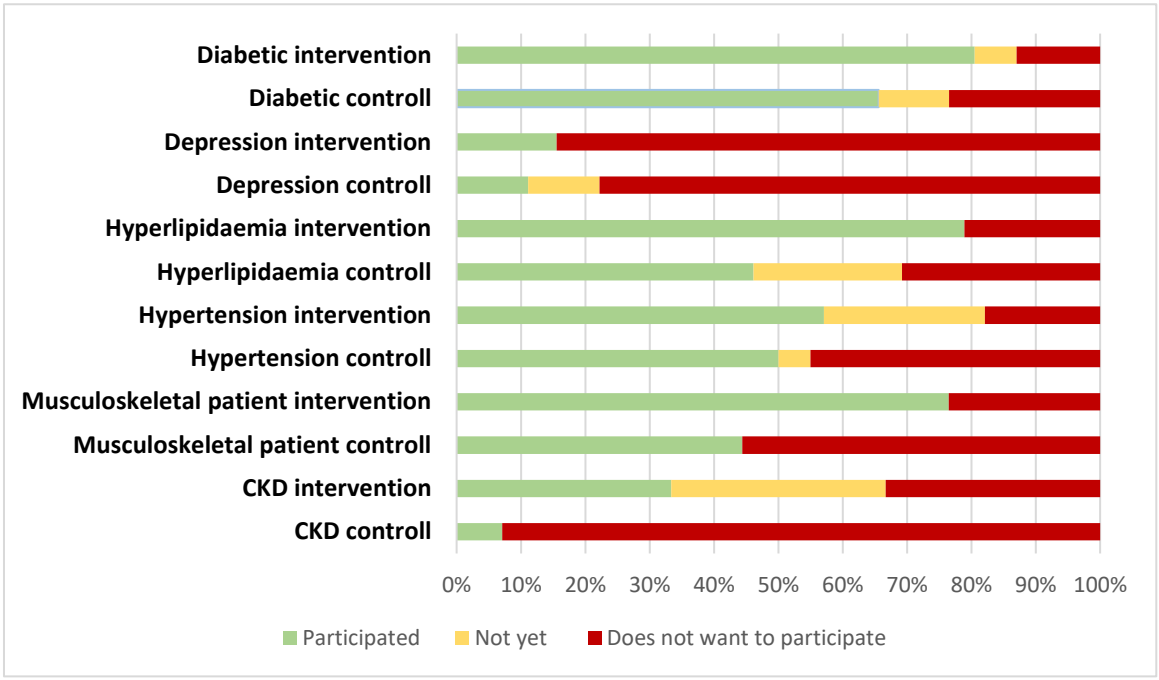
- Thanks to the Program higher proportion of those who need special care (physiotherapy, dietetics, psychology) were sent to lifestyle advice or counsellings compared to the controll sample.

F15. Proportion of those clients, who were sent to lifestyle advice or counselling



- Providing services close to the residence of patients, significantly increased the number of services provided. 64,5% of those who were sent to healthcre professionals participated in the counselling. This rate was only 44,6% in the controll group. The results also reveal, that sending patients suffering from chronic diseases to outpatient care is generally insufficient. The Model Programme was able to improve the situation of chronic patients although during the Programme mostly primary prevention was provided.

F16. The attendance rate of clients referred to counselling



- The life-style risks assessment of high prevalence non-communicable diseases (e.g. alcohol consumption, tobacco use, obesity) differed significantly between the intervention and control area. These outcomes of the Programme period can be explained by the combined effect of 3-year community health promotion and additional services.

D.3. Effectiveness of GPC services on the basis of standardized primary health care indicators of the National Health Insurance Fund

D.3.1. Main findings

Favourable trend of settlement type, county, sex, age, and education adjusted primary care indicators observed in the general medical practices of GPCs:

- The prevalence of registered and treated patients increased in both age groups (40-54, 55-69 years) for hypertension, and among 40-54 years old for diabetes. Considering the short follow-up period of 18 quarters, it can be excluded that the increase of prevalence is attributable to increase of incidence. Instead, hidden diseases uncovered in organized health check and enrolled for treatment can explain the elevation of registered prevalence. Since the improvement was homogenous in each GPC, the GPC operation seems to be the causal explanation. But, the trend was heterogeneous for diabetes among 40-55 years old patients, suggesting that the GPC operation had no impact in general on diabetes early registration.
- Significant improvement was detected for serum creatinine check-up among patients with hypertension, and for lipid status assessment among patients with hypertension and/or diabetes. The change was homogeneous, suggesting that the GPC operation is the probable explanation for this favourable change.
- Significant reduction in referral rate was detected in each GPC, showing that the GPC operation is the cause for diminishing burden to secondary care providers.

No trend of settlement type, county, sex, age, and education adjusted primary care indicators observed in the general medical practices of GPCs:

- There was a temporary elevation in mammography use (*this screening is not covered by GPC protocol*). The time pattern was very heterogeneous across GPCs. It suggests that the GPC operation is not able to improve the effectiveness of this service.
- The increasing trend for beta-blocker application among patients with ischemic heart disease, and for HbA1c check among diabetes patients was parallel with the national trend. Neither of the GPCs deviated from the national reference values. The improving trend can be explained by nationwide factors, not by GPC specific impacts.

- The prevalence of diabetes among 55-69 years old subjects showed no change. The time trend for GPCs differed from each other significantly. This pattern is against the GPC specific impact.
- The use of ophthalmologic check-up among diabetes patients showed temporary decrease in a heterogeneous manner. This pattern is against the GPC specific impact.
- The respiratory functions' assessment was significantly under the national reference for the whole investigated period. The GPC performance did not change. There was significant heterogeneity as well. It seems to be improbable that the GPC operation exerts any significant influence on the service monitored by this indicator.
- The indicator corresponds to the national reference for the whole operation period without any significant shifting. There was significant heterogeneity by GPCs. The GPC operation did not influence this outcome.

Unfavourable trend of settlement type, county, sex, age, and education adjusted primary care indicators was observed in the general medical practices of GPCs:

- Both influenza vaccination indicators (*this service is not covered by GPC protocol*) showed significant impairment, but the trend was not homogeneous. Therefore, there is no straightforward association between GPC operation and unfavourable trend.

D.3.2. Conclusions

Evaluating time trends of the primary health care indicators adjusted for localization of the general medical practice and for the socio-demographic status of adults provided comparing to the national reference values by statistical tests, taking into consideration whether the observed trend was different for the distinct GPCs or it was homogeneous in the whole intervention population (Table 10), it seems that the GPC operation was not resulted in impairment of any monitored outcome. In fact, the majority of the primary health care indicators show no significant GPC impact. However, early detection and care of hypertension significantly improved due to the GPC services, without leading to the increase of the secondary health care services. Even, the referral rate definitely decreased in the intervention population.

T10. Effectiveness of the GPC operation according to the change of general medical practice localization (county, settlement type) and socio-demographic factors (age-gender composition, and education of adult population provided) adjusted primary care indicators between 2012Q1 and 2016Q2.

	change in intervention area between 2012Q1 and 2016Q2	heterogeneity of the change by GPCs	trend monotony	evaluation of GPC impact in comparison to nationwide trend
Influenza vaccination (>65)	unfavourable	heterogeneity	temporary	no impact
Influenza vaccination (<65, at risk)	unfavourable	heterogeneity	permanent	no impact
Mammography (45-65, females)	unchanged	heterogeneity	temporary	no impact
Prevalence of hypertension (40-54 years)	favourable	heterogeneity	permanent	improvement
Prevalence of hypertension (55-69 years)	favourable	heterogeneity	permanent	improvement
Serum creatinine assessment (hypertension)	favourable	homogeneity	temporary	improvement
Lipid assessment (diabetes, hypertension)	favourable	homogeneity	temporary	improvement
Beta-blockers (ischemic heart diseases)	unchanged	homogeneity	permanent	improvement
Prevalence of diabetes (40-54 years)	favourable	heterogeneity	permanent	no impact
Prevalence of diabetes (55-69 years)	unchanged	heterogeneity	permanent	no impact
HbA1c assessment (diabetes)	unchanged	homogeneity	permanent	no impact
Ophthalmologic check-up (diabetes)	unchanged	heterogeneity	permanent	no impact
Respiratory function assessment (COPD)	unchanged	homogeneity	permanent	no impact
Referral rate	favourable	heterogeneity	permanent	improvement
Antibiotics use	unchanged	homogeneity	permanent	no impact

D.4. Impact of implementing the Model Programme on Healthcare Expenditures

D.4.1. Introduction and aims

Apart from the clinical and cost-effectiveness evaluation, it is essential to capture the effects of implementing the Model Programme on higher levels of healthcare financing by the evaluation of financial reporting, according to major expenditure categories (i.e. diagnostics, pharmaceutical, outpatient, inpatient treatment). The aim of this summary is to provide a consistent, quantitative description of the Model Programme's impact on high-level healthcare financing in terms of health services use and implications for financing, with respect to isolating the effect of the Model Programme.

D.4.2. Data and Methods

To carry out such an analysis, data had to be collected from the financial administrative databases of the National Health Insurance Fund on the financial reporting related to the insured population in the interventional and control areas. The insured population on the interventional arm consisted of the population registered for the primary care practices participating in the Model Programme (n=24). The insured population on the control arm consisted of the population registered to a set of primary care practices (n=1'145) participating in a data collection program with no specific intervention (so data collected from this population may provide an adequate reflection of the national tendencies in healthcare service use and financing). The collected financial administrative data covered the period between July 2012 (Model Programme start) and December 2015 (latest data available). The collected data was aggregated for each month in the observed period; only anonymized data was used for carrying out the analysis. The received data contained information on:

- Number of people registered to each primary care provider
- Number of visits by primary care provider
- Performance data by subcategory of services
- Financing data by subcategory of services

To account for seasonality and different baseline values for each primary care practice, the 12-month moving average was calculated for each analysis.

D.4.3. Results

The observed tendencies in the number of people registered to each primary care provider were similar in the intervention and the control group of primary care practices, although the decline was somewhat slower in the intervention practices, possibly due to local inhabitants in the proximity of affected practices registering to beNIHDt from the new services offered.

The interventional practices also lined up with the control practices regarding the average annual number of GP visits per inhabitant, although the baseline value was differing by about 0.6 visit (higher for the inhabitants registered to an interventional primary care provider). Although the number of visits increased for both group of practices, the difference between the two groups increased to just below 1 visit per annum, presumably due to enhanced screening activity in interventional primary care providers.

The performance and payment data shows a mixed picture on the effect of introducing the Model Programme. It is clear that there was a spectacular improvement in the outflow of outpatient services, but this could also be altered by the lower baseline value than in control practices. Inpatient services rather were left intact by the implementation of Model Programme: no substantial increase was observed in reported DRGs compared to controls. In terms of payments, the effects observed for both outpatient and inpatient could not be observed to the same extent as for reported performance, due to the cost containment measures in effect (mainly capped payments). Some increase was observed for outpatient services, while inpatient payments remained almost the same. A more significant increase was observed in pharmaceutical expenditures (around +10% over the entire period, compared to controls), possibly due to newly diagnosed chronic disease cases of hypertension, hyperlipidaemia or diabetes needing pharmacological treatment. This phenomenon is also significant because at during the analysis period, major cost containment measures were introduced affecting the national public pharmaceutical budget. A major increase was also observed for expenditure on computed tomography, but this can be partly explained by improved access to these services, as a new computed tomography centre was installed in the proximity of the interventional primary care practices.

D.4.4. Conclusions

The observed changes in healthcare finances and performance reporting yielded that implementing the Model Programme primarily affected the use of outpatient services and pharmaceutical expenditures. This is in line with the a priori assumptions on a more proactive primary care service: increased screening activity yields more newly diagnosed cases referred to outpatient care and / or prescribed medications. The increase in expenditures tended to settle down towards the end of the observed period, suggesting that the budget of these services still remain manageable; although the observed low-key increase in costs of inpatient and outpatient services may be due to the inhibition effect of strong cost containment measures (the excess performance was inflated by capped payments). Nevertheless, according to our analysis, implementing the Model Programme did not result in major turbulence on the higher levels of healthcare financing, but policy efforts should also focus on protecting local service providers from the harmful effects of capped payments (especially in outpatient care and diagnostics), forcing them to provide care with little or no financing.

D.5. How did the intervention affect the use of health care services?

D.5.1. Introduction

On the basis of practice-level administrative data from the National Health Insurance Fund Administration (NHIFA) we examined how the

a) the number of primary care visits;
b) the number of referrals to specialist care and to specialist outpatient care by specialty;
c) the number of visits to specialist outpatient care by specialty;
d) and the expenditures on specialist outpatient and inpatient care and on pharmaceuticals

changed in 21 adult and mixed primary practices participating in the programme, compared to a suitably chosen control group. (The three programme practices treating exclusively children were excluded from the analysis.) We could only focus on short-term effects of the intervention because of the short period of time since the beginning of the programme. On the other hand, the available specialty-level data made it possible to estimate heterogeneous effects across specialties, which is reasonable because the programme concentrated on certain specialties and not on the whole health care system.

D.5.2. Methods

The control group was chosen by assigning six control practices to each programme practice so as to approximate the demographic, socio-economics and public health characteristics of the programme practices as closely as possible. Matching was carried out on the basis of the propensity score, which is a well-known method in the impact assessment literature, see e.g. Stuart (2010).[21] Afterwards, we estimated random-effect panel regression models on the sample of programme and control practices between the third quarter of 2012 and the first quarter of 2016:

$$* Treated_i + \beta_A * After_t + \beta_{TA} * Treated_i * After_t + trend + season + c_i + u_{it},$$

[21] Stuart EA. Matching methods for causal inference: A review and a look forward. Statistical Science. 2010; 25(1):1-21. doi:10.1214/09-STS313

where i stands for the GP practice and t for the quarter. y_{it} is the examined indicator (the dependent variable), $Treated_i$ denotes the programme practices (i.e. it takes one in the programme practices and zero otherwise), and $After_t$ denotes the intervention period (i.e. it takes one after the start of the programme period and zero otherwise).[22] The effect of the programme is measured by the interaction term $Treated_i * After_t$. We included a linear trend and seasonal variables in the equations to control for the trend and seasonality. Due to the presence of the practice-level error term c_i, the panel model was estimated with random effects.

D.5.3. Results

Primary care visits and referrals

The intervention had a statistically significantly positive effect on both the number of patients presenting themselves at their GPs (by around 1.0 more patients monthly per 100 inhabitants) and on the number of primary care visits (by around 2.3 more monthly visits per 100 inhabitants). This means a 2-3 per cent average increase, or 1.5-2 more daily visits in an average practice serving 1600 inhabitants. The total number of referrals to specialist services (outpatient care, diagnostic services or inpatient care) increased by about 0.8 per 100 inhabitants monthly, or by 8 per cent, and the number of referrals to specialist outpatient care (including laboratory services) increased by 0.6 per 100 inhabitants monthly; however, the latter is not statistically significant.

Looking at certain specialties separately, we found that only the number of referrals to laboratory diagnostic services increased significantly and substantially (by 0.9 per 100 inhabitants, or by 25 per cent), while the number of referrals to other specialist outpatient services did not change on average or even decreased. We investigated specialties that are closely related to the additional services provided by the programme, namely to dietetics, physiotherapy and health psychology. The specialist outpatient care services and the programme may be partly substitutive and partly complementary in these fields. Overall, we found substantial substitution effects in all three specialty groups (reduction by 0.03, 0.11 and 0.03 monthly referrals per 100 inhabitants, or 17-22 per cent for dietetics, physiotherapy and health psychology, respectively, although the parameter for dietetics is not statistically

[22] Since the programme began to operate fully only in the autumn of 2013, we defined the first quarter of 2014 as the start of the intervention period.

significant). This means that GPs often referred their patients to the new programme services instead of the traditional specialist outpatient care units.

T11. Estimated effects of the intervention (standard errors in parentheses)

Case numbers – Dependent variable: number of monthly cases per 100 inhabitants						
	Total	**Dietetics**	**Physiotherapy**	**Health psychology**	**Imaging**	**Lab diagnostics**
Patients presenting at GP	1.04** (0.46)					
Patient visits at GP	2.27* (1.30)					
Referrals to lab diagnostics and specialist outpatient care	0.60 (0.43)	-0.034 (0.028)	-0.11** (0.057)	-0.031** (0.015)	0.030 (0.063)	0.85*** (0.30)
Visits in specialist outpatient care (excluding lab)	-0.46 (0.48)	-0.040 (0.029)	0.021 (0.26)	-0.084 (0.068)	0.071 (0.095)	
Expenditures – Dependent variable: log HUF (log points for lab diagnostics)						
	Outpatient	Lab diagnostics	Inpatient	Pharmaceutical		
	0.024 (0.018)	-0.030 (0.032)	0.022 (0.031)	0.017 (0.025)		

Estimates of the interaction (Treated x After) parameter of the random effects panel regression models. Sample: adult and mixed practices of the programme and control group (133 practices, 1995 practice x quarter). Programme period: from 2014Q1. Robust standard errors are in parentheses. Significance levels: *** p<0.01; **: p<0.05; *: p<0.1. Specialty codes for the three specialty groups: dietetics – 0103, 0123; physiotherapy – 5700, 5711, 5722, 5712, 5703, 5704, 5708, 1400, 1401, 1402, 1404; health psychology – 1800, 1801, 1804, 1805, 1806, 1811, 1821, 180C, 2300, 2301, 2302, 0512, Q18, Q41, Q43, Q44, Q45, 7100, 7101, 7102, 7104, 7105.

Use of outpatient care, laboratory diagnostics and pharmaceuticals

Investigating the number of completed outpatient care visits (and not just the referrals) is worthwhile because it reflects not only the referral behaviour of GPs but also the behaviour of patients and the capacity constraints of the health system. We found that the overall number of specialist outpatient care visits (excluding laboratory diagnostics) did not change significantly, and the same is true specifically for dietetics, physiotherapy and health psychology.

For laboratory diagnostics, the number of fee for service points ("German points") was available for analysis (instead of number of visits). We found that the intervention did not increase laboratory expenditures significantly, which might be explained by the fact that although laboratory referrals became more frequent, relatively cheaper tests were requested by GPs.

Finally, we investigated expenditures on outpatient care, inpatient care and pharmaceuticals and we found an around 2 per cent increase for each category, but they were not statistically significant.

D.5.4. DISCUSSION AND CONCLUSIONS

Overall, our results show that – beyond the direct financial needs of the programme – the intervention did not put substantial extra burden on the outpatient care and inpatient care system and on pharmaceutical expenditures; indirect financial consequences are small in the short run. Referrals to specialist care in certain programme-related specialties (e.g. health psychology and physiology) even decreased as a result of the intervention, and only the referrals to laboratory diagnostics increased. This implies that the decision on an extension of the programme can be made by comparing the direct beNIHDts (e.g. increased participation in the health status assessment and other services) to the direct costs of the programme.

D.6. Economic evaluation of the Primary Care Development Model Programme

D.6.1. Summary

The aim of this section is to present the cost-effectiveness results of conducting a full economic evaluation of the Primary Care Development Model Programme (Model Programme) in reducing the frequency of stroke and acute myocardial infarction (AMI) events compared to the standard primary care (SPC) in the Hungarian healthcare system.

D.6.2. Background

Although major improvement had been observed, cardiovascular diseases are still leading causes of death in the Hungarian population during the last few decades, constantly lagging behind EU25 average[23]. A significant component of this improvement is the reduction in acute myocardial infarction and stroke lethality, which was found to be associated with prescription patterns of physicians and changes in lifestyle of the population [24].

The Model Programme is a complex intervention (piloted in rural Hungary) consisting of the establishment of GPs Clusters and offering complimentary services (physiotherapeutic, psychological, dietetics consultations) through by local primary care providers. The Model Programme is not disease-focused, but the provided interventions supposedly affect the progression of chronic conditions through improving the cardio metabolic risk profile. It is therefore straightforward to evaluate the economic consequences in the indication of AMI and stroke occurrence.

[23] Józan P: Decreasing cardiovascular mortality, mending life expectancy, beginning of a new epidemiological era in Hungary. IME (Hungarian) 2009, 4:21-25.

[24] Balogh S, Papp R, Jozan P, Csaszar A. Continued improvement of cardiovascular mortality in Hungary--impact of increased cardio-metabolic prescriptions. BMC Public Health. 2010 Jul 15;10:422. doi: 10.1186/1471-2458-10-422. PubMed PMID: 20633257; PubMed Central PMCID: PMC2919475.

D.6.3. Methodological approach

As an initial step to quantify the effectiveness of the Model Programme intervention, a brief analysis was conducted using the National Health Insurance Fund's administrative database to determine the reduction in risk of stroke and AMI events. As the comparator, a subsample of GP practices involved in an observational data collection programme without any specific intervention was selected to represent the SPC scenario. When calculating the relative risks, the cumulative incidence of AMI and stroke in the insured population was compared separately for the first and the last year of Model Programme operation. The details of the calculation is shown in Table 12. The difference in relative risk reductions for the first year of versus the last year of operating the Model Programme compared to SPC was 18.04% and 41.35% for stroke and AMI respectively, although event counts were low for both events, yielding some uncertainty around these results.

T12. Effectiveness estimates

Parameter	Stroke (both first and subsequent)		AMI (both first and subsequent)	
	MODEL PROGRAMME	SPC	MODEL PROGRAMME	SPC
Cumulative incidence (first year)	0.45%	0.35%	0.13%	0.11%
Cumulative incidence (first year)	0.34%	0.33%	0.09%	0.12%
Relative Risk Reduction	24.14%	6.11%	29.47%	-11.88%
Difference (RRR)	18.04%		41.35%	

For the next step, a 7-state Markov incidence model was developed on the basis of previous research on the economic implications of public health interventions[25] (Nagyjánosi

[25] Nagyjánosi L, Martos É, Bödönyi D, Vokó Z: A health-economic analysis of salt intake reduction in Hungary. ISPOR 14th Annual European Congress. Madrid, Spain, 2011.

et al., 2011). Data on disease progression was extracted from the scientific literature, whereas corresponding cost data was collected locally from interviews with clinical and economic experts. Health outcomes were expressed in life years (LYs), as no designated longitudinal data collection on changes on health-related quality of life was carried out. The model (through its health states and allowed transitions between them) can be illustrated by Figure 17.

F17. Structure of the health economic model (health state and transitions)

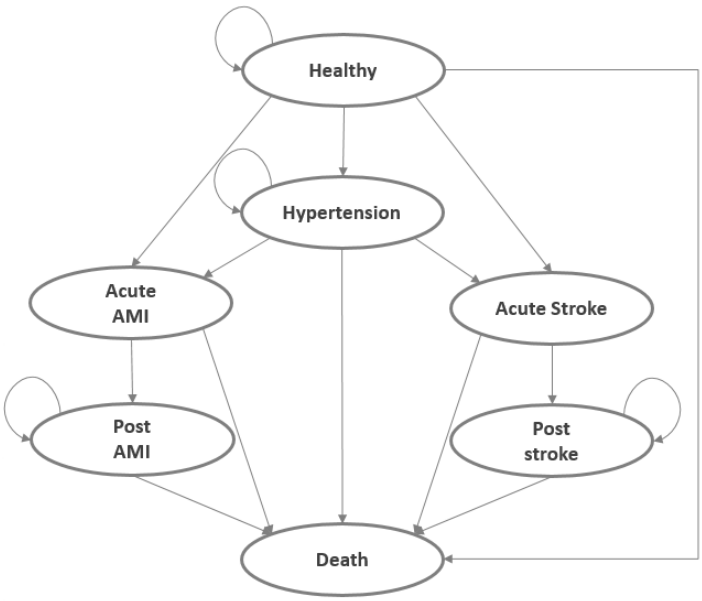


Figure 17. Structure of the health economic model (health state and transitions)

D.6.4. Discussion

Our study yielded similar results to the ones published recently on primary care interventions to tackle cardiovascular diseases in the scientific literature[26] in a sense that

[26] Mistry H, Morris S, Dyer M, Kotseva K, Wood D, Buxton M; EUROACTION study group.. Cost-effectiveness of a European preventive cardiology programme in primary care: a Markov modelling approach. BMJ Open. 2012 Oct 11;2(5). Pii: e001029. doi: 10.1136/bmjopen-2012-001029. Print 2012. PubMed PMID: 23065443; PubMed Central PMCID: PMC3488746.

Tsai AG, Wadden TA, Volger S, Sarwer DB, Vetter M, Kumanyika S, Berkowitz RI, Diewald LK, Perez J, Lavenberg J, Panigrahi ER, Glick HA. Cost-effectiveness of a primary care intervention to treat obesity. Int J Obes (Lond).

introducing the Model Programme resulted in better health outcomes and somewhat increased costs for the local setting. An economic evaluation of the same intervention is not known at the moment, as the Model Programme was tailored to meet local needs.

This economic evaluation was also unique in a way that the Department of Health Technology Assessment of the National Institute of Pharmacy and Nutrition made significant contribution to the analysis, building up public trust between actors of healthcare decision making.

D.6.5. Conclusion

According to the first economic analysis, the Model Programme presents good value for money in reducing the number of AMI and stroke events over SPC in the Hungarian rural population. Confirmation of results is desirable over a longer time period and also by using longitudinal follow-up data from administrative data sources, as there are more sophisticated analytic methods for estimating effectiveness, given the availability of more detailed data. Involving further population subgroups with chronic conditions is also needed to better demonstrate value for the Model Programme.

2013 Aug;37 Suppl 1:S31-7. doi: 10.1038/ijo.2013.94. PubMed PMID: 23921780; PubMed Central PMCID: PMC3786743.

E. THE POSSIBILITIES OF EXPANDING THE MODEL PROGRAM

E.1. COST MODEL FOR THE SCALE-UP PROCESS

During a wider scale implementation, it is essential to create a solid financial framework: services and service providers should be financed in a way that motivates efficient resource use and encourages good performance. While the pilot project wholly utilized input-based financing (i.e. fixed composition of human resources receiving salaries), after scaling-up the methodology should rather consist of a mixture of per capita and fee-for-service based financing, with a complement for results measured by performance indicators. Since joining a GP cluster or group practice will be voluntary in the future, it is still expected to have solo practices in large numbers for a while. Consequently, most of performance-oriented payments should be based on indicators applicable to both solo and group practices.

Based on the experience of the pilot, GP cluster activities and human resource requirements were refined for the scaling-up. While it is of upmost importance to set up GPs Clusters in a bottom-up process, taking local needs and available competencies into account, model calculations have been prepared for the average (typical) scenario. It must be underlined that GPs Clusters operating throughout the country will be most probably showing a great variety (based on, for example, type of settlement, availability of outpatient care, or economic development of the region). On average, 10 GP practices could form a GP cluster which would be managed by one of the GPs and a public health coordinator. Capacities of physiotherapists, dietitians, and health psychologists have been reduced compared to the pilot in order to reflect their capacity utilization as well as availability on the job market. Since it is the activities and not the persons who are financed, screening team and health mediators will be only used in cases where local planning deems them adequate. See T133. table for the typical composition of an average GP cluster.

T13. Composition of an average GP cluster, based on the model calculations

Role	Capacity
Manager	1 GP
GP practices	10 GPs, with nurses and assistants
Health visitors' practices	7 health visitors (including school nurses)
Public health coordinator	1 FTE (full-time job)
Physiotherapist	1 FTE
Dietitian	0,5 FTE
Health psychologist	0,5 FTE
Screening team	As needed (app. 2-2,5 FTE, if health status assessment is carried out solely by the screening team)
Health mediators	As needed, according to local specialties (average financing would allow to employ app. 1,25-1,5 FTE per GP cluster)

Total additional financial requirements for the GPs Clusters have been projected for various volumes of scaling-up (see T1414. table for the results) as well as further options added to the baseline scenario described above (see T1515. table). The annual additional financial requirement for a country-level extension (reaching more than 90% of the population) would be between 37 and 48 billion HUF. It must be noted that these amounts do not contain the costs of monitoring, and neither provide an allowance for the integration of further providers who were not part of this pilot (e.g. dentists, pharmacists, home care, social care). While the extension of the GP cluster model could contribute to resolving the problems present in the Hungarian primary care system, this model alone will not be enough. Additional measures may be needed (e.g. making the jobs of GPs more popular, redistributing competencies among providers), and these measures will have their own impact on budgetary requirements.

T14. Financial requirements, based on the model calculations

Number of GPs Clusters	**14**	**25**	**50**	**100**	**300**	**650**
Number of GP practices	138	246	493	985	2955	6403
Number of health visitor practices	102	181	363	725	2176	4715
Population covered ('000)	196	350	700	1 400	4 200	9 100
Population covered (% of total)	1,99%	3,56%	7,12%	14,24%	42,72%	92,57%
Operating costs (m HUF / year)	**791**	**1 413**	**2 826**	**5 651**	**16 954**	**36 734**

T15. Further options, and their impact on the financial requirements

Changes compared to the baseline scenario	Additional operating cost (per 650 GPs Clusters)
67% increase in GP per capita payment for participation (100 HUF / month / registered citizen) This would allow for app. 300,000 HUF/practice/month in additional financing.	4 368
Dietitian: 1 FTE (instead of 0,5 FTE)	1 605
Health psychologist: 1 FTE (instead of 0,5 FTE)	1 605
Physiotherapist: 1,5 FTE (instead of 1 FTE)	1 391
Double capacity for health mediators This would allow for app. 2,5 FTE mediators per GP cluster.	1 939
Total	**10 08**

E.2. THE ORGANIZATIONAL EVALUATION OF THE MODEL PROGRAM AND RECOMMENDATIONS FOR FURTHER DEVELOPMENTS

E.2.1. INTRODUCTION

The Swiss-Hungarian Primary Care Development Model Programme is a model experiment aiming to widen, expand as well as rethinking the traditional Hungarian primary care system from both care and organizational aspects. The range of services has been complemented with evidence-based, public health focused services in order to improve the poor[27]- (in international comparison[28]) health status indicators of the Hungarian citizens. Additionally, a new organizational solution has also been developed: by realizing territorial teamwork targeting the needs of the clients- focusing on health instead of the illnesses-. This innovation provides solution to one of the most challenging problems of primary care- the isolation and therefore ineffective working mechanisms of the GPs. Thus services previously only accessible in the outpatient care have become available also in the praxis community based primary care. The working mechanisms of the GPs Clusters are supported by unified protocols based on the existing professional guidelines and legal provisions (see GPs Clusters' Procedures' Manual[29]) offering also breakthrough opportunities in the field of quality improvement and patient safety.

It can be postulated that the potential and opportunities of the model experiment are going beyond the framework of the SH8/1 Program and should be considered as a cornerstone of the future improvement of the Hungarian primary care system.

[27] http://www.euro.who.int/__data/assets/pdf_file/0006/294882/Strengthening-HSPA-Hungary-Analysis-Recommendations.pdf

[28] http://www.oecd.org/health/health-at-a-glance-europe-23056088.htm

[29] only available in Hungarian: http://alapellatasimodell.hu/images/dokumentumok_szakmai/eljarasrend/PK_ELJ%C3%81R%C3%81SREND_5_2.pdf

In this Executive Summary recommendations aiming to extend the model program to a national level are displayed

Recommendations were phrased in line with 3 organizational evaluation dimensions:

1. **Functions**
2. **Utilization of Resources**
3. **Organizational Solutions**

The detailed analysis of the organization model answers the followings according to each dimension:

1) **What is durable? 2) What should be altered? 3) What is missing?**

The detailed evaluation found in the Hungarian version of the Final Report disclosed that functionally the Model is evidence based, durable, and should be complemented by and integrate other existing services (eg. PHC dentistry, emergency services, etc.). **The utilization of resources and the organizational solution should be improved.** Due to the administrative and reporting duties of the employed health care professionals of the Programme (e.g. many paper works, studies), the efficiency of working hours can be improved in the future, resulting a considerable reduction of the budget of sustainment or extension. The human resource planning of the extension should meet local needs (e.g. health mediators are necessary only in disadvantaged populations, screenings can be carried out by GP practice nurses too in extra working hours -above their present 4-6 working hours-, health visitors can carry out recruitment where health-mediators are not needed, and extra health mediators should be needed for special services where health visitors are overloaded, etc.) Based on these the organizational chart and FTE of employees depends on the local challenges to be met, and a more integrated form of organizational cooperation is recommended with more providers than in the Modell Programme. Instead of cooperating but isolated providers absolutely community health focused centres should be formed in the future. This would be an appropriate solution especially for disadvantaged regions' health care system.

Hereunder the summarizing recommendations of the Hungarian Final Report chapter are presented. It can be concluded that the GP Cluster Model Program is a successful alternative of the currently operating Hungarian primary care. The Model Program offers long lasting solutions to the health policy requirements (sustainability, equity, accessibility, quality) as

well as to the WHO SDG requirements (e.g.: *Good Health and Wellbeing*, *Reduced Inequalities, Partnerships for the Goals on local level)*[30].

E.2.2. THE OVERALL RECOMMENDATIONS OF THE GP CLUSTER ORGANIZATIONAL MODEL

RcS.1. As an important lesson of the Programme, and in line with its experiences, it is inevitable to base the further development programs on national public health, medical professional, health-economics and health policy evidences. Following evidences is the key factor in success. The assumptions to fulfil the above mentioned should be assured by the decision makers.

RcS.2. Highlighting the success of the Programme both on national and international level should be a governmental communication strategical priority.

RcS.3. In accordance with the evidence based results (e.g. attitude surveys, health care expenditures, calculations concerning sustainability, clinical impact assessments) it is recommended to strengthen as well as nationally extending the services -offered by the model program.

RcS.4. It is recommended to develop primary care and community health improvement protocols (focusing on case definition groups and their special target groups) for multisector stakeholders of communities -based on GPs Clusters' Procedures' Manual- concerning the followings:

a. **health communication**
b. **public health recruiting**
c. **the method and organization of screenings**
d. **health education**
e. **protocols of resource allocation, including human resources of medical, health care-worker and non-healthcare professional sources**

RcS.5. It is recommended to realize the international follow up of morbidity, patient pathway and mortality data as well as introducing a structured monitoring and

[30] http://www.who.int/sdg/en/

reporting system (by identifying the most prominent case definition groups causing the most serious public health burdens -obesity, smoking, diabetes, hypertonia, etc.)

RcS.6. In line with the above mentioned it is also recommended to establish the anonym national data collection system with the contribution of the primary care providers – (by arranging the proper legal and IT background-), (This system could be appropriate to monitor the public health status of the citizens and to support the system level realization and follow up of the screenings, chronic care programmes and other interventions.

RcP.1. It is suggested to provide national and local actors with continuous feedbacks concerning the monitoring data in order to support evidence based improvements and becoming informed.

RcP.2. For health policy decision makers in the future, it is recommended to focus on case definition groups to integrate healthcare services both horizontally (providers operating on the same care level) and vertically (providers on different care levels): - in order to arrange

a. system efficiency (utilizing resources effectively),
b. the quality improvement of the services,
c. the effectiveness and continuity of patient pathways,
d. as well as assuring patient safety.

RcP.3. It is recommended to integrate health education (including family planning and sexual hygiene too) and screening activities into the services of the Model Programme in order to ease the demographical challenges as well as supporting positive population growth.

RcP.4. **Based on the good practices of the Model Program it is recommended to integrate other actors in the primary care (school doctor, dentists, occupational health medical services)**

RcP.5. **Local actors such as municipalities have special and important role in the improvement of services close to the residence of citizens, therefore they need to be motivated and supported in harmonized development of local social, educational and healthcare services and infrastructure.**

RcS.7. **The Hungarian health workforce HR crisis and the improvement of primary care should be treated simultaneously by realizing GPs Clusters as well as by the**

improvement and modernization of how the system is organized (specially focusing on accessibility, equity, efficiency and effectiveness).

RcS.8. The organizational solutions of the GP Cluster Model are territory dependent and shouldn't automatically copy the organizational chart of the Model Programme. It is recommended to involve a collegial leader (GP) and a public health coordinator network in the country, who should be responsible for facilitating the formation GPCs and implementing the new services on local levels. The introduction could be realized with a fast speed targeting the most disadvantaged regions as well as supporting the generation change of the GP-s by the government (within 5-10 years) (There is an existing need to raise GP university student numbers from 250 to 300, widening the professional aspects of the career model, licences, continuous assurance of praxis change and settlement support[31]).

RcS.9. The above mentioned could only be realized with the support of a strong national professional methodological and coordinative background. The Hungarian primary care needs (and still missing) a clearly authorized national primary health care development methodological and monitoring centre with a strong collaborative partnerships behind it. The establishment of such a centre is a top priority not only of the Hungarian primary health care development, but of the development of the whole health care system. At present the poor performance of the Hungarian PHC system is a main cause of the efficiency loss of the whole health care system of the country[32].

E.2.3. Summary

It is recommended to maintain, sustain as well as realizing the national level extension of the services:

[31] available only in Hungarian: http://alapellatasimodell.hu/images/dokumentumok_szakmai/20170222-szakmapolitikai-forum/A_h%C3%A1ziorvosi_p%C3%A1lya_preszt%C3%ADzse_ut%C3%A1np%C3%B3tl%C3%A1s_kil%C3%A1t%C3%A1sok_kit%C3%B6r%C3%A9si_pontok.pdf

[32] Szigeti Sz, Evetovits T, Gaál P, Pusztai Zs (eds): Strengthening Health System Performance Assessment in Hungary: Analysis and Recommendations. Copenhagen: World Health Organization, Regional Office for Europe. (2014)

- Beside keeping and improving the organizational effectiveness and functions of the Model (see as mentioned in chapter E1)
- Additionally, continuous system improvement is also needed based on the results of the Program which also affects:
  - development policies covering several sectors (municipalities, social sector, education, healthcare infrastructure)
  - the imporovement of education and professional trainings
  - the imrovement of primary care directives and protocols
  - the adaptation of the legal environment
  - performance and quality based financing algorythm developments, including the compensation of territorial challenges
  - the improvement of the ICT background
  - the elaboration of an anonymous national public health data collection and monitoring system
  - the elaboration of a national care report monitoring system
  - the connection of the national HR monitoring system of health with the consistent improvement of the primary care system.