

HEALTH PROMOTION AND DISEASE PREVENTION A Handbook for Teachers, Researchers, Health Professionals and Decision Makers	
Title	Public Health Intervention Programmes and Their Evaluation
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Key words	Evaluation, public health intervention programmes, CINDI, blood pressure, arterial hypertension
Learning objectives	<p>After completing this module students should:</p> <ul style="list-style-type: none"> • increase knowledge about evaluation process; • understand and differentiate between different types of evaluation; • understand the public health programme process; • understand the meaning and importance of the last step in this process – the evaluation of public health programmes; • be able to critically assess the limits of evaluation process of public health programmes.

<p>Abstract</p>	<p>A public health intervention is an intervention, which is applied to many, most, or all members of a community, with the aim of delivering a net benefit to the community or population as well as benefits to individuals.</p> <p>Every intervention programme has its cycle. One of most important phases in this cycle is the evaluation phase.</p> <p>One of the most important physiological risk factors for non-communicable diseases is arterial hypertension. In Slovenia high prevalence of severe arterial hypertension was registered at the beginning of the 1990s what classified Slovenia among countries with the highest prevalence of severe arterial hypertension. Consecutively it was realized that an interventional and systematic programme to deal with the problem was strongly needed.</p> <p>Slovenia as a state officially joined international CINDI programme at the beginning of the 1990s, when its activities were limited to Ljubljana demonstrational area. First few years were used as an introductory period of the programme, while more systematically organized activities begun in the late 1990s.</p> <p>The paper presents the different types of evaluation and as an illustration of evaluation in practice the case of evaluation of CINDI programme activities in Slovenia to reduce arterial hypertension prevalence effectiveness.</p>
<p>Teaching methods</p>	<p>Teaching methods include introductory lecture, case study, small group discussions, and the whole group discussion (snowball method).</p> <p>After the introductory lecture students need carefully to read the suggested paper on the subject. Afterwards they need to answer the questions and discuss the issue - first in small groups and afterwards in a whole group of students. They are especially addressed to critically discuss on limits and strenghts of evaluation of public health programmes.</p>
<p>Specific recommendations for teachers</p>	<ul style="list-style-type: none"> • work under teacher supervision/individual students' work proportion: 30%/70%; • facilities: a computer room; • equipment: computers (1 computer on 2-3 students), LCD projection equipment, internet connection, access to the bibliographic data-bases; • training materials: recommended readings are mainly available in the internet; • target audience: master degree students according to Bologna scheme.
<p>Assessment of students</p>	<p>Assessment is based on case problem presentation and oral exam.</p>

PUBLIC HEALTH INTERVENTION PROGRAMMES AND THEIR EVALUATION

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Theoretical background

General definitions

Programme

Several definitions exist on what the term programme means, among which we can find the following:

- a formal set of procedures to conduct an activity (1);
- a set of projects designed to achieve common, long-term goals (2);
- a set of organized but often varied activities (a programme may encompass several different projects, measures and processes) directed towards the achievement of specific objectives (3).

Every programme has several steps, which could be schematically presented as a cycle (Figure 1), to the certain extent similar to the evidence based public health cycle (4):



Figure 1. The programme cycle.

- needs assessment - this is a step at which information about community health problems are gathered. On the basis of these information assumptions on how the needs/problems could be addressed, and the objectives/goals that should be reached are set up;
- programme planning – planning step - uses the assumptions set up at the previous step to plan a programme of activities;
- programme implementation - implementation step - refers to the follow-up of the activities in accordance with the plan. Implementation could be expressed in terms of operational or action plans which commonly outline concrete activities, time frames, responsibilities, budgets etc., for the achievement of different objectives of the programme;
- programme evaluation – by running a programme, we want to know how far the programme went and how effective it is in achieving its goals/objectives. We are

able to answer these questions by performing the so-called programme evaluation process. According to WHO (2), a programme evaluation is a periodic review and assessment of a programme to determine, in light of current circumstances, the adequacy of its objectives and its design, as well as its intended and unintended results. This process bases on continuous careful monitoring of the course/implementation of the programme.

Programme evaluation is of key importance since, on one hand, it generates information that can help to improve programme, and, on the other hand, it can demonstrate to stakeholders (e.g. funders) and others the impact and the efficiency of the programme.

Intervention and public health intervention

Several definitions exist of what the intervention is, among which we can find the following:

- an intervention is a generic term used to denote all public actions e.g. policies, programmes, projects (3);
- an intervention is an action or programme that aims to bring about identifiable outcomes (5).

Planned/desired effects of an intervention expressed in terms of outcomes are general objectives of an intervention.

A public health intervention is an intervention, which is applied to many, most, or all members of a community, with the aim to deliver a specific benefit to the community or population as well as benefits to individuals (5, 6). Public health interventions include:

- policies of governments and non-governmental organisations;
- laws and regulations;
- organisational development;
- community development;
- education of individuals and communities;
- engineering and technical developments;
- service development and delivery; and
- communication (including social marketing).

Evaluation

To evaluate something means literally to look at, and judge, its quality or value. Several formal definitions of evaluation exist, two of them being:

- a process that attempts to determine as systematically and objectively as possible the effectiveness and impact of activities according to their objectives (1);
- an in-depth study which takes place at a discrete point in time, and in which recognised research procedures are used in a systematic and analytically defensible fashion to form a judgement on the value of an intervention (3).

Whatever we evaluate, could be assessed from several different points of view. The three main types of evaluation are formative evaluation, process evaluation, and summative evaluation (Figure 2) (2, 3, 5, 7, 8).



Figure 2. The three main types of evaluation.

1. Formative evaluation.

Formative evaluation is the process of testing programme plans, messages, materials, strategies, and activities for feasibility, appropriateness, acceptability, and applicability to the programme and the target population.

This type of evaluation is generally used when a new programme is being developed or an existing programme is being modified. It is a process, which is often going on during the phase of planning and the course of the programme. In this case, it is an evaluation concerned with examining ways of improving and enhancing the implementation and management of an intervention.

Formative evaluation is aimed at being conducted to help those managing the intervention with the intention of improving their work.

2. Process evaluation.

Process evaluation is an assessment of the process of programme delivery. It is dealing with documenting the intensity of interventions, their outreach costs, their short- and medium-term impacts.

The primary aim of this type of evaluation is to provide practical feedback to those who are responsible for an intervention, so that they can improve its design and performance during the course of the programme.

3. Summative evaluation.

Summative evaluation is sometimes referred to as programme impact or outcome evaluation. Some authors even treat outcome and impact evaluation as two different types of evaluation.

This type of evaluation is concerned with determining the essential effectiveness of a programme. It is used to determine how well the programme achieved the goal (for example the reduction of morbidity or mortality).

For this type of evaluation, the baseline data must be collected prior to the programme implementation and following the implementation of the programme to determine programme effects. Documenting changes in morbidity and mortality requires a large study population, as well as the analysis of the same type of data for a similar population that did not receive the programme intervention (control group).

Summative evaluation is aimed at being conducted to help external actors (groups who are not directly involved in the management of a programme), for reasons of accountability or to assist in the allocation of budgetary resources.

Community based intervention projects/programmes

Many different community based intervention projects/programmes were designed and/or implemented since the early 1970s to combat chronic non-communicable diseases. A great number of them have aimed at promoting risk-reduction lifestyle changes in different populations. Most of these projects started in the field of cardiovascular disease prevention and emphasized the fact that merely providing risk-reduction measures for people at high risk in health service settings would have only a limited impact to the broader society, e.g. the whole nation/country. On the other hand, if the population as a whole is to be targeted, even a modest change in risk factor and healthy-heart lifestyle would potentially have a huge public health impact. One of the first among such community-based health intervention projects was the North Karelia Project (in Finland) which started in 1972 (9).

Many of intervention programmes become international. Countrywide Integrated Non-communicable Diseases Intervention programme (CINDI) of the World Health Organization (WHO), Regional Office for Europe (10), which started to spread its ideas in the 1980s, is one of them (11). In details, it is described in one of modules of this book.

Case study – evaluation of the effectiveness of the WHO CINDI programme in Slovenia in combating arterial hypertension

Combating arterial hypertension according to WHO CINDI programme

The CINDI programme recognized the arterial hypertension control as an important element of controlling the overall risk of cardiovascular diseases since arterial hypertension is one of the most important modifiable risk factors for cardiovascular diseases, and among major contributors to the mortality and/or disability of adult population in many countries (12). Changing the lifestyle of the population, screening for arterial hypertension, and early lifestyle and antihypertensive drug treatment are among the cornerstones of the successful prevention of cardiovascular diseases (12-14).

CINDI-WHO Working Group on Hypertension worked out international recommendations, where the most frequently used non-pharmacological interventions for arterial hypertension control are: stress management, smoking cessation, salt, calories and saturated fats intake reduction, increase in vegetable/fruit consumption and regular physical activity, and alcohol intake reduction (15). Positive experiences from Finland (North Karelia) and Lithuania showed that the CINDI programme interventions could be extremely successful in tackling the problem of hypertension (16).

Needs assessment in Slovenia

Combating non-communicable diseases has become one of the most important contemporary public health issues in Slovenia since mortality is still mainly attributable to non-communicable diseases, with cardiovascular diseases as the leading group among the causes of death, both in women and men (17).

Among biological/physiological risk factors for non-communicable diseases in Slovenia, more precisely its central part, i.e. Ljubljana area, the high prevalence of severe arterial hypertension (systolic/diastolic blood pressure $\geq 160/95$ mmHg) was registered at the beginning of the 1990s, being 19% (18). This result classified Slovenia among countries with the highest prevalence of severe arterial hypertension (Hungary: 5%, Israel: 7%, Romania 5-10%, Italy: 24-27%) (18).

Establishment and spread of an intervention programme in Slovenia

Once the problem was realized, it was also acknowledged that a programme like CINDI was strongly needed in Slovenia. The process started in the early nineties. First years were introductory and the programme was limited to demonstrational Ljubljana region.

In 1997, after the second CINDI survey, health promotion and cardiovascular disease prevention philosophy started to spread countrywide. This process outgrew into the Nationwide Programme on Primary Prevention of Cardiovascular Diseases, launched under the auspices of the Ministry of Health of the Republic of Slovenia in autumn 2001 and legally introduced and for the first time carried out at the beginning of 2002 (19, 20). Tackling the problem of high prevalence of arterial hypertension was one of the priorities.

Evaluation of an intervention programme

What exactly was done in the observed period to increase the control over the problem of arterial hypertension in Slovenia and could be assigned to CINDI programme? To get this answer the quantitative and qualitative analyses were performed.

Quantitative evaluation

In 2006 an important study was carried out to evaluate the CINDI Programme contribution in controlling arterial hypertension in Slovenia. It was the study of changes in blood pressure over time (21). By this study the hypothesis was confirmed that the average values of blood pressure in Ljubljana area after being adjusted for effects of gender, age and education level globally increased or remained stable in the first half of 12-year period, while they decreased in the second half. In general, the most important finding was the prominent decrease in average value of systolic blood pressure in the period 1996/97-2002/03. At the same time, the increase of the diastolic blood pressure between 1990/91 and 1996/97, and its decrease between 1996/97 and 2002/03 were registered (both changes were nearly statistically significant).

The changes in arterial hypertension prevalence were characterized by its prominent increase between 1990/91 and 1996/97, while during the period of 1996/97-2002/03 a minor decrease was registered. However, this decrease was still important in an epidemiological sense since the trend reverted from an increasing to a decreasing one. These results suggested some unfavourable influence on the blood pressure of Ljubljana area adults between 1990/91 and 1996/97, while within the period 1996/97-2002/03 the influence was favourable. When commenting the observed blood pressure dynamics it was obvious that the favourable changes in blood pressure happened after implementation of the CINDI programme in Slovenia but on the other hand it was necessary to take into account also an obvious fact that the 1990/91-1996/97 period was characterized by a very intensive political and socio-economic transition after Slovenia had become an independent state in 1991. This perturbation resulted in important changes in the lifestyle of the population (22). It is very likely that those changes were reflected also in blood pressure levels as well as on many other cardiovascular risk factors (23, 24). Because of this fact the qualitative analysis was necessary to be performed to supplement the quantitative analysis.

Along with this study, another studies were performed with similar findings (25, 26), as well as other studies which tried to evaluate the programme from different standpoint (27). From this standpoint, the results of evaluation of the multi-sectorial and multi-disciplinary project Mura, which started in 2001 in Pomurje region, are also very important (25, 26).

The studies showed that public health interventions in only a couple of years offered several extremely positive results (25). The Mura project is ongoing intervention project based on the pattern of a process similar to the project carried out in Finland, which proved highly successful and effective (9). Numerous multi-sectorial activities, including primary health care prevention activities, were focused on changing the nutritional and physical activity behaviour of the population and have been in process since the end 2001 at the regional (first in the Pomurje region) as well as at the national level (25, 28). Regarding to health prevention activities, specific socio-economic and cultural circumstances were taken into consideration. At the level of population groups at high risk, the concrete health promotion and health education approach was already applied in Beltinci Community in the Pomurje region (25) where the prevalence of many unhealthy behaviours were found as being the highest in Slovenia (29), as well as combination of multiple risky behaviours (30). For example, according to the first analysis of the CINDI Health Monitor survey (31) for the year 2004 only the prevalence of every-day consumption of sweet soft drinks decreased from 42.9% in 2001 to 29.1% in 2004 (26). The same study showed a strong shift to more healthy behaviours also in use of fat for food preparation. The percentage of people using lard decreased from 30.3% in 2001 to 20.8% in 2004 while the percent of people using olive oil increased from 7.1% to 15.2%. Results of another study, also based on CINDI Health Monitor and CINDI Risk Factor methodology (32), showed considerable improvement not only in healthy behaviours but also in some of the physiological risk factors. For example, only one year after the start of the programme in the Beltinci community, the average total cholesterol value decreased by 4.9% (25). This programme was already spread from this community to other parts of Slovenia as part of the implementation of the already mentioned nation-wide strategy for prevention of cardiovascular diseases (28). The results are very promising and stimulating for people personally interested and motivated, but sustainability is still under question.

Qualitative evaluation

We have just emphasized that the 1990/91-1996/97 period in Slovenia was characterized by a very intensive political and socio-economic transition with all accompanying problems, potentially also worsening the health status of the population as a whole. Unfortunately, in the period 1990/91-1996/97 the population approach to control cardiovascular risk factors was not among the priorities in the field of Slovene public health.

On the contrary, Slovenia approached to the very intensive implementation of the CINDI programme principles during the second half of the 1990s. Moreover, the 1996/97-2002/03 period was characterized by some prominent achievements in the context of spreading CINDI philosophy out of CINDI Slovenia Preventive Unit. Such a situation represented also an obvious need for the broader (national/countrywide) support and implementation. Consequently, the national alliance, Slovene National Forum on cardiovascular diseases Prevention, was established in 1999 (founded by the Slovene Society of Cardiology) (19, 33). The Forum brought together all important stakeholders in the field of cardiovascular diseases prevention in Slovenia (health care performers, public health institutions, governmental representatives, as well as many relevant scientific, medico-professional, and nongovernmental societies) (19, 33). At that time, joint collaboration group, initiated by the CINDI Slovenia Preventive Unit, elaborated the project on national cardiovascular diseases and other non-communicable diseases prevention programme (19, 20). The most

important interventional arm of the project was the provision of the health counselling and education for individuals at high risk for cardiovascular diseases, which is being performed within the network of 60 Health Education Centres, established all over Slovenia, and coordinated by the CINDI Slovenia Preventive Unit. Based on this project, the Ministry of Health decided to support the implementation of the Nationwide Slovene Programme on Primary Cardiovascular Diseases Prevention, the main characteristics of which were already described. The necessary financial resources were provided by the National Health Insurance Institute of Slovenia (19, 20). Within this project, all practicing general practitioners participate in screening the adult population in certain age groups. Its intermediate aims were to decrease the cardiovascular diseases risk factors prevalence (where arterial hypertension is among the most important) in the population, mainly by lifestyle changes, and to improve early detection and treatment of major cardiovascular risk factors (19, 20).

CINDI programme represented the most important base of health promotion and cardiovascular diseases prevention activities described above, inducing the majority of activities towards reducing the arterial hypertension prevalence in Slovene population. These activities took place in various institutions, while CINDI Slovenia Preventive Unit group by itself was especially intensively directed to activities for salt reduction in food industry, and enhancement of healthy behaviours (e.g. nutrition patterns and physical activity). It was also involved in the CINDI-EuroPharm-Forum project, which aimed at enhancing the role of the pharmacist in blood pressure management (10). We could justifiably claim that without the activities of the CINDI Slovenia programme, the gap in blood pressure control between various population groups could be even larger as it is today.

Exercise

Task 1:

Carefully read the paper:

Bulc M, Fras Z, Zaletel-Kragelj L. Twelve-year Blood Pressure Dynamics in Adults in Ljubljana Area, Slovenia: Contribution of WHO Countrywide Integrated Non-communicable Diseases Intervention Program. *Croat Med J* 2006;47:469-77. Available from: URL: <http://www.cmj.hr/2006/47/3/16758526.pdf>.

Task 2:

Try to classify the evaluation presented in this study in appropriate type of programme evaluation.

Task 3:

Discuss the process presented in the paper with other students.

Task 4:

In bibliographic database (e.g. PUBMED or MEDLINE) try to find another paper on this subject.

Task 5:

Repeat the exercises No.2 and No.3.

Task 6:

Critically discuss strengths and limitations of evaluation of public health intervention programmes with the whole group of students.

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Recommended readings

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