

MANAGEMENT IN HEALTH CARE PRACTICE A Handbook for Teachers, Researchers and Health Professionals	
Title	DISEASE MANAGEMENT PROGRAMS. THE CASE OF CVD MANAGEMENT IN BULGARIA
Module: 3.8	ECTS (suggested): 0.5
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Keywords	Disease management, prevention, cost effectiveness, health care quality, access and evaluation, health care research, evidence-based medicine
Learning objectives	After completing this module students and public health professionals should: <ul style="list-style-type: none"> • Increase their knowledge related to the concept of Disease management programmes (DMPs); • Know some examples of different DMPs; • Recognize the basic principles in the implementation of a DMP; • Understand the basic features of a DMP; and • Identify different approaches and technologies in DMP implementation.
Abstract	At present almost all health care systems are concerned mainly with ensuring equity, access, high quality and efficiency of health care. A very important aspect of quality, especially in public health, is its relation to scientific knowledge about effective interventions. The concept of Disease management programmes (DMPs) has been introduced to implement evidence-based clinical practice through guidelines, care protocols etc, to improve coordination among healthcare providers and assure continuity and comprehensiveness of care. DMPs organize health care in multidisciplinary, multicomponent, proactive approach focusing on the whole course of a disease, using evidence-based standards of care. There is no single definition of a Disease management programme, because of their diversity and heterogeneity. They are characterized by three main features: a knowledge base, a delivery system with coordinated care components, and a continuous improvement process. The basic advantages and uncertainties about DMPs are discussed in the module, as well as the ways and results of their implementation. A case study is presented, discussing a proposed model for Cardiovascular disease management programme in Bulgaria.
Teaching methods	Teaching methods include lectures, interactive group discussions, case studies, internet searches, group work, and comparative analysis.

Specific recommendations for teachers	<ul style="list-style-type: none"> • Work under teacher supervision/individual students' work proportion: 30%/70%; • Facilities: computer room • Equipment: computers, LCD projection equipment, internet connection, access to bibliographic data-bases; • Training materials: recommended readings or other related readings; • Target audience: master degree students according to Bologna scheme.
Assessment of students	Assessment should be based on the group-work, seminar papers, and case-problem presentations.

DISEASE MANAGEMENT PROGRAMS. THE CASE OF CVD MANAGEMENT IN BULGARIA

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THEORETICAL BACKGROUND

Disease Management Programs (DMPs)

In the last decade health care systems across the world are concerned mainly with few questions: continuity of care, especially for chronic diseases; avoidance of medical errors and patient safety; effective and efficient delivery of health services; and avoiding excessive variations in practice (1). Most of the countries in the World Health Organization European Region have implemented national strategies for quality assurance, such as accreditation systems, hospital quality management or external assessments such as league tables or audits (2,3). A very important aspect of quality, especially in public health, is its relation to scientific knowledge about effective interventions. High quality care can be achieved only when interventions that work are applied to the right patients at the right time (4). Improving quality of medical care and health services is thus a matter of defining and promoting best clinical practice, translating evidence from research into practical work, namely developing evidence-based guidelines, or recommendations, and performing health technology assessment. Quality of health care delivery is not, however, only a matter of evidence-based practice. Organizational and structural aspects of the health system and delivery also have important implications. A lack of continuity of care may delay appropriate measures, duplicate services, and lead to uncoordinated interventions (5).

The concept of *Disease management programs (DMPs)* has been introduced to implement evidence-based clinical practice through guidelines, care protocols, and formulary lists, improve coordination among healthcare providers and assure continuity and comprehensiveness of care (6). *DMPs organize health care in multidisciplinary, multicomponent programs, in a proactive approach focusing on the whole course of a disease, using evidence-based standards of care (5)*. There is no single definition of a disease management programme, however, it is characterized by three main features: *a knowledge base, a delivery system with coordinated care components, and a continuous improvement process (7)*.

The key elements of disease management are (6):

- Comprehensive care: multiprofessional, multidisciplinary, combining acute and long-term care, disease prevention and health promotion;
- Integrated care – “continuum of care”, coordination of the different components of the health services delivery;
- Population orientation - defined by a specific condition;
- Active client-patient management tools - health education, empowerment, self-care;
- Evidence-based guidelines, protocols, care pathways / DRGs;
- Information technology & system solutions;
- Continuous quality improvement.

DMP represents a total management of disease and health services, as a method for development of active consensus in the State, mobilizing different stakeholders and responsible institutions in order to fulfil the health priorities set. It is not a legal act or

administrative document, but rather a comprehensive *National Strategy*, requiring professionalism, systematic and integral approach, characterized by (8):

- Solidarity and justice in the health system;
- Universal access to medical services;
- High quality and continuity of health care;
- Effectiveness and efficiency of health services;
- Horizontal and vertical management of the planned interventions;
- Decentralization and multi-sectoral partnership.

Following these basic principles of the *New Public Health* (9) is a governmental responsibility on the way to reach the final goal and priority of any health system – promotion and protection of population health and strengthening the human capital of the country.

In this context, the management of any disease is realized through coordinated and integrated care, focused on the entire pre-clinical and clinical development of the disease: early diagnosis, treatment and rehabilitation, as well as towards health promotion and disease prevention through reduction of risk factors levels in the living environment, introduction of healthy behaviours and lifestyle, and increasing the quality and effectiveness of medical services.

The DMP is a broad term, comprising of various methods, forms of interventions, organizational approaches and technologies. They are very heterogeneous, consisting of diverse, sometimes unique components, developed for specific demographic, health, social, economic, political, or cultural settings. Considering this, it is completely impossible to create a unified model of a DMP or to translate it to another national context. The basis for the development of a nationally specific and effective DMP is the correlation “population necessities – available resources”. This is a difficult and responsible analysis, requiring a multidisciplinary team, which should consider (8):

- The health needs and necessities of certain (entire / target) population and the society;
- The specific methodology of programme development (goal, stages, control etc);
- The provision of recourses for the programme – mainly financial, human, information;
- The effective management of the resources;
- The coordination of all participants in the programme – individuals and institutions;
- The monitoring, control and evaluation of the DMP; and
- The capacity for sustainability and improvement of the programme for a long-term period.

Critical factors in the design of a successful DMP (5):

- suitable target condition (target population);
- evidence base (relevant scientific research);
- consideration of barriers to implementation;
- strategies to change attitudes of stakeholders;
- balance of economic and quality of care goals;
- strategies for continuous quality improvement; and
- strategies for evaluation of cost-effectiveness.

Implementation of DMPs for total management of chronic diseases

Chronic diseases and especially cardiovascular diseases (CVD) account for most of the burden of disease in the European Region (10). Recent evidence shows that there is a strong need to improve the quality of care for people with chronic diseases. Although a number of effective interventions for management of various chronic conditions are promoted by the international health organization, there are still wide variations in the delivery of care and clinical practice. DMPs are one of the measures intended to address this situation. Most of the evaluated DMPs for chronic conditions have been shown to improve the management and control of the disease, namely diabetes, depression, chronic heart failure and cardiovascular diseases (5). The evidence from the implemented till now DMPs in different countries and settings can be summarized in the following conclusions (11):

- DMPs seem to be suitable for conditions for which there are wide practice variations and poor outcomes, due to problems in continuity of care and finding evidence of interventions' effectiveness;
- DMPs reach a better control of the underlying condition, mostly for CVD, shown by reducing the risk of hospitalization among heart disease patients;
- Improved rates of medical performance suggest that DMPs succeed in shifting care from a reactive approach (reacting to manifest complications) to a proactive one (anticipating potential complications);
- DMPs enhance the adherence of providers to evidence-based standards, as well as enhance continuity of care and improve patients' knowledge of their condition/illness;
- In defining the goal(s) of a DMP it is important to achieve a balance between quality of care, satisfaction of providers and patients, and cost;
- Disease management requires behavioural changes in both providers and patients;
- A system of performance and outcomes indicators is considered an essential component of a DMP to ensure its continuous quality improvement;
- The disease management approach needs to have a long-term perspective;
- No evidence is available for any recommendation about the ideal mix of interventions;
- No evidence is available about which components of a DMP are most important for improving quality of care;
- There is no evidence of a direct link between DMPs and significant reduction in mortality or of improvement in quality of life;
- There is no evidence available about long-term health outcomes;
- There is no evidence on cost-effectiveness of DMPs.

However, the absence of evidence does not mean absence of the effect; it means it has not been studied. The strong focus on a particular disease, risk factor or symptom has also been claimed to be one of the possible negative effects of DMPs, however there is no evidence for this. The long-term impact of DMPs on health and health care systems still needs to be evaluated. The impact of DMPs on patients' and providers' satisfaction also remains to be assessed (5).

Cost and cost-effectiveness of DMPs for chronic conditions

When DMPs were introduced for the first time in the United States, their primary goal was to achieve cost savings (12). The implementation of DMPs requires substantial

investments. The cost of developing and establishing a program, including training and information technologies (especially hardware and software), needs to be considered in evaluations of disease management (6). The available evidence about reduced episodes of hospitalization and reduced rates of complications from chronic disease have been claimed to be potentially cost-saving. However, there is not enough evidence to conclude that DMPs are more cost-effective than standard care. Another important gap relates to the ideal allocation of resources to the different components of a programme. Therefore it is important to study extensively the cost-effectiveness of any specific DMP and its components before it is introduced on a large-scale.

Potential ethical considerations

Concerns have been raised about the ethical and social implications of DMPs (6). Patient autonomy might be threatened by the reduction of freedom of choice resulting from standardization. It is also necessary to identify who should play the coordinating role in a DMP, and what implications this may have for the responsibilities of others (6). Many DMPs have been developed with the assistance of commercial interests, notably the pharmaceutical industry. Concerns have been expressed about potential conflicts of interest in the health care system (13,14).

Conclusions (5)

The organization of care in multidisciplinary, multicomponent programmes, with a proactive approach focusing on the whole course of a chronic disease, applying the ideas of evidence-based medicine for the formulation of standards of care, can be considered the core of DMPs.

The heterogeneity of DMPs and their dependence on context, complicate the transferability of findings to other settings other than those of their evaluation. There is no single DM model to be applied everywhere. It is not possible to identify an ideal mix of components for a DMP to be effective.

DMPs improve the quality of care of people with chronic diseases, as measured by performance indicators. However, there is no evidence available on DMPs' impact on survival, quality of life or on their relative cost-effectiveness.

There is a need to evaluate the economic, social and ethical implications of disease management programmes.

Examples of ongoing DMPs in Europe

Maastricht Project (15): In January 2000 a DMP for patients with diabetes was implemented in the Maastricht region in The Netherlands. The explicit aim is to improve the quality of care for patients with diabetes. The programme's elements are: a core team of general practitioners, nurse specialists and endocrinologists; cooperation with other caregivers (e.g. ophthalmologists, dieticians); protocols stating routes of care, responsibilities and tasks; provision of care according to clinical practice guidelines; and systematic collection of data about patient contacts in order to monitor each patient and assess practice variations among providers.

National Service Frameworks in the United Kingdom (16): the 1997 Government White Paper set out the plan for the modernization of the British NHS. As a result, National Service Frameworks (NSFs) have been established by the NHS to enhance the quality and efficiency of the system. Strictly speaking, the NSFs are not DMPs; however,

they represent a systematic effort to improve care for particular conditions or groups of patients, and share some elements of disease management. They approach the whole course of a condition and the state's comprehensive strategies to organize care with the aim of improving outcomes. The NSFs set national evidence-based standards of care, including organizational interventions, formulate service delivery strategies and establish performance measures to evaluate progress.

German Disease Management Programmes (5): the health care reform act from 2001 provided the basis for the implementation of DMPs in Germany. The programmes are offered by the health funds must be accredited by the Federal Insurance Office, a governmental agency charged with the supervision of social insurances. Implementation of DMPs is linked to financial incentives for the health funds, as enrolled patients are calculated separately in the inter-sickness fund risk compensation mechanism. Evidence-based minimum standards and criteria for enrolment are proposed by the Coordinating Committee (a self-governing body including sickness funds and providers representatives) and subsequently passed by the Ministry of Health and Social Security.

CASE STUDY

Cardiovascular disease management programme – the case of Bulgaria

Introduction and background

Cardiovascular morbidity and mortality – present situation and trends

Bulgaria takes one of the leading positions in total and CVD mortality in the European Region and the negative tendencies are continuing in the last 15 years. Cardiovascular diseases are causing 971.0 per 100000 deaths for 2007 or more than 66% of the total mortality (17). The CVD indicators, as hospital discharges of ischemic heart disease per 100000 – 857.48 for 2006 and of cerebrovascular diseases per 100000 – 617.94 for 2006 are also disturbing (18). The results from the largest national epidemiological studies, conducted in the last 20 years “Sofia Heart Study 1994 - 1999”, “Bulgaria Heart Study 1998” as well as the results from the CINDI programme show evidence of higher levels of preventable risk factors and higher individual and population absolute risk, compared to other European countries (19). These negative trends are considered mostly a result from recently developed unhealthy lifestyles and behaviours, related to the transition period, but also from the continuing and unsuccessful health care reform (started in 2000), leading to insufficient disease prevention, late diagnoses, ineffective treatment, low compliance of physicians to international guidelines and of patients to recommended therapy and lifestyle changes (20). At the same time, hospital mortality from Acute Myocardial Infarction is close and even lower than some European hospitals, which indicates that the qualification of specialists, especially in hospital care are still on a good level (21). The pointed facts as well as evidence from other relevant studies, allow for the following assumptions (22):

- Low quality and effectiveness of the Primary care (GPs), especially when concerning the level of qualification, organization, motivation for improvement, compliance to contemporary best practices and implementation of health promotion and disease prevention activities;
- Ineffective Emergency care, related to lack of financial, material and human resources;

- Insufficient personal responsibility, information and motivation for self-control and self-management of the health status;
- Insufficient state and public responsibility for introduction of evidence-based, equitable and effective health care;
- Continuing organizational problems and chaotic reforms in the health care system, characterized by:
 - Lack of managerial and governance capacity;
 - Lack of integrated information system and chronic disease registries;
 - Lack of working system for quality assessment and control;
 - Inefficient allocation of financial resources;
 - Insufficient official standards and guidelines for good medical practice;
 - Lack of incentives for the health providers; and
 - Lack of trust in the population.

Activities, undertaken to address the problem

Bulgaria is still waiting for its new National Health Strategy (last one adopted in 2001) and for a National strategy for prevention and control of chronic (including CVD) diseases. In 2001, the Government adopted a programme, called “Bulgaria 2001”, where a “National programme for control of cardiovascular diseases” was announced (23). No specific action plan, activities or any results have been published under it till the present moment. However, there are single legal orders and risk factor control programmes adopted (for example, against smoking, diabetes control etc). Bulgaria is also participating in the International intervention programme for integrated chronic noncommunicable diseases prevention - CINDI programme (24). The National Centre for Public Health Protection has recently published the “WHO CVD-risk management package for low- and medium-resource settings, 2002”, translated in Bulgarian (25).

Prevention activities and published guidelines:

1. Establishment of a National Committee for development of guidelines for clinical practice of general practitioners (GPs), 2006 with members from Bulgarian scientific society for general practice, the National association of the GPs in Bulgaria and the Bulgarian Hypertension League;
2. Start of a permanent CME course for high blood pressure and cardiovascular risk education - "Educational Master Course on Hypertension and Cardiovascular Risk", European Society of Hypertension (ESH) / Bulgarian Hypertension League (BHL) - 2006, 2007, 2008;
3. Translation / development and publishing of:
 - ESH / ESC guidelines, 2003, 2007 – full and pocket versions are translated, adopted and published by the BHL / BSC;
 - Consensus for mono- and combination therapy of high blood pressure, BSC, 2005;
 - Guidelines for assessment and control of high blood pressure, 2006;
 - Practical recommendations for management of high blood pressure, according to the ESH/ESC guidelines, 2007;
 - Guidelines (handbook) for general practitioners in the case of high blood pressure, 2007;
 - Information and education materials – leaflets, brochures, books for the patient.

Nevertheless, there are no officially adopted Medical Standards for cardiovascular prevention and treatment; there are no effective mechanisms and incentives to motivate the health care providers to follow the published recommendations and not enough public educational programmes.

Based on the analysis of the available European and national epidemiologic and other studies, a comprehensive, evidence-based national cardiovascular disease management programme has been developed. Here its basic components are presented without any detailed explanations or activities.

Strategic (long-term) goal:

Decrease the CVD incidence and mortality, increase the quality of life of CVD patients and the healthy life expectancy (HALEs) in the Bulgarian population.

Operational (short-term) goal:

Successful implementation of a cardiovascular disease management programme and development of a national evidence-based, long-term Strategy for chronic disease control and prevention in Bulgaria.

Programme objectives:

- Health promotion and CVD risk factor prevention;
- Early detection and treatment of underlying risk factors;
- Early diagnosis and treatment of CVD; and
- Secondary and tertiary prevention of CVD.

Leading principles of the programme:

- Chronic noncommunicable diseases and especially CVD should become a priority for the national health policy;
- The main responsibility should be taken by the government, but decisions and activities should be multi-sectoral, multi-level, including all policies and spheres;
- Strong state control and regulation of health determinants and threats;
- Strict prioritization and control in financing and subsidizing;
- Specific capacity building in health care, focused on long-term care of chronic conditions;
- Continuous adaptation and improvement of the health system and increasing quality and effectiveness of care,
- Consistent policy for making healthy choices - easier choices;
- Implementation of evidence-based interventions, related to population necessities and national specificity;
- Early, continuous and life-long risk factor and disease prevention and health promotion;
- Increasing personal responsibility for health – “personal empowerment”;
- Strong public participation, social commitment and support for health – “social empowerment”; and
- Development and setting up of “*healthy public policy*” – health in all policies.

Intervention spheres (groups):

- Surrounding environment (political, social, economic and ecological) – environmental protection, social inequalities etc;
- Individual (personal health protection) – behaviour, knowledge, skills, motivation, lifestyle;
- Population free of disease (risk management) – detection and control of risk factors;
- Patients:
 - with acute CVD (clinical management) – emergency care, treatment and rehabilitation;
 - with chronic CVD (clinical management and social integration) – long-term care, disability rehabilitation, social support etc.;
 - high risk groups (potential patients).

Intervention approaches:

- Political interventions and lobbying for health;
- Intensive health information and education;
- State regulation and increased priority financing;
- Capacity building in public health;
- Improvement of health services delivery - integrated and patient-cantered care; and
- Public participation and partnership.

Structural elements of the programme, according to health system levels

Macro-level: development of positive political setting:

- Leadership and political will for healthy public policy;
- Integration and partnership between different policies;
- Provision of sustainable financing;
- Priority distribution of human resources – introduction of a health map;
- Legal changes and regulations; and
- Intensive multi-sectoral approach.

Intermediate level:

- *Health system organization:*
 - Ensuring continuity and coordination of medical services and life-long care;
 - Increasing quality of care through various incentives;
 - Organization and equipment of multi-professional health teams in Primary care;
 - Stimulation of self-control, self-management and prevention; and
 - Implementation of information systems and registries.
- *Public participation and support:*
 - Increasing public awareness and opposition of stigmatization;
 - Stimulation of positive results through moral and material incentives; and
 - Provision of additional health and social services.

Micro-level: relationship with the individual (patient):

- Information, education and motivation of the patients and their families;
- Information, education and motivation of the health providers; and

- Information, education and motivation of the social partners.

Participants in the programme:

Central (macro-) level:

- Government, Higher Medical Council;
- Parliament (Commission on health);
- Ministry of health (MH) in collaboration with all other Ministries;
- National centre for public health protection;
- National centre for health information;
- National health insurance fund (NHIF);
- Professional organizations of physicians (BMA), dentists and pharmacists;
- Medical and public health schools; and
- Different NGOs – agencies, associations etc.

Intermediate level:

- Regional offices / branches of the MH, NHIF, BMA etc;
- Medical establishments – managerial level;
- Voluntary health insurance funds;
- Media;
- Professional organizations of medical specialists (Bulgarian Society of Cardiology, Bulgarian Hypertension League, Bulgarian Lipid League etc);
- NGOs (patients' associations, syndicates, foundations etc); and
- The Industry (pharmaceutical, food and beverages, sports and leisure etc).

Peripheral (micro-) level:

- Health professionals – physicians, nurses etc;
- Other professionals working in health care – economists, lawyers, psychologists, social workers etc;
- Professionals, related to the population and individual health – teachers, sociologists etc.

Stages in the DMP implementation:

I stage – preparation (~ 1 year): activities for planning, coordination and organization of the programme implementation and setting up an Action plan;

II stage – implementation (~ 3 years): realization of the particular activities and interventions, according to the Action plan and monitoring of their effectiveness;

III stage – final (~ 1 year): analysis and evaluation of the results, achieved and development of Action plan for the next period.

Monitoring and performance indicators

In order to improve dynamically the programme and its interventions periodic analyses should be performed and feedback received. Some of the possible indicators are: total risk assessment of representative sample of the population, CVD incidence trends during the period, level of patients' compliance and adherence, patients' satisfaction, behavioural or attitude change, etc.

Expected results

Some of the specific results to be expected from the proposed programme are:

- Better coordination, continuity and effectiveness in the health sector:
 - Better risk assessment and detection of high risk groups for CVD;
 - Better control and prevention of risk factors;
 - Better treatment and rehabilitation of CVD patients;
 - Implementation of evidence-based standard protocols, guidelines and recommendation for good clinical practice;
 - Increased motivation and compliance of health specialists.

- Decrease in the CVD incidence;
- Increased economic effectiveness and efficiency;
- Development of a National register for CVD diseases;
- Increased health awareness and culture of the population;
- Increased social participation and commitment;
- Decreasing inequalities in health etc.

Financial sources for the programme:

- The Government and Ministry of health, NCPHP;
- Municipalities;
- NGOs (foundations, associations etc);
- The Industry and other business etc.

Conclusion

The problem of cardiovascular diseases in Bulgaria can be only addressed by means of complex, long-term and comprehensive approach, including short-term and long-term interventions in the framework of a National Programme (Strategy) for management of CVD (26). It cannot be solved through temporary one-sided activities. All interested stakeholders and institution should participate in the programme implementation and analysis.

Discussion and possible restrictions of the model

The proposed programme does not claim to be cost-effective or cost-saving, as clear evidence for this is lacking. It is also important to point out that this DMP of CVD does not include all possible approaches, interventions and activities for reaching the final goal of the programme. This is only a model, an example of a comprehensive evidence-based DMP for CVD.

EXERCISES

Task 1

The students are asked to figure out significant public health problems for their country (individual work). Then, in an open discussion, together priorities are set up, according to the specific national settings.

Task 2

The students are dividing into groups of 3 to 5. every group chooses a priority problem and develops a design of a DMP. The models are presented before all students and a discussion about their strengths and weaknesses is initiated.

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