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Chronic Disease Management Matrix 2010
Results of a survey in ten European countries

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Table of contents

General overview	5
1 Introduction	15
2 Method	19
2.1 Working definition of a DMP	19
2.2 Selected chronic conditions	19
2.3 Country sample	19
2.4 Survey	20
2.5 Data collection and response	20
3 DMPs organized per chronic condition	23
3.1 Overview of DMPs per chronic condition	23
3.2 Reading guide	24
3.3 Cancer	27
3.4 Cardiovascular disease	39
3.5 COPD	66
3.6 Depression	87
3.7 Diabetes	101
4 Country information	138
4.1 Overview of DMPs per country	138
4.2 Additional qualitative information per country	141
4.3 Characteristics of the healthcare system per country	142
Experts who contributed to this study	143
References	145

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General overview

Chronic diseases form the greatest threat to the health of populations worldwide today. The global prevalence of all leading chronic diseases is continuously increasing. Between 70% and 86% of deaths have been attributed to chronic diseases (World Health Organisation Europe, 2006; Centers for Disease Control and Prevention, 2007). This poses great challenges for the healthcare systems in Europe in providing high quality care for the chronically ill, without causing tremendous economic burdens on the community. In recent years, several European countries have set up Disease Management Programmes (DMPs) to rise to this challenge. In order to continuously improve the models for managing chronic diseases it is important to learn about the essential features of these DMPs and the position of primary healthcare within these programmes.

For this purpose a survey was conducted to provide an overview of the actual situation regarding chronic disease management in Europe. Experts from ten European countries provided data about the existence of DMPs in their country, the features and outcomes of these DMPs, the healthcare providers involved and the role of primary care in these DMPs in particular. In addition, some general characteristics of the country's healthcare system were provided. Experts were asked to report on programmes to manage chronic illness care that met the following criteria. The programme:

- manages a defined chronic condition (or risk-factor for developing a defined chronic condition);
- incorporates a systematic and coherent approach;
- offers multidisciplinary, collaborative care;
- focuses on an active role for patients;
- strives to maximize effectiveness and to continuously improve quality of care.

The country-experts were invited to report on DMPs (a programme that met the above-mentioned criteria) for the following chronic conditions: 1. arthritis (any type), 2. cancer (any type), 3. cardiovascular disease (any type), 4. COPD, 5. depression and 6. diabetes (any type).

Table 1 shows the reported DMPs per country. The table shows that diabetes mellitus is the chronic condition that is most often managed by a DMP, followed by cardiovascular disease (or risk factors for cardiovascular disease) and COPD. DMPs addressing arthritis were not reported. With regard to the DMPs for cancer, the German DMP focuses on breast cancer; the reform strategy for cancer in the UK (England) aims to improve the management of cancer and its outcomes for all cancer types. In two countries regional DMPs have been specifically developed or are currently developed to manage depression (Netherlands, Spain), whereas in the UK (England) a national approach has been introduced to manage depression and mental illness in general. The country-experts of Estonia and Hungary reported that there were no programmes meeting our definition in their countries. In addition to the information provided about DMPs for the chronic conditions explicitly mentioned in the survey, country-experts of Belgium and Spain

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mentioned a disease management approach for another chronic condition. In Belgium a programme exists to improve the management of chronic renal disease. In the Spanish region Andalusia a programmatic approach has been introduced to provide better care for people with poly-pathology. Within the latter programme, poly-pathology has been defined as being diagnosed with more than one chronic disease in addition with ‘a special clinical susceptibility and frailty, which entails a frequent demand for care at different levels’ (Jadad et al., 2010).

Table 1: Chronic conditions that are managed by a DMP in ten countries

	Arthritis	Cancer	Cardio-vascular disease	COPD	Depression	Diabetes	Other
Belgium	-	-	-	-	-	Diabetes type 2	Chronic renal disease
Estonia	-	-	-	-	-	-	-
France	-	-	-	-	-	Diabetes type 1 and 2	-
Germany	-	Breast cancer	Coronary heart disease, heart failure	COPD, asthma	-	Diabetes type 1 and 2	-
Hungary	-	-	-	-	-	-	-
Italy	-	-	Cardio-vascular risk, heart failure, stroke	COPD	-	Diabetes type 1 and 2	-
Lithuania	-	-	Cardio-vascular disease (type unknown)	-	-	-	-
The Netherlands	-	-	Cardio-vascular risk	COPD	Depression	Diabetes type 2	-
Spain	-	Cancer (type unknown)	Heart failure	COPD	Depression	Diabetes (type unknown)	Poly-pathology
UK (England)	-	Cancer unspecified	Coronary heart disease, stroke	COPD, asthma	Mental health problems unspecified	Diabetes unspecified	-

Table 1 should be interpreted with caution. The fact that for a particular chronic condition a DMP was reported does not mean that this condition is always and in every region of the country managed by a DMP. Some of the reported DMPs have been developed and

implemented at a national level, others have been developed and/or implemented at a local or regional level. In some countries the DMP-policy has been designed at a national level, but the execution and administration have been decentralized. The tables in chapter 3 contain more information at this point. Below we will describe some general features of the DMPs for the chronic conditions mentioned in table 1.

Motives for setting up the DMPs

The DMPs reported by the country-experts were generally developed from the wish to improve the quality of care and to improve health outcomes. Regarding the quality of care, an important motive to develop national programmes was to promote the provision of evidence-based care and to reduce inequalities in accessibility and quality of services. For the Belgian care pathway diabetes type 2, it was explicitly mentioned that valorisation of the role of the GP within the diabetes care process was also an important motive to develop the care pathway. Improvement of the quality of care for depression focused on the treatment of depression, but also on the diagnostic process. High prevalence rates were also mentioned as motives to start DMPs for cardiovascular conditions, COPD and diabetes in Tuscany (Italy) and for COPD in the Netherlands. Improvement of patient centeredness was also mentioned as a motive to set up National Service Frameworks (NSFs) within the National Health Service in England (UK).

Objectives

The objectives of the programmes are in line with the motives for which they were set up: improvement of quality of care by promotion of evidence-based practice and reduction of inequalities in access and provided services, and improvement of health outcomes such as a decrease of morbidity and mortality, decrease/delay of complications and reduction of hospital admissions. In addition, specific preventive objectives were reported for some DMPs. For instance, the national programme for cancer in the UK (England) also aims to raise public awareness of cancer symptoms and to promote early diagnosis. The depression ‘Doorbraak’ programme in the Netherlands also has the objective to improve case-finding in high-risk groups such as older citizens. Improvement of prevention by local communities -in order to reduce health inequalities- was mentioned as an objective of the National Strategy for COPD and asthma in England (UK). The latter programme also aims to improve cost-effectiveness of care. Cost-effectiveness was only mentioned as an objective twice: for the national COPD/asthma programme in the UK (England) and for an Italian programme on cardiovascular risk ‘Raffaello’, in parts of the regions Marche and Abruzzo. Improvement of patient-provider communication and collaboration was reported as one of the objectives of a regional DMP for COPD ‘De Kroonluchter’ in the Netherlands. Furthermore, the country-experts reported programme objectives such as improvement of quality of life, patient centeredness and patient satisfaction, and strengthening support for patients and carers, including advice, education, self-management support and information about social services. Also, facilitation of scientific research was mentioned as an objective.

Disciplines involved

All DMPs reported by the country-experts cover both primary and secondary care, except for two Italian programmes that exclusively run within primary care. GPs always

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participate in the reported DMPs. Apart from GPs, the medical disciplines involved depend on the type of chronic condition(s) the DMP has been designed for. For instance, internists, surgeons and radiotherapists participate in cancer programmes, cardiologists are involved in programmes for cardiovascular disease and pulmonologists in programmes for COPD. Nurse practitioners, specialized nurses or practice nurses are members of the multidisciplinary teams of all reported DMPs.

Allied healthcare workers were often mentioned as members of the care team as well, but again the specific disciplines involved depend on the type of chronic condition. For instance, podiatrists or other therapists that provide foot care are usually involved in diabetes programmes, whereas speech therapists participate in stroke teams. Dieticians and physiotherapists were most often mentioned as allied healthcare workers participating in the DMPs.

Psychosocial workers such as psychologists, psychotherapists and social workers only occasionally participate in the reported DMPs, for instance in the German DMP for breast cancer and the regional programme 'De Kroonluchter' for COPD in the Netherlands. In none of the reported diabetes programmes psychosocial professionals are involved. In programmes that address depression or mental illness, psychiatrists, psychotherapists and practice nurses specialized in mental healthcare are involved, besides GPs.

Pharmacists are mentioned only once as participants: in the Belgian care pathway diabetes type 2. Occupational expertise is not included in the DMPs, except for occupational therapists that provide rehabilitation care in some programmes: German DMPs, region Tuscany's DMP, regional DMP 'De Kroonluchter' for COPD in the Netherlands.

Components of care continuum addressed

All DMPs reported by the country-experts cover diagnostic interventions, care and medical treatment. Most programmes also cover non-medical treatment interventions, for instance education, lifestyle advice, dietary recommendations, exercise therapy or fitness. Prevention is also mentioned as a component of all reported DMPs, but the type of prevention varies from raising public awareness for cancer symptoms to tertiary prevention of diabetes complications. After-care and rehabilitation are not always included. Generally speaking there is more attention for after-care and rehabilitation in the programmes for cancer, COPD and depression than in the diabetes programmes. The attention paid to after-care and rehabilitation in programmes for cardiovascular disease depends on the type of cardiovascular condition(s) the programme focuses on: some DMPs address cardiovascular risks whereas others address heart failure, coronary heart disease and/or stroke. The latter usually cover after-care and rehabilitation.

Involvement of primary care sector

For all DMPs reported by the country-experts it is the primary care sector, and more specifically the GP, that directs the care processes, except for the cancer programmes. In the German DMP for breast cancer, gynaecologists in ambulatory care take over the GP's role. In the national cancer plan in the UK (England), medical specialists at the secondary care level usually direct the care process. However, when terminal care needs to be

provided to cancer patients, it is again the GP who is responsible for the care process. In some DMPs care managers (usually nurses or allied healthcare professionals) take over coordinating tasks of GPs. In the Dutch 'Doorbraak' programme for depression there is no formal direction; primary and secondary disciplines share equal responsibilities.

Within primary care, GPs are setting up care plans for patients, though these are not always formalized and laid down in personal care plans. In the German DMP for breast cancer, gynaecologists working in ambulatory care are charged with the development of the care plan. In most DMPs, GPs set up care plans in collaboration with nurses, who sometimes function as care managers or case managers. In the diabetes programmes it can be either the GP alone (Belgium, Germany, Italian programme 'IGEA') or the GP together with a nurse (Dutch and English programmes and Italian programmes 'Tuscany's plan' and 'Leonardo') who set up the care plan.

Primary care is usually coordinated by the GP (and in case of the German DMP for breast cancer: the gynaecologist). In some DMPs practice nurses coordinate the work of the primary care disciplines together with GPs. In the regional 'Diabetes Care System West-Friesland' (Netherlands), the coordination is organized by a central system for which a management team is responsible.

Involvement of secondary care sector

Most DMPs that are based in primary care have written standards for referral to secondary care. This does not hold for the Italian national programme for diabetes type 2 'IGEA' (which is confined to the primary care sector), nor for the Belgian care pathway for diabetes type 2.

Parts of the programme that take place in secondary care are especially diagnostics and medical treatment. For all reported programmes, with the exception of those for diabetes, the country-experts stated that the secondary care sector is involved in diagnostic and medical treatment interventions. Regarding the diabetes programmes, about half do not make use of secondary care for diagnostics and/or medical treatment. According to the country-experts, prevention and non-medical care are usually not provided by secondary healthcare professionals. These components of disease management are mostly covered by primary care. Rehabilitation is provided both within primary and secondary care. In the cancer and COPD programmes, rehabilitation mostly takes place within secondary care.

Information exchange

Most DMPs make use of a specifically designed clinical information system (CIS) to integrate and exchange patient information. However, until now these systems are only used within primary care. Even then information exchange between primary care providers is not supported by a CIS in all programmes. For instance, none of the German DMPs use such an integrated system, but the German DMPs for diabetes make use of a diabetes passport, which is transferred by patients between their care providers (whether in ambulatory or hospital care). In the UK (England) some locality systems enable sharing information across different primary care providers and out-of-office facilities. Information exchange between primary care facilities in the Italian programmes for

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cardiovascular risk/disease, COPD and diabetes is facilitated by specifically designed electronic information systems. This also holds for the Dutch examples of regional programmes for COPD and diabetes. In Belgium plans are made to develop a CIS for the care pathway diabetes type 2, which should cover information exchange between all diabetes professionals involved, either in primary care or secondary care.

Exchange of patient information between primary care and secondary care providers -and between secondary care providers participating in the programmes- is at this moment not facilitated by an integral CIS. In only one of the reported DMPs secondary care providers also have access to patient information by the programme's system (regional COPD programme 'De Kroonluchter', Netherlands). In the Tuscan programme in Italy information from the electronic record of the patient is sent to the secondary care professionals assigned to the patient by the programme's CIS.

Accessibility

In general the country-experts reported little problems with access to the DMPs for patients. However, in Germany about one third of all physicians still refuse to offer DMPs, so in those cases patients have to switch to another physician if they wish to participate in a DMP, which may be a considerable threshold for some patient groups. It should be noted that implementation of several programmes has not been finished yet, thus current access to the programmes depends on whether or not local health authorities or providers are already involved. A specific problem of accessibility noticed by the country-expert reporting on the Dutch 'Doorbraak' programme for depression is that GPs do not always recognize a depression and patients do not always accept the diagnosis of a depression.

Most of the reported programmes address all adult patients with a particular chronic condition, but some use more specific in- and exclusion criteria than others. For instance, the Dutch 'Doorbraak' programme for depression excludes patients with a bipolar depression, whereas the NSF for mental health in England (UK) considers all GP-patients with mental health problems as its target group. Some programmes exclude patients with more severe conditions (for instance, diabetic patients who need more than two insulin injections a day or with end-stage renal disease) or with other serious chronic conditions (for instance, diabetic patients with HIV). As for the German DMPs, it was reported that patients must declare that they are willing to make lifestyle changes and keep regular appointments with their physician as a condition to participate in the programme.

Patient enrolment and drop-out

Figures of what part of the target groups actually enrolls in the DMPs are not always available. High percentages of patient enrolment (> 95%) have been reported for the NSFs in England, the reported regional and local programmes in Italy as well as for the Dutch regional COPD programme 'De Kroonluchter'. Regarding the NSFs in England (UK), in fact all patients identified with a specific condition who are registered with a GP participate, unless they make an informed refusal. For Tuscany's plan in Italy, it should be noted that not all local health authorities are already involved; therefore it has been

estimated that mid 2010 about 30% of the total population of patients with heart failure or diabetes type 2 in Tuscany participated in the programme. The Italian national programme for diabetes type 2 ('IGEA') has been less successful in patient enrolment so far: less than 10% of the total Italian population aged 18 or older with diabetes type 2 participate. According to the country-expert, implementation of IGEA was slowed down by financial constraints. The Belgian care pathway diabetes type 2 covers 10 percent of all target patients after one year of implementation. Apart from the recent start, thresholds that have been reported are a lack of a culture in Belgium in which providers collaborate multidisciplinary and the coexistence of a diabetes programme in secondary care for part of the target group. For the German DMP for diabetes type 2, estimates have been made that in 2009 (six years after the start of the programme) about 64 percent of the five million patients with diabetes type 2 who were compulsorily insured participated in the programme (Schäfer et al., 2010).

Data about what part of the participants drops out of the programme are not always available. Percentages reported are mostly less than 5 percent; about 10 percent for the DMP for diabetes type 2 in the region Nordrhein, Germany. For the Dutch COPD programme 'De Kroonluchter' it was reported that 12 percent of the patients dropped out during their first year. Reasons for drop-out were general reasons such as patients moving home or a lack of interest from the patient's side, but sometimes also priority was given to manage the other chronic condition(s) of patients with comorbidity. Furthermore, it was reported that the cultural background of the patients might also play a role; in some cultures respiratory complaints are not so much considered a disease.

Financing of the DMPs and incentives for participants

The reported DMPs are financed in several ways. A few are paid exclusively from the regular healthcare financing system in the country or region (see table 4.3). Several programmes provide unconditioned additional payment by a lump sum or fee-for-service. This way of additional financing has been reported for the Belgian care pathway for diabetes type 2, for all reported Italian programmes, for all German DMPs and for the Dutch regional programmes for diabetes type 2 and COPD described in this report. In the Dutch 'Doorbraak' programme for depression GPs and psychologist receive payment for one year for their participation in the programme.

Some programmes provide additional target payment to healthcare providers related to their successfulness in achieving programme goals (process and/or outcome indicators). This way of target payment is used in England (UK) by the introduction of the Quality and Outcomes Framework and in the Tuscan programme for diabetes type 2, heart failure, stroke, hypertension and COPD (Italy).

Patients who participate in the DMPs usually do not receive financial incentives. In the Belgium care pathway for diabetes type 2 patients who participate in the programme receive an increased reimbursement of their consultations with GPs or diabetologists, free access to education by a diabetes nurse and free materials for self-monitoring. In the DMP for diabetes type 2 in the region Nordrhein, Germany, participating patients have reduced co-payments.

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The country-experts reported that all components of the DMPs are reimbursed for patients, except for the DMPs for depression/mental health problems. In the Dutch 'Doorbraak' depression programme reimbursement of psychological care is confined to eight treatment sessions (with a co-payment for each session) and physiotherapy sessions are partially reimbursed. Also in the NSF for mental health in England (UK), there is no full reimbursement. For the Dutch programme 'De Kroonluchter' for COPD, it was reported that physiotherapy is only reimbursed for COPD patients with more severe levels of dyspnea.

Evaluation of the DMPs

The question whether or not the reported DMPs succeed in meeting their objectives can not be answered yet. Most DMPs are from a recent date and some have so far only been tested in pilots in restricted areas. Evidence for their effectiveness is still scarce. The country-experts reported that in most DMPs organizational aspects and care processes are monitored as well as outcomes in participating patients. Regarding the latter: studies usually focus on (intermediate) clinical outcomes such as morbidity (several indicators of disease activity/severity, complications), healthcare use and hospital admissions. Less attention is paid to other outcomes that may be relevant for patients such as their coping abilities, psychological well-being, self-management skills and satisfaction with the care process and outcomes.

A few studies with a more advanced design have been reported that aimed to provide evidence of the effectiveness of DMPs. The effectiveness of the Italian programme 'Rafaello', addressing patients with a high profile risk for cardiovascular disease, has been evaluated by a cluster randomized trial, which showed positive results in patient clinical outcomes and patient satisfaction. Also, a cost-utility analysis was done, which demonstrated that the costs of the quality-adjusted life years gained by the programme were lower than the maximally sustainable price according to authoritative international Health Technology Assessment institutions. The effects of the DMPs for diabetes type 2 in Germany have been evaluated by some studies comparing results of patients enrolled in a DMP with patients not enrolled (Schäfer et al., 2010; Szecsenyi et al., 2008). These studies showed improvements in quality of care as perceived by patients and other process indicators as a result of the DMPs. Schäfer and colleagues also studied clinical outcomes in patients: significant differences between DMP participants and non-participants could not be found. Ullrich et al. (2007) compared routine claims data of a large group of diabetic patients enrolled in a German DMP and of patients not enrolled. The study showed that DMP participants encountered less long-term complications (amputations, stroke). In the Diabetes Care System in the region West-Friesland (Netherlands) studies on long-term effects and cost-effectiveness are also conducted, but results have not been published yet.

Perceived strengths and weaknesses

In general, the country-experts report more strengths than weaknesses of the disease management approaches they consider in their country. The strengths relate to the perceived successfulness of the programmes in terms of improvement of the quality of

care: proactive and well-structured care processes, more continuity of care and multidisciplinary collaboration and more attention to patient outcomes and satisfaction. The DMPs reported in this study differ from each other in several respects. Some started as local or regional initiatives driven by one or a few motivated healthcare professionals. According to one of the country-experts, a potential threat for these local/regional programmes is that their continuity highly depends on individuals, which makes them vulnerable in a sense. On the other hand, there are DMPs that are direct results of national (or regional) healthcare policy. Creating support for the implementation of such DMPs may need more time and negotiation with healthcare providers. A reported strength of the NSFs in England (UK) is that they are fully integrated in primary care (National Health Service), which makes them potentially accessible for all eligible patients registered with a GP. This contrasts with the situation in Germany for instance, where about 30 percent of all physicians refuse to offer DMPs to their patients (for reasons as ‘restriction of physicians’ freedom to treat patients individually’ and ‘too much bureaucracy/paperwork’).

Threats that have been reported by country-experts and that may apply to more DMPs are 1) a risk of fragmentation because of the vertical, single-disease approach of most programmes, 2) the high costs and legal and technical constraints of implementation of integral clinical information systems, 3) a lack of involvement of medical specialists -and sometimes also allied healthcare workers- as permanent members of the care teams, and 4) the administrative burden the programmes entail for healthcare providers. Some country-experts mentioned a lack of interventions tailored to specific social or cultural patient groups (‘one size fits all’) as a weakness of current DMPs, in addition to the lack of attention for patients with multimorbidity. On the other hand, another country-expert warned for ‘wanting too much at once’; it may be better to start with a well-designed and evidence-based programme for a particular patient group and then broaden the available interventions and target groups gradually. Finally, one of the country-experts mentioned the dominant biomedical focus of some DMPs as a potential weakness. Considering the outcome indicators that are monitored in most programmes, this may be a point of consideration for more programmes.

Conclusions

Conclusions can be drawn from the information provided by the country-experts, but also from the information that was not provided. As we describe in chapter 2, several country-experts put a lot of effort to collect the data we asked, but were eventually not able to provide the requested information. It may be that other experts in these countries are more familiar with some DMPs, but still it is clear that in many countries an overview of existing DMPs, their features and outcomes is lacking (at least at a national level). In countries where the healthcare system is not organized at a national level, it is obvious that such an overview is more difficult to obtain. Nevertheless, national databases of (regional/local) DMPs could be very useful to share information and experiences with policy makers and healthcare providers working in other regions. In fact, our study had a similar purpose, but at an international (European) level. It may be useful to consider the development of a common framework of data to be collected on DMPs within European countries. The European Forum for Primary Care might play a coordinating role in this

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respect, since such a role suits its function of an information-exchanging network in Europe.

Based on the results of our survey, we conclude that although the motives for setting up DMPs in Europe are quite similar (improve quality of care and health outcomes, and reduce inequalities in accessibility and quality of services), the developed DMPs differ from each other in many ways, e.g. special programmes/projects versus integral parts of regular healthcare, involvement of secondary (specialized) care, methods of financing, case-finding, target groups, et cetera. Full integration of DMPs within a strong primary care sector, where GPs function as gatekeepers, seems to offer the best chance of access for all target patients.

Although disease management approaches are very promising, there are several issues that require more attention. First, more research is needed to gain better insight into the (cost-)effectiveness of the European DMPs. In this respect, special attention needs to be paid to determine which patient groups are served well by the current programmes and for which patient groups -with specific demographic, social, cultural, personal and/or disease characteristics-, alternative approaches to manage their condition(s) are necessary. Furthermore, it seems important to carefully consider the type and amount of data that are collected within the DMPs for several purposes, as well as the methods of data collection. It is important that implementation and integration of DMPs in the healthcare system will not be hampered by reluctant healthcare providers who feel they are spending too much time on administrative tasks rather than on patient care. A final remark we wish to make is that until now conclusions about the successfulness of DMPs seem to be mainly based on their effectiveness to improve biomedical outcomes. We believe that outcomes that are very relevant for patients, such as their range of activities and social participation, should be taken into account as well.

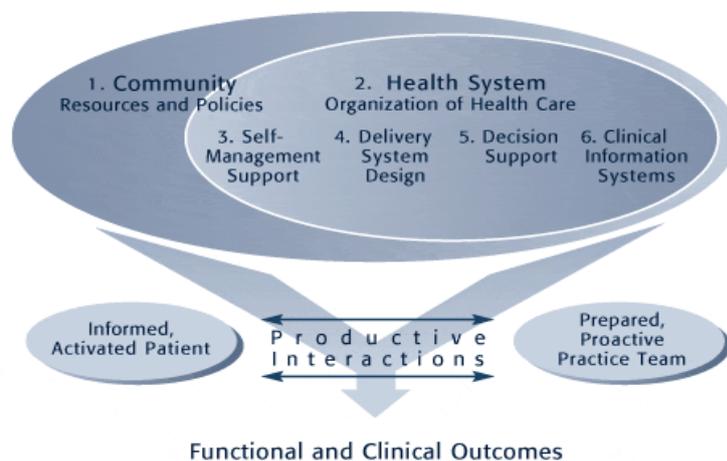
1 Introduction

Since 2000 health policy makers and healthcare providers worldwide have become increasingly aware that chronic diseases form the greatest threat to population health in the new century. While several infectious and acute diseases were combated successfully in the last century, the incidence and prevalence of chronic diseases grew steadily. Were chronic diseases mainly considered as a (natural) problem of ageing in the twentieth century, the growing number of young adults -and even children and teenagers- with chronic illness has slightly changed this view. Lifestyle factors play an important role, in addition to ageing. Furthermore, medical treatment of several life-threatening diseases has improved, resulting in more survivors who often experience remaining physical and psychological problems.

Despite these changes in population health, healthcare systems in most western countries have not been adapted to this major change in healthcare demand. Until recently, chronic diseases were usually managed in the same way as acute diseases: the system started when a patient presented his or her health complaints to a medical doctor (in primary or secondary care) and this professional reacted to the problem that was presented to him/her by medical treatment aimed at reducing or solving the health problem. Preventive actions and proactive management were uncommon and the involvement of other disciplines was not part of usual care.

In 1996 Wagner and colleagues developed the Chronic Care Model (Wagner et al., 1996; 1999; 2001). This model (see figure 1) shows how healthcare systems could be designed that are supportive to the primary care process of healthcare providers and their patients with chronic illness. CCM poses that both the patient and his/her healthcare providers need to be facilitated to play their part in the management of the patient's condition. The patient is considered a vital actor in the management of his/her illness, who sets his/her own treatment goals together with a multidisciplinary team of healthcare providers. These healthcare providers support the patient's self-management and manage the condition proactively, starting from the goals they have agreed upon with the patient and encompassing the total chain of care.

Figure 1.1: Chronic Care Model (source: Wagner et al., 1999)



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The Chronic Care Model has inspired many health policy makers and healthcare providers to develop and implement innovations in (parts of) their healthcare system. One of these innovations is known as ‘disease management’. This approach had been developed in the USA in the nineties and has only recently been adopted (and adapted to the existing healthcare system) in several European countries. Several definitions of disease management exist (e.g. Zitter, 1997; Weingarten, 2002; Faxon et al., 2004; DMAA, 2006; Schrijvers, 2009). All contain elements that overlap with at least one other definition, but none of them is similar to another with regard to all elements included. Box 1 provides some (randomly selected) definitions.

Box 1: Definitions of disease management

Zitter, 1997: *Disease management is generally defined as a comprehensive, integrated approach to care and reimbursement based on a disease’s natural course. The goal of disease management is to address the illness or condition with maximum effectiveness and efficiency regardless of treatment setting(s) or typical reimbursement patterns.*

Weingarten, 2002: *An intervention designed to manage or prevent a chronic condition using a systematic approach to care and potentially employing multiple treatment modalities.*

DMAA, 2006: *Disease management is a system of coordinated healthcare interventions and communications for populations with conditions in which patient self-care efforts are significant.*

Bundesversicherungsamt: *Disease Management Programme (DMP) sind strukturierte Behandlungsprogramme für chronisch Erkrankte, die vom Bundesversicherungsamt zuzulassen sind. Die Behandlungs- und Betreuungsprozesse von Patienten werden über den gesamten Verlauf einer (chronischen) Krankheit und über die Grenzen der einzelnen Leistungserbringer hinweg koordiniert und auf der Grundlage wissenschaftlich gesicherter aktueller Erkenntnisse (medizinische Evidenz) optimiert.*
(http://www.bundesversicherungsamt.de/cln_115/nn_1046648/DE/DMP)

Schrijvers, 2009: *Disease management consists of a group of coherent interventions designed to prevent or manage one or more chronic conditions using a systematic, multidisciplinary approach and potentially employing multiple treatment modalities. The goal of disease management is to identify persons at risk for one or more chronic conditions, to promote self-management by patients and to address the illnesses or conditions with maximum clinical outcome, effectiveness and efficiency regardless of treatment setting(s) or typical reimbursement patterns.*

The definitions in box 1 show that disease management generally addresses the management of a specific chronic condition (or risk profile), although more recent definitions (e.g. Schrijvers, 2009) show that it may also concern the management of more than one chronic disease. Furthermore, some definitions refer to both management and prevention of the disease, whereas in others prevention is not mentioned. Thus, the components of the care continuum that are addressed differ. The definitions in box 1 all emphasize the comprehensiveness and multidisciplinary nature of the disease management approach. Some also stress the importance of self-management (support). Differences also exist with regard to reimbursement; should it be included in the disease management approach or not? Finally the definitions show that disease management aims to improve the quality and effectiveness of care, including the use of evidence-based treatment modalities, and, according to some definitions, also the efficiency of the chronic illness care.

This brings us to the purpose of the present study. Although the concept of disease management has found a fast way through Europe, each country may have chosen a different approach, because healthcare systems in European countries differ from each other as well as from that of the USA. Moreover, population characteristics may differ as well. An advantage of these different approaches is that we can learn from them. So far little knowledge exists about the effectiveness of disease management approaches in general¹. But even if we would know how effective a specific DMP in some European country is, it will not be possible to adopt the approach directly in other countries. We have to know more about the characteristics of the different disease management approaches and how they are embedded in the national healthcare systems. This study therefore aims to provide an overview of the actual situation regarding chronic disease management in Europe. By analysing DMPs in relation to their national (local or regional) goals, we may learn more about their essential features. In addition, this overview will provide more insight into the position of primary care within these programmes and how this relates to their characteristics and results.

This study on chronic disease management programmes in Europe was initiated by the European Forum for Primary Care and commissioned by NIDHI/RIZIV (Belgium). NIVEL, the Netherlands institute for health services research, has conducted this study in collaboration with experts of primary care and/or disease management in ten European countries (see Experts who contributed to this study). These country-experts have provided data on national, regional or local DMPs in their country by means of a survey (see Method). The data collected in this way have been used to provide a matrix on DMPs in Europe (organized in tables) and will give insight into key elements, strengths and weaknesses of the programmes as well as their outcomes. This report contains the results of the survey conducted in 2010.

¹ This has been due to a lack of sound evaluation methods. At this moment the methods that are currently used to evaluate approaches of chronic illness care in European countries are reviewed in a large study funded by the 7th Framework Programme of the European Commission (DISMEVAL; see www.dismeval.eu). DISMEVAL also aims to test and validate promising evaluation methods.

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2 Method

This chapter contains a description of the methods we used for this study. As was mentioned in the former chapter we conducted a survey in several European countries. The survey will be described here in more detail.

2.1 Working definition of a DMP

The Introduction chapter already showed that definitions of disease management differ in several ways. Since we wished to investigate to what extent DMPs on a national, regional or local level exist in several European countries, we had to start from a working definition of a DMP. For this purpose, a number of definitions were analysed in order to distinguish essential characteristics. To minimize the chance of missing relevant programmes, we decided to work with a broad definition and subsequently, to further specify the features of the programmes based on the data provided by the experts. Specifically, we asked the country-experts to report whether there were national and/or local/regional programmes that met the following features:

The programme ...

- manages a defined chronic condition (or risk-factor for developing a defined chronic condition);
- incorporates a systematic and coherent approach;
- offers multidisciplinary, collaborative care;
- focuses on an active role for patients;
- strives to maximize effectiveness and to continuously improve quality of care.

2.2 Selected chronic conditions

NIVEL agreed with RIZIV/NIDHI to select at least five chronic conditions for which we would investigate the existence of DMPs. The final selection contained six broad categories of chronic conditions: arthritis (any type), cancer (any type), cardiovascular disease (any type), COPD, depression and diabetes (any type). The selection was made by the following criteria: the chronic condition had to have a relatively high prevalence in Europe and/or had to be a substantial burden for healthcare or society. Furthermore, we selected chronic conditions of which we knew that there was at least one DMP addressing this condition in one of the included countries. We asked the country-experts to specify the type of chronic disease the DMP was addressing.

2.3 Country sample

NIVEL agreed with RIZIV/NIDHI to include nine European countries in the study. The selection of countries was rather arbitrary; some were selected because we knew that

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DMPs were implemented in the country, others (especially some countries in Eastern Europe) were selected because we did not have any knowledge about how these countries respond to the burden of chronic diseases for healthcare and society. The selection of Belgium and the Netherlands naturally derived from the origin of the study. Country-experts were selected from the network of the European Forum for Primary Care and/or NIVEL (see 'Experts who contributed to this study'). During the data collection period, two experts from other countries (not initially selected) showed their interest in providing data about the situation in their country for this study. This resulted in eleven countries: Belgium, Estonia, France, Germany, Hungary, Italy, Lithuania, The Netherlands, UK (England), Spain and Sweden.

2.4 Survey

The survey consisted of two questionnaires:

1. a general form with some questions about general characteristics of the country's healthcare system and the major question: for which of the six (categories of) chronic conditions a DMP (a programme that met our working definition) exists in their country. In the case that more than one DMP at a national or local/regional level for a specific condition existed in their country, the experts were instructed that they could fill in the DMP-specific questionnaire (see below) for each DMP or fill in the DMP-specific questionnaire for one of these DMPs. We informed the experts that we were most interested in DMPs that had been widely adopted and/or on which (quality or evidence) data were gathered.
2. a DMP-specific questionnaire that had to be filled in for each DMP (or chronic condition managed by a DMP) reported at the general form. We instructed the experts that they could fill in these questionnaires by themselves or forward the questionnaire to fellow-experts in their network with specific know-how on a particular DMP. In the latter case we asked our country-expert to coordinate these delegations and arrange for the questionnaires to be sent back.

2.5 Data collection and response

Mid August 2010 both the general form and the DMP-specific questionnaire were sent by e-mail to experts known by the European Forum of Primary Care (EFPC) in nine European countries. At the EFPC-conference in Pisa (September 2010) two experts of other countries showed their interest in participation. These two experts received the questionnaires immediately after the conference.

We received at least partial response for ten of the eleven countries that had been selected. In several countries other experts were approached (by the country-expert or by ourselves) to provide data about particular programmes. Several country-experts reported us that they had difficulty providing data at a national level, but sometimes also for a

specific region. Moreover, several experts reported that the chronic illness care in their country was organized in another way that did not suit our working definition and the questionnaire. In these cases we asked the experts to write a short report about the organization of chronic illness care in their country instead of filling in the DMP-specific questionnaire (see Additional qualitative information per country).

Table 2.1 shows the response on our survey (dateline: 30 November 2010). Five countries gave full response: Belgium, Hungary, Estonia, UK (England) and Italy. The experts of Hungary and Estonia indicated that their country does not have any programme that fits with the working definition used in this study. For this reason DMP-specific questionnaires were not filled in for these countries. Instead, the two country-experts provided us with some additional qualitative information about the situation regarding chronic illness care in their countries.

From Germany we received extensive information about DMPs for diabetes type 2. Experts from Germany who were asked to provide information about DMPs for other conditions indicated that they had provided similar information for the DISMEVAL-study (see www.dismeval.eu). Therefore they decided to fill in the parts of our DMP-specific questionnaire that did not overlap with the DISMEVAL-questionnaire. From the Netherlands, we received complete DMP-specific questionnaires for three of the four chronic conditions that are managed by (regional) DMPs. Finally, the country-experts of France, Lithuania, Spain and Sweden reported to have difficulty finding the information we asked at a national, but sometimes also at a local or regional level. Therefore, they did not fill in the DMP-specific questionnaires.

Table 2.1: Response on survey per country (dateline: 30 November 2010)

Country:	General form	DMP-specific questionnaire(s)	Qualitative information
Belgium	+	+	-
Estonia	+	n.a.	+
France	+	-	-
Germany	+	+/-	-
Hungary	+	n.a.	+
Italy	+	+	+
Lithuania	+	-	-
The Netherlands	+	+/-	+
Spain	+	-	-
Sweden	-	-	-
UK (England)	+	+	-

+: information provided, +/-: information partly provided, -: information not provided;
n.a.: not applicable

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3 DMPs organized per chronic condition

This chapter contains information about the DMPs reported by the country-experts. The information is based on the answers of the experts on the DMP-specific questionnaires.

3.1 Overview of DMPs per chronic condition

Table 3.1 shows which chronic conditions are managed by one or more DMPs in the participating countries.

Table 3.1: DMPs per chronic condition

Cancer	<p><u>Germany:</u></p> <ul style="list-style-type: none"> - breast cancer: national policy (2002), regional DMPs <p><u>Spain:</u></p> <ul style="list-style-type: none"> - no further information provided <p><u>UK (England):</u></p> <ul style="list-style-type: none"> - cancer unspecified: national policy NHS Cancer Plan (2000) and the Cancer Reform Strategy (2007)
Cardio-vascular disease	<p><u>Germany:</u></p> <ul style="list-style-type: none"> - coronary heart disease: national policy (2003), regional DMPs <p><u>Italy:</u></p> <ul style="list-style-type: none"> - heart failure, stroke and hypertension: regional policy Tuscany's Plan 'From On-Demand to Proactive Primary Care' (for heart failure since 2010, for stroke and hypertension from 2011) - cardiovascular risk, heart failure: pilot in one local health authority 'Leonardo' (2006) (planned extension to the whole Apulia region) - cardiovascular risk: six local health authorities in regions Marche and Abruzzo 'Raffaello' (2008) <p><u>Lithuania:</u></p> <ul style="list-style-type: none"> - no further information provided <p><u>The Netherlands:</u></p> <ul style="list-style-type: none"> - cardiovascular risk: national policy, regional DMPs <p><u>Spain:</u></p> <ul style="list-style-type: none"> - heart failure: no further information provided <p><u>UK (England):</u></p> <ul style="list-style-type: none"> - coronary heart disease, stroke: national policy National Service Framework for Coronary Heart Disease and National Stroke Strategy (2000)
COPD	<p><u>Germany:</u></p> <ul style="list-style-type: none"> - COPD, asthma: national policy (2005), regional DMPs <p><u>Italy:</u></p> <ul style="list-style-type: none"> - COPD: regional policy Tuscany's Plan 'From On-Demand to Proactive Primary Care' (for COPD from 2011) <p><u>The Netherlands:</u></p> <ul style="list-style-type: none"> - COPD: national policy, regional DMPs (example of regional DMP: Integrated COPD management 'De Kroonluchter', 2004) <p><u>Spain:</u></p> <ul style="list-style-type: none"> - no further information provided <p><u>UK (England):</u></p> <ul style="list-style-type: none"> - COPD, asthma: national policy National strategy for COPD and asthma (2005)

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Continued Table 3.1

Depression	<p><u>The Netherlands:</u></p> <ul style="list-style-type: none"> - depression: national policy, regional DMPs (example of regional DMP: ‘Doorbraak’ depression in Zeeland, Noord-Brabant, Limburg, 2006) <p><u>Spain:</u></p> <ul style="list-style-type: none"> - no further information provided <p><u>UK (England):</u></p> <ul style="list-style-type: none"> - mental health: national policy National Service Framework for Mental Health (2000) ‘New Horizons: better mental well-being, better mental healthcare’
Diabetes	<p><u>Belgium:</u></p> <ul style="list-style-type: none"> - diabetes type 2: national policy Care pathway diabetes type 2 (2009) <p><u>France:</u></p> <ul style="list-style-type: none"> - diabetes type 1 and 2: national Sophia programme; no further information provided <p><u>Germany:</u></p> <ul style="list-style-type: none"> - diabetes type 2: national policy (2002), regional DMPs (example Nordrhein) - diabetes type 1: national policy (2004), regional DMPs <p><u>Italy:</u></p> <ul style="list-style-type: none"> - diabetes type 2: national policy Integrazione, Gestione e Assistenza per la malattia diabetica (IGEA) [Integration, Management and Care for Diabetes] (2006) - diabetes type 2: regional policy Tuscany's Plan ‘From On-Demand to Proactive Primary Care’ (for diabetes type 2 from 2010) - diabetes type 2, diabetes type 1: pilot in one local health authority ‘Leonardo’ (2006) (planned extension to the whole Apulia region) <p><u>The Netherlands:</u></p> <ul style="list-style-type: none"> - diabetes type 2: national policy Nationaal Actieprogramma Diabetes (2008), regional DMPs (example of regional DMP: Diabetes Care System West-Friesland, 1996) <p><u>Spain:</u></p> <ul style="list-style-type: none"> - no further information provided <p><u>UK (England):</u></p> <ul style="list-style-type: none"> - diabetes unspecified: national policy National Service Framework for Diabetes (2001)
Other	<p><u>Belgium:</u></p> <ul style="list-style-type: none"> - chronic renal disease: no further information provided <p><u>Spain:</u></p> <ul style="list-style-type: none"> - poly-pathology: experiment in the region Andalusia, no further information provided

3.2 Reading guide

The next sections all contain the same tables for each category of chronic conditions managed by a DMP in at least one of the participating countries. Since we did not receive further information about the two programmes for other chronic conditions (chronic renal disease, poly-pathology), the disease categories that will be addressed are:

- cancer
- cardiovascular disease
- COPD

- depression
- diabetes

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Tables for each disease category are:

Table 1 : Motives and programme objectives

Table 2 : Linkage with other DMPs and attention paid to multi-morbidity

Table 3 : Guidelines that underpin the DMP

Table 4 : Components of chain of care and self-management addressed by DMP

Table 5 : Disciplines involved in primary care

Table 6 : Disciplines involved in secondary care

Table 7 : Processes in primary care

Table 8 : Parts of the programme that take place in secondary care

Table 9 : Integration of primary and secondary care

Table 10: Patient centeredness

Table 11: Patient enrolment

Table 12: Accessibility of the DMP and drop-out

Table 13: Financial incentives for healthcare providers and patients

Table 14: Financing of the DMP

Table 15: Type of evaluation of DMP

Table 16: Quality indicators

Table 17: Summary of evaluation method and results

Table 18: Perceived impact of the DMP (according to country-experts)

Table 19: Perceived strengths and weaknesses (according to country-experts)

3.3 Cancer

Table 3.3.1: Motives and programme objectives

	Motives to start DMP	Programme objectives
Germany National policy (2002), regional DMPs (breast cancer)	National motives: DMPs were developed for diagnoses with a high prevalence in combination with high costs; motives were to improve care, to cut costs by reducing complications and comorbidity, and to improve quality of life for patients.	General objectives: to improve care, reduce costs and improve quality of life. Specifically for the DMP for breast cancer: to reduce mortality, enhance self-management of patients, improve psychosocial care and rehabilitation.
UK (England) <i>NHS Cancer Plan 2000 and the Cancer Reform Strategy 2007</i> (cancer unspecified)	National motives: to develop a patient centered service, to improve health outcomes for people with cancer in England, to raise the quality of services, and to reduce unacceptable variations between them	<ol style="list-style-type: none"> 1. The National Awareness and Early Diagnosis Initiative aims to raise awareness of cancer symptoms among the public and health professionals and encourage those who may have symptoms to seek early attention. Almost £5 million has been allocated to the NHS to support cancer networks and primary care trusts in improving awareness of cancers and promoting early diagnosis. 2. The National Cancer Survivorship Initiative is working to improve support for the 1.63 million people currently living with and beyond cancer in England. A vision and implementation plan for the initiative will be developed and published. 3. The National Equality Initiative is working to reduce inequalities in cancer care. An equalities vision will be developed and published.

Table 3.3.2: Linkage with other DMPs and attention paid to multi-morbidity

	Linkage with other DMPs	How does this DMP deal with patients with multi-morbidity?
Germany National policy (2002), regional DMPs (breast cancer)	Not directly linked to other DMPs.	Patients can participate in several DMPs, e.g. diabetes and coronary heart disease and asthma, but every single DMP is disease-specific.
UK (England) <i>NHS Cancer Plan 2000 and the Cancer Reform Strategy 2007</i> (cancer unspecified)	No	Universal care under NHS

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Table 3.3.3: Guidelines that underpin the DMP

	Local/ regional guidelines	National guidelines	International guidelines
Germany National policy (2002), regional DMPs (breast cancer)	-	Evidence based national guidelines were developed on the basis of international studies and guidelines.	-
UK (England) <i>NHS Cancer Plan 2000 and the Cancer Reform Strategy 2007</i> (cancer unspecified)	-	Cancer Reform Strategy (multidisciplinary)	-

Table 3.3.4: Components of chain of care and self-management addressed by DMP

	Components of chain of care that are addressed	Components of self-management that are addressed
Germany National policy (2002), regional DMPs (breast cancer)	<ul style="list-style-type: none"> • Prevention: secondary and tertiary preventions • Diagnostics • Care • Medical treatment interventions • Non-medical treatment interventions • After-care • Rehabilitation and reintegration 	<ul style="list-style-type: none"> • Managing symptoms • Dealing with emotional and psychosocial consequences • Active involvement in decision-making regarding care/treatment
UK (England) <i>NHS Cancer Plan 2000 and the Cancer Reform Strategy 2007</i> (cancer unspecified)	<ul style="list-style-type: none"> • Prevention (See http://www.nhs.uk/NHSEngland/NSF/Pages/Cancer.aspx) • Diagnostics • Care • Medical treatment interventions • Non-medical treatment interventions • After-care • Rehabilitation and reintegration 	<ul style="list-style-type: none"> • Managing symptoms • Lifestyle changes • Self-care • Self-monitoring • Dealing with emotional and psychosocial consequences • Active involvement of social environment • Active participation in development of personal care plan • Active involvement in decision-making regarding care/treatment

Table 3.3.5: Disciplines involved in primary care

	GP	Medical specialist	Nurse	Allied healthcare professional	Other
Germany National policy (2002), regional DMPs (breast cancer)	-	Gynaecologist	-	All disciplines possible; patients could be referred by coordinating gynaecologist	Psychologist for psychosocial care
UK (England) <i>NHS Cancer Plan 2000 and the Cancer Reform Strategy 2007</i> (cancer unspecified)	GP	-	Nurse	-	-

Table 3.3.6: Disciplines involved in secondary care

	Medical specialist	Nurse	Allied healthcare professional	Other
Germany National policy (2002), regional DMPs (breast cancer)	Radiotherapist, endocrinologist, oncologist, pathologist, pain specialist, etc.	-	Rehabilitation professionals	-
UK (England) <i>NHS Cancer Plan 2000 and the Cancer Reform Strategy 2007</i> (cancer unspecified)	Oncologist	Nurse specialist	Dietician	-

Table 3.3.7: Processes in primary care

	Who has the first contact with the patient?	Who sets up the patients care plan?	Who is contact person for patient?	Who performs patient controls?	Who coordinates the work of the primary care disciplines?
Germany National policy (2002), regional DMPs (breast cancer)	Gynaecologist	Gynaecologist	Gynaecologist	Gynaecologist	Gynaecologist
UK (England) <i>NHS Cancer Plan 2000 and the Cancer Reform Strategy 2007</i> (cancer unspecified)	GP	GP	GP	Practice nurse	GP

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Table 3.3.8: Parts of the programme that take place in secondary care

	Prevention	Diagnostics	Care	Medical treatment	Non-medical treatment	After-care	Rehabilitation
Germany							
National policy (2002), regional DMPs (breast cancer)	-	+	-	+	+	-	+
UK (England)							
<i>NHS Cancer Plan 2000 and the Cancer Reform Strategy 2007</i> (cancer unspecified)	-	+	-	+	-	+	+

Table 3.3.9: Integration of primary and secondary care

Is there a description of referral process to secondary care?	What level directs the processes of the programme?	What discipline directs the processes? integrated in a clinical information system (CIS)?	Does CIS facilitate information exchange within primary care?	Does CIS facilitate information exchange between primary and secondary care?
Germany national policy (2002), regional DMPs (breast cancer)	Ambulatory care	Gynaecologist (working in ambulatory care)	Specifically designed system	No
UK (England) <i>NHS Cancer Plan 2000 and the Cancer Reform Strategy 2007</i> (cancer unspecified)	Secondary care level	Medical specialist or GP. It depends on the stage of cancer: GPs are responsible for terminal care, specialists for other stages of the care process.	Some locality systems enable sharing across different primary care and out-of-hours facilities.	No

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Table 3.3.10: Patient centeredness

	Is the patient involved in formulating goals of his/her program?	How is the social and cultural context of the patient taken into account?	Does patient have access to his/her data?
Germany National policy (2002), regional DMPs (breast cancer)	Patient is involved in choosing between treatment options.	Psychosocial circumstances of the patient are taken into account, and qualified help is provided within the DMP.	On request
UK (England) <i>NHS Cancer Plan 2000 and the Cancer Reform Strategy 2007</i> (cancer unspecified)	Choice is central to the delivery of care	An attempt is made to tailor interventions where possible to social and cultural need	On request

Table 3.3.11: Patient enrolment

	Inclusion/exclusion criteria for patients to enrol in DMP	Patient enrolls by...	% enrolment (of target group)	Thresholds for enrolling
Germany National policy (2002), regional DMPs (breast cancer)	Focuses on all patients with diagnosis breast cancer. Patients are excluded from the DMP five years after primary diagnosis, unless there is recurrence of the disease.	Initiative of the gynaecologist, hospital or patient herself.	Not reported	Not reported
UK (England) <i>NHS Cancer Plan 2000 and the Cancer Reform Strategy 2007</i> (cancer unspecified)	Focuses on all patients with cancer	Initiative of the patient, GP and nurse	All those identified are included in the GP register and are included in the programme, unless they make an informed refusal to participate	Patient characteristics

Table 3.3.12: Accessibility of the DMP and drop-out

	Is accessibility a problem for some patients?	% drop-out of DMP	Reasons for drop-out
Germany National policy (2002), regional DMPs (breast cancer)	No	Not reported	Not reported
UK (England) <i>NHS Cancer Plan 2000</i>	No	Exceptions, reporting	Patient characteristics

*and the Cancer Reform
Strategy 2007 (cancer
unspecified)*

nationally is less than 5%

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Table 3.3.13: Financial incentives for healthcare providers and patients

	Financial incentives providers	Financial incentives patients	Are all components of the DMP reimbursed for all patients?
Germany National policy (2002), regional DMPs (breast cancer)	Lump sum payment for providers per enrolled patient for enrolment and for each scheduled six-monthly follow-up visit.	Some sickness funds offer reduced co-payments	Yes
UK (England) <i>NHS Cancer Plan 2000 and the Cancer Reform Strategy 2007</i> (cancer unspecified)	The Quality and Outcomes Framework (QOF): introduced in 2004 as part of the General Medical Services Contract. The QOF is a voluntary incentive scheme for GP practices in the UK, rewarding them for how well they care for patients. See http://www.nice.org.uk/aboutnice/qof/qof.jsp	None	Yes

Table 3.3.14: Financing of the DMP

	Regular payment system (see § 4.3)	Target payment	Unconditional additional payment	Other
Germany national policy (2002), regional DMPs (breast cancer)	-	-	+ (lump sum))	-
UK (England) <i>NHS Cancer Plan 2000 and the Cancer Reform Strategy 2007</i> (cancer unspecified))	+	+ (in relation to process and outcome)	-	-

Table 3.3.15: Type of evaluation of DMP

	Process monitoring	Pilot in restricted area	Outcomes study without control group	RCT	Long-term effects	Cost-effectiveness	Other
Germany National policy (2002), regional DMPs (breast cancer)	+	-	-	-	-	+	+
UK (England) <i>NHS Cancer Plan 2000 and the Cancer Reform Strategy 2007</i> (cancer unspecified)	+	-	+	-	-	-	-

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Table 3.3.16: Quality indicators

	Structure indicators	Process indicators	Outcome indicators
Germany			
National policy (2002), regional DMPs (breast cancer)	Breast cancer-specific training for gynaecologists; hospitals must have two or more breast surgeons, breast cancer-specific diagnostic facilities, etc.	e.g. percentage breast-conserving operations, percentage axilla dissections in patients with invasive tumor growth, percentage with determined hormone receptor status	<ul style="list-style-type: none"> • Clinical outcomes: tumor-free survival time, recurrence rates, mortality • Quality of life
UK (England)			
<i>NHS Cancer Plan 2000 and the Cancer Reform Strategy 2007</i> (cancer unspecified)	<ul style="list-style-type: none"> • Organizational aspects: unspecified • Enrolment of patients: unspecified 	Management of care: see http://www.nice.org.uk/aboutnice/qof/qof.jsp	<ul style="list-style-type: none"> • Clinical outcomes: intermediate outcomes

Table 3.3.17: Summary of evaluation method and results

Germany	
National policy (2002), regional DMPs (breast cancer)	Only regional results; national evaluation results not available yet.
UK (England)	
<i>NHS Cancer Plan 2000 and the Cancer Reform Strategy 2007</i> (cancer unspecified)	Process monitoring and outcomes have been studied in participants: see Gillam S, Siriwardena AN (eds.). <i>The Quality and Outcomes Framework: QOF – Transforming General Practice</i> . Radcliffe Oxford, 2010.

Table 3.3.18: Perceived impact of the DMP (according to country-experts)

	Impact on provision of comprehensive primary healthcare	Impact on provision of secondary healthcare	Impact on accessibility of healthcare	Impact on referral of patients for other conditions	Impact on the position of healthcare providers in the health care system	Impact on the position of the patient in the healthcare system
Germany national policy (2002), regional DMPs (breast cancer)	Positive impact	Positive impact	Access is generally good in the German insurance system, but may be explicit offering of psychosocial support makes it easier for patients to use it.	None	Not reported	Not reported
UK (England) <i>NHS Cancer Plan 2000 and the Cancer Reform Strategy 2007</i> (cancer unspecified)	Positive impact	Increased utilization	Accessibility for all patients under NHS.	None	Some substitution of work to nurses and healthcare assistants.	Patients remain central to care delivery.

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Table 3.3.19: Perceived strengths and weaknesses (according to country-experts)

	Strengths of the programme	Weaknesses of the programme
Germany National policy (2002), regional DMPs (breast cancer)	Comprehensive treatment according to guidelines, definition of a cross-sectoral chain of care for patients	GPs are not involved in this DMP, which is located at specialist level
UK (England) <i>NHS Cancer Plan 2000 and the Cancer Reform Strategy 2007</i> (cancer unspecified)	Integrated within primary care	Some concern about fragmentation and biomedical focus.

3.4 Cardiovascular disease

Table 3.4.1: Motives and programme objectives

	Motives to start DMP	Programme objectives
Germany National policy (2003), regional DMPs (coronary heart disease)	National motives: DMPs were developed for diagnoses with a high prevalence in combination with high costs. In addition, regarding CHD a high number of (unnecessary?) invasive procedures (coronary angiography) and a lack of prevention was noted.	To reduce mortality and cardiovascular morbidity through better prevention and guideline adherence in therapy, and to enhance quality of life of patients.
Italy <i>Raffaello</i> (high profile risk for cardiovascular disease)	Regional motives: Joint initiative from the pharmaceutical company Pfizer and Marche and Abruzzo's regional governments and local health authorities management boards.	This project is designed as a scientific study aimed at ascertaining the efficacy of a disease management model in general practice, also including (alongside the classical clinical outcome indicators) outcome indicators that have only rarely been assessed in previous studies, such as cost-effectiveness and social outcomes. The primary evaluation parameters were: 1) clinical outcomes, 2) satisfaction of both patients and providers, 3) economic impact.
<i>Region Tuscany's Plan</i> (heart failure, stroke, hypertension)	Regional motives: Awareness of the epidemiologic trends in Tuscany (the same as in all high-income countries, but a little more marked, because of the relatively old population age and demographic slowdown) and policy makers' willingness to invest in healthcare and use the support of local researchers in planning the investment.	Intention on the part of policymakers to align the region's interventions in healthcare to the best international experiences, in view of a general improvement of quality of healthcare and outcomes (reduction in inequalities in access and outcomes was also explicitly mentioned among the objectives).
<i>Leonardo</i> (cardiovascular risk, heart failure)	Regional motives: Joint initiative from the pharmaceutical company Pfizer and Apulia's regional government.	Evaluating the feasibility of a thoroughly evidence-based and innovative DMP in the setting of southern Italy (region Apulia). The emphasis was on implementation rather than efficacy.
UK (England) <i>National Service Framework for Coronary Heart Disease and National Stroke Strategy</i> (coronary heart disease, stroke)	National motives: Reduction in variations in care and mortality from CHD and stroke (40% reduction by 2010).	To reduce mortality, morbidity and improve quality of care and quality of life.

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Table 3.4.2: Linkage with other DMPs and attention paid to multi-morbidity

	Linkage with other DMPs	How does this DMP deal with patients with multi-morbidity?
Germany National policy (2003), regional DMPs (coronary heart disease)	Not directly linked to other DMPs, but since 2009 a module about heart failure exists within the DMP for CHD.	Patients can participate in several DMPs, e.g. diabetes and CHD and asthma, but every single DMP is disease-specific.
Italy <i>Raffaello</i> (high profile risk for cardiovascular disease)	This project is the second in a series of experimental studies evaluating the disease management approach in Italy organized by Pfizer in cooperation with diverse Italian regional and local governments and health authorities. It was preceded by the 'Leonardo' project (see below) in Apulia and followed by the project 'Michelangelo' (Rome).	The DMP addresses only the cardiovascular risk factors listed in the inclusion criteria, but the GP and the care manager take into account any other disease in designing the individual care plan.
<i>Region Tuscany's Plan</i> (heart failure, stroke, hypertension)	This programme is a general re-organization of the regional healthcare system, which applies the disease management approach to the following five conditions: diabetes type 2, COPD, stroke, heart failure and hypertension.	Since the DMP is applied to more chronic diseases, the same team that assists the patient with respect with one disease can also manage the other disease(s) of the patient.
<i>Leonardo</i> (cardiovascular risk, heart failure)	This was the first of a number of joint initiatives for experimental disease management programmes between Pfizer and Italian local health authorities. The DMP was only one of three components of the project; the other two being a telecardiology service and an education programme for GPs to detect and manage childhood depression.	Both the GP and the care manager have the competencies necessary to address multimorbidities. In addition, the initial assessment of the patients includes an assessment of their (self-reported) health status (SF-12) as well as a screening for depression.
UK (England) <i>National Service Framework for Coronary Heart Disease and National Stroke Strategy</i> (coronary heart disease, stroke)	Linked with the NSF for Diabetes.	Universal care under NHS.

Table 3.4.3: Guidelines that underpin the DMP

Local/ regional guidelines	National guidelines	International guidelines
Germany National policy (2003), regional DMPs (coronary heart disease)	Evidence based national guidelines were developed on the basis of international studies and guidelines.	
Italy <i>Raffaello</i> (high profile risk for cardiovascular disease)	National and international sources have been used to select outcome indicators.	<ul style="list-style-type: none"> • Definition of disease management by the DMAA, 2006 (multidisciplinary) • Endorsement of disease management by American Heart Association (monodisciplinary: cardiology) • International studies used for the design of care management (monodisciplinary: cardiology) • Principles of family medicine to train care managers in counseling and self-management support (monodisciplinary: family medicine)
<i>Region Tuscany's Plan</i> (heart failure, stroke, hypertension)		<ul style="list-style-type: none"> • Expanded Chronic Care Model (Wagner et al., 1999) (multidisciplinary) • Studies on on self-management programmes, e.g. CDSMP (Lorig et al., Stanford University) (multidisciplinary) • For development of delivery system: Taplin et al., 1998, other sources (multidisciplinary)
<i>Leonardo</i> (cardiovascular risk, heart failure)		<p>Self-management:</p> <ul style="list-style-type: none"> • Lorig et al., 2001. <p>General disease management:</p> <ul style="list-style-type: none"> • Von Korff et al., 1997 • Wagner et al., 1996; 1999; 2001
UK (England) <i>National Service Framework for Coronary Heart Disease and National Stroke Strategy</i> (coronary heart disease, stroke)	NSF Coronary Heart Disease (multidisciplinary)	

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Table 3.4.4: Components of chain of care and self-management addressed by DMP

	Components of chain of care that are addressed	Components of self-management that are addressed
Germany		
National policy (2003), regional DMPs (coronary heart disease)	<ul style="list-style-type: none"> • Prevention • Diagnostics: regular diagnostic tests to monitor the evolution of risk factors • Care: pharmacotherapy and other therapeutic interventions • Medical treatment interventions • Rehabilitation 	<ul style="list-style-type: none"> • Managing symptoms • Life style changes • Self-care • Self-monitoring • Active involvement in decision-making regarding care/treatment
Italy		
<i>Raffaello</i> (high profile risk for cardiovascular disease)	<ul style="list-style-type: none"> • Prevention • Diagnostics: regular diagnostic tests to monitor the evolution of risk factors and check the achievement of outcomes • Care: pharmacotherapy and other therapeutic interventions • Medical treatment interventions 	<ul style="list-style-type: none"> • Managing symptoms • Life style changes • Self-care • Self-monitoring • Dealing with emotional and psychosocial consequences • Active participation in development of personal care plan • Active involvement in decision-making regarding care/treatment
<i>Region</i>		
<i>Tuscany's Plan</i> (heart failure, stroke, hypertension)	<ul style="list-style-type: none"> • Prevention • Diagnostics: regular diagnostic tests • Care • Medical treatment interventions: all non-surgical treatments are provided by the DMP, except those that require hospital admission • After-care • Rehabilitation and reintegration: by allied health professionals and case manager, referral to community services (the main one is APA: Adapted Physical Activities for elderly people) 	<ul style="list-style-type: none"> • Managing symptoms • Life style changes • Self-care • Self-monitoring • Dealing with emotional and psychosocial consequences • Active participation in development of personal care plan • Active involvement in decision-making regarding care/treatment
<i>Leonardo</i> (cardiovascular risk, heart failure)	<ul style="list-style-type: none"> • Prevention • Diagnostics: regular tests and examinations, planned and reminded by the CIS • Care • Medical treatment interventions: usual medical care is included, but managed within the disease management approach 	<ul style="list-style-type: none"> • Managing symptoms • Life style changes • Self-care • Self-monitoring • Dealing with emotional and psychosocial consequences • Active participation in development of personal care plan • Active involvement in decision-making regarding care/treatment
UK (England)		
<i>National Service Framework for Coronary Heart Disease and National Stroke Strategy</i> (coronary heart)	<ul style="list-style-type: none"> • Prevention: see http://www.nhs.uk/NHSEngland/NSF/Pages/Coronaryheartdisease.aspx • Diagnostics • Care • Medical treatment interventions • Non-medical treatment interventions • After-care 	<ul style="list-style-type: none"> • Managing symptoms • Life style changes • Self-care • Self-monitoring • Dealing with emotional and psychosocial consequences • Active involvement in social environment

disease, stroke) • Rehabilitation and reintegration	<ul style="list-style-type: none">• Active participation in development of personal care plan• Active involvement in decision-making regarding care/treatment
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Table 3.4.5: Disciplines involved in primary care

	GP	Medical specialist	Nurse	Allied healthcare professional	Other
Germany National policy (2003), regional DMPs (coronary heart disease)	GP	-	-	Dietician; all other disciplines possible (patients could be referred by coordinating GP as required)	-
Italy <i>Raffaello</i> (high profile risk for cardiovascular disease)	GP	-	Nurse trained as care manager	Dieticians, physiotherapists are called upon as needed	-
<i>Region Tuscany's Plan</i> (heart failure, stroke, hypertension)	GP	-	Nurse trained as case manager	For stroke: physiotherapist, dietician For heart failure: dietician	Community health doctor (from the local health authority); for heart failure also social worker
<i>Leonardo</i> (cardiovascular risk, heart failure)	GP	-	Nurse trained as care manager and counselor	-	-
UK (England) <i>National Service Framework for Coronary Heart Disease and National Stroke Strategy</i> (coronary heart disease, stroke)	GP	-	Nurse	-	-

Table 3.4.6: Disciplines involved in secondary care

	Medical specialist	Nurse	Allied healthcare professional	Other
Germany National policy (2003), regional DMPs (coronary heart disease)	Cardiologist	-	Rehabilitation professionals	-
Italy <i>Raffaello</i> (high profile risk for cardiovascular disease)	Cardiologist, endocrinologist and other specialists (when necessary)	-	-	Not specified
<i>Region Tuscany's Plan</i> (heart failure, stroke, hypertension)	For stroke: neurologist, psychiatrist For hypertension: cardiologist, endocrinologist For heart failure: cardiologist	-	-	-
<i>Leonardo</i> (cardiovascular risk, heart failure)	Medical specialists are not part of the care team, but they (usually cardiologists) can be accessed by a preferential booking system.	-	-	-
UK (England) <i>National Service Framework for Coronary Heart Disease and National Stroke Strategy</i> (coronary heart disease, stroke)	Not specified	Nurse specialist	Dietician	-

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Table 3.4.7: Processes in primary care

	Who has the first contact with the patient?	Who sets up the patients care plan?	Who is contact person for patient?	Who performs patient controls?	Who coordinates the work of the primary care disciplines?
Germany National policy (2003), regional DMPs (coronary heart disease)	GP	GP	GP	GP	GP
Italy <i>Raffaello</i> (high profile risk for cardiovascular disease)	GP	GP and care manager (nurse)	GP and care manager	Care manager	GP
<i>Region Tuscany's Plan</i> (heart failure, stroke, hypertension)	GP	GP and case manager (nurse)	Nurse	Nurse and GP	GP
<i>Leonardo</i> (cardiovascular risk, heart failure)	GP	GP and care manager (nurse), the division of responsibilities are laid down in the care plan	Nurse (care manager)	Nurse (care manager)	GP
UK (England) <i>National Service Framework for Coronary Heart Disease and National Stroke Strategy</i> (coronary heart disease, stroke)	GP and nurse	GP and nurse	Practice nurse	Practice nurse	GP and practice nurse

Table 3.4.8: Parts of the programme that take place in secondary care

	Prevention	Diagnostics	Care	Medical treatment	Non medical treatment	After-care	Rehabilitation
Germany							
National policy (2003), regional DMPs (coronary heart disease)	-	+	-	+	+	-	+
Italy							
<i>Raffaello</i> (high profile risk for cardiovascular disease)	+	-	-	-	-	-	-
<i>Region Tuscany's Plan</i> (heart failure, stroke, hypertension)	-	-	+	-	+	-	-
<i>Leonardo</i> (cardiovascular risk, heart failure)	-	+	+	+	-	+	-
UK (England)							
<i>National Service Framework for Coronary Heart Disease and National Stroke Strategy</i> (coronary heart disease, stroke)	-	+	-	+	-	-	+

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Table 3.4.9: Integration of primary and secondary care

	Is there a description of referral process to secondary care?	What level directs the processes of the programme?	What discipline directs the processes?	Is information integrated in a clinical information system (CIS)?	Does CIS facilitate information exchange <u>within</u> primary care?	Does CIS facilitate information exchange <u>within</u> secondary care?	Does CIS facilitate information exchange <u>between</u> primary and secondary care?
Germany National policy (2003), regional DMPs (coronary heart disease)	Yes	Primary care level	GP	Specifically designed system	No	No	No
Italy <i>Raffaello</i> (high profile risk for cardiovascular disease)	Yes	Primary care level	GP	Specifically designed system	Patient characteristics, results of diagnostic tests and reminders on upcoming datelines for regular tests are available to the team members.	No	No
Region Tuscany's Plan (heart failure, stroke, hypertension)	Yes	Primary care level	GP	Specifically designed system	An electronic system allows for information to be shared among the multidisciplinary team members.	No	Information from the electronic record is sent to the secondary care professionals assigned to the patient.
Leonardo (cardiovascular risk, heart failure)	Yes	Primary care level	GP and nurse, while the GP coordinates the team, the processes of the DMP are organized equally by the GP and the nurse/care manager.	Specifically designed system	GP and nurse/care manager share all information on the patient via a specifically designed software.	No	No
UK (England) National Service Framework for Coronary Heart Disease and National Stroke Strategy (coronary heart disease, stroke)	Yes	Primary care level	GP	Specifically designed system and regular system.	Some locality systems enable sharing across different primary care and out-of-hours facilities.	No	No

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Table 3.4.10: Patient centeredness

	Is the patient involved in formulating goals of his program?	How is the social and cultural context of the patient taken into account?	Does patient have access to his/her data?
Germany			
National policy (2003), regional DMPs (coronary heart disease)	Yes, treatment goals are set with the patient.	Not reported	On request
Italy			
<i>Raffaello</i> (high profile risk for cardiovascular disease)	The patient is made both aware and able to manage their own care plan. The objectives for self-management are identified in the 'Eight priorities of patient-centred care', which explicitly mentions the ability of goal-setting.	Taking into account the social and cultural context of the patient is part of the care managers' training in self-management techniques and counseling.	Only through the care manager
<i>Region Tuscany's Plan</i> (heart failure, stroke, hypertension)	The patient is made part of all steps of the care process, and brought by the case manager in a position to always express doubts and problems.	A social assistant is included in the management team to ensure that social, economic and personal obstacles to pursuing the objectives of the care plan can be overcome. The case manager is trained to take into account such aspects from the beginning, as set forth in CDSMP (Lorig et al., Stanford University).	Only through the GP
<i>Leonardo</i> (cardiovascular risk, heart failure)	The patient is made both aware and able to manage their own care plan. The objectives for self-management are identified in the 'Eight priorities of patient-centred care', which explicitly mentions the ability of goal-setting.	Taking into account the social and cultural context of the patient is part of the care managers' training in self-management techniques and counseling.	Only through the care team
UK (England)			
<i>National Service Framework for Coronary Heart Disease and National Stroke Strategy</i> (coronary heart disease, stroke)	Choice is central to the delivery of care.	An attempt is made to tailor interventions where possible to social and cultural need.	On request

Table 3.4.11: Patient enrolment

	Inclusion/exclusion criteria for patients to enrol in DMP	Patient enrolls by...	% enrolment (of target group)	Thresholds for enrolling
Germany				
National policy (2003), regional DMPs (coronary heart disease)	Included are patients with a CHD, either diagnosed by an acute myocard infarction (also in the history) or by an exercise test or coronary angiography.	Suggestion of the patient's sickness fund or GP.	Not reported	Not reported
Italy				
<i>Raffaello</i> (high profile risk for cardiovascular disease)	At least one of the following criteria: 1) hypertension > 140/90 mmHg; 2) dyslipidemia LDL >160 mg/dl in primary prevention or >100 mg/dl in secondary prevention; 3) diabetes gHb >7%; 4) obesity with BMI >30 and/or hip circumference >102 in men, >88 cm in women; 5) smoking > 1 cigarette/day.	A mixed system is used: first, GPs were asked to submit the lists of patients that met the inclusion criteria; then, when those patients themselves called on the GP's attention, they were considered eligible for screening and enrolled by an external recruiter-evaluator.	100%	None
<i>Region</i>				
<i>Tuscany's Plan</i> (heart failure, stroke, hypertension)	Focuses on all patients with the chronic disease	GPs automatically enrol all patients from the patients' files (at the start of the DMP), but no ad-hoc system to detect new patients is introduced.	100% of patients in the local health authorities which have been so far involved in the DMP. Since the programme does not cover yet the whole region, 30% of the total patient population in the region participate (August 2010).	None

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Table 3.4.11: Patient enrolment (continued)

	Inclusion/exclusion criteria for patients to enrol in DMP	Patient enrolls by...	% enrolment (of target group)	Thresholds for enrolling
<i>Leonardo</i> (cardiovascular risk, heart failure)	<p><u>Inclusion criteria:</u> cardiovascular risk:</p> <ul style="list-style-type: none"> - for patients enrolled by GPs via opportunistic screening: 1) age >35 years and 2) at least one of the following: risk algorithm for cardiovascular diseases >20% without history of major events, or risk algorithm for cardiovascular diseases <20% but with either metabolic syndrome or one cardiovascular risk factor. - for patients enrolled from the practice's patient files: 1) age >18 years and 2) history of a cardiovascular event: myocardial infarction, angina pectoris, or revascularization interventions. <p><u>Heart failure:</u> 1) age >18 years, 2) history of heart failure or admitted to hospital at least once in the two previous years, with a primary or secondary diagnosis of heart failure.</p> <p><u>Exclusion criteria:</u> presence of end-stage kidney disease, HIV/AIDS, sickle cell anemia, history of organ transplant, ongoing psychosis, hemophilia, advanced liver cirrhosis, spinal lesions, drug addiction, pregnancy, end-stage neoplasia, moderate to severe dementia, life expectancy < 1 year, inability to sign the informed consent or repeal of the consent, inability to communicate in Italian or by phone.</p>	Initiative of patient self or GP: GP asks patients that meet the selection criteria; patients decide about participation. If not enough patients enrol in this way (there is a minimum programmed number), further casefinding is done by screening the practice's patient files and by hospital discharge data.	95%	Patient characteristics (it is left to the patient whether to enrol or not).
UK (England) <i>National Service Framework for Coronary Heart</i>	All patients with the chronic disease	Initiative of the patient, GP or nurse	All eligible patients in the GP register are included,	Patient characteristics

<i>Disease and National Stroke Strategy</i> (coronary heart disease, stroke)	unless they make an informed refusal to participate.
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Table 3.4.12: Accessibility of the DMP and drop-out

	Accessibility a problem for some patients?	% drop-out of DMP	Reasons for drop-out
Germany			
National policy (2003), regional DMPs (coronary heart disease)	No	Not reported	Not reported
Italy			
<i>Raffaello</i> (high profile risk for cardiovascular disease)	No	Data not available	Data not available
<i>Region Tuscany's Plan</i> (heart failure, stroke, hypertension)	No	Not significant	Data not available
<i>Leonardo</i> (cardiovascular risk, heart failure)	No	3.37%	Patients no longer interested or moved
UK (England)			
<i>National Service Framework for Coronary Heart Disease and National Stroke Strategy</i> (coronary heart disease, stroke)	No	Exceptions, reporting nationally is less than 5%	Patient characteristics

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Table 3.4.13: Financial incentives for healthcare providers and patients

	Financial incentives providers	Financial incentives patients	Are all components of the DMP reimbursed for all patients?
Germany			
national policy (2003), regional DMPs (coronary heart disease)	Lump sum payment for providers per enrolled patient for enrolment and for each scheduled follow-up visit.	Some sickness funds offer reduced co-payments	Yes
Italy			
<i>Raffaello</i> (high profile risk for cardiovascular disease)	GPs who participate received a financial incentive, not linked to outcomes	None	Yes
<i>Region Tuscany's Plan</i> (heart failure, stroke, hypertension)	Part of the GP's salary is linked to the DMP in the following way: of the total part linked to the DMP: - 20% depends on adhesion to the project, based on a series of mostly process indicators; - 20% depends on adhesion to each single pathology, marked by submission of electronic register data for all patients involved; - 30% depends on attainment of the intermediate outcome indicators for that condition; - 30% depends on attainment of the final outcome indicators for that condition.	None	Yes
<i>Leonardo</i> (cardiovascular risk, heart failure)	GPs who participated were given an allowance. The allowance was described as being 'liable to be proportional to outcomes', but as far as we know there is no link to results.	Not reported	Yes
UK (England)			
<i>National Service Framework for Coronary Heart Disease and National Stroke Strategy</i> (coronary heart disease, stroke)	The Quality and Outcomes Framework (QOF) introduced in 2004 as part of the General Medical Services Contract. The QOF is a voluntary incentive scheme for GP practices in the UK, rewarding them for how well they care for patients. See http://www.nice.org.uk/aboutnice/qof/qof.jsp	None	Yes

Table 3.4.14: Financing of the DMP

	Regular payment system (see § 4.3)	Target payment	Unconditional additional payment	Other
Germany				
National policy (2003), regional DMPs (coronary heart disease)	-	-	+(lump sum)	-
Italy				
<i>Raffaello</i> (high profile risk for cardiovascular disease)	+	-	-	-
<i>Region Tuscany's Plan</i> (heart failure, stroke, hypertension)	+	+(in relation to outcome)	+(lump sum, other unconditional additional payment unspecified)	-
<i>Leonardo</i> (cardiovascular risk, heart failure)	+	-	+(lump sum)	-
UK (England)				
<i>National Service Framework for Coronary Heart Disease and National Stroke Strategy</i> (coronary heart disease, stroke)	+	+(in relation to process and outcome)	-	-

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Table 3.4.15: Type of evaluation of DMP

	Process monitoring	Pilot in restricted area	Outcomes study without control group	RCT	Long-term effects	Cost-effectiveness	Other
Germany							
National policy (2003), regional DMPs (coronary heart disease)	+	-	-	-	-	+	+
Italy							
<i>Raffaello</i> (high profile risk for cardiovascular disease)	-	+	-	+	-	+	-
<i>Region Tuscany's Plan</i> (heart failure, stroke, hypertension)	+	+	-	-	-	-	-
<i>Leonardo</i> (cardiovascular risk, heart failure)	-	-	+	-	-	-	+
UK (England)							
<i>National Service Framework for Coronary Heart Disease and National Stroke Strategy</i> (coronary heart disease, stroke)	+	-	+	-	-	-	-

Table 3.4.16: Quality indicators

	Structure indicators	Process indicators	Outcome indicators
Germany National policy (2003), regional DMPs (coronary heart disease) ²	Defined structural criteria for GPs and cardiologists	e.g. percentage smokers, percentage treated with ACE-inhibitors, percentage with invasive procedures (bypass, coronary angiography)	<ul style="list-style-type: none"> • Clinical outcomes: cardiovascular morbidity, mortality • Quality of life of patients
Italy <i>Raffaello</i> (high profile risk for cardiovascular disease)			<ul style="list-style-type: none"> • Clinical outcomes: proportion of patients that meet reference targets (based on international guidelines) • Patient satisfaction and provider satisfaction • Cost utility: A cost-utility analysis will be performed based on the employment of the EQ-4D questionnaire and the method proposed by the EuroQol group, which uses QALYs as an indicator; the utilities are then estimated using the algorithm used by NICE in the UK. Costs are estimated based on the method of Activity Based Costing, using a 'microcosting approach' (Drummond et al. 2000) • Social outcomes: 1) macro level: indicators of social capital used by ISTAT; 2) meso level: qualitative investigation for the evaluation of social capital in health districts; 3) micro level: questionnaire exploring five areas (family and relatives, social networks and forms of association; social setting and neighbours; social support resources; subjective health status)
<i>Region Tuscany's Plan</i> (heart failure, stroke, hypertension)	<ul style="list-style-type: none"> • Organizational aspects: participation in drafting local health authority pathway and periodic review: at least one GP in every module (=team) • Continuity • Enrolment of patients • Healthcare providers: participation in training for application of expanded CCM (target: > 80% of GPs) 	<ul style="list-style-type: none"> • Management of care: percentage of patients treated with ACE inhibitors and / or Sartans: > 50 % percentage of patients taking beta blockers: > 50 % 	<ul style="list-style-type: none"> • Clinical outcomes: flu vaccination (objective: > 70% of people 65+) • Hospital admissions: rate of hospital admission for heart failure (target: reduction of 20%)

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Table 3.4.16: Quality indicators (continued)

	Structure indicators	Process indicators	Outcome indicators
<i>Leonardo</i> (cardiovascular risk, heart failure)	<ul style="list-style-type: none"> • Participation rates among GPs • Completion of administrative and efficiency measurement documentation • Continuity • Enrolment of patients • Healthcare providers: Possession of key competences and skills by care managers • Completion of education with final evaluation for care managers (target: 60%) 	<ul style="list-style-type: none"> • Patient-provider interaction: frequency of instrumental and laboratory tests according to guidelines (target: 70%). • Management of care: monitoring the use of several medicines 	<ul style="list-style-type: none"> • Clinical outcomes: BMI, values for lipid profile, blood pressure • Other patient outcomes such as subjective health status, coping ability, self-efficacy, social network indicators, self-monitoring (blood pressure, weight), adherence to therapeutic regimen • Percentage of patients with healthy diet, with use of alcohol above optimal levels, smoking • Patient satisfaction: perceived quality of care provided by the care manager; overall evaluation of the programme, materials, care manager and process. • Provider satisfaction: care managers' and GPs' satisfaction regarding their training, aspects of programme, collaboration, process and results.
UK (England) <i>National Service Framework for Coronary Heart Disease and National Stroke Strategy</i> (coronary heart disease, stroke)	<ul style="list-style-type: none"> • Enrolment of patients 	<ul style="list-style-type: none"> • Management of care: see http://www.nice.org.uk/aboutnice/qof/qof.jsp 	<ul style="list-style-type: none"> • Clinical outcomes: intermediate outcomes

Table 3.4.17: Summary of evaluation method and results

<p>Germany National policy (2003), regional DMPs (coronary heart disease)</p>	<p>National pooled evaluation results from all sickness funds available, but without baseline measurement and control group. Aim of evaluation is not to examine effectiveness, but to compare the DMP of different sickness funds; therefore results are not very meaningful in this respect.</p>
<p>Italy <i>Raffaello</i> (high profile risk for cardiovascular disease)</p>	<p><u>Pilot in restricted area</u>: The programme's status is still that of a pilot. Future extension to all local health authorities of the regions Marche and Abruzzo is envisioned. <u>Cluster randomized trial</u>: The project ended in 2009. The preliminary results were published in April 2010; the detailed results will be published later. Preliminary results: The primary clinical outcomes (reference targets based on international guidelines) were reached by 44.5% of the patients in the experimental groups, versus only 29.7% of the control group (statistically significant difference). Patient and provider satisfaction with the programme were both high. <u>Cost-effectiveness</u>: The programme was considered cost-efficient because of the statistically significant increase in quality of life (€ 12,4 per QUALY gained), against the € 30 threshold (which is considered maximally sustainable by the most important international Health Technology Assessment institutions).</p>
<p><i>Region Tuscany's Plan</i> (heart failure, stroke, hypertension)</p>	<p><u>Pilot in restricted area</u>: The pilot started between March 2010 and March 2011 and is still going on, involving 30% of the patients of the region and only the conditions diabetes type 2 and heart failure. The fully operational phase will begin in April 2010, when all GPs of the region (and thus all patients) will be involved in the programme. The most recent preliminary results were those presented by Sabina Nuti and Gavino Maciocco at the EFPC-conference in Pisa, Sept. 2010 (see www.euprimarycare.org). The results were calculated in terms of impact on global outcomes in the Local Health Trusts. The target for community services (2% of population involved in APA) has already been reached in one local health authority; hospital admissions because of heart failure for residents aged 50-74 has decreased; the proportion of residents with heart failure with at least one screening of creatinine, sodium and potassium has increased; relative risk of hospitalization because of heart failure by education level (inequity indicator) has decreased; patient satisfaction has increased.</p>
<p><i>Leonardo</i> (cardiovascular risk, heart failure)</p>	<p><u>Outcomes studied in participants</u>: Targets were met for the vast majority of the clinical and other patient outcomes indicators (pretest-posttest comparison; statistically significant differences). <u>Other evaluation studies</u>: Extensive use of questionnaires to assess patient and provider satisfaction showed that the programme was considered effective in improving all aspects of care.</p>
<p>UK (England) <i>National Service Framework for Coronary Heart Disease and National Stroke Strategy</i> (coronary heart disease, stroke)</p>	<p><u>Process monitoring and outcomes studied in participants</u>: see Gillam & Siriwardena, 2010.</p>

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Table 3.4.18: Perceived impact of the DMP (according to country-experts)

	Impact on provision of comprehensive primary healthcare	Impact on provision of secondary healthcare	Impact on accessibility of healthcare	Impact on referral of patients for other conditions	Impact on the position of healthcare providers in the health care system	Impact on the position of the patient in the healthcare system
Germany national policy (2003), regional DMPs (coronary heart disease)	Positive impact	Positive impact	Access is generally good in the German insurance system.	None	Not reported	Not reported
Italy <i>Raffaello</i> (high profile risk for cardiovascular disease)	The project was a pilot study designed as a scientific experiment. Therefore, the impact was not significant. Should the project be extended to include all local health authorities of the regions considered, the impact will be very significant.	Data not available	Data not available	Data not available	The project was a pilot study designed as a scientific experiment. Therefore, the impact was not significant. Should the project be extended to include all local health authorities of the regions considered, the impact will be very significant.	The project was a pilot study designed as a scientific experiment. Therefore, the impact was not significant. Should the project be extended to include all local health authorities of the regions considered, the impact will be very significant.
Region Tuscany's Plan (heart failure, stroke, hypertension)	A complete reorganization of the primary healthcare sector, which is already showing positive outcomes since the pilot stage.	Reduced hospitalization; improved integrated care pathways between primary and secondary care, including hospital admission and discharge.	Progressive improvement on equity indicators. Although no study of their statistical association with the pilot DMP has been conducted, it is likely one of the main contributing factors.	No data available	The role and decision-making responsibility of GPs have increased (since each multidisciplinary team is headed by a GP). Relationships of GPs with specialists and local health authorities have improved.	The role of patients and their participation in healthcare have improved: 1) self-management has never been applied to such a scale in Italy, 2) patients organizations have been involved since the first stages of planning, and are members of the committee that evaluates the results of the programme.

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Table 3.4.18: Perceived impact of the DMP (according to country-experts) (continued)

	Impact on provision of comprehensive primary healthcare	Impact on provision of secondary healthcare	Impact on accessibility of healthcare	Impact on referral of patients for other conditions	Impact on the position of healthcare providers in the health care system	Impact on the position of the patient in the healthcare system
<i>Leonardo</i> (cardiovascular risk, heart failure)	It was a small pilot project with no regular integration into the regional health system. The results show that, if it would be extended to the whole region of Apulia, the impact would be huge, as it would redesign care delivery completely.	Data not available	Data not available	Data not available	Data not available	Data not available
UK (England) <i>National Service Framework for Coronary Heart Disease and National Stroke Strategy</i> (coronary heart disease, stroke)	Positive impact	Increased utilization	Accessibility for all patients under NHS.	None	Some substitution of work to nurses and healthcare assistants.	Patients remain central to care delivery.

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Table 3.4.19: Perceived strengths and weaknesses (according to country-experts)

	Strengths of the programme	Weaknesses of the programme
Germany National policy (2003), regional DMPs (coronary heart disease)	Comprehensive treatment according to guidelines, definition of a cross-sectoral chain of care for patients	Not reported
Italy <i>Raffaello</i> (high profile risk for cardiovascular disease)	<ol style="list-style-type: none"> 1. Designed as a thorough epidemiological study; includes a cost-utility analysis (strong assets in view of advocacy among policymakers). 2. Simplicity eased implementation: focused scope on only one type of disease and a limited, very well-defined number of risk factors, with clear-cut targets. 3. Good evidence basis. 	<ol style="list-style-type: none"> 1. Limited size: it was only a pilot project, involving 900 patients in the experimental group and 900 patients in the control group. It would be more significant, if it would actually be implemented as part of the regional healthcare systems in the near future.
<i>Region Tuscany's Plan</i> (heart failure, stroke, hypertension)	<ol style="list-style-type: none"> 1. Strongly evidence-based (based on international evidence). 2. High commitment by policymakers (Tuscany's governments have a long history of being prone to investment in healthcare and to use fully the support of researchers.) 3. Well planned with a preliminary phase, a pilot phase and a full implementation phase; each phase carefully financed; detailed but still simple system of financial incentives. 4. Applying the DMP approach to several chronic conditions, but still with the choice of beginning with two conditions (diabetes type 2 and heart failure) in the pilot stage. 	<ol style="list-style-type: none"> 1. Expensive; especially implementation of the electronic clinical information systems could risk slowing down in case unforeseen financial constraints appear (which has not occurred so far).
<i>Leonardo</i> (cardiovascular risk, heart failure)	<ol style="list-style-type: none"> 1. Implementation phase was well-planned and smooth; 2. Thorough evaluation; 3. Having demonstrated the feasibility of a DMP in Southern Italy (dispelling doubts about it); 4. Clear planning of the tasks, responsibilities and collaboration between GP and care manager. 	<ol style="list-style-type: none"> 1. Not involving specialists or allied health professionals as permanent member of the care team (even though specialists could be accessed via an efficient preferential booking system).
UK (England) <i>National Service Framework for Coronary Heart Disease and National Stroke Strategy</i> (coronary heart disease,	<ol style="list-style-type: none"> 1. Integrated within primary care. 	<ol style="list-style-type: none"> 1. Some concern about fragmentation and biomedical focus.

stroke)

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3.5 COPD

Table 3.5.1: Motives and programme objectives

	Motives to start DMP	Programme objectives
Germany National policy (2005), regional DMPs (COPD, asthma)	National motives: high prevalence and high costs related to COPD and asthma. In addition: potential for improvement by adherence to therapy guidelines and better self-care.	To reduce asthma/COPD-related morbidity and mortality, to reduce exacerbations and hospital admissions, and to improve quality of life of patients.
Italy <i>Region Tuscany's Plan</i> (COPD)	Regional motives: Awareness of the epidemiologic trends in Tuscany (the same as in all high-income countries, but a little more marked, because of the relatively old population age and demographic slowdown) and policy makers' willingness to invest in healthcare and use the support of local researchers in planning the investment.	Intention on the part of policymakers to align the region's interventions in healthcare to the best international experiences, in view of a general improvement of quality of healthcare and outcomes (reduction in inequalities in access and outcomes was also explicitly mentioned among the objectives).
The Netherlands <i>Integrated COPD management 'De Kroonluchter'</i> (COPD)	National motives: integrated COPD management is the only way forward to successfully combat COPD. Regional motives: high prevalence in low SES areas.	Increasing awareness, communication and cooperation between healthcare providers and patients, leading to clinically relevant and sustainable improvements in health status and exercise tolerance in COPD.
UK (England) <i>National Strategy for COPD 2005, including asthma</i> (COPD, asthma)	National motives: To develop a patient centered service, improve health outcomes for people with asthma/COPD in England, to raise the quality of services, and to reduce unacceptable variations between them.	<ol style="list-style-type: none"> 1. To ensure that everyone diagnosed with COPD receives equitable, responsive, high-quality and effective provision of health and social care services from the right person, at the right time, in the right place. The services will be cost-effective and provide good value for money for taxpayers. 2. Advise how local communities can prevent people getting COPD, understand the risks of having poor lung health, secure improvements to the diagnosis and care of people with the disease and reduce health inequalities. 3. Support people with COPD and their carers by offering practical advice and education on managing their disease.

Table 3.5.2: Linkage with other DMPs and attention paid to multi-morbidity

	Linkage with other DMPs	How does this DMP deal with patients with multi-morbidity?
Germany national policy (2005), regional DMPs (COPD, asthma)	Linke between DMP for asthma and DMP for COPD, and vice versa.	Patients can participate in several DMPs, e.g. diabetes and coronary heart disease and asthma, but every single DMP is disease- specific.
Italy <i>Region Tuscany's Plan</i> (COPD)	This programme is a general re-organization of the regional healthcare system, which applies the disease management approach to the following five conditions: diabetes type 2, COPD, stroke, heart failure and hypertension.	Since the DMP is applied to more chronic diseases, the same team that assists the patient with respect with one disease can also manage the other disease(s) of the patient.
The Netherlands <i>Integrated COPD management 'De Kroonluchter'</i> (COPD)	Linked with asthma, diabetes and cardiovascular risk management.	Inclusive; an application is currently being programmed to cope with prevalent comorbidities.
UK (England) <i>National Strategy for COPD 2005, including asthma</i> (COPD, asthma)	No	Universal care under NHS.

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Table 3.5.3: Guidelines that underpin the DMP

	Local/ regional guidelines	National guidelines	International guidelines
Germany National policy (2005), regional DMPs (COPD, asthma)		Evidence based national guidelines were developed on the basis of international studies and guidelines.	
Italy <i>Region Tuscany's Plan</i> (COPD)			<ul style="list-style-type: none"> • Expanded Chronic Care Model (Wagner et al., 1999) (multidisciplinary) • Studies on on self-management programmes, e.g. CDSMP (Lorig et al., Stanford University) (multidisciplinary) • For development of delivery system: Taplin et al., 1998, other sources (multidisciplinary)
The Netherlands <i>Integrated COPD management 'De Kroonluchter'</i> (COPD)		<ul style="list-style-type: none"> • Care standard COPD (multidisciplinary: GPs, pulmonologists, RT, patients) • NHG-standard COPD (monodisciplinary: GPs) 	<ul style="list-style-type: none"> • GOLD (monodisciplinary: pulmonologists) • ERS/ATS-standards for COPD (multidisciplinary: pulmonologists, GPs, nurses)
UK (England) <i>National Strategy for COPD 2005, including asthma</i> (COPD, asthma)		<ul style="list-style-type: none"> • National strategy for COPD, including asthma (multidisciplinary) 	

Table 3.5.4: Components of chain of care and self-management addressed by DMP

	Components of chain of care that are addressed	Components of self-management that are addressed
Germany National policy (2005), regional DMPs (COPD, asthma)	<ul style="list-style-type: none"> • Prevention • Diagnostics • Care • Medical treatment interventions • Non-medical treatment interventions • After-care • Rehabilitation 	<ul style="list-style-type: none"> • Managing symptoms • Life style changes • Self-care • Self-monitoring • Dealing with emotional and psychosocial consequences • Active participation in development of personal care plan • Active involvement in decision-making regarding care/treatment
Italy <i>Region Tuscany's Plan (COPD)</i>	<ul style="list-style-type: none"> • Prevention • Diagnostics: regular diagnostic tests • Care • Medical treatment interventions: all non-surgical treatments are provided in the setting of the DMP, except those that require hospital admission • After-care • Rehabilitation and reintegration: by allied health professionals and case manager, referral to community services (the main one is APA: Adapted Physical Activities for elderly people) 	<ul style="list-style-type: none"> • Managing symptoms • Life style changes • Self-care • Self-monitoring • Dealing with emotional and psychosocial consequences • Active participation in development of personal care plan • Active involvement in decision-making regarding care/treatment
The Netherlands <i>Integrated COPD management 'De Kroonluchter' (COPD)</i>	<ul style="list-style-type: none"> • Prevention: education and smoking cessation counselling • Diagnostics: valid spirometry; full diagnostic workup if indicated • Care: practice nurse guidance • Medical treatment interventions: optimal medication regime • Non-medical treatment interventions: 3-6 months physiotherapeutic training programme close to home; dietician if indicated • After-care: weekly sports group to sustain effects • Rehabilitation and integration: full rehabilitation programme if indicated 	<ul style="list-style-type: none"> • Managing symptoms • Life style changes • Self-care • Self-monitoring • Dealing with emotional and psychosocial consequences • Active participation in development of personal care plan • Active involvement in decision-making regarding care/treatment
UK (England) <i>National Strategy for COPD 2005, including asthma (COPD, asthma)</i>	<ul style="list-style-type: none"> • Prevention • Diagnostics • Care • Medical treatment interventions • Non-medical treatment interventions • After-care • Rehabilitation and integration: see http://www.nhs.uk/NHSEngland/NSF/Pages/ChronicObstructive-PulmonaryDisease.aspx 	<ul style="list-style-type: none"> • Managing symptoms • Life style changes • Self-care • Self-monitoring • Dealing with emotional and psychosocial consequences • Active participation in development of personal care plan • Active involvement in decision-making regarding care/treatment

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Table 3.5.5: Disciplines involved in primary care

	GP	Medical specialist	Nurse	Allied healthcare professional	Other
Germany national policy (2005), regional DMPs (COPD, asthma)	GP	-	-	Physiotherapist; all other disciplines possible (patients could be referred by coordinating GP as required)	-
Italy <i>Region Tuscany's Plan</i> (COPD)	GP	Pulmonologist	Nurse specifically trained in case management	Physiotherapist	Community health doctor from the local health authority
The Netherlands <i>Integrated COPD management 'De Kroonluchter'</i> (COPD)	GP	Pulmonologist	Practice nurse	Physiotherapist, dietician	Psychosocial nurse (on indication)
UK (England) <i>National Strategy for COPD 2005, including asthma</i> (COPD, asthma)	GP	-	Nurse	-	-

Table 3.5.6: Disciplines involved in secondary care

	Medical specialist	Nurse	Allied healthcare professional	Other
Germany National policy (2005), regional DMPs (COPD, asthma)	Pulmologist	-	Rehabilitation professionals	-
Italy <i>Region Tuscany's Plan</i> (COPD)	Pulmonologist	-	-	-
The Netherlands <i>Integrated COPD management 'De Kroonluchter'</i> (COPD)	Pulmonologist, cardiologist on indication	Respiratory nurse	Physiotherapist, occupational therapist, speech therapist	Medical psychologist
UK (England) <i>National Strategy for COPD 2005, including asthma</i> (COPD, asthma)	Medical specialist unspecified	Nurse specialist	Dietician	-

Table 3.5.7: Processes in primary care

	Who has the first contact with the patient?	Who sets up the patients care plan?	Who is contact person for patient?	Who performs patient controls?	Who coordinates the work of the primary care disciplines?
Germany National policy (2005), regional DMPs (COPD, asthma)	GP	GP	GP	GP	GP
Italy <i>Region Tuscany's Plan</i> (COPD)	GP	GP and case manager (nurse)	Nurse	Nurse and GP	GP
The Netherlands <i>Integrated COPD management 'De Kroonluchter'</i> (COPD)	GP	GP, practice nurse and physiotherapist	Practice nurse	Practice nurse	GP
UK (England) <i>National Strategy for COPD 2005, including asthma</i> (COPD, asthma)	GP and nurse	GP and nurse	Practice nurse	Practice nurse	GP and practice nurse

Table 3.5.8: Parts of the programme that take place in secondary care

	Prevention	Diagnostics	Care	Medical treatment	Non medical treatment	After-care	Rehabilitation
Germany National policy (2005), regional DMPs (COPD, asthma)	-	+	-	+	+	-	+
Italy <i>Region Tuscany's Plan</i> (COPD)	-	-	+	-	+	-	-
The Netherlands <i>Integrated COPD management 'De Kroonluchter'</i> (COPD)	-	+	-	-	-	-	+
UK (England) <i>National Strategy for COPD 2005, including asthma</i> (COPD, asthma)	-	+	-	+	-	-	+

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Table 3.5.9: Integration of primary and secondary care

	Is there a description of referral process to secondary care?	What level directs the processes of the programme?	What discipline directs the processes?	Is information integrated in a clinical information system (CIS)?	Does CIS facilitate information exchange within primary care?	Does CIS facilitate information exchange within secondary care?	Does CIS facilitate information exchange between primary and secondary care?
Germany national policy (2005), regional DMPs (COPD, asthma)	Yes	Primary care level	GP	Specifically designed system	No	No	No
Italy <i>Region Tuscany's Plan</i> (COPD)	Yes	Primary care level	GP	Specifically designed system	An electronic system allows for information to be shared among the multidisciplinary team members.	No	Information from the electronic record is sent to the secondary care professionals assigned to the patient.
The Netherlands <i>Integrated COPD management 'De Kroonlichter'</i> (COPD)	Yes	Primary care level	Allied health care professional	Specifically designed system	All involved healthcare professionals have access to CIS that writes back to the regular clinical information system; patient has access through a linked patient portal.	No	Pulmonologist has access to the specific CIS of the DMP.
UK (England) <i>National Strategy for COPD 2005, including asthma</i> (COPD, asthma)	Yes	Primary care level	GP	Specifically designed system and regular system	Some locality systems enable sharing across different primary care and out-of-hours facilities.	No	No

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Table 3.5.10: Patient centeredness

	Is the patient involved in formulating goals of his program?	How is the social and cultural context of the patient taken into account?	Does patient have access to his/her data?
Germany National policy (2005), regional DMPs (COPD, asthma)	Yes	Not reported	On request
Italy <i>Region Tuscany's Plan</i> (COPD)	The patient is made part of all steps of the care process, and brought by the case manager in a position to always express doubts and problems.	A social assistant is included in the management team to ensure that social, economic and personal obstacles to pursuing the objectives of the care plan can be overcome. The case manager is trained to take into account such aspects from the beginning, as set forth in CDSMP (Lorig et al., Stanford University).	Only through the GP
The Netherlands <i>Integrated COPD management 'De Kroonluchter'</i> (COPD)	Yes, by personal goal setting; the patient's personal goal is the leading item of the whole programme.	By motivational interviewing the cultural context of the patient is taken into account.	Yes, by a patient portal, linked to the clinical information system.
UK (England) <i>National Strategy for COPD 2005, including asthma</i> (COPD, asthma)	Choice is central to the delivery of care.	An attempt is made to tailor interventions where possible to social and cultural need.	On request

Table 3.5.11: Patient enrolment

	Inclusion/exclusion criteria for patients to enrol in DMP	Patient enrolls by...	% enrolment (of target group)	Thresholds for enrolling
Germany National policy (2005), regional DMPs (COPD, asthma)	Patients with a confirmed diagnosis of asthma or COPD	Initiative of patient or on suggestion of GP or sickness fund	Not reported	Not reported
Italy <i>Region Tuscany's Plan</i> (COPD)	All patients with COPD	Automatic enrolment through GP	Data not available yet (programme starts for COPD in 2011)	
The Netherlands <i>Integrated COPD management 'De Kroonluchter'</i> (COPD)	In-/exclusion criteria according to NHG-standard (for GPs) that applies to symptomatic COPD-patients, including patients with comorbidity	GP aided by an automated case-finding application or initiative of patient	90%	Lack of awareness and/or motivation at the patient's side. There may also be a cultural threshold.
UK (England) <i>National Strategy for COPD 2005, including asthma</i> (COPD, asthma)	All patients with COPD or asthma	GP, nurse or initiative of patient	All eligible patients in the GP register are included, unless they make an informed refusal to participate.	Patient characteristics

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Table 3.5.12: Accessibility of the DMP and drop-out

	Accessibility a problem for some patients?	% drop-out of DMP	Reasons for drop-out
Germany National policy (2005), regional DMPs (COPD, asthma)	No	Not reported	Not reported
Italy <i>Region Tuscany's Plan</i> (COPD)	No	Data not available yet (programme starts for COPD in 2011).	
The Netherlands <i>Integrated COPD management 'De Kroonluchter'</i> (COPD)	Yes, in some cultures respiratory complaints are not considered as 'illness'.	12% during the first year.	Patients moving house; comorbid disease prioritized.
UK (England) <i>National Strategy for COPD 2005, including asthma</i> (COPD, asthma)	No	Exceptions, reporting nationally is less than 5%.	Patient characteristics

Table 3.5.13: Financial incentives for healthcare providers and patients

	Financial incentives providers	Financial incentives patients	Are all components of the DMP reimbursed for all patients?
Germany National policy (2005), regional DMPs (COPD, asthma)	Lump sum payment for providers per enrolled patient for enrolment and for each scheduled follow-up visit.	Some sickness funds offer reduced co-payments	Yes
Italy <i>Region Tuscany's Plan</i> (COPD)	Part of the GP's salary is linked to the DMP in the following way: of the total part linked to the DMP: - 20% depends on adhesion to the project, based on a series of mostly process indicators; - 20% depends on adhesion to each single pathology, marked by submission of electronic register data for all patients involved; - 30% depends on attainment of the intermediate outcome indicators for that condition; - 30% depends on attainment of the final outcome indicators for that condition.	None	Yes
The Netherlands <i>Integrated COPD management 'De Kroonluchter'</i> (COPD)	Most regions now have DBC financial reimbursement for COPD programmes. The so-called 'koptarief' is being linked to the implementation of the programme.	None	Physiotherapy is only reimbursed in patients with MRC dyspnea score >2.
UK (England) <i>National Strategy for COPD 2005, including asthma</i> (COPD, asthma)	The Quality and Outcomes Framework (QOF): introduced in 2004 as part of the General Medical Services Contract. The QOF is a voluntary incentive scheme for GP practices in the UK, rewarding them for how well they care for patients. See http://www.nice.org.uk/aboutnice/qof/qof.jsp	None	Yes

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Table 3.5.14: Financing of the DMP

	Regular payment system (see § 4.3)	Target payment	Unconditional additional payment	Other
Germany National policy (2005), regional DMPs (COPD, asthma)	-	-	+ (lump sum))	-
Italy <i>Region Tuscany's Plan</i> (COPD)	+	+ (related to outcome)	-	-
The Netherlands <i>Integrated COPD management 'De Kroonluchter'</i> (COPD)	-	+ (related to process)	+ (lump sum)	-
UK (England) <i>National Strategy for COPD 2005, including asthma</i> (COPD, asthma)	+	+ (related to process and outcome)	-	-

Table 3.5.15: Type of evaluation of DMP

	Process monitoring	Pilot in restricted area	Outcomes study without control group	RCT	Long-term effects	Cost-effectiveness	Other
Germany National policy (2005), regional DMPs (COPD, asthma)	+	-	-	-	-	+	+
Italy <i>Region Tuscany's Plan</i> (COPD)	Programme starts for COPD in 2011						
The Netherlands <i>Integrated COPD management 'De Kroonluchter'</i> (COPD)	-	+	+	+	+	+	-
UK (England) <i>National Strategy for COPD 2005, including asthma</i>	+	-	+	-	-	-	-

(COPD, asthma)

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Table 3.5.16: Quality indicators

	Structure indicators	Process indicators	Outcome indicators
Germany National policy (2005), regional DMPs (COPD, asthma)	GP: spirometry, asthma-specific training, further structural requirements for specialists	Percentage of patients with inhaled steroid therapy, percentage of patients with self-management plan and patient training	<ul style="list-style-type: none"> • Quality of life • Hospital admissions: percentage of hospital admissions because of exacerbations • Costs
Italy <i>Region Tuscany's Plan</i> (COPD)	Programme starts for COPD in 2011.		
The Netherlands <i>Integrated COPD management 'De Kroonluchter'</i> (COPD)	<ul style="list-style-type: none"> • Enrolment of patients: % uptake based on practice population • Characteristics of patients: MRC, CCQ, personal goal 	<ul style="list-style-type: none"> • Interaction between provider and patient: use of personal goals • Management of care: use of personal care plan 	<ul style="list-style-type: none"> • Physical functioning: 6MWD • Quality of life: CCQ • Hospital admissions: frequency and duration • Patient satisfaction: CQI COPD care
UK (England) <i>National Strategy for COPD 2005, including asthma</i> (COPD, asthma)	<ul style="list-style-type: none"> • Organizational aspects • Enrolment of patients 	<ul style="list-style-type: none"> • Management of care: see http://www.nice.org.uk/about/nice/qof/qof.jsp 	Clinical outcomes: intermediate outcomes

Table 3.5.17: Summary of evaluation method and results

Germany National policy (2005), regional DMPs (COPD, asthma)	National evaluation ongoing.
Italy <i>Region Tuscany's Plan</i> (COPD)	Programme starts for COPD in 2011.
The Netherlands <i>Integrated COPD management 'De Kroonluchter'</i> (COPD)	<p><u>Pilot in a restricted area</u>: see Chavannes et al., 2009</p> <p><u>Outcomes study in participants (without control group)</u>: see Kruis et al., 2010</p> <p><u>Randomized controlled trial</u>: ongoing (RECODE trial)</p> <p><u>Long-term effects</u>: see Kruis et al., 2010</p> <p><u>Cost-effectiveness</u>: ongoing (RECODE trial)</p>
UK (England) <i>National Strategy</i>	<u>Process and outcomes studied in participants</u> : see Gillam & Siriwardena, 2010

*for COPD 2005,
including asthma
(COPD, asthma)*

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Table 3.5.18: Perceived impact of the DMP (according to country-experts)

	Impact on provision of comprehensive primary healthcare	Impact on provision of secondary healthcare	Impact on accessibility of healthcare	Impact on referral of patients for other conditions	Impact on the position of healthcare providers in the healthcare system	Impact on the position of the patient in the healthcare system
Germany national policy (2005), regional DMPs (COPD, asthma)	Positive impact	Positive impact	Access is generally good in the German insurance system.	None	Not reported	Not reported
Italy <i>Region Tuscany's Plan</i> (COPD)	A complete reorganization of the primary health care, which is already showing positive outcomes since the pilot stage.	Reduced hospitalization; improved integrated care pathways between primary and secondary care, including hospital admission and discharge.	Improvement of equity indicators. Although no study of their statistical association with the pilot DMP has been conducted, it is likely that it is one of the main contributing factors.	No data available	The role and decision-making responsibility of GPs have increased (since each multidisciplinary team is headed by a GP). Relationship of GPs with specialists and local health authorities have improved	The role of patients and their participation in healthcare have improved: 1) self-management has never been applied to such a scale in Italy, 2) patients organizations have been involved since the first stages of planning, and are members of the committee that evaluates the results of the programme.
The Netherlands <i>Integrated COPD management 'De Kroonluchter'</i> (COPD)	Teambuilding around complex chronic condition, better use of diagnostic expertise in secondary care, improved effectiveness of treatment in primary care.	Better use of diagnostic expertise in secondary care, less ad-hoc decision-making.	Low SES-groups are targeted close to home situation, leading to better adherence by making use of peer group pressure.	GPs are still in charge of referral indications, but DMPs for the most prevalent chronic diseases should be integrated to prevent unnecessary stratification of care and potential cost explosions.	Non-medical healthcare providers such as practice nurses, physiotherapists and dieticians have very important active roles in the programme, while the GP is more of a coordinator.	Patients are central in this programme, with personal goals leading the intervention. By accepting problem-ownership, patients enhance awareness and self-esteem, which facilitates effective self-management.

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Table 3.5.18: Perceived impact of the DMP (according to country-experts) (continued)

	Impact on provision of comprehensive primary healthcare	Impact on provision of secondary healthcare	Impact on accessibility of healthcare	Impact on referral of patients for other conditions	Impact on the position of healthcare providers in the healthcare system	Impact on the position of the patient in the healthcare system
UK (England) <i>National Strategy for COPD 2005, including asthma</i> (COPD, asthma)	Positive impact	Increased utilization	Accessibility for all patients under NHS.	None	Some substitution of work to nurses and healthcare assistants.	Patients remain central to care delivery.

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Table 3.5.19: Perceived strengths and weaknesses (according to country-experts)

	Strengths of the programme	Weaknesses of the programme
Germany National policy (2005), regional DMPs (COPD, asthma)	Improved guideline adherence concerning asthma and COPD medication, improvement of patient self-management.	Not reported
Italy <i>Region Tuscany's Plan</i> (COPD)	<ol style="list-style-type: none"> 1. Designed as a thorough epidemiological study; includes a cost-utility analysis (strong assets in view of advocacy among policymakers). 2. Simplicity eased implementation: focused scope on only one type of disease and a limited, very well-defined number of risk factors, with clear-cut targets. 3. Good evidence basis. 	1. Limited size: it was only a pilot project, involving 900 patients in the experimental group and 900 patients in the control group. It would be more significant, if it would actually be implemented as part of the regional healthcare systems in the near future.
The Netherlands <i>Integrated COPD management 'De Kroonluchter'</i> (COPD)	<ol style="list-style-type: none"> 1. Close to home situation. 2. Patient is central in this programme, with personal goal leading the intervention; by accepting problem-ownership, the patient enhances awareness and self-esteem, which facilitates effective selfmanagement. 3. Non-medical healthcare providers such as practice nurses, physiotherapists and dieticians have very important active roles in the programme, while the GP is more of a coordinator. 	Integrated care requires a paradigm shift for many healthcare providers, accepting expertise of others (nurses, physiotherapists, patients), while communicating at the same level. Thus, implementation is challenging and can take a long time, which is not always supported by funding.
UK (England) <i>National Strategy for COPD 2005, including asthma</i> (COPD, asthma)	<ol style="list-style-type: none"> 1. Integrated within primary care. 	<ol style="list-style-type: none"> 1. Some concern about fragmentation and biomedical focus.

3.6 Depression

Table 3.6.1: Motives and programme objectives

	Motives to start DMP	Programme objectives
The Netherlands <i>Doorbraak depressie</i>	National and regional motives: improvement of the diagnostic process and treatment of depression, prevention of chronic depression.	Diminishing the overtreatment of minor depression en undertreatment of major depression; improvement of case finding in high risk groups, e.g. elderly, improvement of collaborative work in primary care according the plan-do-study-act cycle for quality assurance.
UK (England) <i>National Service Framework for Mental Health 2000; New Horizons: better mental wellbeing, better mental healthcare</i>	National: to develop a patient centered service, improve health outcomes for people with depression and mental illness in England, raise the quality of services, and reduce unacceptable variations between them.	To reduce mortality, morbidity and improve quality of care and quality of life.

Table 3.6.2: Linkage with other DMPs and attention paid to multi-morbidity

	Linkage with other DMPs	How does this DMP deal with patients with multi-morbidity?
The Netherlands <i>Doorbraak depressie</i>	No	No special interventions are used.
UK (England) <i>National Service Framework for Mental Health 2000; New Horizons: better mental wellbeing, better mental healthcare</i>	No	Universal care under NHS.

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Table 3.6.3: Guidelines that underpin the DMP

	Local/ regional guidelines	National guidelines	International guidelines
The Netherlands <i>Doorbraak depressie</i>		Multidisciplinary guideline Depression developed by the Landelijke Stuurgroep Multidisciplinaire Richtlijnontwikkeling in de GGZ, 2005 (multidisciplinary: GP, psychologist, social worker, psychotherapist, psychiatrist, nurse practitioner) NHG-standard Depressive disorder (monodisciplinary: GPs) LESA Depressive disorder (Romeijnders et al., 2006) (multidisciplinary: GP and primary care psychologist)	
UK (England) <i>National Service Framework for Mental Health 2000; New Horizons: better mental wellbeing, better mental healthcare</i>		NSF for Mental Health	

Table 3.6.4: Components of chain of care and self-management addressed by DMP

	Components of chain of care that are addressed	Components of self-management that are addressed
The Netherlands <i>Doorbraak depressie</i>	<ul style="list-style-type: none"> • Prevention: early signaling and systematic monitoring of complaints with the BDI; prevention interventions: self management and psycho-education. • Diagnostics: ICD-10 GP diagnostics or DSM IV-r for grade of severity of complaints. • Care: stepped care interventions • Medical treatment interventions: second step interventions: medication. • Non-medical treatment interventions: first step: bibliotherapy, problem-solving therapy, running therapy, group treatment for supporting self-management, e-health; second step: psychotherapy: cognitive behaviour and interpersonal therapy. 	<ul style="list-style-type: none"> • Managing symptoms • Life style changes • Self-monitoring • Dealing with emotional and psychosocial consequences • Active involvement of social environment • Active participation in development of personal care plan • Active involvement in decision-making regarding car/treatment
UK (England) <i>National Service Framework for Mental Health 2000; New Horizons: better mental wellbeing, better mental</i>	<ul style="list-style-type: none"> • Prevention • Diagnostics • Care • Medical treatment interventions • Non-medical treatment interventions • After-care • Rehabilitation and reintegration 	<ul style="list-style-type: none"> • Managing symptoms • Life style changes • Self-care • Self-monitoring • Dealing with emotional and psychosocial consequences • Active involvement of social environment

healthcare

- Active participation in development of personal care plan
 - Active involvement in decision-making regarding care/treatment
-

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Table 3.6.5: Disciplines involved in primary care

	GP	Medical specialist	Nurse	Allied healthcare professional	Other
The Netherlands <i>Doorbraak depressie</i>	GP	Psychiatrist	Practice nurse-mental healthcare	Physiotherapist	Psychotherapist, psychologist, social worker
UK (England) <i>National Service Framework for Mental Health 2000; New Horizons: better mental wellbeing, better mental healthcare</i>	GP	-	Nurse	-	-

Table 3.6.6: Disciplines involved in secondary care

	Medical specialist	Nurse	Allied healthcare professional	Other
The Netherlands <i>Doorbraak depressie</i>	Psychiatrist	-	-	Psychotherapist
UK (England) <i>National Service Framework for Mental Health 2000; New Horizons: better mental wellbeing, better mental healthcare</i>	Medical specialist unspecified	Nurse	Allied healthcare professional unspecified	-

Table 3.6.7: Processes in primary care

	Who has the first contact with the patient?	Who sets up the patients care plan?	Who is contact person for patient?	Who performs patient controls?	Who coordinates the work of the primary care disciplines?
The Netherlands <i>Doorbraak depressie</i>	GP, practice nurse-mental healthcare, psychologist or social worker	For choice in the multidisciplinary care teams	The chosen discipline	The chosen discipline	Most likely the practice nurse-mental health care (but this is a recently started discipline).
UK (England) <i>National Service Framework for Mental Health 2000; New Horizons: better</i>	GP and nurse	GP and nurse	Practice nurse	Practice nurse	GP and practice nurse

*mental wellbeing,
better mental
healthcare*

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Table 3.6.8: Parts of the programme that take place in secondary care

	Prevention	Diagnostics	Care	Medical treatment	Non medical treatment	After-care	Rehabilitation
The Netherlands							
<i>Doorbraak depressie</i>	-	+	-	+	+	+	+
UK (England)							
<i>National Service Framework for Mental Health 2000; New Horizons: better mental wellbeing, better mental healthcare</i>	-	+	-	+	-	-	+

Table 3.6.9: Integration of primary and secondary care

	Is there a description of referral process to secondary care?	What level directs the processes of the programme?	What discipline directs the processes?	Is information integrated in a clinical information system (CIS)?	Does CIS facilitate information exchange within primary care?	Does CIS facilitate information exchange within secondary care?	Does CIS facilitate information exchange between primary and secondary care?
The Netherlands <i>'Doorbraak depressie'</i>	Yes	There is no formal direction in the program.	None	No	No	No	No
UK (England) <i>National Service Framework for Mental Health 2000; New Horizons: better mental wellbeing, better mental healthcare</i>	Yes	Primary care level	GP	Specifically designed system and regular system.	Some locality systems enable sharing across different primary care and out-of-hours facilities.	No	No

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Table 3.6.10: Patient centeredness

	Is the patient involved in formulating goals of his program?	How is the social and cultural context of the patient taken into account?	Does patient have access to his/her data?
The Netherlands <i>Doorbraak depressie</i>	Yes, explanation of symptoms, systematic monitoring, stepped care treatment programme and choice of interventions.	No	On request (patient has the right to read his/her data).
UK (England) <i>National Service Framework for Mental Health 2000; New Horizons: better mental wellbeing, better mental healthcare</i>	Choice is central to the delivery of care.	An attempt is made to tailor interventions where possible to social and cultural need.	On request.

Table 3.6.11: Patient enrolment

	Inclusion/exclusion criteria for patients to enrol in DMP	Patient enrolls by...	% enrolment (of target group)	Thresholds for enrolling
The Netherlands <i>Doorbraak depressie</i>	Inclusion: age >18 years Exclusion: bipolar depressions	Initiative of patient, GP, nurse or other healthcare professional or systematic population screening (concerns only the GP registered patients > 60 years)	Unknown	Provider threshold: not every patient will be determined by the healthcare provider as a potential case of depression. Patient characteristics: not all patients accept the diagnosis.
UK (England) <i>National Service Framework for Mental Health 2000; New Horizons: better mental wellbeing, better mental healthcare</i>	All patients with mental health problems	Initiative of patient, GP or nurse	All eligible patients in the GP register are included, unless they make an informed refusal to participate	Patient characteristics

Table 3.6.12: Accessibility of the DMP and drop-out

	Accessibility a problem for some patients?	% drop-out of DMP	Reasons for drop-out
The Netherlands <i>Doorbraak depressie</i>	No	No reliable data available	Patient characteristics: patients are not used to return to their GP when they experience an improvement in their complaints. And GPs are not used to explicitly invite patients, when they do not return. Therefore, exact figures and reasons why people do not have a follow-up measurement are unknown.
UK (England) <i>National Service Framework for Mental Health 2000; New Horizons: better mental wellbeing, better mental healthcare</i>	No	Exceptions, reporting nationally is less than 5%.	Patient characteristics

Table 3.6.13: Financial incentives for healthcare providers and patients

	Financial incentives providers	Financial incentives patients	Are all components of the DMP reimbursed for all patients?
The Netherlands <i>Doorbraak depressie</i>	Participants in the programme (GPs, psychologists) receive additional payment for one year.	None	No, only eight treatment sessions with a psychologist are reimbursed (with co-payment for each session). Physiotherapy is partially reimbursed.
UK (England) <i>National Service Framework for Mental Health 2000; New Horizons: better mental wellbeing, better mental healthcare</i>	The Quality and Outcomes Framework (QOF): introduced in 2004 as part of the General Medical Services Contract. The QOF is a voluntary incentive scheme for GP practices in the UK, rewarding them for how well they care for patients. See http://www.nice.org.uk/aboutnice/qof/qof.jsp	None	No

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Table 3.6.14: Financing of the DMP

	Regular payment system (see § 4.3)	Target payment	Unconditional additional payment	Other
The Netherlands <i>Doorbraak depressie</i>	+	-	-	-
UK (England) <i>National Service Framework for Mental Health 2000</i>	+	+(in relation to process and outcome)	-	-

Table 3.6.15: Type of evaluation of DMP

	Process monitoring	Pilot in restricted area	Outcomes study without control group	RCT	Long-term effects	Cost-effectiveness	Other
The Netherlands <i>Doorbraak depressie</i>	+	+	-	-	-	-	-
UK (England) <i>National Service Framework for Mental Health 2000; New Horizons: better mental wellbeing, better mental healthcare</i>	+	-	+	-	-	-	-

Table 3.6.16: Quality indicators

	Structure indicators	Process indicators	Outcome indicators
The Netherlands <i>Doorbraak depressie</i>	• Enrolment of patients		
UK (England) <i>National Service Framework for Mental Health 2000; New Horizons: better mental wellbeing, better mental healthcare</i>	• Organizational aspects • Enrolment of patients	• Management of care	• Clinical outcomes: intermediate outcomes

Table 3.6.17: Summary of evaluation method and results

The Netherlands <i>Doorbraak depressie</i>	<u>Process monitoring</u> : see the national study of the Doorbraak Depressie programme by the Trimbos Institute; final report 2009 <u>Pilot in a restricted area</u> : see Eindrapport doorbraak Depressie in Zuid-Nederland, 2009-2010
UK (England)	

National Service Framework for Mental Health 2000; New Horizons: better mental wellbeing, better mental healthcare Process monitoring and outcomes studied in participants: see Gillam & Siriwardena, 2010

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Table 3.6.18: Perceived impact of the DMP (according to country-experts)

	Impact on provision of comprehensive primary healthcare	Impact on provision of secondary healthcare	Impact on accessibility of healthcare	Impact on referral of patients for other conditions	Impact on the position of health care providers in the healthcare system	Impact on the position of the patient in the healthcare system
The Netherlands <i>'Doorbraak depressie'</i>	not reported	not reported	not reported	not reported	not reported	not reported
UK (England) <i>National Service Framework for Mental Health 2000; New Horizons: better mental wellbeing, better mental healthcare</i>	Positive impact	Increased utilization	Accessibility for all patients under NHS.	None	Some substitution of work to nurses and healthcare assistants.	Patients remain central to care delivery.

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Table 3.6.19: Perceived strengths and weaknesses (according to country-experts)

	Strengths of the programme	Weaknesses of the programme
The Netherlands <i>Doorbraak depressie</i>	<ol style="list-style-type: none"> 1. Collaborative stepped care in primary care 2. Working in primary care with the quality cycle PDSA 3. Early signaling depression, monitoring for prevention of chronic states, repelling early medication. 	<ol style="list-style-type: none"> 1. Lack of a formal direction for the programme. 2. Lack of a target payment system related to outcome. 3. Lack of an integral clinical information system for collaborating disciplines.
UK (England) <i>National Service Framework for Mental Health 2000; New Horizons: better mental wellbeing, better mental healthcare</i>	<ol style="list-style-type: none"> 1. Integrated within primary care. 	<ol style="list-style-type: none"> 1. Some concern about fragmentation and biomedical focus.

3.7 Diabetes

Table 3.7.1: Motives and programme objectives

	Motives to start DMP	Programme objectives
Belgium <i>Care pathway diabetes type 2</i>	National motives: Report on the quality and organization of diabetes type 2 care with recommendations for a valorisation of the role of the GP and a clear definition of the role of the specialist.	Improvement of the quality of care.
Germany <i>DMP diabetes type 2</i>	National motives: Tertiary prevention, i.e. to avoid or decrease health consequences for patients with diabetes type 2.	<p>To reduce complications, to reduce hospital admissions, to increase adherence to guidelines, to increase patient self-management, to increase patient satisfaction.</p> <p>DMP goals according to the GP handbook for the DMP:</p> <ol style="list-style-type: none"> 1. Increase of patients' competence in dealing with their illness; 2. Risk reduction for cardiological, cerebrovascular and other macro-angiopathic morbidity and mortality; 3. Avoidance of microvascular complications (blindness, dialysis, etc.); 4. Avoidance of diabetic foot syndrome; 5. Prevention and therapy of symptoms common to diabetes; 6. Minimalisation of side-effects and therapy burden for patients.
Italy <i>IGEA (diabetes type 2)</i>	National motives: To increase awareness of diabetes, to reduce practice variation (deviations from evidence-based guidelines)	<p>To optimize and systemize diagnostic and therapeutic pathways, placing at the same time the patient at the centre of the healthcare process, by:</p> <ol style="list-style-type: none"> 1. guaranteeing interventions with the same standards of efficacy for all diabetes patients over the whole national territory, while still ensuring a certain degree of decentralisation so that interventions can be tailored to the individual needs and features of each region, 2. financing interventions on evidence-based medicine; 3. improvement of both quality of care and outcomes.
<i>Region Tuscany's Plan (diabetes type 2)</i>	Regional motives: Awareness of the epidemiologic trends in Tuscany (the same as in all high-income countries, but a little more marked, because of the relatively old population age and demographic slowdown) and policy makers' willingness to invest in healthcare and use the support of local researchers in planning the investment.	Intention on the part of policymakers to align the region's interventions in healthcare to the best international experiences, in view of a general improvement of quality of healthcare and outcomes (reduction in inequalities in access and outcomes was also explicitly mentioned among the objectives).

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Table 3.7.1: Motives and programme objectives (continued)

	Motives to start DMP	Programme objectives
<i>Leonardo</i> (diabetes type 1 and 2)	Regional motives: Joint initiative from the pharmaceutical company Pfizer and Apulia's regional government.	Evaluating the feasibility of a thoroughly evidence-based and innovative DMP in the setting of southern Italy (region Apulia). The emphasis was on implementation rather than efficacy.
The Netherlands <i>Diabetes Care System West-Friesland</i> (diabetes type 2)	Local motives: to improve diabetes care	Improvement of diabetes care, delay of diabetes related complications, facilitation of scientific research on diabetes and diabetes related diseases, education.
UK (England) <i>National Service Framework for Diabetes</i> (diabetes unspecified)	National motives: to develop a patient centered service, improve health outcomes for people with diabetes in England, raise the quality of services, and reduce unacceptable variations between them..	To reduce mortality, morbidity and improve quality of care and quality of life.

Table 3.7.2: Linkage with other DMPs and attention paid to multi-morbidity

	Linkage with other DMPs	How does this DMP deal with patients with multi-morbidity?
Belgium		
<i>Care pathway diabetes type 2</i>	N.a.	Not reported
Germany		
<i>DMP diabetes type 2</i>	No, it is a single-disease approach.	Multi-morbidity is not considered.
Italy		
<i>IGEA (diabetes type 2)</i>	N.a.	Depending on the decision of the manager of the care team, patients can be referred to medical specialists or other healthcare professionals. These specialists/professionals can participate in the care team, with regular contacts with the GP.
<i>Region Tuscany's Plan (diabetes type 2)</i>	This programme is a general re-organization of the regional healthcare system, which applies the disease management approach to the following five conditions: diabetes type 2, COPD, stroke, heart failure and hypertension.	Since the DMP is applied to more chronic diseases, the same team that assists the patient with respect with one disease can also manage the other disease(s) of the patient.
<i>Leonardo (diabetes type 1 and 2)</i>	This was the first of a number of joint initiatives for experimental disease management programmes between Pfizer and Italian local health authorities. The DMP was only one of three components of the project; the other two being a telecardiology service and an education programme for GPs to detect and manage childhood depression.	Both the GP and the care manager have the competencies necessary to address multimorbidities. In addition, the initial assessment of the patients includes an assessment of their (self-reported) health status (SF-12) as well as a screening for depression.
The Netherlands		
<i>Diabetes Care System West-Friesland (diabetes type 2)</i>	No	The DMP is currently involved in research (RCT) on case management for diabetes patients with multimorbidity.
UK (England)		
<i>National Service Framework for Diabetes (diabetes unspecified)</i>	DMPs for coronary heart disease and stroke.	Universal care under NHS.

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Table 3.7.3: Guidelines that underpin the DMP

	Local/ regional guidelines	National guidelines	International guidelines
Belgium <i>Care pathway diabetes type 2</i>		<ul style="list-style-type: none"> • Recommendation for good medical practice for diabetes type 2 (monodisciplinary: GPs) • Quality and organization of diabetes type 2 care (multidisciplinary: endocrinologists, GPs, Flemish diabetes association (patients and professionals)) 	
Germany <i>DMP diabetes type 2</i>		<ul style="list-style-type: none"> • Nationale Versorgungsleitlinie (national care guideline; multidisciplinary) 	
Italy <i>IGEA</i> (diabetes type 2)		<ul style="list-style-type: none"> • Joint Guidelines and 2001 Care Standards for Diabetes of Association of Diabetologists, Italian Society of General Practitioners and Italian Society of Diabetology 	<ul style="list-style-type: none"> • Literature about Chronic Care Model (Wagner et al., 1996; 1999; 2001) (multidisciplinary) • International Diabetes Federation Guidelines, 2006 (multidisciplinary) • GRADE method (multidisciplinary) • NICE guidelines on monitoring of type 2 diabetes complications (UK, 2002-2004; updated 2008) see http://www.nice.org.uk/guidance/index.jsp?action=byID&r=true&o=11635 • Patient Education Working Group: Structured Patient Education in Diabetes (UK Dept. of Health, 2005)
<i>Region Tuscany's Plan</i> (diabetes type 2)			<ul style="list-style-type: none"> • Expanded Chronic Care Model (Wagner et al.) (multidisciplinary) • Studies on on self-management programmes, e.g. CDSMP (Lorig et al., Stanford University) (multidisciplinary) • For development of delivery system: Taplin et al., 1998, other sources (multidisciplinary)
<i>Leonardo</i> (diabetes type 1 and 2)			<ul style="list-style-type: none"> • Lorig et al., 2001. • Von Korff et al., 1997 • Wagner et al., 1996; 1999; 2001
The Netherlands <i>Diabetes Care Ssystem West-Friesland</i> (diabetes type 2)		<ul style="list-style-type: none"> • NHG-standard diabetes mellitus type 2 (monodisciplinary: GPs) • NDF [Netherlands Diabetes Federation] care standard 	

(multidisciplinary)

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Table 3.7.3: Guidelines that underpin the DMP (continued)

	Local/ regional guidelines	National guidelines	International guidelines
UK (England) <i>National Service Framework for Diabetes</i> (diabetes unspecified)		<ul style="list-style-type: none"> • NSF for Diabetes (multidisciplinary) 	

Table 3.7.4: Components of chain of care and self-management addressed by DMP

	Components of chain of care that are addressed	Components of self-management that are addressed
Belgium <i>Care pathway diabetes type 2</i>	<ul style="list-style-type: none"> • Prevention • Diagnostics • Care • Medical treatment interventions • Non-medical treatment interventions: diabetes education, access to self-monitoring material 	<ul style="list-style-type: none"> • Managing symptoms • Life style changes • Self-care • Self-monitoring • Dealing with emotional and psychosocial consequences • Active involvement of social environment • Active participation in development of personal care plan • Active involvement in decision-making regarding care/treatment
Germany <i>DMP diabetes type 2</i>	<ul style="list-style-type: none"> • Prevention: patient information/ training programme (diet, medicines) • Diagnostics: regular GP appointments (to recognize and reduce serious complications) including print-out of the most important information, i.e. test scores, current medication and therapy recommendations. • Care: for foot lesions (may include referral to specialized service) • Medical treatment interventions: see 'Diagnostics' and foot exams (quarterly), eye exams (early). Referral to medical specialists, if necessary (depending on HbA1c levels, blood pressure, kidney function), also referral in case of pregnancy. • Non-medical interventions: nutrition/diet programme, smoking cessation programmes 	<ul style="list-style-type: none"> • Managing symptoms • Life style changes • Self-care • Self-monitoring • Active involvement in decision-making regarding care/treatment
Italy <i>IGEA</i> (diabetes type 2)	<ul style="list-style-type: none"> • Prevention: secondary prevention by using techniques of self- management • Diagnostics: periodic exams are planned in advance, monitored and recorded • Care: patients are assisted by specialists of the discipline they need • Non-medical treatment interventions 	<ul style="list-style-type: none"> • Managing symptoms • Life style changes • Self-monitoring • Active involvement in decision-making regarding care/treatment

-
- After-care: by the case manager, according to definition of integrated care pathways
 - Rehabilitation and reintegration
-

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Table 3.7.4: Components of chain of care and self-management addressed by DMP (continued)

	Components of chain of care that are addressed	Components of self-management that are addressed
<i>Region Tuscany's Plan</i> (diabetes type 2)	<ul style="list-style-type: none"> • Prevention • Diagnostics: regular diagnostic tests • Care • Medical treatment interventions: all non-surgical treatments are provided in the setting of the DMP, except those that require hospital admission • After-care • Rehabilitation and reintegration: by allied health professionals and case manager, referral to community services (the main one is APA: Adapted Physical Activities for elderly people) 	<ul style="list-style-type: none"> • Managing symptoms • Life style changes • Self-care • Self-monitoring • Dealing with emotional and psychosocial consequences • Active participation in development of personal care plan • Active involvement in decision-making regarding care/treatment
<i>Leonardo</i> (diabetes type 1 and 2)	<ul style="list-style-type: none"> • Prevention • Diagnostics: regular tests and examinations, planned and reminded by the CIS • Care • Medical treatment interventions: usual medical care is included, but managed within the disease management approach 	<ul style="list-style-type: none"> • Managing symptoms • Life style changes • Self-care • Self-monitoring • Dealing with emotional and psychosocial consequences • Active participation in development of personal care plan • Active involvement in decision-making regarding care/treatment
The Netherlands <i>Diabetes Care System West-Friesland</i> (diabetes type 2)	<ul style="list-style-type: none"> • Prevention: foot control, eye exams, education • Diagnostics: regular tests and personal care plan • Care: three-monthly exams and yearly full exam • Medical treatment interventions: oral blood glucose, insulin and if necessary other medication such as antihypertensives or statines • Non-medical treatment interventions: education, lifestyle advice and exercise 	<ul style="list-style-type: none"> • Managing symptoms • Life style changes • Self-care • Dealing with emotional and psychosocial consequences • Active participation in development of personal care plan • Active involvement in decision-making regarding care/treatment
UK (England) <i>National Service Framework for Diabetes</i> (diabetes unspecified)	<ul style="list-style-type: none"> • Prevention • Diagnostics • Care • Medical treatment interventions • Non-medical treatment interventions • After-care • Rehabilitation and reintegration 	<ul style="list-style-type: none"> • Managing symptoms • Life style changes • Self-care • Self-monitoring • Dealing with emotional and psychosocial consequences • Active involvement of social environment • Active participation in development of personal care plan • Active involvement in decision-making regarding care/treatment

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Table 3.7.5: Disciplines involved in primary care

	GP	Medical specialist	Nurse	Allied healthcare professional	Other
Belgium <i>Care pathway diabetes type 2</i>	GP	-	Diabetes nurse	Dietician, podiatrist	Pharmacist
Germany <i>DMP diabetes type 2</i>	GP	Diabetologist (GP with extra qualification) or specialized diabetes practice ['Diabetische Schwerpunktpraxis']	Practice nurse	Dietician	-
Italy <i>IGEA (diabetes type 2)</i>	GP	Endocrinologists specialized in diabetes	-	-	-
<i>Region Tuscany's Plan (diabetes type 2)</i>	GP	-	Nurse trained as case manager	For diabetes: dietician, podiatrist, physiotherapist	Community health doctor (from the local health authority)
<i>Leonardo (diabetes type 1 and 2)</i>	GP	-	Nurse trained as care manager and counselor	-	-
The Netherlands <i>Diabetes Care System West-Friesland (diabetes type 2)</i>	GP	Internist-diabetologist, vascular surgeon, rehabilitation specialist, ophthalmologist, cardiologist	Specialized nurse	Dietician, podiatrist	-
UK (England) <i>National Service Framework for Diabetes (diabetes unspecified)</i>	GP	-	Nurse	-	-

Table 3.7.6: Disciplines involved in secondary care

	Medical specialist	Nurse	Allied healthcare professional	Other
Belgium				
<i>Care pathway diabetes type 2</i>	Endocrino-diabetologist	Diabetes nurse	-	-
Germany				
<i>DMP diabetes type 2</i>	Ophthalmologist, nephrologist, cardiologist	-	Podiatrist	-
Italy				
<i>IGEA (diabetes type 2)</i>	-	-	-	-
<i>Region Tuscany's Plan (diabetes type 2)</i>	Diabetologist	-	-	-
<i>Leonardo (diabetes type 1 and 2)</i>	Medical specialists are not part of the care team, but they (usually diabetologists) can be accessed by a preferential booking system.	-	-	-
The Netherlands				
<i>Diabetes Care System West-Friesland (diabetes type 2)</i>	Internist-diabeologist, vascular surgeon, cardiologist	Specialized nurse	-	-
UK (England)				
<i>National Service Framework for Diabetes (diabetes unspecified)</i>	Medical specialists unspecified	Nurse specialist	Dietician	-

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Table 3.7.7: Processes in primary care

	Who has the first contact with the patient?	Who sets up the patients care plan?	Who is contact person for patient?	Who performs patient controls?	Who coordinates the work of the primary care disciplines?
Belgium <i>Care pathway diabetes type 2</i>	GP	GP	GP	GP	GP
Germany <i>DMP diabetes type 2 (region Nordrhein)</i>	GP	GP	GP, practice nurse	GP, practice nurse	GP is the formal coordinator for all processes and all referrals
Italy <i>IGEA (diabetes type 2)</i>	GP	GP	GP	Nurse	GP
<i>Region Tuscany's Plan (diabetes type 2)</i>	GP	GP and case manager (nurse)	Nurse	Nurse and GP	GP
<i>Leonardo (diabetes type 1 and 2)</i>	GP	GP and nurse (care manager)	Nurse (care manager)	Nurse (care manager)	GP
The Netherlands <i>Diabetes Care System West-Friesland (diabetes type 2)</i>	Diabetes nurse and dietician	Diabetes nurse and GP	Diabetes nurse	Diabetes nurse	Diabetes care system (management team by clinical information system)
UK (England) <i>National Service Framework for Diabetes (diabetes unspecified)</i>	GP and nurse	GP and nurse	Practice nurse	Practice nurse	GP and practice nurse

Table 3.7.8: Parts of the programme that take place in secondary care

	Prevention	Diagnostics	Care	Medical treatment	Non medical treatment	After-care	Rehabilitation
Belgium							
<i>Care pathway diabetes type 2</i>	-	-	-	+	-	-	-
Germany							
<i>DMP diabetes type 2 (region Nordrhein)</i>	+	+	+	+	-	-	-
Italy							
<i>IGEA (diabetes type 2)</i>	-	-	-	-	-	-	-
<i>Region Tuscany's Plan (diabetes type 2)</i>	-	-	+	-	+	-	-
<i>Leonardo (diabetes type 1 and 2)</i>	-	+	+	+	-	+	-
The Netherlands							
<i>Diabetes Care System West-Friesland (diabetes type 2)</i>	-	-	-	+	+	-	-
UK (England)							
<i>National Service Framework for Diabetes (diabetes unspecified)</i>	-	+	-	+	-	-	+

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Table 3.7.9: Integration of primary and secondary care

	Is there a description of referral process to secondary care?	What level directs the processes of the programme?	What discipline directs the processes?	Is information integrated in a clinical information system (CIS)?	Does CIS facilitate information exchange within primary care?	Does CIS facilitate information exchange between primary and secondary care?
Belgium <i>Care pathway diabetes type 2</i>	No	Primary care level	GP	Regular system	Will be developed in the future.	Will be developed in the future.
Germany <i>DMP diabetes type 2 (region Nordrhein)</i>	Yes, there are some clearly-defined symptoms which require a referral to a medical specialist. These are separated into 'must refer' and 'should refer' categories (see GP Handbook).	Primary care level	GP	Specifically designed system	A diabetes passport documents test scores, medication, etc.	Diabetes passport
Italy <i>IGEA (diabetes type 2)</i> <i>Region Tuscany's Plan (diabetes type 2)</i>	No	Primary care level	GP	Specifically designed system	Information is shared between the GP, nurse and specialists.	No
	Yes	Primary care level	GP	Specifically designed system	An electronic system allows for information sharing among the multidisciplinary team members.	Information from the electronic record is send to the secondary care professionals assigned to the patient.

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Table 3.7.9: Integration of primary and secondary care (continued)

	Is there a description of referral process to secondary care?	What level directs the processes of the programme?	What discipline directs the processes?	Is information integrated in a clinical information system (CIS)?	Does CIS facilitate information exchange within primary care?	Does CIS facilitate information exchange between primary and secondary care?
<i>Leonardo</i> (diabetes type 1 and 2)	Yes	Primary care level	GP and nurse, while the GP coordinates the team, the processes of the DMP are organized equally by GP and nurse (care manager)	Specifically designed system	GP and nurse/care manager share all information on the patient via a specifically designed software.	No
The Netherlands <i>Diabetes Care System West-Friesland</i> (diabetes type 2)	Yes	Primary care level	GP and nurse	Specifically designed system	CIS calls patients and coordinates visits. All information is transferred to GP; the care system provides benchmark-information to GP twice a year.	No
UK (England) <i>National Service Framework for Diabetes</i> (diabetes unspecified)	Yes	Primary care level	GP	Specifically designed system and regular system	Some locality systems enable sharing across different primary care and out-of-hours facilities.	No

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Table 3.7.10: Patient centeredness

	Is the patient involved in formulating goals of his programme?	How is the social and cultural context of the patient taken into account?	Does patient have access to his/her data?
Belgium <i>Care pathway diabetes type 2</i>	Patient and GP define together the personal targets for the patient.	Patient and GP define together the personal targets, adapted to the personal context of the patient.	Not at this moment (in the future clinical information systems will be developed through which the patient will have access to his data).
Germany <i>DMP diabetes type 2 (region Nordrhein)</i>	Each quarter physician and patient review the current situation together and set goals for the next quarter.	Not taken into account.	The patient carries a diabetes passport (with his/her data) with him/her.
Italy <i>IGEA (diabetes type 2)</i>	The patient is made aware of the nature of the disease and is invited to share in decision-making about a personal care plan (with gradual, intermediate goals, and ways of reaching them).	Data on equity indicators are collected (for the purpose of detecting statistical associations between social-personal parameters and outcome indicators), so that interventions to address the problem can be made in case of need. However, this is not an individual approach.	No
<i>Region Tuscany's Plan (diabetes type 2)</i>	The patient is made part of all steps of the care process, and brought by the case manager in a position to always express doubts and problems.	A social assistant is included in the management team to ensure that social, economic and personal obstacles to pursuing the objectives of the care plan can be overcome. The case manager is trained to take into account such aspects from the beginning, as set forth in CDSMP (Lorig et al., Stanford University).	Only through the GP
<i>Leonardo (diabetes type 1 and 2)</i>	The patient is made both aware and able to manage their own care plan. The objectives for self-management are identified in the 'Eight priorities of patient-centred care', which explicitly mentions the ability of goal-setting.	Taking into account the social and cultural context of the patient is part of the care managers' training in self-management techniques and counseling.	Only through the care team
The Netherlands <i>Diabetes Care System West-Friesland (diabetes type 2)</i>	When formulating the personal care plan and during control visits evaluating the care plan.	When formulating the personal care plan and during control visits evaluating the care plan.	No
UK (England) <i>National Service Framework for</i>	Choice is central to the delivery of care.	An attempt is made to tailor interventions where possible to	On request

<i>Diabetes</i> (diabetes unspecified)	social and cultural need.
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Table 3.7.11: Patient enrolment

	Inclusion/exclusion criteria for patients to enrol in DMP	Patient enrolls by...	% enrolment (of target group)	Thresholds for enrolling
Belgium <i>Care pathway diabetes type 2</i>	<p>Patients with diabetes type 2:</p> <p><u>Inclusion</u></p> <ul style="list-style-type: none"> • Maximal oral therapy, start of insulin treatment is considered • 1 or 2 insulin injections a day <p><u>Exclusion</u></p> <ul style="list-style-type: none"> • more than 2 insulin injections a day • pregnancy/wish to become pregnant 	Initiative of the patient, GP and medical specialist	10% after one year DMP	<ul style="list-style-type: none"> • Organisational: coexistence of a diabetes programme in secondary care for part of the target group; • Providers: providers work mostly alone, there is no culture of multidisciplinary collaboration, providers are reluctant to change; • Other: recent start of the DMP
Germany <i>DMP diabetes type 2 (region Nordrhein)</i>	Focuses on all patients with diabetes type 2. Individuals must declare that they are willing to make lifestyle changes and to keep regular physician appointments for disease monitoring.	Initiative of the patient, GP, nurse or otherwise: GP handbook suggests making an ICD-10 search of the EPRs in the practice software for all eligible patients, whom the GP could contact about DMP. However, most practices will invite patients during regular appointments.	64% of the estimated five million compulsorily insured patients with diabetes type 2 (Mid 2009; six years after start of DMP) (see Schäfer et al., 2010)	<ul style="list-style-type: none"> • Providers: about one third of GPs do not participate in the DMP
Italy <i>IGEA (diabetes type 2)</i>	All patients aged 18 or older with diabetes type 2	Automatic enrolment through GP	Less than 10%	<ul style="list-style-type: none"> • Financial: implementation was slowed down by financial constraints; • Organisational thresholds
<i>Region Tuscany's Plan (diabetes type 2)</i>	All patients with diabetes type 2	Automatic enrolment through GP	100%	No thresholds observed

Table 3.7.11: Patient enrolment (continued)

	Inclusion/exclusion criteria for patients to enrol in DMP	Patient enrolls by...	% enrolment (of target group)	Thresholds for enrolling
<i>Leonardo</i> (diabetes type 1 and 2)	Patients aged 18 or older with diabetes 1 or type 2. <i>Exclusion criteria:</i> pregnancy-associated diabetes; presence of end-stage kidney disease, HIV/AIDS, sickle cell anemia, history of organ transplant, ongoing psychosis, hemophilia, advanced liver cirrhosis, spinal lesions, drug addiction, pregnancy, end-stage neoplasia, moderate to severe dementia, life expectancy < 1 year, inability to sign the informed consent or repeal of the consent, inability to communicate in Italian or by phone.	Initiative of the patient, GP and through practices' patient files and hospital discharge data.	95%	Patient characteristics: it is left to the patient whether or not to participate.
The Netherlands <i>Diabetes Care System West-Friesland</i> (diabetes type 2)	All patients with diabetes type 2	GP	Unknown	Patient characteristics
UK (England) <i>National Service Framework for Diabetes</i> (diabetes unspecified)	All patients with diabetes	Initiative of the patient, GP or nurse	All eligible patients in the GP register are included, unless they make an informed refusal to participate.	Patient characteristics

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Table 3.7.12: Accessibility of the DMP and drop-out

	Accessibility a problem for some patients?	% drop-out of DMP	Reasons for drop-out
Belgium <i>Care pathway diabetes type 2</i>	No	No data available	-
Germany <i>DMP diabetes type 2)</i>	If physicians refuse to offer DMPs -as about one third does- patients have to switch to another physician if they want to enroll in a DMP. This might constitute a considerable barrier for elderly patients with chronic diseases (see Szecsenyi et al. 2008).	Ca. 10% (estimate based on regional data of one large health insurer). Drop outs are listed in an evaluaton report per health insurer and cohort (there is not a nationwide report). In the beginning, AOK (health insurer) had a large problem with drop outs due to the strict rules from the German Federal (Social) Insurance Office: many patients had to drop out because of formal, organisational reasons.	<ul style="list-style-type: none"> • Patient related / organisational: 4.84% (i.e. not showing up at regular check-ups or refusing twice to take part in a patient training programme. • Other patient related reasons: 0.94% (patients ended participation themselves) • Other reasons: death (2.82%), unknown (0.53%)
Italy <i>IGEA (diabetes type 2)</i>	No	No data available	-
<i>Region Tuscany's Plan (diabetes type 2)</i>	No	Not significant	-
<i>Leonardo (diabetes type 1 and 2)</i>	No	3.4%	Patient related: Patients who declare themselves no longer interested or who have moved.
The Netherlands <i>Diabetes Care System West-Friesland (diabetes type 2)</i>	No	1.8%	Patient related
UK (England) <i>National Service Framework for Diabetes (diabetes unspecified)</i>	No	Exceptions, reporting nationally is less than 5%.	Patient related

Table 3.7.13: Financial incentives for healthcare providers and patients

	Financial incentives providers	Financial incentives patients	Are all components of the DMP reimbursed for all patients?
Belgium <i>Care pathway diabetes type 2</i>	Lump sum per patient participating in care pathway per year, for both GP and diabetologist.	Increased reimbursement for the consultations with GP or diabetologist; free access to education by diabetes nurse and free self-monitoring materials.	Yes
Germany <i>DMP diabetes type 2 (region Nordrhein)</i>	Additional remuneration for DMP patients.	Reduced co-payments (a quarterly fee of € 10 is waived).	Yes, all compulsorily insured (SHI) patients have no additional costs.
Italy <i>IGEA (diabetes type 2)</i>	This varies per region. A small number of regions (notably Piedmont, Abruzzo) have set up financial incentives (for GPs only), conditioned either to submission of the list of their diabetes patients into the DMP or to submission of the list of their patients combined with a minimum data set (as evidence of ongoing monitoring of the set of indicators specified by the programme).	None	Yes
<i>Region Tuscany's Plan (diabetes type 2)</i>	Part of the GP's salary is linked to the DMP in the following way: Of the total part linked to the DMP: - 20% depends on adhesion to the project, based on a series of mostly process indicators; - 20% depends on adhesion to each single pathology, marked by submission of electronic register data for all patients involved; - 30% depends on attainment of the intermediate outcome indicators for that condition; - 30% depends on attainment of the final outcome indicators for that condition.	None	Yes
<i>Leonardo (diabetes type 1 and 2)</i>	GPs who participated were given an allowance. The allowance was described as being 'liable to be proportional to outcomes', but as far as we know there is no link to results.	Not reported	Yes

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Table 3.7.13: Financial incentives for healthcare providers and patients (continued)

	Financial incentives providers	Financial incentives patients	Are all components of the DMP reimbursed for all patients?
The Netherlands <i>Diabetes Care System West-Friesland</i> (diabetes type 2)	None	None	Yes
UK (England) <i>National Service Framework for Diabetes</i> (diabetes unspecified)	The Quality and Outcomes Framework (QOF): introduced in 2004 as part of the General Medical Services Contract. The QOF is a voluntary incentive scheme for GP practices in the UK, rewarding them for how well they care for patients. See http://www.nice.org.uk/aboutnice/qof/qof.jsp	None	Yes

Table 3.7.14: Financing of the DMP

	Regular payment system (see § 4.3)	Target payment	Unconditional additional payment	Other
Belgium <i>Care pathway diabetes type 2</i>	+	-	+(lump sum)	-
Germany <i>DMP diabetes type 2</i>	-	-	+(lump sum)	-
Italy <i>IGEA</i> (diabetes type 2)	+	-	+(lump sum)	-
<i>Region Tuscany's Plan</i> (diabetes type 2)	+	+(in relation to outcome)	+(lump sum, payment for the start-up of the programme)	-
<i>Leonardo</i> (diabetes type 1 and 2)	+	-	+(lump sum)	-
The Netherlands <i>Diabetes Care System West-Friesland</i> (diabetes type 2)	+	-	+(fee for service)	-
UK (England) <i>National Service Framework for Diabetes</i> (diabetes unspecified)	+	+(in relation to process and outcome)	-	-

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Table 3.7.15: Type of evaluation of DMP

	Process monitoring	Pilot in restricted area	Outcomes study without control group	RCT	Long-term effects	Cost-effectiveness
Belgium						
<i>Care pathway diabetes type 2</i>	+	-	+	-	-	-
Germany						
<i>DMP diabetes type 2</i>	+	-	-	+	+	+
Italy						
<i>IGEA (diabetes type 2)</i>	+	-	-	-	-	-
<i>Region Tuscany's Plan (diabetes type 2)</i>	+	+	-	-	-	-
<i>Leonardo (diabetes type 1 and 2)</i>	-	-	+	-	-	-
The Netherlands						
<i>Diabetes Care System West-Friesland (diabetes type 2)</i>	+	-	+	-	+	+
UK (England)						
<i>National Service Framework for Diabetes (diabetes unspecified)</i>	+	-	+	-	-	-

Table 3.7.16: Quality indicators

	Structure indicators	Process indicators	Outcome indicators
Belgium <i>Care pathway diabetes type 2</i>	<ul style="list-style-type: none"> • Organizational aspects: multidisciplinary collaboration • Accessibility • Enrolment of patients 	<ul style="list-style-type: none"> • Interaction between provider and patient • Management of care 	<ul style="list-style-type: none"> • Clinical outcomes: BMI, blood pressure, LDL-cholesterol, HbA1c, intermediate outcome indicators; • Hospital admissions
Germany <i>DMP diabetes type 2 (region Nordrhein)</i>		<ul style="list-style-type: none"> • Interaction between provider and patient: individual goal setting • Management of care: referral to ophthalmologist, podiatrist, etc. 	<ul style="list-style-type: none"> • Clinical outcomes: HbA1c, blood pressure, hypoglycemic events, foot lesions, various diabetes-related complications • Hospital admissions
Italy <i>IGEA (diabetes type 2)</i>	<ul style="list-style-type: none"> • Continuity: percentage of clinical indicators registered; • Enrolment of patients: percentage of patients participating in DMP; • Healthcare providers: 1) percentage of regions, local health authorities, diabetes day centres, GPs etc. participating in DMP; 2) percentage of diabetes centres and GPs that possess clinical information system, 3) percentage of (medical and nonmedical) healthcare providers that have received specific training; • Characteristics of patients: percentage of patients who are assisted by a case manager 	<ul style="list-style-type: none"> • Interaction between provider and patient: percentage of patients tested according to guidelines (16 indicators); • Management of care 	<ul style="list-style-type: none"> • Clinical outcomes (region Piedmont as example): HbA1c, albumin in urine, LDL/HDL/total cholesterol/triglycerids, blood pressure, BMI; • Self-management: percentage of patients with increased physical activity (of those who participated in exercise programme), smoking and participation in smoking cessation programme, reduced alcohol consumption; • Incidence of (non-) proliferating diabetic neuropathy, blindness, nephropathy, dialysis, foot ulcers, limb amputations, angina, overweight/obesity; • Hospital admissions: emergency department use; • Mortality
Region Tuscany's Plan <i>(diabetes type 2)</i>	<ul style="list-style-type: none"> • Organizational aspects: anticipation in drafting local health authority pathway and periodic review (at least one GP in every team); • Continuity; • Enrolment of patients: reporting for patient summary (target: > 70% of diabetic patients), provision list of diabetic patients (target: > 5%); • Healthcare providers: percentage of GPs participating in training for adoption of expanded chronic care model (target > 80%) 	<ul style="list-style-type: none"> • Interaction between provider and patient: percentage of patients with glycated haemoglobin (yearly measurement), with measurement of waist circumference (two-yearly), percentage of patients in individual and group counselling (target: > 70%), percentage of patients trained to self-monitor blood glucose (target: > 50%); • Management of care 	<ul style="list-style-type: none"> • Clinical outcomes: percentage of elderly with influenza vaccination, percentage of patients with optimal glycated haemoglobin value; • Hospital admissions

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Table 3.7.16: Quality indicators (continued)

	Structure indicators	Process indicators	Outcome indicators
<i>Leonardo</i> (diabetes type 1 and 2)	<ul style="list-style-type: none"> • Organizational aspects: percentage of GPs participating, completion of measurements; • Enrolment of patients: patient selection and participation rates; • Healthcare providers: possession of key competences and skills by care managers, completion of an education process for care managers 	<ul style="list-style-type: none"> • Interaction between provider and patient: frequency of tests for all patients according to guidelines; • Management of care 	<ul style="list-style-type: none"> • (Changes in) clinical outcomes: percentage of patients with optimal values for BMI, blood pressure, lipid profile/HDL cholesterol/LDL cholesterol/triglycerides; • (Changes in) patient's self-management behaviour: self-monitoring, therapy adherence, diet and food habits, physical activity, smoking, use of alcohol; own ability to take decisions in personal care; • Health status as assessed by SF-12 Health Survey Questionnaire, functional ability; • (Changes in) patient satisfaction (several aspects), evaluation of project and materials by patients; • Healthcare provider satisfaction
The Netherlands <i>Diabetes Care System West-Friesland</i> (diabetes type 2)	<ul style="list-style-type: none"> • Organizational aspects • Accessibility • Continuity • Healthcare providers' characteristics <p>All indicators are set up conform the national care standard for diabetes type 2 and ZiZo indicators.</p>	<ul style="list-style-type: none"> • Interaction between provider and patient • Management of care <p>All indicators are set up conform the national care standard for diabetes type 2 and ZiZo indicators.</p>	<ul style="list-style-type: none"> • Clinical outcomes • Hospital admissions • Patient satisfaction (Quote-questionnaire) • Mortality <p>All indicators are set up conform the national care standard for diabetes type 2 and ZiZo indicators.</p>
UK (England) <i>National Service Framework for Diabetes</i> (diabetes unspecified)	<ul style="list-style-type: none"> • Organizational aspects; • Enrolment of patients 	<ul style="list-style-type: none"> • Management of care 	<ul style="list-style-type: none"> • Clinical outcomes (intermediate outcomes): percentage of patients with norm/optimal values for blood pressure, foot sensation/ examination/risk classification (neuropathy, foot ulcers), IFCC-HbA1c (see http://www.nice.org.uk/aboutnice/qof/qof.jsp)

Table 3.7.17: Summary of evaluation method and results

<p>Belgium <i>Care pathway diabetes type 2</i></p>	<p>No evaluation studies yet.</p>
<p>Germany <i>DMP diabetes type 2 (region Nordrhein)</i></p>	<p><u>Process monitoring</u>: Miksch et al. (2010) found that GPs and their practice nurses lacked the time to properly implement the type 2 diabetes DMP. Sufficient resources (time, staff, money) are required to ensure the efficient integration of DMPs into practice routines. A re-definition of responsibilities will strengthen the role of medical assistants (practice nurses) and promote the high-quality implementation of DMPs. (see Miksch et al., 2010)</p> <p><u>Outcomes of RCT</u>: The results of the study by Szecsenyi et al. (2008) show that the changes in daily practice which have been established by the DMPs are acknowledged by patients 'as care that is more structured and that reflects the core elements of the chronic care model and evidence-based counselling to a larger extent than usual care'. (see Szecsenyi et al. 2008)</p> <p>Schäfer et al. (2010) found that patients enrolled in a DMP for type 2 diabetes more often had participated in a diabetes training programme, had at least four encounters per year with their physician, had at least one annual foot examination and possessed a diabetes passport. In other words, enrolled patients had better scores in the parameters for process quality. Also, DMP enrolled patients were more likely to be treated by a diabetologist. With regards to clinical outcomes, there were no significant differences between enrolled and not enrolled patients. Enrolled patients were more likely to know their gHb and blood pressure test results than not enrolled patients. (see Schäfer et al. 2010)</p> <p><u>Long-term effects</u>: The study by Ullrich et al. (2007) has identified about 80,000 patients with diabetes enrolled in a DMP and compared this group to an equal number of diabetic patients not enrolled in a DMP. The comparison was based on routine claims data and focussed on complications (amputations, strokes) as outcome parameters. The study found that patients enrolled in DMPs encounter less complications than persons not enrolled in a DMP.</p>
<p>Italy <i>IGEA (diabetes type 2)</i></p>	<p>No evaluation studies</p>
<p><i>Region Tuscany's Plan (diabetes type 2)</i></p>	<p><u>Pilot in restricted area</u>: The pilot (in part of the region) is currently ongoing (until March 2011). It involves 30% of the patients of the Tuscan region and, so far, focuses on diabetes type 2 and heart failure. The full programme will be operational from April 2011, when all GPs of the region (and thus all patients) will be involved. Preliminary results were shown at the EFPC conference in Pisa 2010 (Nuti S, Maciocco G. Tuscany Healthcare System with a focus on Primary Care Development, presentation) (see www.euprimarycare.org).</p>
<p><i>Leonardo (diabetes type 1 and 2)</i></p>	<p><u>Feasibility study focusing on outcomes (without control group)</u>: changes in outcome indicators: thresholds were met for the vast majority of the indicators.</p> <p><u>Surveys of patients' and providers' satisfaction</u>: the programme was considered effective in improving all aspects of care (70% to 100% of respondents judged its impact on the improvement of a number of different aspects as "very good").</p>
<p>The Netherlands <i>Diabetes Care System West-Friesland (diabetes type 2)</i></p>	<p><u>Process monitoring and outcomes studies (without control group)</u>: ongoing; see annual reports and www.diabetes-zorg.nl for overview of studies; <u>Long term effects and cost effectiveness study</u>: results not published yet.</p>
<p>UK (England) <i>National Service Framework for Diabetes (diabetes unspecified)</i></p>	<p><u>Process monitoring and outcomes (study without control group)</u>: see Gillam & Siriwardena, 2010.</p>

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Table 3.7.18: Perceived impact of the DMP (according to country-experts)

	Impact on provision of comprehensive primary healthcare	Impact on provision of secondary healthcare	Impact on accessibility of healthcare	Impact on referral of patients for other conditions	Impact on the position of healthcare providers in the healthcare system	Impact on the position of the patient in the healthcare system
Belgium <i>Care pathway diabetes type 2</i>	not reported	The GP is the central caregiver for patients with a diabetes type 2 care pathway. There is a close collaboration between primary and secondary care: 1. information exchange, 2. the specialist is an expert and coach, 3. diabetes nurses from secondary care coach diabetes nurses in primary care.	Some subgroups are totally reimbursed for their consultations.	not reported	not reported	not reported
Germany <i>DMP diabetes type 2 (region Nordrhein)</i>	not reported	not reported	Patient subgroups are not specifically preferred; largest barrier is lack of GP participation (about one third of GPs are not participating in DMPs).	not reported	not reported	More emphasis on self-management; higher levels of patient satisfaction.

Table 3.7.18: Perceived impact of the DMP (according to country-experts) (continued)

	Impact on provision of comprehensive primary healthcare	Impact on provision of secondary healthcare	Impact on accessibility of healthcare	Impact on referral of patients for other conditions	Impact on the position of healthcare providers in the healthcare system	Impact on the position of the patient in the healthcare system
Italy <i>IGEA</i> (diabetes type 2)	The expected impact is significant, because diabetes absorbs much of the efforts of GPs and because once the DM approach is established in one region it can be easily extended to other regions and diseases as well. The actual impact so far is poor, except for a small number of regions.	The expected impact mainly involves reduced hospitalization and reduced interventions for severe, long-standing complications of diabetes. The actual impact so far is yet to be detected.	No data available yet.	No data available yet.	Increasing responsibilities have been given to GPs, but there have been complaints on their part about their lack of necessary expertise.	No data are available yet, but it is still the most significant initiative in patient-centeredness of the history of the Italian healthcare system.
<i>Region Tuscany's Plan</i> (diabetes type 2)	A complete reorganization of primary healthcare, which is already showing positive outcomes since the pilot stage.	Reduced hospitalization; improved integrated care pathways between primary and secondary care, including hospital admission and discharge.	Progressive improvement on equity indicators. Although no study of their statistical association with the pilot DMP has been conducted, it is likely one of the main contributing factors.	No data available	The role and decision-making responsibility of GPs have increased (since each multidisciplinary team is headed by a GP). Relationship of GPs with specialists and local health authorities have improved.	The role of patients and their participation in healthcare have improved: 1) self-management has never been applied to such a scale in Italy, 2) patients organizations have been involved since the first stages of planning, and are members of the committee that evaluates the results of the programme.

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Table 3.7.18: Perceived impact of the DMP (according to country-experts) (continued)

	Impact on provision of comprehensive primary healthcare	Impact on provision of secondary healthcare	Impact on accessibility of healthcare	Impact on referral of patients for other conditions	Impact on the position of healthcare providers in the healthcare system	Impact on the position of the patient in the healthcare system
<i>Leonardo</i> (diabetes type 1 and 2)	It was a small pilot project with no regular integration into the regional health system. The results show that, if it would be extended to the whole region of Apulia, the impact would be huge, as it would redesign care delivery completely.	Data not available	Data not available	Data not available	Data not available	Data not available
The Netherlands <i>Diabetes Care System West-Friesland</i> (diabetes type 2)	Patients receive comprehensive primary healthcare and more.	Less patients are referred to secondary healthcare.	Not changed	Data not available	More task-delegations to practice nurses and diabetes nurses.	Patients are more involved in their care and are satisfied with the care provided.
UK (England) <i>National Service Framework for Diabetes</i> (diabetes unspecified)	Positive impact	Increased utilization	Accessibility for all patients under NHS.	None	Some substitution of work to nurses and healthcare assistants.	Patients remain central to care delivery.

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Table 3.7.19: Perceived strengths and weaknesses (according to country-experts)

	Strengths of the programme	Weaknesses of the programme
Belgium <i>Care pathway diabetes type 2</i>	<ol style="list-style-type: none"> 1. National programme with financial incentives for patient, GP and endocrinologist; 2. Attention for self-management of the patient; 3. Pilot projects 'local multidisciplinary networks' with care pathway promoters: reinforcement of primary care and promotion of care pathways. 	<ol style="list-style-type: none"> 1. Administrative burden for the providers; 2. Clinical information systems are still in development.
Germany <i>DMP diabetes type 2</i>	<ol style="list-style-type: none"> 1. Fewer complications (tertiary prevention); 2. Fewer hospitalizations; 3. Better adherence to established guidelines; 4. Increased patient satisfaction. 	<ol style="list-style-type: none"> 1. No risk stratification ("one size fits all"); 2. Single disease approach: multi-morbidity is not taken into account; 3. Focus on tertiary prevention; 4. Exclusively physician-centered (no interdisciplinary teams; no integration with hospitals); 5. No information available about cost-effectiveness.
Italy <i>IGEA (diabetes type 2)</i>	<ol style="list-style-type: none"> 1. National scope; 2. Evidence-based planning (including international literature, both disease-specific and generic); 3. Inclusion of an attempt to improve information systems and introduce disease registries (both poorly developed in Italy), which have indeed been introduced in the two best-performing regions. 	<ol style="list-style-type: none"> 1. Lack of a pilot experience, which would have been useful given the national scope (and given that the programme is failing also because of confusion and lack of a model that is easy to follow); 2. Excessive ambition and subsequently poor clarity of methods and objectives. Fewer, but clearer methods and objectives would have been better; 3. No control on implementation and accountability, because the controlling authority is a government agency with poor sanctioning and financial power, and the controlled subjects (those who should implement the programme) are powerful and independent.
Region <i>Tuscany's Plan (diabetes type 2)</i>	<ol style="list-style-type: none"> 1. Strongly evidence-based (Extended Chronic Care Model and other studies), because planning was entrusted by policy-makers to expert researchers; 2. High-level commitment by policy-makers (Tuscany's governments have a long history of being prone to investment in healthcare and to use fully the support of researchers); 3. Well planned with a preliminary stage, a pilot stage and a full-scale application stage. Each stage is carefully financed; detailed but still simple system of financial incentives; 	<ol style="list-style-type: none"> 1. Expensive; especially implementation of the electronic systems could risk slowing down in case unforeseen financial constraints appear (which has not occurred so far).

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4. Applying the disease management approach to several chronic diseases, but still with the reasonable choice of beginning with only two (diabetes and heart failure) in the pilot stage.
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Table 3.7.19: Perceived strengths and weaknesses (according to country-experts)
(continued)

	Strengths of the programme	Weaknesses of the programme
<i>Leonardo</i> (diabetes type 1 and 2)	<ol style="list-style-type: none"> 1. Implementation stage was well-planned and smooth (a second pilot project is currently ongoing, since 2010); 2. Thorough evaluation; 3. Having demonstrated the feasibility of a DMP in southern Italy, dispelling doubts about it; 4. Careful planning of the relationship between care manager and GP, with accurate distinction of their responsibilities. 	<ol style="list-style-type: none"> 1. Not involving specialists or allied health professionals as permanent member of the care team (even though specialists could be accessed via an efficient preferential booking system).
The Netherlands <i>Diabetes Zorgsysteem Care System West-Friesland</i> (diabetes type 2)	<ol style="list-style-type: none"> 1. The programme is quality driven instead of money driven; 2. Collaboration with university enables the programme to continuously improve clinical practice; 3. A good, solid network between all providers. 	<ol style="list-style-type: none"> 1. The programme heavily depends on its director. When he is leaving, it will be a challenge to keep the continuity.
UK (England) <i>National Service Framework for Diabetes</i> (diabetes unspecified)	<ol style="list-style-type: none"> 1. Integrated within primary care. 	<ol style="list-style-type: none"> 1. Some concern about fragmentation and biomedical focus.

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4 Country information

In the former chapter the DMPs reported by the country-experts were organized per chronic condition. In this chapter an overview of the reported DMPs per country is given. Furthermore, this chapter contains some additional qualitative information provided by the country-experts about the chronic illness care in their countries. The chapter ends with a short overview of the healthcare systems in the ten countries involved in the survey.

4.1 Overview of DMPs per country

Table 4.1 shows which countries have one or more DMP(s) for categories of chronic conditions studied in this report. A description of these DMPs can be found in chapter 3.

Table 4.1: DMPs per country

Belgium	<p><u>Diabetes:</u></p> <ul style="list-style-type: none"> - diabetes type 2: national policy Care pathway diabetes type 2 (2009) <p><u>Other:</u></p> <ul style="list-style-type: none"> - chronic renal disease: national policy Care pathway chronic renal insufficiency (2009)
France	<p><u>Diabetes:</u></p> <ul style="list-style-type: none"> - national policy Sophia: diabetes type 1 and 2 (since 2008 regional pilots, national implementation in progress); see table 4.2, no further information provided
Germany	<p><u>Cancer:</u></p> <ul style="list-style-type: none"> - breast cancer: national policy (2002), regional DMPs <p><u>Cardiovascular disease:</u></p> <ul style="list-style-type: none"> - coronary heart disease: national policy (2003), regional DMPs <p><u>COPD:</u></p> <ul style="list-style-type: none"> - COPD, asthma: national policy (2005), regional DMPs <p><u>Diabetes:</u></p> <ul style="list-style-type: none"> - diabetes type 1 (2004), diabetes type 2 (2002): national policy, regional DMPs (example regional DMP Nordrhein)
Italy	<p><u>Cardiovascular disease, COPD, diabetes:</u></p> <ul style="list-style-type: none"> - heart failure, diabetes type 2 (both since 2010), stroke, hypertension, COPD (these three since 2011): regional policy Tuscany's Plan 'From On-Demand to Proactive Primary Care' cardiovascular risk, heart failure: pilot in one local health authority 'Leonardo' (2006) (planned extension to the whole Apulia region) <p><u>Cardiovascular disease:</u></p> <ul style="list-style-type: none"> - cardiovascular risk: six local health authorities in region Marche and Abruzzo 'Raffaello' (2008) <p><u>Diabetes:</u></p> <ul style="list-style-type: none"> - diabetes type 2: national policy Integrazione, Gestione e Assistenza per la malattia diabetica (IGEA) [Integration, Management and Care for Diabetes] (2006); - diabetes type 2, diabetes type 1: pilot in one local health authority 'Leonardo' (2006) (planned extension to the whole Apulia region)

Lithuania	<u>Cardiovascular disease:</u> - no further information provided
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Table 4.1: DMPs per country (continued)

The Netherlands	<p><u>Cardiovascular disease:</u> - cardiovascular risk management: national policy, regional DMPs</p> <p><u>COPD:</u> - COPD: national policy, regional DMPs (example of regional DMP: Integrated COPD management 'De Kroonluchter', 2004)</p> <p><u>Depression:</u> - depression: national policy, regional DMPs (example of regional DMP: 'Doorbraak depressie' in Zeeland, Noord-Brabant, Limburg, 2006)</p> <p><u>Diabetes:</u> - diabetes type 2: national policy Nationaal Actieprogramma Diabetes (2008), regional DMPs (example of regional DMP: Diabetes Care System West-Friesland, 1996)</p>
Spain	<p><u>Cancer:</u> - see table 4.2, no further information provided</p> <p><u>Cardiovascular disease:</u> - see table 4.2, no further information provided</p> <p><u>COPD</u> - see table 4.2, no further information provided</p> <p><u>Depression:</u> - see table 4.2, no further information provided</p> <p><u>Diabetes:</u> - see table 4.2, no further information provided</p> <p><u>Other:</u> - polypathology: region Andalusia; see table 4.2 and Jadad et al., 2010</p>
UK (England):	<p><u>Cancer:</u> - cancer unspecified: national policy NHS Cancer Plan (2000) and the Cancer Reform Strategy (2007)</p> <p><u>Cardiovascular disease:</u> - coronary heart disease, stroke: national policy National Service Framework for Coronary Heart Disease and National Stroke Strategy (2000)</p> <p><u>COPD:</u> - COPD, asthma: national policy National strategy for COPD, including asthma (2005)</p> <p><u>Depression:</u> - mental health: national policy National Service Framework for Mental Health (2000) 'New Horizons: better mental wellbeing, better mental healthcare'</p> <p><u>Diabetes:</u> - diabetes unspecified: national policy National Service Framework for Diabetes (2001)</p>

4.2 Additional qualitative information per country

Tabel 4.2 contains some qualitative information about the chronic illness care in several European countries, as provided by the country-experts.

Table 4.2: Additional remarks from country-experts per country

Estonia	Estonia does not have any DMP that is publicly announced and known as DMP. However, there is a system in handling chronic diseases, which is more formalised in some diseases and less in others. For some chronic diseases there are very clear guidelines and tasks for different specialists have been specified.
France	France has one programme that fits the working definition of a DMP used in this study: Sophia programme (diabetes type 1 and type 2), which is still an experiment. There are other experiments in France that resemble a disease management programme, but they are much smaller than Sophia and more local.
Hungary	<p>There are no programmes that fit the requirements and definition of a DMP regarding the six listed chronic conditions in Hungary. Although morbidity and mortality are very high due these diseases, so far the government has not developed a disease management approach.</p> <p>There have been some local screening programmes. Most of them focused on hypertension and diabetes. The Hungarian Society of Hypertension initiated a programme <i>'Live below 140/90'</i>. It has been supported by some pharmaceutical companies, and has organized meetings and conferences nationwide and some events where patients had an opportunity to meet healthcare workers and experts. Recently this society initiated another programme <i>'STOP SÓ - stop salt intake'</i>.</p> <p>About the healthcare system in Hungary:</p> <ul style="list-style-type: none"> • There are many guidelines in Hungary issued by the respective scientific societies. A <i>'List of Competence in Family Medicine'</i> had been issued by the National Board of Family Physicians, prepared by its 15 members. This <i>'List of Competence'</i> has been published by the ministry of Health in 2005 and was updated in 2010. • GPs are not obliged to follow guidelines, although they are forced by (the only one) Health Insurance Fund to prefer cheaper drugs, mostly generics. • In Hungary every citizen has free access to healthcare, including primary care. The local practice level screening programmes are based on the enthusiasm and workload of GPs. • A big problem and barrier is that the majority of the Hungarian population is not interested in a healthy lifestyle and prevention. Governmental support is rare and inconsistent. • There are problems in the cooperation between primary care and specialized medical care, and there is a lack of experienced and well educated nurses. Gatekeeping function is insufficient in primary care. • Recent parliamentary elections in Hungary have resulted in a change in government and a new ministerial structure. The long-lasting economic crisis makes the situation in Hungary more difficult at this moment. Hopefully there will come positive changes.
Spain	<p>About the healthcare system in Spain:</p> <ul style="list-style-type: none"> • The Spanish health system is a decentralised system and each region (autonomous community) has complete responsibility for planning, purchasing and providing health services. • There are 17 regional health services (Health ministries or Departments of Health). Various chronic disease management programmes exist simultaneously in various autonomous communities. • The autonomous communities with most DMPs (according to the working definition provided) are: Andalusia, Bask Country, Catalonia and Navarra. • Chronic conditions managed by a DMP are: cancer, COPD, depression, diabetes, heart failure and polyopathy (multi-morbidity combined with frailty).

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4.3 Characteristics of the healthcare system per country

Table 4.3 contains some general features of the healthcare systems in the ten European countries that are reported upon in this study. The information is based on the answers of the country-experts on the general questionnaire.

Table 4.3: Features of healthcare systems

	Belgium	Estonia	France	Germany	Hungary
Financial system healthcare insurance	Mixture social insurance and taxes	Social insurance	Social insurance	Social insurance	Mixture social insurance and taxes
Payment system healthcare provision	Fee-for-service, capitation	Fee-for-service, capitation, practice-allowances	Fee-for-service	Fee-for-service (DRGs in hospitals)	Capitation (for GP care), pay-for-performance (specialized care)
Organizational context healthcare system	Private/public mixture		Private/public mixture	Private/public mixture	Private
	Italy	Lithuania	The Netherlands	Spain	UK (England)
Financial system healthcare insurance	Taxes	Mixture social insurance and taxes	Social insurance	Taxes	Taxes
Payment system healthcare provision	Capitation, salary (secondary care)	Mainly capitation for primary care and fee-for-service for secondary care	Fee-for-service, capitation,	Capitation, pay-for-performance	Fee-for-service, capitation, pay-for-performance practice allowances
Organizational context healthcare system	Public	Private/public mixture	Private	Public	Public

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