INCA model, the Netherlands

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Currently, an estimated 50 million people in the European Union live with multiple chronic diseases (multimorbidity) and this number is expected to further increase in the near future. As multimorbidity deeply impacts on people's quality of life - physically, but also mentally and socially -, there is a growing demand for multidisciplinary care that is tailored to the specific health and social needs of these people. Integrated care programmes have the potential to adequately respond to the comprehensive needs of people with multimorbidity by taking a holistic approach while making efficient use of resources. Such programmes are characterised by providing patient centred, proactive and coordinated multidisciplinary care, using new technologies to support patients' self-management and improve collaboration between caregivers.

In order to inform policymakers, managers and professionals working in health and social care as well as patients' and informal carers' representatives throughout Europe about promising initiatives providing integrated care for people with multimorbidity, a series of case reports describing these initiatives was written as part of the ICARE4EU project (see Colophon). This case report describes an innovative approach to providing integrated care for people with multimorbidity in The Netherlands.

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Summary of the Integrated Care (INCA)-model for Chronically Ill
– The INCA business model is focussing on integrated chronic care; The Netherlands. – The first phase, the theoretic modelling phase, started in 2010 and was completed in 2012. The second phase, a pilot using retrospective data, was completed in 2014. The third phase will be the prospective testing and is expected to run in 2015/2016. The model addresses the needs of the primary care population, specifically those patients suffering from multiple chronic conditions. – The overall aim of the model is to provide integrated care for patients with multimorbidity. The key elements are: a translation of existing Dutch care standards and protocols to an integral modular approach focussing on lifestyle and medical interventions as well as psychosocial aspects. An Individual Care Plan is co-decided on with the patient based on a risk profile, which is visualized in a 'Spider Web', and the patient's personal perspective concerning their health and life issues – Based on existing Dutch care standards, stepped care modules have been developed for several chronic illnesses as well as health behaviour. Based on the risk profile of a patient, which is visualized in a 'Patient Health Issue Web', stepped care modules are suggested. These are currently developed for cardiovascular diseases (CVD) and Diabetes Mellitus Type 2 (DM2) and chronic obstructive pulmonary disease (COPD). – In the third phase of the development of the programme, the actual implementation pilots, patients with multimorbidity will be specifically addressed.

1. Care for people with multimorbidity in the Netherlands

In 2013, 16.8% of the Dutch population (almost 3 million in 2011) were aged 65 years and older, and 4.2% were 80 years and older (1). Of the population aged 16 to 64 years, an estimated 36.2% had at least one (self-reported) long-standing illness or health problem in 2013 (2). Based on medical diagnoses (of 29 chronic diseases) as registered in general practices over the period 2002-2008, multimorbidity was found in 37% of the population aged 55 and older (3). Information regarding the Dutch healthcare system can be found in Appendix 1 (4).

2. Introduction to the programme 'INCA model'

Founders

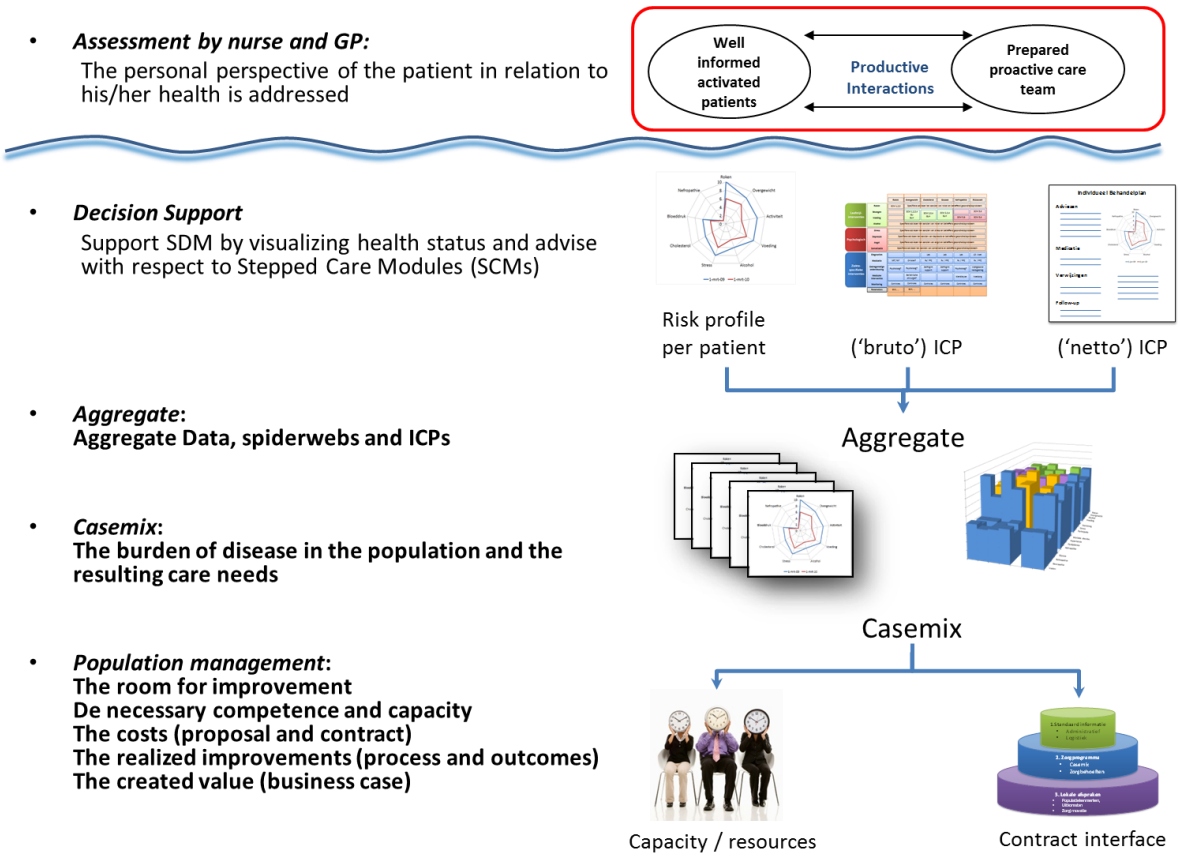
The development of the INCA model was initiated by the Coordination Platform Care Standards, currently part of the Quality Institute at the National Health Care Institute (*Zorginstituut Nederland*) and commissioned by the Ministry of Health Welfare and Sports under the programme for disease management of chronic illnesses. The executive agencies are ACSION and Casemix. Both agencies aim to improve care for chronically ill by providing strategic consultancy services, ICT solutions and implementation support. The second phase, the retrospective pilot was commissioned by the national associations of health insurers and the associated care groups. The third phase will be executed by Casemix and ACSION in cooperation with five care-groups and the health insurers. Since 2010, care groups are new legal entities that cover all elements of primary care for patients with a specific chronic disease. Care groups are often multidisciplinary cooperatives owned by general

practitioners who are contracted with a single bundled payment. They are seen as an important instrument to achieve better coordination of care.

Aim

The INCA model enables shared decision making for integrated individualized care plans in accordance with the Dutch care standards for Diabetes Mellitus type 2 (DM2), Cardiovascular Risk Management and (CVRM) Chronic Obstructive Pulmonary Disease (COPD). The model operationalizes these standards for care delivery to an integrated care program consisting of Stepped Care Modules (SCM's) for each health problem related to these diseases and aims to support efficient interactions between a patient and his/her team of care providers. Moreover, the model can be used to support the organization of care by calculating the workload per discipline based on the forecasted stepped care modules that will be necessary for the practice population. This also supports contracting, as budgets are calculated for each of the stepped care modules for the purpose of bundled payment. The programme has a holistic public health approach, enabling the involvement of health and social care services in the care for patients. See figure 1 for an overview of applications of the INCA model.

Figure 1 INCA supports shared decision making in individualized care planning as well as the organization of care in a Care group and the contracting of that care

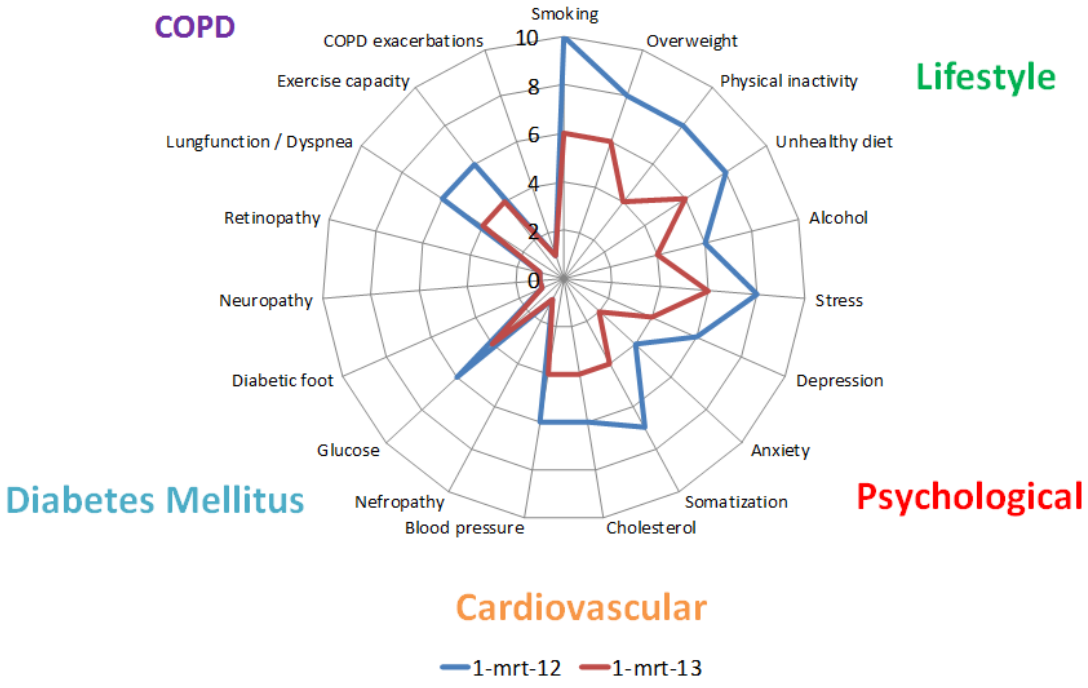


Innovative features

1. The Patient Health Issue Web

A risk profile is created for each patient based on patient assessments using clinical data, health behaviour data, as well as the patients' personal perspective regarding their health problems. Motivational interviewing is used to gain insight in health behaviour and psychosocial issues of a patient. All information is recorded in a digital file. Based on the combined information in this digital file, the health risks and problems can be assessed for each patient using algorithms that have been developed for the INCA model. The outcomes are presented to the patient in a so-called Patient Health Issue Web, visualising the patients' health risks and problems (see figure 2). In this way, health risks are easier to detect and discuss, for both patients and providers. Progress is monitored through periodic reassessments, which can support patients' motivation and commitment to adherence.

Figure 2 Example of a Patient Health Issue Web



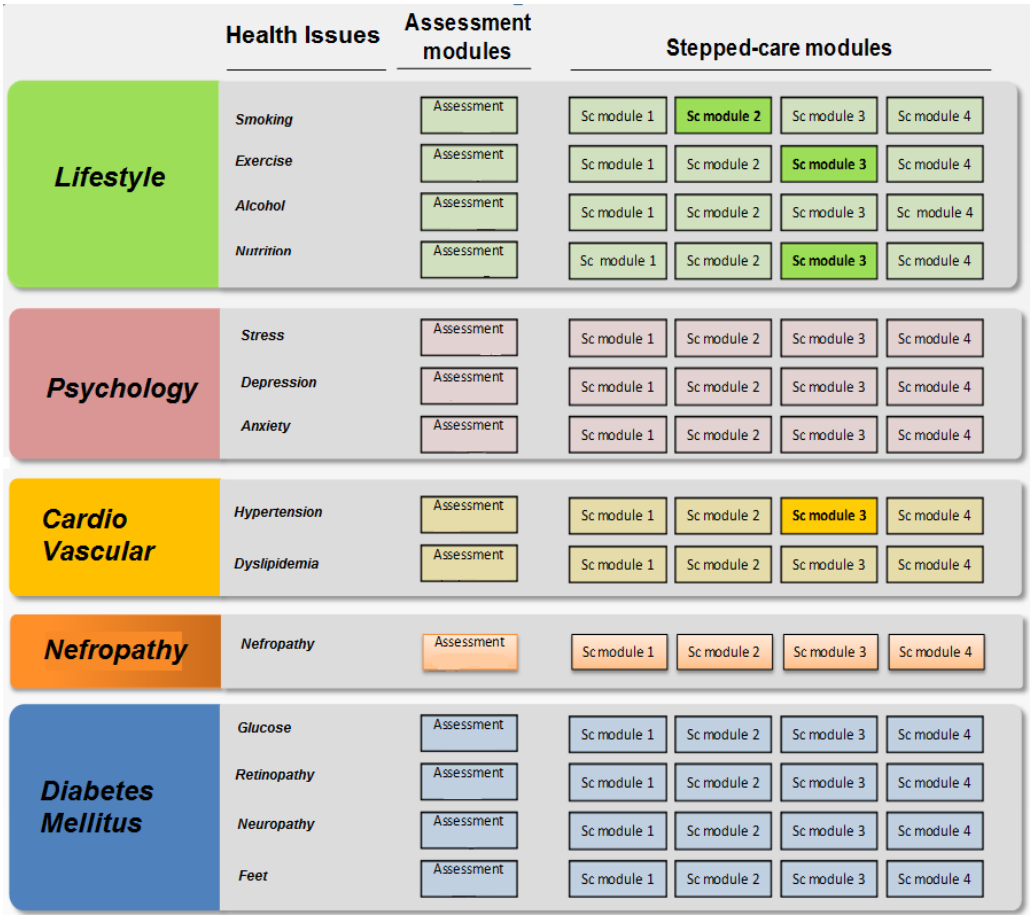
2. Stepped care modules

Based on a computerized algorithm, Stepped Care Modules are advised based on the specific care needs of the patient, suggesting the type and intensity of care that needs to be provided per health issue (see figure 3). The stepped Care Modules are based on the three existing authorised care standards for DM2, CVRM and COPD. These care standards define how the care for these diseases has to be organized and what it should entail. Additionally generic health behaviour modules and

modules for psychological support have been developed. For each module the following aspects are described:

- The final health goal or outcome measure
- Activities included (diagnostics, lifestyle programmes, medication and medical interventions)
- Information provided to the patient
- A schedule for progress monitoring
- Description of the required minimal competencies of the appointed care provider(s)

Figure 3 Example of Stepped Care Modules



3. The Individualized Care Plan

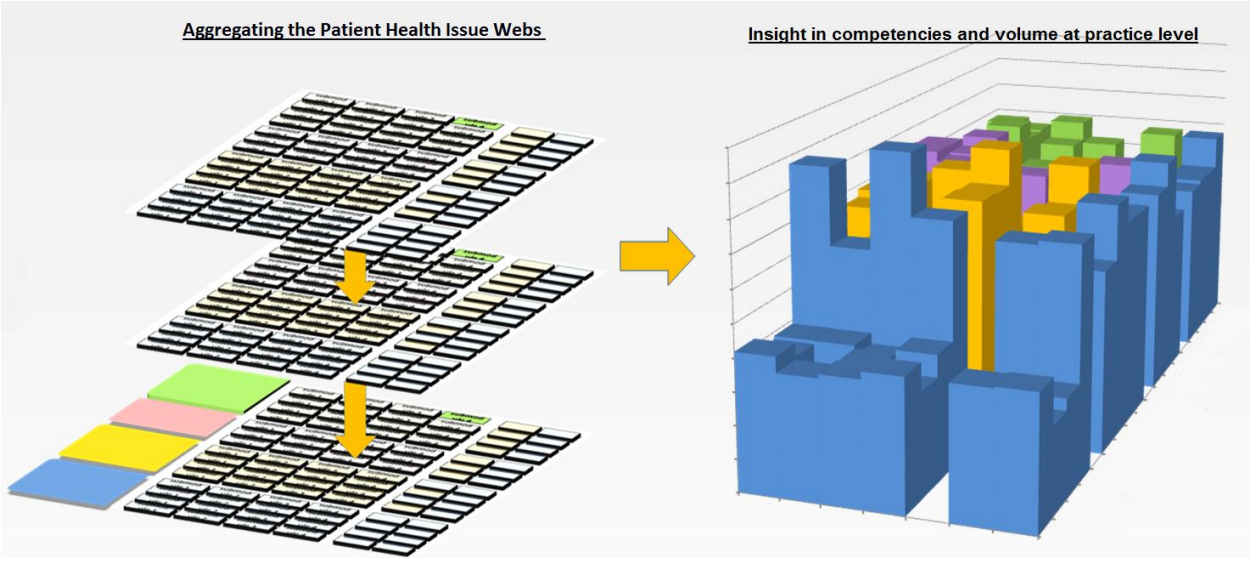
Based on the outcome of the Health Issue Web and the suggested stepped care modules a decision on the Individual Care Plan is made through shared decision-making. This should enhance a patient-centred approach as the model visualizes the specific problems of the patient and suggests which modules best meet each individual patient's needs. The care described in each stepped care module can be adapted for each patient by entering care options or adaptations in an additional box. This provides opportunities for even more patient centred tailoring. The outcomes are put together in the

individualized care plan. The practice nurse indicated that it is better to have one plan per patient instead of multiple plans, as it is more natural to talk to the patient this way.

4. Population Care Profile

The INCA model can also be applied on a higher aggregated level to determine a population care profile, combining the individual care profiles to calculate the care required per care group. By aggregating the profiles (the Patient Health Issue Webs) of all patients at practice level, care practices have the opportunity to calculate the required competencies and the volume of care to be delivered to the patient population (see figure 4) .

Figure 3 Population Care Profile



Based on the composition of the population, or case mix, the Population Care Profile has the potential to:

- Provide insight in the population health status and deliver targets for health improvement.
- Provide a basis for calculating capacity and competencies needed to improve this health status.
- Provide transparent information for cost calculation needed for negotiations with health insurers.

5. Quotation Interface

As each competency can be linked to a certain fee, the information derived from the population care profile can be used for procurement negotiations with health insurers and it facilitates a bundled payment mechanism. This aspect of the INCA model is referred to as the “quotation interface”. Thus,

the INCA model can be used to calculate prospective capacity needs for a specific care practice and associated (care) services.

There may also be opportunities for measurement of quality or effectivity of the provided care as the subsequent assessments will show improvements in health status over time. For this purpose quality indicators are currently defined per stepped care module.

Target group

The INCA model can address the entire general practice population and patients suffering from multiple chronic conditions in particular, irrespective of their age or health problems.

Orientation on multimorbidity

Providing evidence based care according to the care standards provides difficulties when a patient suffers from multimorbidity as the content of the care standards of different diseases can overlap or even contradict with each other. The disease specific approach of the care standards therefore does not meet the needs of patients with complex health care needs. The INCA model aims to provide a solution to this by translating these disease oriented standards into stepped care modules which can be combined in an individualized care plan based on individual needs and preferences of each patient.

Activities as part of the INCA model

The model is being developed in several stages over time, see Table 1.

Table 1. Activities of the INCA model

2010 - 2012	– Technical development of the INCA model: – Stepped care modules based on care standards CVD, DM2 and COPD – Lifestyle and psychological modules – Algorithms for calculating health risks – Development of ICT infrastructure – Development of the Patient Health Issue Web application
2013 - 2014	– Retrospective testing of the model – Further technical development: ◦ Personal Datastore
2015 - 2016	– Prospective testing of the model

The retrospective testing aimed to show the predictive value of the model for workload planning and contracting. In order to do this medical data was extracted retrospectively from existing databases from general practices (HIS), integrated care information system (KIS), hospital information system (ZIS) and personal health records (PGD). This was done, using anonymized data, for the patient population of three care groups in Tiel (ECT), Maastricht (ZIO) and Drenthe (HZD). The data was used to run the algorithms and outcomes were compared to the actual care consumption. For the prospective testing however it is necessary that continuous exchange of patient information is realised from these sources, to allow all involved stakeholders access to complete real-time information about the health status of the patient. For the purpose of the INCA model a system is being developed called Personal Datastore. It is an ICT infrastructure that translates the data from several sources into a unified file which contains not only medical but also psychosocial and other types of health related information. This personal health record is the basis for the algorithms used in the INCA model. Previously informed consent is needed.

3. Patient-centredness

Elements

The patient-centred approach in the INCA model has the following elements:

- Visualization is used to increase awareness of the total health and risk profile, creating a well-informed patient, which could enhance self-management and improves shared decision-making.
- Treatment plans are developed with each individual patient, adapted to the patients' specific health profile and personal preferences concerning not only the disease(s) they suffer from. Health behaviour and psychological issues are taken into account as well.
- Shared goal setting, the agreements between physicians and patients are described in an individualized care plan. The goals and treatment plans are communicated among all involved providers through the Personal Datastore.

Enhancing patient-centred care processes

By visualizing the health issues in the Patient Health Issue Web, patients can improve their understanding and awareness of their health risks. The proposed care-modules can be discussed with respect to the patients' needs and preferences. The individualized draft care plan supports the shared decision making process and includes feasible patient-centred goals. The nurse practitioner indicated that the effect of this visualization on risk awareness and subsequent changes in health behaviour or compliance will not be similar for all patients. However, it is a powerful method to monitor the progress and deterioration of all aspects at a glance. Each health issue is defined on the

stepped care principle, thus it is severity adjusted. A central care provider (the practice nurse) is responsible for providing the overall care plan.

Feasible goals

The practice nurse guides patients in developing feasible and realistic lifestyle changes, thereby focussing on long term effects. The overall aim is to have patients get a grip on their life despite their disease and to take responsibility for their own health. The practice nurse plays an important role as she tries to motivate patients to change their way of thinking: from what they should do, to what they can do. However achieving a high level of self-management is difficult for some patients, thus care plans have to be adapted according to skills and capacities of individual patients.

4. Integration, management, competencies

Partners and their role in the programme

To implement the models' aim of developing individualized care plans, different health care providers from primary and secondary care are collaborating. GPs and nurses are responsible for the coordination of care and the development of individual care plans. In addition the model aims to integrate health care and social services. University and general hospital, primary care, health centre, pharmacy, insurer, ICT department, research institute and the government are involved in service delivery.

Coordination of care

There is an important coordinating role for a central care provider, which will be the practice nurse. Practice nurses will be trained in case management skills, motivational interviewing and the specific content of the stepped care modules. All involved care providers will have access to the Personal Datastore of their patients, enabling communication between care providers. The information on the individualized care plan is accessible for all involved care providers and the concerned patient.

After the identification of eligible patients by the general practitioner, the practice nurse will invite the patient for the initial interview in which the patient's health behaviour and preferences are mapped. Accordingly, all information is entered in the Personal Datastore and after calculating the patient's data the Patient Health Issue Web is illustrating the problems and stepped care modules are suggested. After jointly discussing the care options, an individualized care plan will be completed. All involved care providers receive targeted input based on the patient's clinical outcomes and

formulated health- and life-goals. This input will be provided through the Personal Datastore. The care plan also suggests a follow-up and evaluation, which is coordinated by the nurse practitioner.

5. The use of e-Health technology

Personal Datastore

For the purpose of the INCA model the ICT infrastructure 'Personal Datastore' has been developed. With this method all relevant information about a patient from different sources and systems is collected at one digital location. Next, all data is translated into a format with a unified language which is applicable for the INCA model and its algorithms. The 'Personal Datastore' is part of a digital utility function enabling a safe exchange of data from the different systems and databases. Besides the medical information, it may also contain data concerning home or social care and information from municipalities. The platform can also be used to provide information back to the original sources or systems. This would include for instance medical choices and personal goals that have been set in the individualized care plan. The implementation of such an underlying digital infrastructure is an essential precondition for a full implementation of the INCA model. Potential barriers because will be solved technically. But data governance is necessary with clear guidelines about access and prevention of possible misuse.. Discussions about safety issues take place on a national level, and also apply to this specific case. The outcomes, solutions and experiences with the Personal Datastore system would contribute to the discussion.

INCA-app

For visualisation and information purposes the INCA-app has been developed. This application is available for the case manager (practice nurse) and it can be used to support shared decision making. Not only the health issue web can be shown, it also facilitates discussing the content of the different stepped care modules. Initial experiences were positive as both patients and practice nurse felt well understood and thus communication was improved. The app also ensures that agreements, goals and the follow- up care (e.g. medication, diagnostics and referrals) are communicated among all involved care providers.

6. Financing of the programme

Sources of funding

Initially the project was funded from the national programme for disease management of chronic illnesses commissioned by the Ministry of Health Welfare and Sports. Funds were available for the development of care standards and the interactions between these care standards for patients suffering from multimorbidity. Part of this budget was used for the setup of a retrospective analysis, which was co-funded by health insurers. Prospective testing, which is planned for 2015/2016, will be funded by the involved health insurers. Negotiations about this phase are currently taking place.

After the model is implemented in practice, services will be fully paid by health insurers. No additional (out of pocket) payments are expected for patients, as the INCA model will be considered as usual care therefore covered by health insurance.

Incentives for health insurers to adopt the INCA model for contracting

The INCA model could have a positive effect on transparency within the care group and towards the health insurers concerning human resource planning and competencies. At this moment, it is difficult to draw conclusions based on the results from the retrospective test. However, the retrospective test showed that patient information was often not complete, due to incomplete registration by care providers and data that is not yet systematically registered. The INCA model stimulates coherent and complete registration by care providers, as this is necessary for the development of the comprehensive health issue webs and for shared decision making. Savings might be achieved with the shift from care to self-care and a tailored application of care standards, but this cannot be determined yet.

7. Conclusions and observations

So far the model has been applied in practice for ten patients. The applicability has thus not been evaluated extensively and overall conclusions cannot be drawn yet. However, it is possible to look at the promising aspects, and to describe challenges potentially arising during the implementation. Continuing scientific evaluation is seen as essential for the continuity of the programme, thus both internal and external evaluation of the model is planned.

7.1 Business model

The potential of the model has already been tested positively using retrospective data. At this level of development it can be considered as a business model, but not as a fully implemented health programme. At this stage, it is difficult to foresee:

- if the implementation of the Personal Datastore is feasible and which safety issues might be arise (privacy of the data, access has to be regulated)
- how actual coordination between the care providers will work and be made sustainable (coordination by the practice nurse as the central care provider and communication through the Personal Datastore)
- how patients respond to the Personal Health Issue Web and the discussion of treatment options (concerns include: are patients able to choose which stepped care module meets their need; will patients accept their new role and take more responsibility for their health; how is compliance monitored and stimulated).
- how practice nurses cope with their role as the central care provider
- how the integrated approach will work concerning the collaboration across sectors, for instance with social care or home care providers
- whether there are health benefits for patients
- whether the programme will be cost-effectiveness and result in savings
- if all involved care providers can or will supply enough meaningful data

7.2 Innovative aspects

Innovative approach

The INCA model could enable a shift from a disease oriented approach towards a patient oriented approach by translating the existing care standards into modules that reduce overlap, include health behaviour and psychological facets and improve shared goal setting. This paradigm shift is important for stimulating integrated care delivery. Thus the roles of care providers have to change accordingly from a lecturer to a coach. Increasing a patient's self-management skills as well as increasing their own responsibility for their health status is important. Therefore, patients need to be well-informed and their jointly agreed health goals should be feasible and realistic.

Comprehensiveness

Moreover, the structure of the model and underlying ICT infrastructure enable the addition of new health issues and subsequent stepped care modules.

The model can be used for different purposes; the model aims at improving the care provision for patients with complex chronic care needs and additionally provides an innovative financing solution.

Additionally, the model can be used for calculating the disease burden of general practice populations, or even municipalities, which can be used for human resource planning and allocation of resources. It stimulates coherent and complete registration by care providers which is necessary for the development of the comprehensive health issue webs and to support shared decision making. This integral approach in data collection is an improved basis for contracting. With this complete set of data, the model can play a role in transitioning towards a more integrated delivery system.

7.3 Challenges

Responsibility

At this point none of the stakeholders is directly responsible for coordinating the implementation of the pilot model. A general potential problem inherent to the pilot character of the model is that the underlying infrastructure is not fully developed yet. Thus, it remains difficult to predict the models' entire potential and health insurers remain hesitant to adopt the model for contracting purposes.

Personal Datastore

For a successful implementation of the model it is pivotal to register all medical patient information accurately and completely. The implementation of the ICT infrastructure Personal Datastore can only be achieved on the basis of profound mutual trust among all involved care providers and the patients.

Well trained practice nurses needed

Within the INCA programme a practice nurse is the central care provider. Highly trained and educated nurses are the precondition for effective care coordination and patient centred care provision. Additional training may be needed that specifically focusses on multimorbidity and the diseases and their health issues that are included in the model, which requires substantial initial investments.

Initial time investment

According to the practice nurse, the model could only be implemented stepwise, for a fixed number of patients per time period. Developing the webs and discussing all treatment options with the patients and getting them started with self-management is very time consuming. Starting with motivated patients, with a high risk profile seems more feasible and they can serve as examples.

Limitations due to coverage within bundled payment

Although insurers and care providers agree that the care as described in the care standards is the ideal, not all the care described is currently being covered in the basic insurance package. This means that the bundled payment does not cover all the care included in the stepped care modules and thus in the individualized care plan. For instance foot care for diabetics such as medical pedicures or consultation with a podiatrist is often not covered and will thus not be part of the bundled payment. This is also the case for many health behaviour programmes, such as exercise or nutritional programmes. Moreover, because of contracting, it is very likely that there will be differences among care groups with respect to coverage and the amount of payment performance/competency.

Acknowledgements

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Colophon The ICARE4EU project and the selection of 'high potential' programmes

The ICARE4EU project aims to identify, describe, and analyse innovative integrated care practices for people with multimorbidity in European countries, and to disseminate knowledge and experiences from these practices to all European countries in order to support further implementation of effective and sustainable care approaches for European citizens with multimorbidity (http://www.icare4eu.org).
Multimorbidity is defined in this project as *the presence of two or more medically (somatic or psychiatric) diagnosed chronic (not fully curable) or long lasting (at least six months) diseases, of which at least one is of a primarily somatic nature*.

In 2014, country experts in 31 European countries identified programmes at a national, regional or local level that focus(ed) on providing care for adult (or older) people with multimorbidity, or contain(ed) specific elements for this target group. Programmes had to comprise a formalized cooperation between two or more services, of which at least one medical service; and they had to be evaluated - or had an evaluation planned - in some way. Detailed information about these programmes was collected via a survey to be completed by the programme coordinator. In this way, country experts identified 178 programmes, of which 101 (from 24 countries) were considered eligible for analysis by the project team.
As a next step in the project, these 101 programmes were evaluated by the project team based on quantitative and qualitative criteria. For each programme, five quantitative scores were computed, a general score (assessing general aspects such as its evaluation design, perceived sustainability and transferability) and four scores that provided an indication of its level of 1) patient-centredness, 2) integration of care, 3) use of eHealth technologies and 4) its innovativeness in financing integrated care services. Subsequently, members of the project team qualitatively assessed these four aspects again for a selection of programmes that had high quantitative scores. The qualitative evaluation was based on the available descriptive information gathered by the survey (e.g. description of the aims of the programme, the reported strengths and weaknesses) and already published evaluation reports. This resulted in a short list of so called 'high potential' programmes. To decide whether or not to select a programme of this list for further study, the project team checked with the country expert and/or verified information by contacting the programme coordinator. In this way, eight programmes were selected for a site visit; all programmes positively responded. The eight programmes that were visited were operational in Belgium, Bulgaria, Cyprus, Denmark, Germany, Finland, the Netherlands and Spain.

This case report is based on information about the 'INCA model'. For this case report, the previously collected survey data were verified and enriched by data from internal or external documents and qualitative interviews with the programme representative and a practice nurse. The interviews were conducted by two members of the ICARE4EU project team, and were recorded. Interviewees received the draft text of the case report for validation, and approved the final report. All interviewees signed a written agreement to publish this case report.

Appendix 1 Some characteristics of the health care systems in the Netherlands

In the Netherlands, the central government sets the objectives and the total budgets for health and social care. Health and social care are financed by a mixed tax/insurance-based system. Curative care is provided on the basis of the Health Insurance Act (HIC), which entails an obligatory private basic insurance for all people in the Netherlands. Long-term care is provided on the basis of the Exceptional Medical Expenses Act (EMEA), which is a tax-based social insurance. Home help and social support are provided by the municipalities on the basis of the Social Support Act (SSA), to which the central government allocates tax incomes. So, traditionally there are segregated delivery and financing systems for curative health care and long-term care and support.

Health care

Health care in the Netherlands has been divided traditionally into primary care and specialised care. Based on characteristics of its structure and delivery of care services, the strength of the primary care sector in the Netherlands was labelled as strong in a European comparative health systems study (5). General practitioners function as 'gatekeepers', i.e. specialised care is only accessible upon referral from a general practitioner (6). Since 2011, arrangements with hospitals and health insurers have been made to support concentration of highly specialised care. Hospitals should meet volume and quality norms to be contracted by health care insurers for certain medical interventions. This has led to fewer hospitals offering specific types of specialised care.

As in many European countries, (almost) the total population of the Netherlands has health care coverage, and costs and benefits are comprehensive (7). In 2011, 85.6% of the total health expenditures were funded by public sources, which is well above the average of 72.2% in OECD countries (8). The increasing health care expenditures have led to more patient cost sharing in the last five years. For instance, apart from the premium for the basic insurance that the insured pay from their net incomes, there is an obligatory deductible, which has risen from 150 € in 2008 to 350 € in 2013 (+233.3%). This deductible does not apply to consultations with general practitioners and maternal care, to guarantee access to basic care. In addition, co-payments are imposed for certain types of care, such as several medicines, medical aids and transport to a medical service.

Social care, home care or care for the elderly

Substantial reforms are taking place regarding long-term care (LTC) and social support. Political decisions have been made towards further decentralisation and a reduction of public expenditures. In 2010, public LTC expenditures were among the highest in Europe: 3.8% of GDP compared to 1.8% across the EU-27 (9). To diminish the increase of LTC expenditures, the purpose of the EMEA was redefined in 2009/2010 and eligibility criteria restricted (now only for people with moderate to severe ADL problems). Home help was already transferred to SSA in 2007, which is also the basis for the provision of supportive aids (e.g. wheelchairs), home adaptations and arrangements for transport of older and disabled citizens. Municipalities are required to offer support for citizens with ADL problems, but have a high freedom of action on how they organise care and support. Moreover, they have a limited budget.

Recently, the parliament adopted the Long-term Care Act (LCA), which will replace the EMEA in 2015. The LCA will exclusively finance care for people who are in need of intensive LTC or supervision for 24 hours a day, such as frail, elderly people or the severely disabled. Other types of care now covered by EMEA will be transferred to the HIC, the new SSA 2015 or will no longer be publicly financed. Informal care and patients' self-management are nowadays emphasised by the government to improve patient/citizen involvement, but definitely also to reduce public expenditures.

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