Executive summary:

Background: HOMECARE addresses the problem of fragmented healthcare accentuated by WHO for continuity in discharge planning across specialised hospital services and general healthcare in social services and primary care. The focus of the project is on integrated homecare (IHC) for elderly frail somatic patients. Selected prototype populations are patients with stroke, heart failure and COPD whereof 800,000 new patients might benefit from IHC each year in Europe.

Aim: The project aim is a comprehensive evidence-based assessment of IHC in terms of a health technology assessment (HTA). The HTA is based on practical guides for each of the selected chronic conditions developed by international expert groups within each condition as well as surveys, clinical trials and pilot experiments with tele-facilities.

Results: New discharge pathways for elderly frail somatic patients, complementary to the coordination by general practitioners (GP), are developed and documented by a meta-analyses for each of three selected conditions.

The following conditions are crucial for implementation:
1. The core of the organisational efficacy across variants of IHC is patient psychological values associated with the home-setting (feeling safe, participation, primary feedback for both patients and health professionals). Purely municipal alternatives to hospital care without home visits may reduce quality of care
2. IHC should be delivered by a multidisciplinary outreaching team. Not all specialists in the team need to render home visits. The core competencies needed in the home as complementary to that of the GP are therapists and nurses
3. Organisation and finance should be adapted to the local health system.
In the Nordic countries, formal collaborative agreements between hospital authorities and municipalities are the relevant framework. In Southern and Eastern Europe without well-equipped social welfare services, the best framework is hospital-based homecare units.

In the market-based health systems in Germany and the Netherlands, a financial framework has already been established e.g. the Dutch 'Bundle Fee'. However, the Bundle Fee should be directed at the leading organiser of IHC, i.e. hospitals, instead of the GP as the traditional coordinator

4. An integrated clinical patient-centrism with a balanced view to the economy of IHC.

This study compares IHC with usual hospital care including out-patient facilities. Another alternative is telemedicine where video conferencing may substitute some physical home visits and tele-monitoring may reduce the mortality of HF. However, reducing IHC to

a technical installment of tele-facilities in the home is not cost-efficient and would indicate a biased judgment

Conclusion: IHC is documented as a win-win-intervention for both patients and health care providers as it combines improved effectiveness and patient satisfaction with societal net savings. This case enables in principle implementation by negotiation of locally adapted solutions. However, some moderate centrally installed 'Bundle Fee' to hospitals, certainly, accelerates dissemination. Other boundaries for good implementations are discussed.

Project Context and Objectives:

HOMECARE addresses the continuity in discharge planning across the secondary/primary care interface for elderly frail somatic patients in Europe which was put on the research agenda by WHO in 2002. Its particular focus is on integrated homecare (IHC) services for patients with stroke, heart failure and chronic obstructive pulmonary disease (COPD) compared with usual hospital care. These three conditions were selected as they seemed to be the most promising in our early pre-review of literature prior to submitting the original proposal in 2007.

We define IHC departing from a widely used of definition of integrated care:
- IHC takes place in the home of the patient as part of an integrated care pathway between hospital services, primary care and/or social services for patients with specialized care and rehabilitation needs
- The IHC-pathway should be financially and administratively coordinated with a view to effectiveness and savings on stationary resources in health care and/or social services
- IHC is performed by a multidisciplinary team in collaboration with the patient in the home of the patient as well as in hospital passing possible general care needs to the community care setting
- The IHC-team focuses on effectiveness, quality, access and user satisfaction in an economic way and uses tele-facilities as far as they serve these goals

HOMECARE has been structured in 3 overlapping phases. The first phase reviewed the existing knowledge base on IHC for patients with stroke, heart failure and COPD as well as it seeked to complement existing knowledge by means of new surveys and trials within HOMECARE. This introductory phase included systematic reviews, several RCTs, pilots in tele-facilities and surveys.

The second phase was devoted to the development of practical guides on IHC services for patients with stroke, heart failure and COPD, respectively. The aim of the practical guides was to develop guiding material to local healthcare teams planning to implement IHC services as well as to generate key input to the final HTA. In this second phase, an early draft of the practical IHC-guide for patients suffering from stroke, which definitely is that of the three selected conditions with the stronger evidence base, was developed. The stroke draft guide was accepted as a prototype guide by the expert groups working with the other practical guides assuring a comparable structure across all of the three practical guides.

In an external peer-review of a short version of the guides, it was a separate challenge to clarify the very nature of our ‘practical guides’: Was it original empirical evidence or was it policy-oriented dissemination papers? Both types of papers may be published in peer-reviewed scientific journals. However, the true status has to be indicated and followed in the specific composition of the paper. In this process we accepted that our ‘practical guides’ may

be classified in the group of policy-oriented papers. However, they are not traditional policy papers addressing formal policy makers or the general public. Rather, they address disciplinary science-policy-makers, such as clinical management, who are expected to have some knowledge of the basic evidence in the respective fields and a strong focus on practical relevance. As such, we have probably been pioneers in the development of a format of clinical guides focusing on practical implementation – as an alternative to the British NICE-guidelines having a normative focus on key aspects of best practice.

The full version of the practical guides, accessible from our project website, deal impartially with practical implementation questions such as:
- What is IHC for patients suffering from Stroke, HF or COPD, respectively?
- What is the current evidence for IHC services?
- What are the characteristics of the patients who may benefit from these services?
- What are the typical content, dose and timing delivered in IHC?
- What organisational and staff competences are required for home-based interventions?
- What are the major challenges when implementing IHC?

The primary alternative to IHC, in the literature as well as in our project, has been usual hospital care including out-patient facilities. However, in the contemporary development, telemedicine seems to represent a new alternative with a growing impact. As an internal service to the three HOMECARE expert groups focusing on specific conditions, a systematic review on the evidence of tele-facilities in relation to IHC was conducted. The summary review was used in the selection of some tele-facilities for pilot-testing as a special input to the HTA.

The third and final phase of our project focused on the comprehensive objective of this proposal which was to deliver a Health Technology Assessment (HTA) of Integrated Homecare (IHC) which according to the reviewed literature might represent a significant improvement in the healthcare of chronic conditions in general and regarding stroke, heart failure (HF) and COPD in particular. The primary target group of the HTA is clinical and administrative management at European hospitals.

DATA BOX ON HTA DOMAINS AND RESEARH ISSUES

D1: Health problem and characteristics of the application:
What are the health problems targeted by the IHC technology?
How do we define IHC?
What is the evidence-base and current status of IHC?
Which chronic conditions show the most promising results regarding effectiveness of the intervention?
What is the burden of disease for the selected chronic conditions?

D2: Safety
What are the potential harms of IHC?

D3: Clinical effectiveness
What is the effect of IHC-services for stroke patients on non-fatal endpoints?
What is the effect of IHC-services for heart failure patients on non-fatal endpoints?
What is the effect of IHC-services for COPD patients on non-fatal endpoints?

D4: Patient perspectives:
How does IHC affect the daily life for patients and their significant others?
How does IHC affect patients' perceived control over their illness and care?
In what way does IHC influence family involvement, knowledge and understanding of illness?

D5: Economic aspects:
What are the average healthcare costs of the IHC-services for stroke, COPD and heart failure, respectively?
Should costs borne by the patients and their relatives be included?
Should costs in other sectors be included?
Should costs of production losses be included?
What type of analysis should be made?
Is there room for cost-benefit-analysis, expressing both costs and consequences in monetary terms?
Does IHC have any health related quality of life (HRQoL) effects that should be included?

D6: Organisational aspects:
What characterizes the patient pathway of an IHC-service?
What characterizes the IHC team delivering the service?
What is the role of the local administrative and clinical top-management?
What is the role of top administrative and clinical management in hospitals, primary care and/or social care institutions, respectively?
Are IHC services accepted by staff and how is the level of management taken into account in the planning and implementation of services?

D7: Socio-cultural, ethical and legal aspects:
What are the main characteristics of the selected disease and of the legal and financial framework in relation to integrated care in European member states?
What are the ethical aspects – in relation to autonomy, human dignity, beneficence, and non-maleficence, and equity – concerning the implementation of integrated homecare?

Project Results:

INTRODUCTION

The primary foreground is the HTA of IHC for elderly frail somatic patients in Europe – focusing on stroke, heart failure and COPD. All other scientific products from the project has in some way or another served the final HTA.

Based on an introductory literature review, IHC was selected as the most promising form of integrated care. The core of the organisational efficacy across variants of IHC is patient psychological values associated with the home-setting:
- Perceived control over their care (feeling safe)
- Great involvement in decision-making (participation)
- Knowledge about their illness and its treatment (primary feedback)

This subjective identification of special psychological values related to IHC has been supported by neuro-economic research concluding that the home as compared to a hospital is associated with a decline of the blood pressure of 5-7 mmHg indicating a Midbrain relaxation which frees Neocortical energy for better cognitive function.

IHC for stroke, heart failure and COPD were selected as the most promising prototypes with regard to effectiveness. Having complemented the pre-existing evidence on the selected prototypes with new evidence from trials within HOMECARE as well as newly published trials outside HOMECARE, the following conclusions may be drawn.

CLINICAL EFFECTIVENESS

The core evidence identified to assess the effectiveness of the selected prototypes of IHC compared with usual hospital care may be summarized as follows:

IHC STROKE

Stroke services in developed countries are usually focused around a period of care in hospital. Patients can usually expect to be admitted to hospital for acute care and some rehabilitation if required. Only more recently, services that challenge this emphasis on rehabilitation in hospital have been developed, in particular Early Supported Discharge (ESD) services. These services aim to accelerate patients' discharge home and provide an equivalent level of rehabilitation input in their own home.

In 2005, a group of trialists (the ESD trialists) carried out a collaborative systematic review of all the available trials of ESD services. The objective of this review was to establish whether ESD services, in comparison with conventional hospital care and discharge arrangements, could improve patient outcomes and reduce the length of hospital stay. Recently, the ESD trialists review was updated with a practical problem-based guide on EHSD services for stroke patients.

IHC HF

Three RCTs compare directly post-discharge home visits by heart-failure nurses with management at heart failure clinics:

A RCT (N=165) compared a post discharge home-based intervention by HF-nurses by usual care by the admitting physician and subsequently the general practitioner. The aim of the home-based intervention was to 1) educate the patient about heart failure and its treatment, 2) optimize drugs, diet and exercise, 3) monitor electrolyte concentrations, 4) teach self monitoring and management, 5) liaise with other health care and social workers and 6) provide psychological support. Compared with usual care, patients in the intervention group had fewer all-cause readmissions (pless than0.0001) and fewer deaths (Hazard ratio 0.61; CI95%: 0.33-0.96).

A post hoc analysis of an RCT (N=297) designed to test the effect on mortality showed that home-based care was associated with significant 'potentially important reductions in hospital stay' including a 35% drop in all-cause-hospitalization days and a 37% decrease in cardiovascular-hospitalization days, compared with clinic-based management.

Yet another RCT evaluated the effectiveness of a single home-based educational intervention for patients with heart failure. There were 106 patients: 42 in the intervention group and 64 in the control group. Patients were randomly assigned to receive an intervention by nursing staff one week after discharge. Primary end points were readmissions, emergency department visits, deaths, costs, and quality of life. During the 24-month follow-up, there were fewer

mean emergency department visits in the intervention group than in the control group (.68 vs. 2.00; P=.000) as well as fewer unplanned readmissions (.68 vs. 1.71; P = .000). Furthermore, there was a trend towards fewer out-of-hospital deaths (14 [46.6%] vs. 31 [55.3%]; P= .45) and improvement in quality of life.

Based on the three aforementioned RCTs on IHC heart failure (N=551) each of which demonstrate significant reduction of all-cause readmissions, the group effect is calculated by meta-analysis. The group effect of IHC heart failure compared to usual care by meta-analysis is OR=0.60 (CI95%: 0.40-0.92) and NNT=2.

IHC COPD

A total of 7 RCTs were identified in a literature review all showing a significant reduction of endpoints related to length of stay (LoS) and/or readmissions. However, only 3 studies fulfil the criteria for a homogene meta-analysis (studies of Boxall, Casas and Puig-Junoy). In order to calculate a group effect by meta-analysis, the outcomes of the 3 RCTs (N=381) have been standardized into saved readmissions using a unit factor of 4 bed days per readmission. The result of the meta-analysis is that the odds ratio for readmission (OR) within 12 months by IHC COPD is 0.5 (CI: 0.25-0.80) and NNT=2.

IN- AND EXCLUSION CRITERIA FOR IHC

All 3 IHC prototypes show the best results for moderately disabled patients with a moderate intensity of care (in average 3-8 home sessions whereof some may be substituted by phone calls and videoconferences). The typical follow-up time is 12 months. The criteria of moderate disabled are operated for each of the prototypes:

Common inclusion criteria for all IHC patients are:
- Age =18 years
- In need for post discharge follow-up care
- Residence within the hospital catchment area (often maximum 30 km from hospital)

Condition specific inclusion criteria:
- A confirmed diagnosis of one of the 3 selected conditions as the principal
- For IHC stroke the primary criteria of inclusion is Barthel Index (20): 12-17 at admission corresponding to about 30% of all stroke patients
- For IHC heart failure the primary criteria for inclusion is NYHA II-III corresponding to about 30% of all HF-patients (as quite many denies the offer)
- For IHC COPD the primary criteria for inclusion is FEV1 % predicted: 30-70% which in practice may correspond to about 25% of all COPD patients

For all prototypes, other specific exclusion criteria should be taken in to account.

The difference between IHC and usual care may be reduced over time as usual care may include some elements from IHC. This applies both to out-patient follow-up as well as some elements of Telemedicine.

HEALTH ECONOMIC EVALUATION

A cost analysis aiming at a societal perspective is based on the significant clinical effects summarized above. The costs of intervention are calculated specific to chronic conditions using cost units as 1) length-of-stay, 2) number of home sessions and phone contacts. A common set of prices across outcomes, intervention cost-units and health systems (countries) are derived from the Dutch price manual as updated to 2012.

In order to test for health economic dominance, a worst-case-scenario was calculated where 1) the significant outcomes demonstrated in randomized trials are modified proportional to the proportion of patients with records of primary outcome and number intended-to-treat and 2) upper confidence intervals are added to the calculated average costs of intervention. As all three selected conditions have both an effect and a net saving in the worst-case-scenario, the over-all economic conclusion is that IHC meets the standards of health economic dominance. A major consequence of dominance is that the basic decision about go / no go regarding IHC is not really of political character as most other top-level decisions in healthcare. Typically, new interventions with better effectiveness may have larger costs wherefore it is a matter of political priority to 'go' or 'not go'. However, in the case of IHC, as a dominant intervention uniting more effective care with societal savings, it is also a desirable intervention in democratic societies wherefore it may be introduced without a specific political mandate.

The comparison with local practice may be simplified to a comparison of new local benchmarks with those of a previous period in the same ward, as the required data for future benchmarking of IHC should be that basic that they are already available in most hospital data systems.

PATIENT AND CAREGIVES PERSPECTIVES

Being discharged with a chronic disease and its long term implications has serious consequences for patients and their families. Everyday life has to be resumed and self-management tasks have to be performed. A successful transition from hospital to home includes integrated efforts by patients, families and healthcare professionals.

Hospitalization might result in loss of control, loss of abilities for carrying out daily activities, increased burden of care, insecurity of the future and isolation. Including the context of the home and the families in preparing discharge and in follow-up support seems to enhance patient participation and satisfaction without increasing the burden of caregivers. IHC is facilitated by a

relational process between the patient and healthcare professionals including information, knowledge, communication and trust.

ORGANISATIONAL PERSPECTIVES

Though individual trials both within and across diseases necessarily are greatly influenced by their national and local context and as a consequence have very different approaches to the delivery of IHC services, it is possible to derive some general building blocks of an IHC pathway. These building blocks include:
- Patient identification and assessment at hospital
- Establishing contact with multidisciplinary IHC team
- Development and implementation of rehabilitation, care, and discharge plans incorporating the home setting
- Establishing contact to relevant health care providers

“The IHC pathway” is attached to the ”Final publishable summary report”.

The determinants of performance in the special case of inter-organisational collaboration are identified as perceived by employees/leaders [Alter and Hage, 1993]:
- Minimal vertical dependency which calls for written formal agreements between the collaborating organisations which settle relative responsibilities and finance
- Minimal task intensity which means that when the employees feel overloaded their performance declines
- Maximal connectivity which means that the more communication activities in the team the higher is their performance
- A logical work pattern which means that the team members have a clear perception of the workgroup tasks and the derived flow of activities

PRACTICAL GUIDES ON IHC

The secondary foreground is 3 practical guides – one for each of the selected chronic conditions. These practical guides serve as both independent scientific products, whose aim it is to guide local clinical teams aiming to implement IHC services, as well as key input to the HTA.

The HOMECARE practical guides are not intended to be concise clinical practice guidelines, but rather practical problem-based guides supporting the proposed local implementation of IHC-pathways for moderately disabled patients. These new pathways for multidisciplinary outreach teams are convened by a case-manager (CM) and aim to be complementary to the coordination actually performed by general practitioners.

PRACTICAL GUIDE ON IHC STROKE

Early home supported discharge is an intervention where the stroke patient in hospital receives an earlier discharge home with replacement of some of the usual hospital rehabilitation with

sessions in the patient's own home. In the majority of IHC trails, most of the home-based rehabilitation takes place after discharge from hospital.

A typical IHC patient pathway includes an early identification of the stroke patient at hospital and a visit from a CM from the IHC multidisciplinary team. The CM makes contact with the patient and carer, carries out a patient assessment and arranges a home assessment. Discharge home is planned with agreement of rehabilitation goals. After discharge home, the IHC team implements the rehabilitation plan usually beginning on the day of discharge or on the following day. IHC services typically finished 1-3 months post discharge.

The evidence on IHC Stroke (EHSD) is concluded in a Cochrane meta-analysis including 14 RCTs with 2139 participants and a median follow-up period of 6 months (range 3-12 months) as summarized in the above section on 'Clinical Effectiveness'. The primary outcome is 'death or dependence': For IHC stroke odds ratio (OR) for 'Death or dependence' is compared to usual care: OR=0.75 (CI95%: 0.61-0.92); NNT=15. Evidence may be characterized as class one.

Inclusion rates from different studies indicate that IHC services may not be suitable for all stroke patients. Patients who seem to benefit the most are likely to have a moderate stroke severity. Patients included in IHC trials tend to be elderly with a clinical diagnosis of stroke and selection of patients is typically based on need (persisting disability), stability of medical condition and practicality (living within the local area). The typical Barthel Index (20) is 12-17 at admission which corresponds to about 30% of all stroke patients.

Stroke patients with a moderate-to-severe stroke with a need for a longer period of rehabilitation at hospital may also benefit from home supported rehabilitation as a supplement to the ongoing rehabilitation at hospital as well as in the transition phase from hospital to home. So far, no IHC interventions have focused on severely cognitive impaired or aphasic patients, and there is no knowledge of possible benefits for these groups of patients.

Whether a patient will benefit from an IHC service is overall an individual, clinical judgement and a decision that has to be made in collaboration between the patient, his/her relatives and the multidisciplinary healthcare team.

The home assessment usually focuses on identifying and dealing with barriers to recovery in the home setting and barriers to participation with the IHC service. Once the patient is home, the rehabilitation programme usually features functional task-oriented activities developed to meet the patient's agreed upon goals.

The amount and timing of IHC services seems linked to the type of intervention – whether IHC is a supplement, a transitional phase to other rehabilitation services or whether it replaces rehabilitation

in centres. Rehabilitation sessions may vary from daily input to one or two visits per week and from several months duration to only a few visits after discharge home.

In the majority of IHC studies, home therapy always begins within one week of discharge and often within one day. Therapy input continues for several days per week and IHC services usually finishes at 1-3 months post discharge.

What organisational and staff competences are required for home-based interventions?

IHC multidisciplinary teams typically have a specialist interest in stroke and/or rehabilitation. The team comprises physiotherapy, occupational therapy, speech, and language therapy with medical, nursing and social support. The stroke service is coordinated by a CM – usually a physiotherapist or an occupational therapist – within the team. The CM constitutes the link between specialised and general care services and is the person responsible for the securing of a smooth transition from the hospital setting to the home setting. Most of the evidence of benefit comes from trials of a multidisciplinary team whose work is coordinated through regular, often weekly, meetings.

Engaging in multidisciplinary practice and working in the home of the patients involved numerous new demands to the professional task of healthcare professionals. Besides, specialist stroke competencies, knowledge on and skills in multi-professional team practice as well as personal attributes, such as empathy, creativity (e.g. in using the home as training arena) and flexibility (e.g. in role sets), are important characteristics of a good IHC worker.

EHSD for stroke is a complex intervention that has to be developed and implemented within and across complex healthcare systems. Therefore there are several challenges when trying to use evidence from RCTs to guide clinical practice. In particular:

IHC is a complex intervention (comprising several interacting components) – therefore guidance will provide only general indicators of how services should be developed. However, it is clear that several skilled members of a multidisciplinary team are needed and that they need to work in a coordinated manner. Services vary greatly between countries and regions – therefore the baseline services available will vary greatly. This needs to be considered when planning IHC services.

Patient selection criteria cannot be more than indicative. Patients who can benefit most are likely to have moderate stroke severity and be able to cooperate with rehabilitation in the home setting.

PRACTICAL GUIDE ON IHC HF

IHC for heart failure patients is care delivered with regard to heart failure management to a patient with sessions in the patient’s

own home. The building blocks of the heart failure pathway resemble those of stroke: In hospital, the patient is identified by a heart failure nurse to be in need for a multidisciplinary integrated approach. The heart failure nurse contacts the patient and carer, carries out a patient assessment and contacts relevant healthcare providers (secondary care, primary care and social services) and makes a care plan.

Home care for heart failure patients can both be seen as a supplement to hospital based heart failure care and as a replacement. This means that, in a lot of health care systems, patients will able to use both home care and hospital based care at the same time or that home care will be provided at certain times, while at other times hospital based care is more in focus.

The evidence base is a meta-analysis including 3 RCTs with 568 participants and a median follow-up period of 18 months (range 12-24 months). Each of the 3 RCTs has significant outcomes. The common outcome is all-cause readmission which in one study is indicated as days instead of rates. The average readmission days are recalculated as number of readmissions using the average length of readmission for the meta-analysis as summarized in the above section on 'Clinical Effectiveness': For IHC heart failure OR for 'All-cause readmission' is compared to usual care: OR=0.60 (CI95%: 0.40-0.92); NNT=2. The evidence base may be characterized as class one with the comment that a larger number of patients is desirable.

In literature reviews up to date, it is clear that randomized controlled studies have not recruited all types of heart failure patients. Though most trials apply quite wide inclusion criteria regarding severity of heart failure, co-morbidity and age limit, the frailest patients more often refuse participation due to fatigue and poor health and healthcare providers may more or less purposely exclude to ask the frailest patients for study participation.

There are experiences with different ways of organizing homecare. While some pathways are based on structure (who gets what at what time), others are based on the condition of the patient (who get what when he needs it).

What organisational and staff competences are required for home-based interventions?

In most studies on IHC for heart failure patents, nurses have the coordinating and leading role as CM. Nurses' background and type of specialisation varies (home care nurses, hospital nurses, HF nurses, cardiac rehabilitation nurses, research nurses, practice nurses and/or district nurses). Most programmes also have physicians involved (cardiologists, primary care physicians or other specialists such as geriatricians or internists). Additionally, psychologists, dieticians, physical therapists, social workers, and pharmacists may be involved in the service on a regular or ad consultative basis.

Staff engaged in homecare should have specialised knowledge on heart failure care. General courses or modules of courses that focus on heart failure according to the curriculum of heart failure training of the Heart Failure Association are suitable for members of the IHC heart failure team. Finally, development of skills on how to work as part of a multidisciplinary team is important.

A common complaint, even in well-run services, is the lack of continuity and communication between hospital and home and different levels of care. A major challenge for an IHC heart failure service is to develop inter-sector linkages as well as linkages between hospital and home. Such linkages can be created in various ways, e.g. my means of patient-held documentation, transfer letters, telephone outreach or tele-medicine.

PRACTICAL GUIDE ON IHC COPD

Integrated homecare or home hospitalisation is a short-term high-intensity intervention mainly applied to moderate and severe exacerbated COPD patients discharged from emergency room or after a short hospital stay. It is carried out by a specialised multidisciplinary as an alternative to conventional admission.

A typical patient pathway includes:
i) Case identification. Patients are identified at conventional facilities such as acute and emergency departments, hospital wards, outpatient departments, or day-case areas.
ii) Case evaluation. Patients are assessed by a case manager, typically a nurse, and, if required by other health professionals. Special attention is paid to co-morbidities, social aspects, patient education and informal carer support.
iii) Work plan definition. The case manager typically coordinates the multidisciplinary team and across different levels of care, and elaborates the individual care plan for the patient. The plan includes the regime of visits by nurses and/or doctors, the need for educational sessions, frequency and type of monitoring sessions (if needed) and other logistics, such as oxygen at home or tele-medicine.
iv) Follow-up. The follow-up phase corresponds to the execution of the individual care plan which may vary in duration.

The total evidence base is 6 RCT and 1 CT with in all 1295 participants each of which have significant outcomes. However, only 3 of the RCT are directly IHC-trials with 1st year readmissions as common outcome. The meta-analysis includes these 3 RCTs with 381 participants. The follow-up period was 12 months in all trials. The common outcome is readmissions. The average readmission days are recalculated as number of readmissions using the average length of stay as summarized in the above section on 'Clinical Effectiveness': For IHC COPD OR for 'COPD-readmission' compared to usual care is: OR=0.5 (CI95%: 0.25-0.80); NNT=2. The evidence base may be characterized as class one with the comment that a larger number of patients is desirable.

In principle, all exacerbated patients discharged from hospital are eligible for home-based care provided they live in the defined geographical area and accept the modality of service offered.

A Barcelonan IHC study may serve as exemplification of this clustering of patients. Here, patients were stratified into 3 groups: Group A: Patients with a mild stage of COPD (20%). This group of patients received usual care. Group B: Patients with a moderate stage of COPD (45%). Interventions planned for this group of patients included communication to primary care physicians upon discharge, home visits by the primary care team, telephone follow-up and specialist's visits either at the primary care setting or in the home setting depending on the patient's state of health. Group C: Patients with a severe stage of COPD (35%). Interventions planned for this group of patients included home visits by hospital nurses, telephone follow-up by specialised hospital nurses, specialist outpatient visits, tele-monitoring of the patient (questionnaires, vital signs) as well as diagnostic tests.

Based on the included RCT in the meta-analysis about 25% of all COPD-patients choose IHC whereof the most has a FEV1 in the interval from 30% to 70% of the normal expiration volume.

IHC services have a comprehensive approach to the management of COPD patients. Besides pharmacological treatment, attention is paid to co-morbidities, social aspects (e.g. active life-style), patient education and informal carer support. Quite often, IHC COPD services are supported by information and communication technologies. The intensity and duration of COPD IHC services varies and is closely linked to the level of frailty of the patient.

What organisational and staff competences are required for home-based interventions?

The COPD pathway is typically managed by a coordinated, multidisciplinary team of health professionals including nurses, physicians (e.g. primary care physician, respiratory specialist), psychologists, physiotherapists and social workers. Most often, nurses have the coordinating and leading role in the care process. The nurse CM is typically in charge of assessing the patient's situation as well as for the elaboration and implementation of the care plan. Moreover, it is the nurse case manager that enables the contact between the members of the multidisciplinary team, the involved levels of care and the patient and his/her relatives.

The need for specific training and education of professionals that are part of home health delivery teams is universally recognised and may be seen as a part of the wider concept of inter-professional collaboration.

Currently, most health systems in Western Europe and developed countries are better designed to handle the exacerbations than the patient as a whole and they repeatedly fail in efficiently preventing such episodes. This is also common for other chronic

conditions, such as in the case of congestive heart failure. Moreover, elderly COPD patients tend to suffer from other conditions as well, heart-related ones being the most usual. In an effort to rethink the formats of health care delivery, different proposals have been made following the seminal work of Wagner et al (The Chronic Care Model) and later developed by WHO in the form of a framework for innovative care of chronic conditions.

OTHER HOMECARE RESEARCH SERVING THE HTA

Finally, a number of independent scientific products aim to serve as inputs either in the HTA or in the practical guides. This group of deliverables comprise:

RCT of IHC Stroke in Denmark:

A randomised multi centre study performed at three rehabilitation centres in the western part of Denmark. Denmark has observed an active social policy aim to keep persons for as long as possible in their own homes since 1987. As part of this policy the social statistics e.g. on home help is quite developed.

Consequently, the evaluation was organised as a multi factorial analysis of the outcome for patients, who remained in their own homes, which in the present study comprised 90 percent of the 180 included patients. This outcome consists of the allocation of local authority (municipal) home help and care (hours per week (h/w)) as registered by an independent evaluator at a follow-up visit at the patient's home six months after admittance. Using multiple regression analysis to process data from the project database the following significant determinants for home help were identified:

(1) One extra point on the FIMin-score increases ADLburden by 0.18 h/w. As the mean value of FIMin in the present trial is 6 points higher for ESD than for UC, this explains little over 1 h/w of the total difference of 3 h/w in favour of ESD

(2) Period of hospitalisation also represents a significant effect, as 1 less day of hospitalisation reduces home help by 0.042 h/w

(3) Additionally, ESD holds the significant effect, that home help is reduced by 2.3 h/w. Thus, ESD can be used to compensate for a shorter stay at the hospital and/or to reduce home help. In the present study ESD is used to reduce length of stay by 5 days and home help by 2 h/w. An equivalent result based on other data also applies for the period of time between discharge and follow-up visit.

(4) ESD was planned to have an average frequency of 8 home sessions per patient. 80 percent of the patients received "Early Home Visit" within 3 weeks after being transferred to a rehabilitation centre. On average 6 home sessions were performed, of these 4 were performed before discharge. 80 percent of home rehabilitation visit sequences were terminated 1 month after discharge. The expense of the Home

Training Program of 8 home sessions and the derived municipal services are calculated to 1,300 EUROS per case

(5) The value of a saved home help hour per week in 12 months is based on an hour rate in the municipal supply price catalogue of 40 EUROS is calculated to 2,000 EUROS. The value of 1 less day of hospitalisation is set to 260 EUROS or 10 percent more than the current rate of days in hospital

(6) Based on the above, the average net saving of using ESD is calculated to be 2,500 EUROS per case. 'Worst' and 'Best' cases are calculated to 1,000 EUROS and 5,800 EUROS, respectively. This result is estimated to apply to approximately 4,000 rehabilitation patients per year in Denmark or 350,000 in EU27.

To enable an optimum use of ESD it is recommended that the therapeutic staff in the stroke wards and neurorehabilitation centres, through an amendment to the Diagnosis Related Groups Tariff, are allowed to provide up to 10 specialized rehabilitation training sessions on an outpatient basis in the patient's own home.

RCT of IHC Stroke in Portugal:

The Portuguese government has launched the National Network of Continuous Integrated Care (RNCCI) in 2006. Home care should be one important element in this network, but the level of implementation is still very low. Stroke patients discharged from acute care are confronted with a number of possibilities when it turns to rehabilitation. A stroke therefore represents a major disruption in patients and their families' lives but also a significant cost to the already overwhelmed health and social care systems. Prior research shows that EHSD services are able to guarantee better quality in rehabilitation with socio-economic net savings. Therefore, implementing EHSD services for stroke patients and comparing its results with experiences in other countries is both valuable and challenging.

Feasibility studies of IHC HF in Sweden and the Netherlands:

We have aimed to describe European components for optimal home based management of heart failure patients and secondly to test the feasibly of a home based intervention based on the components for optimal home based care in two countries with different health care systems.

The method that was designed to formulate these components included: 1. Literature review on the components in home care programs, 2. Survey of European heart failure management programs, 3. Opinion of researchers in the field to evaluate the first draft of the components for optimal home based management and 4. A request for endorsement to the council on primary care of the ESC, the council on Cardiovascular Nursing and Allied Processionals of the ESC and the Heart Failure Association of the ESC (committee on patient care).

The following professionals were involved: nurses, GPs/internal medicine physicians.

Barriers of implementation:
- ”Need for change of care culture” to give more proactive care and treatment
- Poor documentation, difficulty for nurses to assess and follow up symptoms
- Self-care is not always assessed and documented
- Palliative care versus active care should more often be combined
- Sometimes unnecessary border and barriers, unclarity about responsibilities between caregivers
- Lack of time
- Does the model fit all patients?

Facilitators of implementation:
- Ongoing education and skill building during implementation to motivate staff / increase competence;
- Helpful with checklists;
- Helpful with the numeric rating scales for symptom evaluation;
- Nurses and doctors discuss more about care plans;
- Better optimisation of treatment due to the model;
- Support through the model to change practice;
- Include next of kin more actively;
- Good with feed back through the model;
- New tool for documentation.

Development of a test plan for IHC Tele based on a systematic review:

The state of the evidences emerging from this overview appears as unbalanced in favour of HF compared to COPD and STROKE patients. This general finding should be considered in planning trials on tele applications in homecare, with the consequent need to adopt different objectives and strategies for the three different populations.

In both HF and COPD patients, trials’ intervention should be targeted to a tele-monitoring (automated or not) more than to a Telephone contacts. Transferring this finding to STROKE patients should be preferred an on-line interactive device (allowing also videoconference) instead of a store and forward device to provide the tele-intervention.

Consecutively, it was decided to establish pilots on ‘Virtual Motor Rehabilitation’, ‘Wii’, ‘Digital Pen’ and ‘Motor self-training of the disabled arm in stroke patients’.

In summary, tele-facilities may in the years to come both improve and enrich IHC interventions with regard to better monitoring, better training and savings due to partial substitution of face-to-face home visits with tele-conferencing. However, to our knowledge a

patient-centric organisational setting with some initial real home visits seems to be the core of a good intervention.

A study of strategic experiences from the first 5 year period of a national Portuguese network for integrated care (RNCCI):

Portugal is no exception among Mediterranean countries such as Spain and Italy regarding the traditionally important role played by informal care. However, in 2007 the Portuguese declared themselves worried about the idea of becoming dependent because of a physical or mental health condition but few had taken practical measures regarding such a situation. More than the quality of services provided at the patient's home or in nursing homes, the problematic aspects seem to be availability and affordability of long-term care services. Interestingly, the Portuguese are close to citizens of Southern and Eastern European countries when considering that an elderly father or mother not able to live alone should live with one of their children, and close to citizens of Northern and Western countries when stating that they would prefer to be looked after in their own home if they found themselves in such a situation. However, even in the latter situation the family is always perceived as the preferred caregiver. Meanwhile, long-term care in Portugal still relies heavily on informal and privately funded care. To close the gap in NHS coverage, the state has created the RNCCI. In its first two years of activity, the programme has concentrated on establishing a network of units and teams aimed at providing institutionalized convalescence, rehabilitation, maintenance and palliative care. Home care is still residual in this context.

The dependency care benefits, intended to cover all citizens in a situation of dependency by 2015, are tax-funded and may be either services or financial benefits but their social character is clearly assumed. The need for social care services only does not qualify a dependent person for admission to RNCCI. Interestingly, by 2006 the mean coverage rate of social care services in Portugal was 11.1 per cent, while in Spain public funding for essential services such as home help and residential care covered no more than 4 per cent of the population. Social care services are provided by both local authority and private-sector (mostly not-for-profit) providers and tend to be regulated by the autonomous governments. The increase in the provision of home-based social care is one of the most important adjustments social care institutions are making to cope with the changes in Portuguese society and culture while the purchase of care work by families is residual. Therefore, the longitudinal study of the two arrangements might bring important knowledge regarding the long-term sustainability of these options, as well as the quality of outputs and satisfaction of users.

An international survey on national barriers to IHC:

When considering the relevance of integration between hospital and community services in the provision of care for patients affected by chronic diseases such as Stroke, COPD and HF, the question as to whether the legal and financial environment has a positive or

negative impact on this integration process constitutes an important research topic.

Organizational and management models are necessary to ensure a real integration of hospital and territorial care. Such models must be able to grant the continuity of care and a coordinated use of resources.

The main barriers or opportunities for the integration process are: the definition and modeling of shared paths of care for patients who pass through the hospital during the acute phase and who then move to the long-term territorial care system; the definition of responsibilities in the different phases of the treatment; a clear identification of the actor who should pay for the treatment, in particular with regard to making a clear distinction between the responsibilities of the municipalities and those of the health system. Other key elements are the management of information, the definition and the assessment of the objective of the treatment that must be common and shared between hospital and community.

Even if the importance of integration is universally recognized, the existing examples are very diverse with situations ranging from the absence of a specific regulatory framework in the field to the definition of the financing system or of specific regulatory and organizational tools to grant the integration. As in some cases these elements are almost totally absent, it is fundamental to point out the principal characteristics of existing best practices.

Facilities of Early Rehabilitation Post Stroke in Poland 2010:

The aim of this work was to survey the contemporary facilities for early post-stroke rehabilitation in Poland. The main research questions were: what is the availability of inpatient rehabilitation for post-stroke patients in neurological departments and in rehabilitation departments?

Growing costs of health care are encouraging healthcare planners to look for new organizational solutions of services which could enable rehabilitation as early as possible after disease onset. Early post-stroke rehabilitation consists of many elements that provide for early onset rehabilitation and its continuation after discharge from stroke unit.

Two questionnaires evaluating neuro-rehabilitation of people who underwent stroke was designed and distributed: first to 221 neurological wards and second to 154 rehabilitation departments in Poland.

Only 25% of all patients after stroke were moved from neurological wards to rehabilitation department (15% directly). Of those moved to rehabilitation departments only 54% were treated early post-stroke, i.e. within 3 months of stroke.

Taking into account that about half of stroke survivors will need rehabilitation (30 days after stroke onset), the current facilities of early post-stroke rehabilitation in Poland cannot meet this need. We should do our best to introduce rehabilitation services such as Early Home Supported Discharge after stroke, which is currently not available in Poland. Although we have focused on resources in Poland we would anticipate that similar patterns would be found in other countries in the region.

Potential Impact:
The scientific results of HOMECARE seem remarkable. In one project evidence-based practical guidance for the improvement of clinical continuity is gathered for about 50% of the high-risk discharges among elderly frail somatic patients. This may significantly reduce the number of disabled chronics and the number of readmissions. Moreover, these benefits are linked to better satisfaction of patients and their carers and net savings to society. These results are even better than expected at the time of proposal in 2007 as more important evidence has emerged outside the project with regard to both IHC heart failure and COPD patients during the project period. In rough figures, about 800,000 new patients in EU may enjoy average net benefits of 1450 EUROS each year in the ideal case of 100% dissemination of the results. Of course, complete coverage is not a realistic goal. By analogy to related progresses in the organization of hospital rehabilitation, e.g. the formation of stroke units, it is still very ambitious to go for 50% coverage within a decade.

SWOT-analysis

Already in 2007, as part of the HOMECARE proposal, a SWOT-analysis of IHC was elaborated. Below, an updated SWOT-analysis taking into account the developments in the field of IHC accumulated over the last 5 years.

Strengths
Normally, health economic choices are about how much to pay extra for some specific health improvement. This might involve tough negotiations between the involved parties representing different interests: professionals representing their professional specialisation, administrators having budget restraints and politicians striving for re-election. In comparison to the typical conditions of healthcare decisions, dominant healthcare interventions are characterized by a potential win-win situation between patients/carers, healthcare professionals and the economic interest of society.

Besides being dominant, integrated care addresses a majority of the population as most elderly frail somatic patients are exposed to a high risk of stroke, heart failure or COPD. More specifically, the three selected conditions represent close to 50% of elderly high-risk somatic patients. Moreover, the promising results as outlined above rest on solid ground. Regarding the postulated psychological values in integrated care:
- The evidence of ‘feeling more safe at home’ is well known from a clinical setting as the blood pressure of a patient is lower when measured at home compared to at the hospital
- The motivational effect of ‘increased participation’ is well known from sociological trials
- The learning effect of primary feedback is well known from learning in general and in particular as better transference in rehabilitation

Weaknesses
The quality improvements associated with the psychological values in integrated care are moderate on a day-to-day basis. However, over time the effect due to learning may be very impressive, e.g. for stroke patients.

The present focus on IHC is driven by the expected rise of the share of elderly people as life expectancy rises in the industrialised countries. A majority of patients needing IHC are pensioners which in general are low profiled in politics compared to people in the work active age.

The major challenge is to get more experience with multidisciplinary collaboration across sectors. This requires much stronger horizontal integration presupposing that vertical integration is assured by formal agreements giving IHC-staff sufficient personal security to take relevant initiatives in the communication across sectors.

All in all, the major weaknesses of IC might be turned into strengths over time.

Opportunities
Integrated care represents a unique option for job enrichment to subordinated health professionals at hospital, e.g. nurses and therapists. Home health interventions from the hospital by an outgoing multidisciplinary team mean that the team members – who are often nurses and therapists – become more independent from the formal line of authority in hospitals. Visiting the home of a patient means that additional information about the patient is collected enabling the elaboration of a more individualized care or rehabilitation plan. For instance, if a stroke patient with motor problems is used to have his exercise by cycling, the final objective for his rehabilitation should be to modify his cycle in a way which enables him to restart cycling. If he is limited to a standardised hospital walking test implemented as being able to walk around in his house, the real benefit from integrated homecare is lost.

As a dominant intervention IHC represent an opportunity for synergistic benefits between patients and society without large financial support from higher decision-making levels. Within EU, IHC may have different roles in different regions. However, to specify such differences additional research in the comparative effectiveness of IHC is required.

Although the evidence so far is scarce we think that the collaborative skills developed by good IHC-projects may spread to other parts of the organisations involved. For example do our focus group interviews with staff indicate such effects both to hospitals and municipal social services.

Threats
Fragmented financial systems are obvious threats to IHC. This applies to IHC for stroke patients, in particular, where the major

resource requirement is an outgoing hospital team while the major benefit is savings on nursing homes and/or home help hours. Regarding IHC for heart failure patients both costs and savings related to the outreach team relates to the hospital. Regarding IHC for patients with COPD, the nurse case-manager may be municipal which transfers the major costs to the municipality. Consequently, pooling the different IHC interventions seems to outbalance the relative costs and savings between hospitals and community services in primary care and/or municipalities.

A special threat to IHC arises from the hierarchical organisation characteristic to hospitals. As the leading physician is the health professional in charge of establishing IHC, he might be biased in favour of core issues to physicians instead of initiatives in integrated care mainly involving subordinated nurses and therapists. For instance, a hypertension programme or tele-facilities may seem more interesting to medical ward management than a low-tech organisational development as IHC – even if the expected benefit is only a fraction of IHC.

Micro, meso or macro strategy

A basic strategic question is whether the anticipated dissemination of integrated care should rely on the micro level with bottom-up developments from the level of clinical care or on the macro level with top-down legislation from national levels of health authority or some meso-level related to organisations in-between the micro and macro levels [Grøne and Garcia-Barbero, 2002].

According to a description and comparison of integrated care in Finland, Sweden, Austria, Spain, The Netherlands and England, the actual situation is the following [van Raak et al, 2003]: It is a common feature of the countries in the study that they have collectively financed healthcare systems. Some are based on taxes and political control of health authorities (Beveridge System), while other are based on compulsory social insurance funded by legal private organisations, i.e. sickness funds and commercial insurers making agreements with care providers on service and payments (Bismarck System). So, the European variants of collectively financed and controlled healthcare are in stark contrast to the commercial US-model of healthcare organisation (Semashko System). Since the 2003, a few new states in Eastern Europe – not represented in the 2003-description – have adapted the Semashko System.

- Within collective healthcare systems, England represents the most top-down macro approach as the English government has composed legislation, policy documents, obligatory measures and control mechanisms to both encourage and compel integrated care delivery
- Austria represents the most distinct bottom-up micro policy as the establishment of a commission responsible for preparing integrated care delivery was the only action taken at the time of the 2003-description. Along this line, an interesting Vienna-initiative was established in 2004 to explore challenges and possible solutions to realized problems of fragmentation by more patient-orientation in a bottom-up learning process

- The Netherlands and the Scandinavian countries are somewhere in the middle of these more extreme positions representing a meso approach. They emphasize stimulating and supporting measures, encouraging inter-professional working and patient empowerment as well as providing subsidies to integrated care initiatives, stimulating the development of ICT and reallocation of personnel.

The evaluation by van Raak et al (2003) of the macro, meso and micro strategies, respectively, is as follows:
"At first glance, the macro approach in England looks attractive because a tight co-ordination of across sector decision-making is assured and supervised by one national centre. However, in practice such centralisation has a number of shortcomings. Firstly, central decisions tend to develop over-bureaucratic procedures. Secondly, not all centrally made decisions are comprehensible to those working on the care level. Thirdly, the central reaction time to problems focused on at a local care level tends to become very long and often out of contact with the real context. Fourthly, but not least, centralisation tends to kill motivation at the care level. Decentralisation, on the other hand, has a number of disadvantages, too. Firstly, too many decision-makers and too many decision procedures slow down decision-making. Secondly, it hinders more radical changes because too many different points of views and interests have to be included in vague compromises. Decentralized systems are inherently incremental decision making systems."

The Netherlands (CE)
The Netherlands have undoubtedly been among the leading countries at national management level to try out new schemes to overcome fragmentation and establish patient-centred clinical continuity. In 2007, the Dutch minister of health approved the introduction of a bundled-payment approach for integrated chronic care. In 2010, the bundled-payment concept was approved for nationwide implementation for diabetes, COPD and vascular risk management. In 2011, a 3-year evaluation of bundled-payment for diabetes was published [Struijs et al, 2011]. The diabetes bundle has been contracted by the insurer with a legal entity formed by multiple care providers – typically general practitioners – to cover a full range of services for a fixed period. The main results are:

- The bundle-price varies from 258-474 EUROS which does not reflect the content of the bundle (largely, on a par with the costs of IHC)
- Coordination and satisfaction among providers increased
- Transparency of care increased due to record-keeping obligations
- It is still too early to evaluate changes in quality and over-all costs of care
- Sub-contracted care-givers felt a conflict-of-interests by GP's as simultaneous commissioners and caregivers.

From the point of view of IHC, the Dutch experiences illustrate that integrated care is not merely a matter of finance. The cost-effectiveness of bundle-payment may be improved basing the implementation on the practical guidelines on IHC and appropriate education of case-managers, in particular, and the multidisciplinary

team members in general. The learning from this HTA is that, in the Netherlands, it would be preferable to offer the bundled payment to the treating hospital regarding stroke, heart failure and COPD.

Germany (CE)
In contrast to the top-down pilots in the Netherlands, Germany has tried to promote integrated care by a kind of bottom-up approach where individual physicians and physician networks since 2004 have been able to become direct contract partners with the health insurance for the first time through selective contracts. Further, an attractive start-up financing in the first 5 year period has helped to give integrated care a strong push in Germany. A study [Amelung et al, 2012] found that, at the end of 2009 somewhat after the expiration of the start-up period when the situation had stabilised, 5000 contracts were running with a total budget somewhat below 1% of total healthcare expenses. Today, due to the conclusion of a series of new contracts in the field mental illnesses, rheumatology and also in full-care models, the authors estimate the future cost level to be about 6000 contracts and an over-all share of health care expenses of 1.5%. Currently, the risks are supposed to outweigh the benefits for health insurance companies and the insured are rather sceptical, too, wherefore the German path is not more recommendable than the one in the United Kingdom and the Netherlands.

UK (NWE)
The first conclusion from a British report on Primary Care Teams (PCT) [Ham, 2011] is that, so far, the typical drivers for development of the interventions have been providers of health and social care which as a whole have not delivered sufficient results. To move on with implementation, the focus should shift to the role of commissioners / health care administration / insurers. However, it is doubtful if the administrative management level have sufficient time and specialised knowledge themselves to head the relevant planning and development of these interventions. As a consequence, the critical step towards massive implementation of IHC is not at national political decision-making level as in most decisions about implementation of new interventions that increase effectiveness at the expense of increasing costs. The critical step is to establish a local steering committee including all parties with an interest in IHC, i.e. hospital management, ward management for the specialities involved, management for home care services, nursing homes and primary care (general practitioners). Such broad committee might determine the administrative and financial framework for implementation in accordance with a meso-strategy.

Portugal (SE)
Portugal lacks a social welfare sector like the one in Scandinavia wherefore post discharge support mostly relies on the family. To improve quality of care, a national network on long-term integrated care (RNCCI) has been established as a 10-year experiment running from 2006 until 2016. Preliminary results of an ongoing Portuguese RCT on IHC stroke based on 100 patients showed a significant reduction in the perceived caregiver burden in the IHC group at 6

month follow-up [Santana, 2011]. The Portuguese results seem to demonstrate that the core effect of IHC is very much the same across cultural differences. So, the support of IHC by bundle-payment to the hospitals from the RNCCI may become an alternative to improve the quality of care without pre-establishing a large social sector as in the Nordic welfare-systems.

A meso-strategy of dissemination

In order to combine the dynamics of bottom-up initiatives with the over-all planning qualities of centralist measure, a meso-strategy has been proposed [Leischenring, 2004]. A meso-strategy of dissemination addresses a medium instead of a top level of healthcare organization. What is the meso-level of dissemination of IHC? In the original sense proposed by Leischenring, the meso-level is that of regions. However, most regions are that aggregated systems of healthcare units that the direct contact between the clinical and administrative/budget level are not possible. Also, the concept of regions regarding size and function varies a lot from country to country. The core of the Homecare-findings is the development of new integrated pathways across the respective settings of specialized and generalized care as complements to the coordination exercised by general practitioners. With that approach, the meso-level regarding IHC is to our comprehension that of a county hospital integrating specialized care with generalist community care provided by municipal or primary care bodies.

At a county hospital level, representatives from the executive clinical level may meet face-to-face with the authorities of social services and finance to shape IHC implementations in accordance with the specific county conditions. To begin with, such county negotiations may be successful as a win-win-situation for both parties, as the administrative party may gain some net benefits to society and the health professional party may get the opportunity to give patients a better health service. Moreover, such county agreement(s) may be accompanied by educational activities supporting the elevation of both clinical and administrative thinking from a mono-disciplinary and hierarchical level towards a multidisciplinary and horizontal level of functioning.

Despite the finding that IHC constitutes a win-win situation for both patients and society, it is doubtful that the dissemination of IHC occurs automatically due to several barriers whereof sub-optimal institutional cash-flow-thinking is an important one. However, the experiences from the UK, the Netherlands, Germany and other countries indicate a societal willingness to pay providers for better integration of care across sectors. This willingness to pay 300-500 EUROS for HF and COPD patients is in reality on a par with the costs of these interventions according to our analyses. The use of the calculated net benefit is probably not as ‘cool’- cash but rather as a local saving on resources which may be used locally for care for more patients or better care for other groups of patients.

In order to test the realism of a meso-strategy of dissemination based on county hospitals compensated at a level of ‘Dutch Bundle-

payment', we have conducted a 'market test' in collaboration with The European Hospital and Healthcare Federation (HOPE). In the HOPE Newsletter, European hospitals have been asked to declare their interest in a future IHC-package-project where they may expect to be compensated at the level of the Dutch-Bundle-payment. Within a fortnight we received the following feedback:

From Central Europe (CE) we received 15 applicants whereof 12 are from Belgium. The large interest from Belgium is related to the fact that the CEO of HOPE is from Belgium. However, the initial interest from CE is more than sufficient to establish a project and the interest from this region may become even stronger if we involve relevant health insurance companies in the project.

From Southern Europe (SE) we received 13 applicant hospitals whereof 12 are from Spain. This reflects that Spain has a good tradition for IC as the WHO European Office in Barcelona was important in putting forward the issue 10 years ago as well as it may be influenced by the current financial crisis.

From Eastern Europe (EE) we received 7 applicant hospitals whereof 5 from Poland. In EE, health care systems are often quite new and even in transition wherefore the traditions for integrated care are relatively weak. However, already there is a base for future development of IC.

From Northern and Western Europe (NWE) we received 10 applicant hospitals whereof 9 are from the UK. From Denmark the Danish Association of Regions (DR) has already accepted the findings on IHC as a foundation for a future development of "An Integrated Healthcare System" (DR 2012) and has offered to organize the selection of applicant hospitals. However, at this early stage only one Danish hospital may be included in a new project and that has turned out to be: Sygehus Lillebaelt Vejle Sygehus. A personal interview with this hospital reveals that this Danish hospital has already plans to establish some kind of early home-supported discharge for stroke patients (EHSD). So, our practical EHSD guide is very welcome as inspiration for such projects. The idea of pooling their own planning resources with other wards on the hospital treating patients with heart failure and COPD are very welcomed, too, as three that large wards represent a far better position of negotiation towards hospital management. Also, Vejle Sygehus likes the idea of involving external management consultant assistance for the optimal planning of the new pathways. As far the most of the evidence feeding the conclusions of Homecare1 is based on RCT in NWE, a meso-strategy as indicated above is expected to be relatively effective in this region.

In summary, the replies from these potential target hospitals representing 4 major sub-systems of health care finance are unanimously positive towards future collaboration on the implementation of the full IHC-package based on a subsidy corresponding to about one third of the societal net benefit.

Discussion of challenges regarding meso-dissemination/transferability

A Canadian systematic review [MacAdam, 2008] of frameworks of integrated care for the elderly concludes that there are four criteria for clinical continuity by integrated care:

1. An umbrella organizational structure has to be established to guide integration of strategic, managerial and service delivery levels
2. Multidisciplinary case management should be organised from a single entry point in the health care system
3. Organized provider networks joined by standardized procedures, service agreements, joint training, shared information systems may provide seamless care and maintain quality
4. Financial incentives should be attuned to promote integrated prevention and rehabilitation in an effective way

Ad1: To our judgment an umbrella organization with regard to IHC is not so relevant in Europe where most countries already have a well-developed social service sector. The real challenge is to establish better collaboration between existing organizations and institutions. The Homecare HTA report and related practical IHC guides [Langhorne, 2011; Jaarsma, 2012; Alonso, 2012] may represent evidence-based knowledge relevant for guiding the process of integration illustrated by the following findings: An EU-survey on barriers showed that EU member states recognise integrated care as an important actual health care objective. The national barriers to IHC may be comprehended in the light of differences in family structures, health care finance, administrative structures and inter-professional collaboration competencies. Most national regulation acts focus on the general practitioner as the key person in charge of safeguarding integrated care across sectors. However, some member states (e.g. the Netherlands, UK, Germany and Portugal) have national regulation acts including finance for implementing integrated care. The national implementation experiences in the UK and the Netherlands show quite modest results. The reasons for this may be found at the level of local organization.

Ad2: In order to properly organize and adjust integrated care, it is important to have a single entry point. However, all rehabilitation research confirms that the most important over-all principle of rehabilitation is to start as early as possible and that specialist competencies are crucial. This means that the better solution is that the planning of post-discharge rehabilitation starts as soon as the patient has become medically stable during admission which clearly favours the hospital ward as entry point. If the entry point is the GP or social services after discharge then the hospital ward must rehabilitate all patients to the same high level of functional independence before discharge wherefore most of the synergy of planning across settings is lost.

Ad3: As most hospitals prefer to learn IHC from running implementations in peer hospitals, a series of frontrunners should be established. An optimal frontrunner may be anchored at a county

hospital (with at least 500 beds serving at least 250,000 inhabitants) that is large enough to be specialized in the treatment of all three of the selected conditions without being a university hospital with basic research as a major objective. For each of the three selected chronic conditions, the frontrunner hospitals may establish collaborative agreements with local municipal services, primary care and possibly other organizations providing long term care to do a series of about 75 intervention patients applying the earlier described benchmarking system. In order to have the best possible dissemination effect, these frontrunner hospitals should be located to represent socio-economic differences within EU which means that there should be frontrunners in each of the regions of North-Western, Central, South and Eastern Europe.

Ad4: Attuned financial incentives may occur through elaboration of existing and running experiences with bundle-payment. However, the primary evaluation of data from the UK and the Netherlands does not show an effectiveness comparable to that of the present HTA report, although the willingness-to-pay, as indicated by rates per patient of 300 to 500 EUROS in the Dutch experiment, is on a par with the costs of IHC interventions. So, the bundle-payments should be given directly to the service operator (hospital, health centre or municipality) instead of to general practitioners.

Prospects of IHC in EU

The over-all theoretical assessment of IHC is that of a win-win-situation for both patients/carers and the societal healthcare finance bodies. This beneficial situation is according to our query among European hospitals associated with very positive attitudes from the type of county hospitals that are central to the implementation of IHC. On this background, it makes sense to look for a follow-up project that may accelerate the dissemination of IHC. For this purpose we have been informed that the last 2012-round of Calls in the Seventh Framework Programme (FP7)-Programme will include FP7-HEALTH-2013-3-1-1 focusing on comparative effectiveness research (CER) of health care systems where integrated care is specified as a field of priority. As IHC to our understanding is a relative sensitive indicator of the quality of care for the elderly, it may serve beyond the specific interventions to indicate the effectiveness of the whole health care system. In that way a FP7-HEALTH-2013-3-1-1-project may serve a double purpose of both serving the dissemination of IHC as well as providing original primary evidence on the relative effectiveness of different health care systems.

The consortium to perform such project could be based on the expertise in HOMECARE supplemented with the European Hospital and Healthcare Federation (HOPE) and a sample of 12-15 of hospitals representing the variety of clinical and administrative hospital management in Europe.

In case, it shows up not to be possible to build-in the dissemination of IHC with CER it is recommended to organize a stand-alone-IHC-dissemination project which naturally would be a task for

the European Commission as most member states may benefit from it and the economies of scale and scope are substantial.

List of Websites:
http://www.integratedhomecare.eu