Evidence on the Efficacy of Integrated Care

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Evidence on the Efficacy of Integrated Care

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ABSTRACT

The fragmented delivery of healthcare and social services was put on the agenda as a major problem by WHO in 2002. Early Home-Supported Discharge (EHSD) of stroke patients combining efficacy with net savings represents a prototype of integrated care (IC) or overlapping services for better clinical continuity. Other frequent chronic conditions as heart failure, chronic obstructive pulmonary disease and mental disease exhibit parallel results from home health interventions.

A SWOT analysis of IC emphasizes:

Strengths are 1) economic dominance, 2) benefits to a majority of the population and 3) psychological motivators for the patient (Hawthorne effect)
Weaknesses are 1) moderate improvements on a day-to-day basis, 2) some lack of RCT and 3) lack of trust across settings
Opportunities are 1) job enrichment to health professionals, 2) low-tech improvements affordable to low and middle income countries and 3) organisational quality
Threats are 1) fragmented financial conditions, 2) defensive specialists and 3) Mediocre implementations

A meso-strategy of implementation is recommended to EU (FP7):

(1) Make a synthesis of existing and ongoing research as a health technology assessment (HTA) of IC in EU for improved interdisciplinary cooperation across the hospital and primary care interface for selected CC
(2) The organisational dimension should focus on the formation of country specific multidisciplinary networks on IC.
INTRODUCTION

A number of studies from the 1990s have focused on healthcare problems related to lack of clinical continuity. The fragmented delivery of healthcare and social services is put on the agenda as a major problem by WHO (Gröne, 2002) and was followed-up by the European Commission and Council (Joint Report, 2003, p.15). However, a FP5 project on integrated health and social care for older persons (Leischenring, 2004) concludes that ‘Integrated care (IC) ‘by law’ as a top-down implementation will certainly not suffice, and market mechanisms as bottom-up approaches are less likely to improve joint working and the development of shared visions’. What could then be done to overcome the problems of a fragmented delivery of healthcare?

Fragmented delivery and lack of clinical continuity is more relevant to chronic conditions (CC) than to time limited acute episodic care (Holman, 2004).

This chapter aims to review the present state of research on integrated care (IC) specific to chronic conditions (CC) focusing the efficacy regarding Activities of Daily Living (ADL) in order to develop an effective and economic strategy for clinical continuity.

METHODS AND MATERIALS

General strategy of evaluation

The essence of IC is ‘overlapping’ services in the secondary/primary interface after discharge in contrast to coordination at the management level alone (Gröne, 2002, p. 2). IC should apply only as far as quality outcomes are improved with the overall aim to improve equitably distributed population health (Gröne, 2002, p. 3). He illustrates the causal relationships derived from IC as reproduced in figure 1.

Figure 1. Action model for integrated care (IC)

<table>
<thead>
<tr>
<th>Population</th>
<th>Quality</th>
<th>Continuity of care</th>
<th>Integrated care</th>
</tr>
</thead>
<tbody>
<tr>
<td>- access</td>
<td>- satisfaction</td>
<td>- as experienced by staff and patients</td>
<td>- vision, model strategy</td>
</tr>
<tr>
<td>- efficiency</td>
<td>- effectiveness</td>
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</tbody>
</table>


Operational quality outcomes are crucial for the design of IC. Mortality is seldom a major indicator for IC. Typically, studies of effectiveness on IC address activities of daily living (ADL) as:

1. Referrals to permanent institutional care (i.e. nursing homes)
2. Independence in ADL as indicated by functional indices as Barthel Index (BI) or Functional Independence Measure (FIM)
3. Shortened length-of-stay at hospitals / less readmissions

Evaluation of the relationship between IC and outcomes will follow best international practice as formalised in the international operation of Health Technology Assessment. According to the definition of HTA by EUnetHTA:
Health technology assessment (HTA) is a multidisciplinary process that summarises information about the medical, social, economic and ethical issues related to the use of a health technology in a systematic, transparent, unbiased, robust manner. It aims to inform the formulation of safe and effective health policies that are patient focused and seek best value.

HTA may address direct and intended consequences of technologies as well as indirect and unintended consequences. The main purpose of HTA is to assist informed technology-based policymaking in health care. Most health professionals and many decision-makers in health care might comply with the conclusions from an HTA as far as it investigates all of the following aspects:
1) Effectiveness regarding the physiologic outcome of the intervention
2) Patient safety and satisfaction, solicited i.e. by focus group interviews
3) Economic efficiency based on the principle of alternative costs
4) Organizational implementation of the intervention

Review findings on Integrated Care

Searching Medline ultimo 2007 identifies many trials on IC wherefore the selection of literature is based on reviews of ‘clinical continuity’ and ‘integrated care’ which are closely related concepts in this study. A ‘review of reviews’ (Servellen, 2006, p. 186) focuses the definition of clinical continuity and the significance to quality outcomes. Servellen identifies three categories of continuity which is used in a number of other studies of continuity, too:
1) informational continuity on past events and personal circumstances
2) management continuity across settings with several providers
3) relational continuity between a patient and one or more providers

Management continuity corresponds to the continuity across the secondary/primary care interface and relational continuity to the longitudinal or provider continuity defined by WHO (Gröne, 2003). Management continuity is the focus of most continuity studies while only a few studies focus all three categories of continuity. According to Servellen et al. the relationship between continuity of care for CC and quality outcomes relies on the impact of three values of social patient psychology:
- Perceived control over their care (feeling safe)
- Great involvement in decision-making (participation)
- Knowledge about their illness and its treatment (primary health feedback)

The three psychological factors stated above seem more relevant to CC where patients have limited capacity of self-care i.e. stroke patients. Half of the studies in clinical continuity focus on the transition from hospital to home care (Servellen, 2006, p. 192). In all, the action mechanism of IC might be conceived as a human relations management effect in the care for CC parallel to the Hawthorne-effect discovered in industrial work organisation (Mayo, 1949).
Reviewing 36 reviews focusing on the management aspect of clinical continuity or organisational interventions to improve outcome a total of five different types of organisational interventions are identified (Wensing, 2006):

- Revision of professional roles i.e. delegation of responsibility from physicians to nurses
- Multidisciplinary teams i.e. clinical teams of physicians, nurses and other health professionals
- Integrated care delivery services as disease management programs, integrated care pathways or case management overlaps to patients with specific CC receiving care according to a protocol
- Knowledge management defined as the optimal organisation of knowledge within an organisation. It mainly refers to the use of information and communication technology i.e. computerized medical records
- Quality management focusing on customers, continuous efforts to improve measurement and analysis of performance and supportive management

It is concluded that general reviews of clinical continuity are too heterogeneous for quantitative analysis. However, patient outcomes were generally improved by multidisciplinary teams, integrated care services and computer systems. Also, cost savings were reported from integrated care services appearing as dominant interventions in the health economic sense of this term. Another review of reviews with an overlap of authors focuses on IC (Ouwens, 2005). Ouwens concludes that IC seemed to have positive effects on the quality of care. However, to compare IC programmes and clarify cost-effectiveness, more consistent definitions must be used and component interventions must be well described.

Clinical trials on IC

Focusing directly on clinical trials on IC specific to major CC it appears that home health interventions are the most frequent type of IC (Servellen, 2006). Further, this type of IC favours relevant psychological conditions of the patient as 1) feeling safe, 2) participation and 3) primary health feedback i.e. when measured at home a patient’s blood pressure is significantly lower compared to when this is measured at a medical clinic (Verberk et al, 2005). Such interventions might be dominant (Wensing, 2006) wherefore they represent a synergy of interests between the political/administrative and health professional levels of decision-making relevant to rapid dissemination in the health care sector. Accordingly, trials with home health intervention focusing on IC have been identified from the reviews mentioned above as well as from additional systematic searches in Medline for ‘trials’ and ‘clinical continuity’ or ‘integrated care’ or ‘home training’. From these searches the following trials on home interventions for major CC have been extracted setting the priorities below:
RESULTS

1. EARLY HOME-SUPPORTED DISCHARGE OF STROKE PATIENTS AS PROTOTYPE OF INTEGRATED CARE

Early supported discharge (ESD) is claimed to be a promising alternative to conventional stroke rehabilitation by the ESD Trialists in 2002. The ESD Trialists have published an extended study demonstrating a significant effect on poor outcomes and length of stay (Langhorne et al, 2005). In 2006 these results were elaborated in a HTA of EHSD where the added ‘H’ specifies that this intervention has to be delivered at the domicile of the patient (Larsen, 2006). This implicates that purely municipal alternatives without domiciliary training are excluded. The HTA concludes that EHSD is a dominant intervention in comparison to conventional stroke unit rehabilitation due to shorter hospital stay and less referral to nursing homes. The net saving by EHSD is calculated to 800 EURO per patient. This applies to about 40% of all newly diagnosed strokes or about 1 pro mille of the total population in industrialized countries with a life expectancy of about 80 years. From an EU perspective such savings address about 500,000 new stroke patients per year with a potential net saving of around 400 million Euro each year.

EHSD is delivered by a multidisciplinary team comprising physiotherapists and occupational therapists supported by speech therapists, physicians, nurses and social workers, the teamwork of which is coordinated at regular meetings. Often the EHSD begins with one or more pre-discharge home sessions, continues on the day of discharge and goes on with more home training sessions per week based on an individually tailored recovery plan which is kept by the patient at all times. An EHSD pursuing the Hawthorne effect of rehabilitation is illustrated in figure 2.

Figure 2. Model for Early Home-Supported Discharge (EHSD)

<table>
<thead>
<tr>
<th>Admission</th>
<th>Training at hospital</th>
<th>Training both at home and hospital</th>
<th>Discharge</th>
<th>Follow-up visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home visits</td>
<td>1. home training by team assessment (registration of date)</td>
<td>Other home training (Individual No.)</td>
<td>Training at home after discharge (Min. 2 sessions within 1 month)</td>
<td>6 months</td>
</tr>
<tr>
<td>Within 10 days</td>
<td>Time</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participants</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pt. and relatives + Outgoing hospital team + Municipal homecare</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deciding patient home needs:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Adaptation of home</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Personal needs of assistance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Agreements on contacts to Municipal services</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of home training sessions by individual assessment of the team (recommended average about 8)</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

For EHSD FIM is the preferred indicator of ADL as it, unlike BI, includes cognitive aspects which provides useful information for internal communication in the multidisciplinary team as well as communication across the secondary/primary interface. The prognostic efficacy regarding recovery of independence in ADL is about the same for BI and FIM (Hobart, 2001).
It should be emphasized that EHSD is not considered an alternative to a stroke unit. EHSD is considered an extension of stroke unit services. A study of EHSD (Langhorne, 2007) reports an illustrative example of the psychological values associated with training at home (safety, motivation and transference) producing the extra recovery. Accordingly, EHSD might serve as prototype of excellence in IC.

The potential of EHSD expands to some degree to other related neurological CC as Traumatic Brain Injury (TBI) and Multiple Sclerosis (MS). In all, Stroke, TBI and MS represent a burden to society in terms of prevalence, morbidity, mortality and economic costs that rank in top 3 among CC.

2. EFFICACY OF INTEGRATED CARE FOR CHRONIC CONDITIONS OTHER THAN STROKE

Trials on Home-support to Patients with Chronic Obstructive Pulmonary Disease

In recent years more trials on IC for patients with chronic obstructive pulmonary disease (COPD) have been reported. An RCT reports an intervention with an individually tailored care plan at discharge combined with a primary care team and access to a specialized case manager nurse through a web-based call centre including a joint home visit of the specialized nurse and the primary care team (physician, nurse and social worker) within 72 hours after discharge (Garcia-Aymerich, 2007). Non-scheduled home visits could be triggered through the call centre. This IC improved disease knowledge and treatment adherence after one year treatment. The improvement in lung function compared to usual treatment was only border-significant in this rather small trial.

A combined Spanish-Belgian RCT (Casa, 2006) reported a similar intervention which demonstrated a significant reduction in both hospitalisation and readmission rates related to exacerbations in COPD patients.

In all, the findings regarding the efficacy of IC on COPD patients seem parallel to the findings on stroke patients. As the burden of COPD in terms of prevalence, morbidity, mortality and economic costs is in top 5 of CC improved outcomes by IC should be prioritised. However, from a healthcare provider perspective further studies of this IC application must include cost-effectiveness as well as effectiveness in older disabled patients with COPD.

Trials on Long term Community-based Domicile for Patients with Mental Disease

IC for patients with mental disorders might represent the same psychological values of safety, participation and transference as evidenced by EHSD. Actually, the net benefits of IC were evidenced for the first time for patients with mental disorders in the London TAPS Study (Leff, 1997). This five year follow-up on 95% of 670 non-demented, long-stay psychiatric patients discharged to community-based domicile gave the following encouraging results:

- Two out of three were still living in their original residences after five years
• Less than 1 of 100 patients became homeless, and no patient from a staffed home was lost to follow-up
• More than one third of the patients were readmitted during the five years follow-up, but at the end of the period only 10% were in hospital
• Overall, the patients quality of life was greatly improved by the move to the community, but their disabilities remained (due to the nature of severe psychotic illness)
• There was little overall difference between hospital and community costs, but economic evaluation suggests that community care is more cost-effective than long term stay hospital care because effectiveness had improved

In practice, long term stay community residential care can be divided into three categories (Chilvers, 2003):
• 24-hour staffed residential care which are well-staffed hostels like nursing homes
• Day-staffed residential places which are hostels that works fixed hours
• Accommodations with low levels of staff support only

As emphasized in the review of community-based mental healthcare by Thornicroft and Tansella mental disorders account for more than 30% of all years lived with disability wherefore improvements have the most extensive impact on daily life (HEN, 2003).

Trials on Home support to Patients with Heart Failure (HF)

Continuity of cardiac care is considered an integrated part of secondary prevention and improved health outcomes. Significant positive relationships between continuity of cardiac care, rehabilitation participation, greater tangible support and less serious perception of illness consequences are evidenced in a 9 months post discharge survey in Canada (Riley, 2007).

A quasi experimental American pilot study of a structured home health intervention with many similarities to EHSD indicates decreased rehospitalisation, decreased symptoms of Heart Failure (HF) and increased quality of life (Quinn, 2006). However, more empirical research is required for evaluation of the effectiveness of this type of home intervention. Regarding the cost-effectiveness a study (Taylor, 2007) concludes that the costs per patient of running the home-based rehabilitation programme was just slightly lower than that of the hospital-based programme. Supposing that a better structured home health intervention improves outcomes – as indicated by the Quinn pilot study - such intervention would be as preferable for HF as homecare for stroke patients.

A survey on HF management programmes in Europe (Jaarsma, 2006) concludes that only in the UK, a combination of hospital and home-based programmes is common (present in 75% of the HF programmes in UK). So, evidence-based guidelines on HF home interventions for improvement of outcome might be very useful as it tops the list of health burden to society in terms of economic costs.
Trials with TeleRehab as supplement to Direct Home Intervention

A systematic review of home telemonitoring for CC concludes that it produces accurate and reliable data, empowers patients, influences their attitude and behaviours, and potentially improves their medical conditions (Paré, 2007). An RCT on telerehabilitation of stroke patients (Piron, 2005) indicates that telerehabilitation might be as effective as home rehabilitation to improve motor deficits. More research in the substitution between direct personal home interventions and the use of TeleRehab is recommended i.e. regarding TeleRehab as a complement in cases of

- A long distance between patient and hospital
- Special needs for acute home monitoring of the patient
- Needs for training by virtual reality programmes

DISCUSSION OF PATIENT SCHOOLS AND INTEGRATED CARE

Essentially, IC depends on the interdependence and potential synergy of behavioural and somatic health (LaBrie, 2007). The most direct use of this synergy might be patient training empowering and educating patients for better self-management of CC or even life style modification (Helene, 2000). For more CC such patient education is evidenced as both effective and efficient:

The prototype in this field might be diabetes schools which are that well-established that national guidelines already exist in a number of countries i.e. USA (Mensing, 2005). Also, the effectiveness of patient education on Low back pain is evidenced (Tavafian, 2007). As evidenced by Guevara et al educational programmes for self-management of asthma in children and adolescents to improve lung function and the feeling of self-control reduce absenteeism from school, number of days with restricted activity, number of visits to an emergency department, and possibly the number of disturbed nights (Guevara, 2003).

Another heavy CC is rheumatism where patient education is evidenced to lead to both better and more cost-effective management (Lind-Albrecht, 2006).

Regarding other heavy CC as 1) diabetes, 2) asthma, 3) low back pain and 4) rheumatism patient education for better self-management shows evidence of being both an effective and efficient variant of IC. However, as this study highlights CC where interventions at home are effective, the CC where patient schools are sufficient, are not included in this study.

CONCLUSIONS ON THE POTENTIAL IMPACT OF INTEGRATED CARE

1. The study aims at a systematic approach to clinical continuity across the secondary/primary interface for CC by IC characterized by overlapping services.

2. Home health interventions is found to be an excellent form of IC as our domicile is the place where we feel safe, participate most and have direct feedback from ADL training (Hawthorne effect). Community-based interventions
might to some degree give patients the same psychological advantages. Telerehabilitation is an economic form of reproducing the values of direct home health interventions when patients are not too weakened mentally, or when distance and time spent make transport and weariness from travel important extra costs.

3. Research has been reviewed on IC on major CC which represent the better part of the burden to society in terms of prevalence, morbidity, mortality and costs:

- 1) Stroke/neurorehabilitation, 2) COPD, 3) Mental disease and 4) HF are all diseases which (due to the Hawthorne effect) would benefit from giving priority to home health interventions measured by a comprehensive assessment of effectiveness, efficiency and quality of life
- Regarding diabetes, asthma, low back pain and rheumatism patient education for better self-management is assessed as an excellent strategy for clinical continuity for patients that are already independent in ADL. Consequently, these CC are excluded from the present study
- The focus on the specific medical diagnosis should not be overemphasized as most patients in the target group of typical elder persons suffer from co-morbidities

4. The potential outcomes from IC in general and home health interventions in particular focus on ADL more than on mortality. Such outcomes i.e. prevention of readmissions or referrals to institution might be priced in accordance with their savings in health care and social services. Accordingly, cost-effectiveness analysis is an important tool for decision-makers having to set priorities for a variety of alternative IC interventions. Regarding IC, priorities are facilitated by a synergy between effectiveness and efficiency which should enable a relatively rapid dissemination. Moreover, these benefits are relevant to a majority of the population suffering from one or more CC from some point of their life.

5. However, in practice the realization of the potential benefits of IC have to overcome serious barriers as stated in an Australian report by Jordan and Osborne (Jordan, 2007):

- Fragmented health service delivery due to funding complexities between national and local government
- Recruitment of a sufficient number of patients to document effects as RCT on ADL outcomes often requires inclusion of several hundred patients
- Low status of Low-Tech approaches in IC within the healthcare sector
- Lack of knowledge within the healthcare sector of the psychological factors relevant to IC
- Lack of mutual trust between professionals in the secondary/primary interface. Even between physicians in different settings distinct differences in values are identified in a Focus Group Study (Petterson, 2007). IC requires much more than collaboration of physicians across the secondary/primary interface, it requires a multidisciplinary collaboration across the secondary/primary interface
SWOT ANALYSIS OF INTEGRATED CARE

In order to design an appropriate strategy for the dissemination of IC to harvest the potential benefit it is necessary to clarify the true character of IC. For this purpose a comprehensive analysis of the relative Strengths, Weaknesses, Opportunities and Threats (SWOT analysis) regarding IC is appropriate. For the sake of simplicity only the three most important aspects of each of the dimensions are described.

Table 1. SWOT analysis of Integrated Care

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Dominant interventions creating synergy</td>
<td>• Job enrichment to therapists and nurses</td>
</tr>
<tr>
<td>• Benefit a majority of the population</td>
<td>• Low-Tech interventions is a special opportunity to low-income countries</td>
</tr>
<tr>
<td>• Based on a neuro-psychological holism shared by more health professions</td>
<td>• General improvement of Organisational quality</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Weaknesses</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Moderate improvements on a day-to-day basis</td>
<td>• Fragmented financial conditions</td>
</tr>
<tr>
<td>• More RCT is needed for evaluation of quality outcomes</td>
<td>• Defensive specialist strategies</td>
</tr>
<tr>
<td>• Lack of trust across the secondary/primary interface</td>
<td>• Mediocre implementations without effect</td>
</tr>
</tbody>
</table>

**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 specialty, administrators having budget restraints and politicians representing the population as both potential patients and tax payers in the type of national healthcare organisations which are characteristic for EU. In comparison to the typical conditions of healthcare decisions, dominant healthcare interventions are characterized by synergy between the interests of healthcare professionals and the economic interest of society. For example, the HTA of EHSD concludes two things: Firstly, quality is increased as demonstrated by the increased share of patients living in their own home one year after the intervention. Secondly, economic net savings due to the positive net value of the following three factors:
1) Fewer bed-days at the hospital plus 2) saving nursing home beds minus 3) the costs of doing therapeutic home sessions. In this situation alliances across disciplines are facilitated to the benefit of a relatively quick dissemination of dominant interventions as IC for major groups of CC.

Besides being dominant IC addresses the majority of the population as most people, especially the elderly, are exposed to high risk of suffering from stroke, HF, COPD or mental disease. This means that IC represents a unique opportunity for the EU to demonstrate population health which in turn should provide a lot of goodwill. The specific economic evaluation of EHSD calculates a net saving of 800 EURO per patient compared to conventional rehabilitation at the hospitals. The impact of this result might be illustrated extrapolating the net benefit from EHSD as well as HF, COPD and mental disease to a significant share of the 500 million people in the extended EU. Furthermore, this result might be accentuated by a comparison to modest marginal improvement of effectiveness increasing costs by mono-disciplinary research.

Moreover, the promising results as outlined above rest on specified psychological values in IC:

• The evidence of ‘feeling more safe at home’ is well known from the clinic 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 especially as better transference in rehabilitation

Weaknesses

The quality improvements associated with the psychological values in IC are moderate on a day-to-day basis compared to more instant improvements arising from some innovative pharmaceutical treatment which certainly represents a weakness of IC. For example, in the treatment of stroke trombolysis within 3 hours after the attack might improve the state of the patient in a visible way. Regarding EHSD the benefit is accounted in small specific step-by-step improvements in ADL i.e. walking over a period of months which may add up to the most impressing aggregated results. In this situation the development of valid, reliable and meaningful measures of outcome as Barthel Index (BI) and the Functional Independence Measure (FIM) is crucial. In modern societies improvements in ADL as measured by BI or FIM might be priced according to the expected reductions in future needs for permanent social care. There is, for example, a strong correlation between BI at discharge and the need for home aid hours. Calculating the economic value of IC and comparing with the extra costs required for IC may result in the astonishing finding that IC provides net saving as demonstrated for EHSD. In this way the apparent moderate effect of IC might be turned into a more powerful argument for societal savings.
More RCT is needed for evaluation of outcomes of home health interventions:
- Regarding the prototype EHSD for stroke patients an RCT in middle income countries as Poland would be relevant
- Regarding HF more RCT is required as most evidence relates to complex interventions addressing several aspects of clinical continuity
- Regarding COPD an economic evaluation of existing trials is required

It is evident i.e. from qualitative interviews related to IC that lack of mutual trust across settings represent a barrier to specific IC initiatives. However, this kind of emotional resistance is not specific to IC. It is a general obstacle to change which should be overcome by the benefits from IC. Actually, professionals in both healthcare and social services report better mutual understanding and collaboration as an independent staff benefit from IC besides the specific improvements to the patients and carers. Also within the hospital the same benefit may arise as nurses and therapists become better integrated.

Finally, the present focus on IC is driven by the expected rise of the share of elderly as life expectancy rises in the industrialised countries. However, this means on the other hand that a majority of patients needing IC are old age pensioners who, in general, hold a low status in politics compared to people in the work active age. In reality, pressures exist for short termed down-sizing of social services disregarding longterm benefits as indicated by Leichsenring. This represents an obstacle to the development of IC that has to be taken into account. This is, however, slightly moderated by the growing significance of elderly voters in democratic societies.

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

**Opportunities**

IC represents a unique option for job enrichment to subordinated health professionals at the hospital i.e. 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 of the formal line of authority in hospitals. Visiting the home of the patients means that much extra information about the patient is collected. It is important for the outgoing team members to consider the individual conditions of the patient and take responsibility to act on these. For example, 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 his rehabilitation is limited to a standardised hospital walking test implemented as being able to walk around in his house the real benefit from home health is lost. To nurses and therapists, especially, this kind of development of their services from a level of standardisation to a level of individualised creativity may represent a lift from the ordinary towards excellence in professional performance which represents a strong motivator to these professions.
As a dominant intervention IC represent an opportunity for synergistic benefits between patients and society. However, regarding the EU countries IC exhibit a special opportunity to support the healthcare improvements in low and middle income countries because this kind of Low-Tech interventions are relatively cheap compared to their effectiveness. However, as the benefits of IC presuppose a relatively high level of organisational competence it might be relatively difficult to implement IC in low and middle income countries without additional special support from the EU as a whole.

As IC aims to utilise the potential synergy between medicine and behavioural science remarkable results regarding CC might point in the direction of general health promotion as a dominant intervention: IC in the format of a Life Style Modification Program at the Kaiser Permanente in USA comprises involvement of the participants over a 3-6 months period in 1) a low-fat vegetarian diet, 2) participation in yoga classes and 3) weekly exercise sessions monitored by a physiologist followed by individualized home exercise programs and 4) weekly educational classes and support groups. Statistical analysis of before and after program tests revealed improved physical and mental health among individuals who reported chronic disorders as well as reduced healthcare utilisation (Guevara et al, 2003).

Threats

Fragmented financial systems are obvious threats to IC! In the case of EHSD hospitals have to take on the extra costs of an outgoing team while the primary sector harvests the major part of savings from reduced use of nursing homes. Despite the expected net savings for society as a whole, the separation of the finance systems for hospitals and primary care means that the dissemination of EHSD is very difficult before some redistribution of savings is accomplished between the financial authorities in hospitals and primary care. Instead of relying on possible local agreements the national or at least regional financial conditions should be modified on order to suspend local cash-flow incentives to block IC initiatives.

A special threat to IC arises from the hierarchical organisation of power characteristic to hospitals. As the leading physician is the health professional in charge of establishing IC he might be biased in favour of core issues to physicians instead of IC initiatives involving mainly subordinated nurses and therapists. In the case of EHSD an anti-hypertension programme for stroke patients preventing readmission might get priority compared with EHSD as the treatment of hypertension is a core competence for physicians and young physicians, especially, aiming to promote their professional career by research. In this case it is not necessarily decisive when choosing between these interventions at the same level of costs that the anti-hypertension programme requires about 50 patients to treat to prevent one bad outcome while the parallel level for EHSD is about 15. To expect physicians to give priority to interventions benefiting other health professionals means to expect some kind of altruism from physicians that you should not expect from other professionals. The solution to this dilemma might be to educate leading physicians to a level where they identify themselves more as
open-minded managers rather than as specialists. An appropriate framework for such training is the HTA methodology which is the general framework of this project.

A special threat to the dissemination of IC is too many mediocre projects without intended outcomes. Once again referring to experiences from stroke rehabilitation it is characteristic that a number of home training projects have been launched in relatively good scientific settings as an RCT with a poor understanding of the psychological nature of the intervention as this is outside the central scope of the physicians planning the trial. In this case the outcome of the project might be disappointing. The lesson to be learned from these experiences is that the results from RCT on IC are not automatically replicated in implementations as the ordination of a new pharmaceutical. RCT results on IC should be considered as potential benefits that might be replicated by best practice as we deal with psychological values. Probably, a practical solution to this problem is an equalization of the scientific and the therapeutic/nursing settings in the planning and execution of the RCT. Such planning is implemented in a Danish RCT on EHSD which will be part of the project and is to be implemented outside Denmark, more specifically in Poland.

A MESO-STRATEGY FOR DISSEMINATION OF INTEGRATED CARE IN THE EUROPEAN UNION

Micro, Meso or Macro Strategy

A basic strategic question is whether the anticipated dissemination of IC should rely on the micro level with bottom-up developments from the care level or on the macro level with top-down legislation from national levels of health authority or some meso level related to organisations somewhere between the micro and macro levels? (Gröne and Garcia-Barbero, 2002). According to a description and comparison of IC in Finland, Sweden, Austria, Spain, The Netherlands and Great Britain the actual situation is the following (van Raak et al, 2003):

It is a common feature by the countries in the study that they have collective financed healthcare systems. Some are based on taxes and political control of health authorities (Beveridge System) others 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 collective financed and controlled healthcare contrast the commercial US-model of healthcare organisation (Semashko System). However, some new states in Eastern Europe (not represented in the 2003 description) have adapted the Semashko System.

- Within the collective healthcare systems Great Britain represents the most top-down macro approach as the British government has produced 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 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 as well as encouraging inter-professional working and patient empowerment as well as providing subsidies to integrated care initiatives, stimulating the development of ICT and reallocation of staff.

Further, van Raak evaluates the macro, meso and micro strategies as follows:

At first glance, the macro approach in Britain looks attractive because a tight coordination of cross 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 central made decisions are comprehensible to those working on the care level. Thirdly, the central reaction time to problems focused 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 view and interests have to be included in vague compromises. Decentralized systems are inherently incremental decision making systems!

All in all, the advantages and disadvantages of more centralisation or decentralisation, respectively, are not relevant for the kind of problems in integrated care development and delivery. Instead of focusing on the distribution of power the core issue is upgrading the professionalism from the present level of professional defensiveness to a more advanced level of open-minded professionalism. In practice this means some meso approach in the format of a development from monodisciplinary towards multidisciplinary decision-making models which is accomplished in HTA aiming at a synthesis of physiological, psychological, economic and organisational knowledge.

In Denmark, a meso approach to EHSD has given the following results (Larsen, 2006): A regional health authority has collaborated with the regional university and the national office of HTA on assessment of EHSD based on a local pilot project and an international literature review. The resulting HTA of EHSD has been presented to a number of rehabilitation conferences giving rise to projects on further implementation in a series of neurorehabilitation clinics. This
implementation of EHSD (hereafter called demo projects) is granted by the ministry of health. At the same time the financing of rehabilitation has been changed in a direction that the municipalities have to finance the outgoing hospital team, as they have the larger economic gain from health interventions across the secondary/primary interface. The combined effect of the ongoing multi-centre RCT on EHSD and the recent financial reform in Denmark should provide sufficient knowledge and organisation framework to enable a rapid dissemination of EHSD.

CONCLUSION

Recognising the parallel research on IC based on the same psychological values in different CC a comprehensive HTA might be useful for the dissemination. As EU in Framework Programme 7 (FP7) finances ‘Quality, efficiency and solidarity of healthcare systems’ in general and ‘Clinical continuity across settings’ in particular (Call HEALTH-2007-3.1.6) it represents a key option for further development of the field. Due to research ‘economies of scale’ it should be relevant for EU with a common FP7 project as the problems seem similar in most member-states. Below we are summarizing the FP7-project Homecare no. 222954 that runs for three years from January 2009 aiming to improve the integration of health care and social care as indicated by the project logo shown as figure 3:

I. The first step in the project should be a systematic review of IC in relation to major CC in EU and stroke, HF, COPD and mental diseases representing the better part of the burden to society in terms of prevalence, morbidity, mortality and costs. Based on data from published as well as oncoming randomized trials a conclusion on the state of evidence regarding the efficacy of IC regarding ADL should have priority. It is anticipated that completion of the existing evidence base requires the following trials and surveys that are supposed to be reported both through ‘The International Journal of Integrated Care’ and through the appropriate disciplinary periodicals:

1. Reporting of an ongoing Danish RCT on early home supported discharge of stroke patients (EHSD)
2. Testing of the Danish EHSD model in Portugal
3. Testing of IHC for HF in The Netherlands, Sweden and Spain while the existing evidence for IHC for COPD is assessed as sufficient
4. Pilot testing of Telerehabilitation in relation to the trials 1 and 3 as a supplement to direct IHC coordinated from Italy
5. An extensive survey among all EU countries on financial and organisational barriers to IHC as this represents primary barriers to IC in most countries. This module might be implemented in cooperation with the EUnetHTA.
6. An in-depth survey in Poland – representing middle income countries – on the state of neurorehabilitation and the health professional assessment of IHC.

II. The synthesis of the studies 1-6 is accomplished in two steps. Firstly, operation guides for integrated homecare is developed for the focused CC, respectively, having expert circles in the respective fields as the major target group. Secondly, the progress of the comprehensive HTA on IC should be reported through the annual meetings in HTAi as a scientific media to reach regional and national authorities of health in the EU member-states.

III. Instead of focusing on either the micro or the macro levels of health care organisations the strategy of implementation focuses an intermediate meso level of health professional organisations in order to strengthen the integration of the micro and macro levels, respectively. Such strategy might be implemented forming multidisciplinary interest groups on IC specific to MS. This includes the formation and maintenance of an e-mail list of resource persons in IC specific to MS with a confirmed interest in organising the IC demo projects. The list should be formed step-by-step during the project by proposals from the involved researchers as a keystone of the organisational leg of the HTA. The ultimate indicator of the impact of the project is the number of implementation projects this network establishes within a five year period.

IV. Regarding IC the specific medical diagnosis should not be overemphasized as most patients in the target group, often consisting of elderly, suffer from co-morbidities. However, CC where schools for patients that are already independent in ADL are relevant i.e. diabetes, asthma, low back pain and rheumatism are not considered in this study.

In summary of the research, home health interventions is found to be an excellent form of IC as our domicile is the place where we feel safe, participate most and have direct feedback from ADL training. The effectiveness of such integrated homecare has a solid theoretical foundation in the finding that our blood pressure on average is 5-7 mmHg lower at home than in a hospital setting. Moreover, telerehabilitation is an economic form of reproducing the values of direct home health interventions when patients are not too weakened mentally, or when distance and time spent make transport and weariness from travel important extra costs.

The potential outcomes from IC in general and home health interventions in particular focus on ADL more than mortality. Such outcomes i.e. prevention of readmissions or referrals to institution might be priced in accordance with their savings in health care and social services. Accordingly, cost-effectiveness analysis is an important tool for decision-makers having to set priorities for a variety of alternative IC interventions. Moreover, the health risks envisaged by IC is relevant to a majority of elder people which is seldom in a modern specialised health care sector where improvements of care often address small, specific groups of patients, only.
Table 2. Summary of a meso-strategy on dissemination of IC in EU

1. A synthesis of existing and oncoming research in the format of an HTA of IC for improved interdisciplinary cooperation across the secondary/primary interface with the following modules:
   • Assessment of the efficacy of IC based on a systematic literature review and related meta analysis
   • A member specific query on the organisational and financial conditions of IC in collaboration with EUnetHTA
   • A final HTA report to be presented at an Annual Meeting of HTAi and distributed to national health authorities

2. Formation of country specific multidisciplinary networks on IC as part of Preparation of the HTA report
   Such national teams should comprise: Neurologists, cardiologists, neuropsychologists, psychiatrists, nurses, physiotherapists, occupational therapists, speech therapists and health economists. These teams should seek collaboration with health professionals and administrative national organisations as well as relevant NGO for dissemination of IC by solid demo projects. In the long run modifications of existing organisational arrangements and financial conditions as to facilitate IC might follow.

However, in practice the realization of the potential benefits of IC has to overcome serious barriers as discussed in the SWOT analysis. On this background a meso-strategy is proposed for dissemination of IC in EU in accordance with van Raak et al (2003) focusing the upgrade of health professionals from a defensive kind of monodisciplinary professionalism towards an open-ended multidisciplinary professionalism. This is the kind of change in professionalism required to take advantage of mental potentials related to psychological patient values as safety, participation and transference.

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KEY TERMS

Activities of Daily Living (ADL) are typical personal activities related to an ordinary home life i.e. walking, dressing, eating, washing, going to the restroom, etc. ADL is often measured by Barthel Index (BI)” or “Functional Independence Measure (FIM)”.

Analysis of Strengths, weaknesses, Opportunities and Threats (SWOT analysis) is a tool in strategic planning analysing the general conditions for implementations of a specific project.

Early Home-Supported Discharge (EHSD) is an elaboration of the research term “Early Supported Discharge (ESD)” explicating that the ESD has to be in the home of the patient. Stationary or out-patient municipal facilities are included in ESD but excluded in EHSD.

Hawthorne effect is a term characterizing the action mechanism in human relations management (HRM) of industrial work groups as well as service organisations. Within IC the Hawthorne effect is related to values of social patient psychology” as feeling of security, participation and direct transference of skills.

Health Technology Assessment (HTA) is according to the definition of EUnetHTA: ‘A multidisciplinary synthesis of medical, social, economic and ethical aspects of health interventions aiming the formulation of safe, effective health policies that are patient focused and seek best value’.

Integrated Care (IC) is ‘overlapping services’ across the health and social sectors. Interventions that are coordinated at the management level, only, are not IC.

Meso-strategy is a term in strategic planning of health care systems that expresses the endeavour to integrate the best elements and avoid the disadvantages of centralized and decentralized planning, respectively.