

ECONOMIC EVALUATION OF INTEGRATED CARE FOR PATIENTS WITH SCHIZOPHRENIC DISORDERS

- A two-year outcome

Karin Sutherland¹

Centre for Public Sector Research

Göteborg University

Mattias Lundbäck²

Department of Economics

Lund University

Abstract: Economic analysis in health care is used to ensure that resources are used in the most efficient way. The Optimal Treatment Project is an international controlled randomised study comparing integrated care with 'best practice' case management based care for clients with schizophrenic disorders. The study is divided into a clinical and an economic part. The economic evaluation of the study consists of measuring the direct and indirect costs and relating them to the clinical effects. For the economic evaluation of this project we use a cost-effective approach comparing the costs and the outcomes from the different programmes at base line and two years later.

An adapted version of the Client Service Receipt Interview is used to collect information about the clients' income, expenses and services used. After identifying the services a unit cost is calculated and appointed. The cost estimation includes direct health care, interventions, medicine, social services, housing and transport. For all cost estimation we use Long Run Marginal Cost and Long Run Social Opportunity Cost of used resources. This project is a work in progress and the two-year outcome should be considered as a preliminary result.

¹ Karin Sutherland, CEFOS, Box 720, SE 405 30 Göteborg, Sweden., e-mail: Karin.Sutherland@cefos.gu.se

² Mattias Lunbäck, Dep. of Economics, Lund University, Box 7082, 222 07 Lund, Sweden, e-mail: Mattias.Lundback@nek.lu.se

Introduction

Evidence based medicine builds on a notion that treatment methods should always be based on scientific evidence. In many instances, however, this might not be the case. Often the choice of treatment is more a result of tradition than of scientific evidence. There is reason to believe that this is even more often so in psychiatry, since the actual task of measuring the results of treatments is a more tedious and difficult task than in e.g. medicine. The reason is that what we are measuring, “symptoms of psychiatric illness”, is more often based on subjective estimations made by psychiatrists. Therefore there is need for some general guidelines for measuring the severity of symptoms and the social dysfunction associated with the illness. It is also common to use independent estimators to gain a degree of objectivity in estimations.

Measuring only effects of treatments is not enough, however. To be able to weigh different treatment alternatives against each other also the costs of treatment must be estimated. This will be increasingly more important, since in the future we can expect independent contractors to perform an increasing share of psychiatric care. We can also expect more competition between different providers. Fair competition between those, might they be public, not-for-profit or for-profit, necessitates the use of fair reimbursement methods that stimulates good results and cost-efficient management of resources. The expanded use of computer aided methods to follow up on care episodes, development of objective criteria for efficient care as well as methods to measure the costs of care are all necessary developments in this trend of decentralising responsibility for psychiatric care. The use of objective criteria makes it easier to show the effectiveness of different programs and thus stimulate the spread of the best methods to other providers and other countries. A wide number of reports have demonstrated the value of economic comparison of different treatment methods³. The majority of the studies have compared two significantly different treatment programmes, hospital based care versus community based care. From these papers it is evident that there are both economic and medical gains to make from using community based care instead of hospital based care⁴. In this paper we report preliminary results from the OTP project where we apply similar methods to com-

³ See for instance Meltzer (1999), Dencker & Dencker (1994), Awad & Voruganti (1999), Leff (ed.) (1997), Davies & Drummond (1994), Marks *et al.* only to mention a few.

⁴ See for instance Pickney *et al* (1991), Barry and Crosby (1996), Marks *et al.* (1994)

pare two relatively similar community based programmes to see if there are any medical or economic gains through increased coordination and psycho-educational teaching.

The OTP⁵ project concerns all the aspects described above and is not only an evaluation of different treatment methods, but also the introduction and test of a whole new system for quality feedback. We believe that our methodology, or similar methods, probably will be routinely used in future care settings in psychiatry.

Method and outcome

This paper presents a clinical randomised trial comparing the costs and the effects for two different patients group receiving community based mental health care in Göteborg, Sweden, during a time period of two years. For the comparison we used annual data about the costs and the effects from the treatment. There were no significant medical differences between the groups at baseline. The test group (receiving *best clinical practice*) were slightly more costly in housing than the control group (receiving *integrated care*). Significant medical improvements were, over the two-year period, detected for the *integrated care* group while the *best clinical practice* group showed no significant improvement. Even though there are no significant differences in the costs between the groups the number of days in hospital is decreasing for the *integrated care* group whereas the opposite result is found for the *best clinical practice* group.

Experimental design

This paper presents a cost-effectiveness analysis of two alternative approaches for treating patients with schizophrenic disorders. Both alternatives are community-based programmes including optimal neuroleptics drug management, assessment of the clinical and social needs and allocation of a key-worker coordinating the patient's needs. One programme, *best clinical practice*, is the standard care programme and is currently used in community-based psychiatric care, especially in the UK, New Zealand and the US. Added components include provision of supported housing and day care, crisis management provided in general hospital units and day

⁵ The Optimal Treatment Project

hospitals and rehabilitation programmes that are focused on promoting independent living and work activities. The patient is allocated a co-ordinator to ensure that all aspects of the programme are co-ordinated and in addition to providing supportive psychotherapy.

The other programme, *integrated care*⁶, is an extension of *best clinical practice* which additionally provides a comprehensive clinical management programme, which integrates drug strategies, carer-based stress management, living skills training, early detection of crises, crisis intervention and specific psychological and social strategies to deal with persistent positive and negative symptoms⁷ and social disabilities. The patient is allocated a trained *integrated care* case manager and the primary goal is to increase his insight into the disease and his participation in his own care such that he himself can detect early signs and intervene before a psychosis occurs. Another important part of the programme is to create a social network that can support him and help him/her to deal with and reduce the impact of stress or other problems. The network consists of relatives and/or friends that are educated together with the patient and trained in communication, problem-solving and stress management.

It is expected that one benefit from the programme will be a reduced need for in-patient care. This benefit derives from the patient himself (or together with the network) being able to intervene (for instance through changed medication or stress-management) or seek assistance at the day clinic before the episode has become unmanageable.

Who are the participants?

In the study a long-term comparison is made between the *integrated care* program and the *best clinical practice* approach currently provided by most services. The goal was to include at least 80 patients, within the centre of Gothenburg, with a diagnosis of schizophrenia and schizophrenic disorders according to DSM-IV⁸ and to evaluate these patients in two different controlled studies for at least two years. The first patients entered the study in 1994 and the final patient entered autumn 1998.

⁶ Falloon & Fadden, 1993

⁷ Positive symptoms refer to distortion or excess of normal function and negative symptoms refer to loss of normal function.

⁸ The fourth edition of the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders*.

After approval from the patients to participate in the trial they were randomised into either the *best clinical practice* or *integrated care* programme. Depending on the patients' history of illness they were either allocated to the controlled study no. 1 or the controlled study no. 2.

The controlled study no. 1 includes patients aged 18 to 45 years and which have an onset of schizophrenia and schizophrenic disorders less than 10 years prior to entering the study. Since 1994 31 patients have entered the study after randomisation. Randomisation to either *integrated care* or *best clinical practice* respectively was done with a 5:1 ratio. This controlled study will be part of an International random-controlled trial called the Optimal Treatment Project⁹ comparing long-term outcome of optimal clinical treatment of schizophrenic disorders in several countries where the standard has been set for a 5:1 ratio.

The controlled study no. 2 includes patients aged 18 to 55 years, who had an onset of schizophrenia and schizophrenic disorders of more than 10 years before entering the study. Since 1996 55 patients have entered the study after randomisation, 4 withdrew their consent, 1 is deceased and 50 are still in the study. Randomisation to *integrated care* and *best clinical practice* respectively was done through a 1:1 ratio.

For this paper we have chosen to compare the treatment programme independent of the patients' history of illness and instead merged the groups into the *integrated care* group and the *best clinical practice* group. Due to the different weighting of the randomisation process in control groups 1 and 2 the *integrated care* group consists of 50 patients whereas the *best clinical practice* group consists of 32 patients. The baseline characteristics for the two groups are presented below in table 1. The average age of the patient is 38.4 years and 39.0 years respectively and 66.0% and 53.1% of the population is male. The social stigma that is connected with the disease is evident from the statistics that shows that the majority of the patients (88.0% and 78.1%, respectively) are singles whereas only 10.0% (15.6%) are, or have been, married. The majority of the patients are unemployed or receive disability pension (82.0 % and 84.3% respectively) even though 72.0% (59.4%) have an education from high school or higher. Most of the patients are able to live on their own (68.0% and 50.0% respectively), some of them with a couple of hours help per week from the home help service. Those with an extended need of help live in supported living where they have access to help during daytime

⁹ www.otp.nu

whereas those living in sheltered living have access to staff at both daytime and night time. The *best clinical practice* group has a higher proportion of people living in supported or sheltered living, which can be related to a smaller proportion of people from controlled study no. 1. That is, the patients with a longer history of illness are less likely to be able to live on their own especially as some of them have been living at institutions before their closure.

Variables	IC (N=50)	BCP (N=32)
Mean age	38.4 years	39.0 years
Sex	Male	53.1%
Marital status	Single	78.1%
	Married	0.0%
	Cohabitant	6.3%
	Divorced	12.5%
	Widowed	3.1%
% Childless	94.0%	81.2%
Education	< Primary school	3.1%
	Primary school	37.5%
	High school	46.9%
	Higher education	12.5%
Occupation	Employed	6.2%
	Unemployed	12.5%
	Student	3.1%
	Pensioner	78.1%
Residence	Living alone	50.0%
	Living with family	3.1%
	Supported living	37.5%
	Sheltered living	9.4%

Table 1. Baseline characteristics

Data collection

Data about the cost and outcomes for the patients were collected with three months interval starting at the date of randomisation. Due to the patient population, especially those with a long-term history of schizophrenic disorder, and the employment market, fewer clients were employed and independent to a lesser degree compared to other studies evaluating community based treatment (see for example, Weisbrod 1980). It was therefore not possible to use employment as an indicator of improved health. Instead the study is focused on relating the non-cash outcomes, such as social functioning, symptoms and consumer satisfaction, with the costs of the treatment. Information about the parameters for the estimation of the benefits was received from the clinical evaluation about the patient. There were in some cases problem to

make the patients participate in the interviews or to complete the interviews. When possible the available information was completed by the help of the patients' casebooks, with additional information from the patient's key-worker or other close sources. However, effort was made to ensure that the annual evaluation was fully completed.

Data collection for the measuring the direct cost

To collect data for the economic evaluation it was decided to develop a questionnaire using the Client Service Receipt Inventory (CSRI)¹⁰ as a model. This research instrument, developed at the Personal Social Service Research Unit (PSSRU)¹¹, is in use for collecting retrospective information on employment and income, service utilisation and service-related issues and provides a basis on which the direct cost for the care can be calculated. However, in our version¹² more emphasises was put on sources of income and contribution (both in time and cash) from the relatives. To get as accurate information as possible we chose a longitudinal design where the clients' co-ordinators were interviewed every third month. When possible, event-reports and casebooks were used as support for the co-coordinators' memories.

Estimation of unit cost

The next step was to price all the used resources that have been identified and collected, such that we could compare the direct costs of the two programmes. This was done through estimation of a unit cost for the different receipts. As result of market imperfection in the health care market the prices of the resources might not reflect their true social value. The guidelines¹³ therefore recommend that costs should reflect full social opportunity cost, including the cost of capital and administration and support costs where relevant. One important aspect of the treatment process is to improve the health of the patient to enable him to return to work or to initiate an employment. The employment may improve the patient's quality of life, and hence reduce his indirect and intangible costs, but it is also a net gain for society.

When determining the unit prices of the resources it was important to allocate the correct costs for our patient groups. For the *in-patient care* we distinguished between acute and ordinary in-patient care. A unit price per day of in-patient care was estimated using the cost accounting

¹⁰ For more information about CSRI see Beecham, J. (1994) and (1995)

¹¹ The PSSRU was established an 1974 at the University of Kent at Canterbury

¹² The adaptation of the questionnaire was done by professor Lars Söderström, Lund University and Karin Sutherland, Göteborg University.

¹³ See for instance p.29 in Knapp *ed.* 1995, "Guidelines for the economic evaluation of pharmaceuticals.

from the administrative department at Sahlgrenska University Hospital. The cost accounting allocates actual costs (including overheads) on the different departments and gives an estimated price per bed and day. Another approach would be to use national data such that cost differences between hospitals will not influence the result.

For *outpatient care* we used the cost accounting together with statistics about registered number of visits to one of the day care clinics, the N&Ut clinic¹⁴. The next step was to estimate the proportion of total time that the staff used with the patients in the project and other patients, respectively. This gave us the total cost for our patients. Finally, with the use of event reports¹⁵ we estimated how much of the time that the staff spent directly with the patients. The appropriate amount of the total cost was divided on direct time used with the patients in the study. This gave us the efficient individual wage per minute patient time for the staff at the clinic. The estimated costs for the physicians were 30 SEK per minute and 15 SEK per minute for other personnel (nurses, therapist, counsellor and psychologist). There was no significant cost difference between the different staff groups and the same unit price was therefore used for all other hospital staff than physicians.

The unit price for *social service* and *social support* was estimated in the same way. Using the cost accounting for one of the activity centres together with information about the number of visits it was possible to get an estimate of the unit price per minute for the centre. This price was then used for all centres, to avoid cost differences due to location. The intention is to use the cost accounting from all the centres to get an average unit cost per minute to use for all different centres.

Estimation of direct costs

The final patients to join the controlled study no. 1 entered the study during autumn 1998. The results from the individual cost analysis are only preliminary as all data material need to be checked and refined before any conclusions can be drawn. The first cost analysis will include those 86 patients that have been in the study for more than 24 months.

¹⁴ All of the patients in the controlled study no.1 that receives integrated care are treated at this clinic.

¹⁵ All time spent directly and indirectly with the patients, and their relatives, included in the project are registered in an event report.

In order to calculate the individual patient costs we multiplied all resources used by a patient from their entry into the study with the estimated unit price. The data was then divided into four different types of direct costs; outpatient care; inpatient care and active social support and inactive social services. *Inpatient care* refers to hospitalisation either at an acute or a non-acute clinic. Usually the patient may spend a period of time at the hospital at an acute clinic after which they are either discharged or transferred to a non-acute clinic. *Outpatient care* refers to all use of resources from the non-institutional health care, that is, appointments with the psychiatrist, GP, nurse, therapist, physiotherapist, psychologist, counsellor as well as the cost for medication and biomedical investigations. *Social service* refers to the services from the society that is vital for the patient to be able to live outside an institution. That is home-help service, mobility service, personal assistant and costs for supported or sheltered living. *Social support* refers to the remaining social service that is available and used but that is not necessarily needed on a regular basis for the individual to be able to live outside an institution. That is, even though it might be desirable for the patient to use some of these services on a regular basis, failing to do so will usually not cause a dramatic change to the patient's life. Examples of this are social service, social insurance office, activity centres, police, jail and legal proceeding.

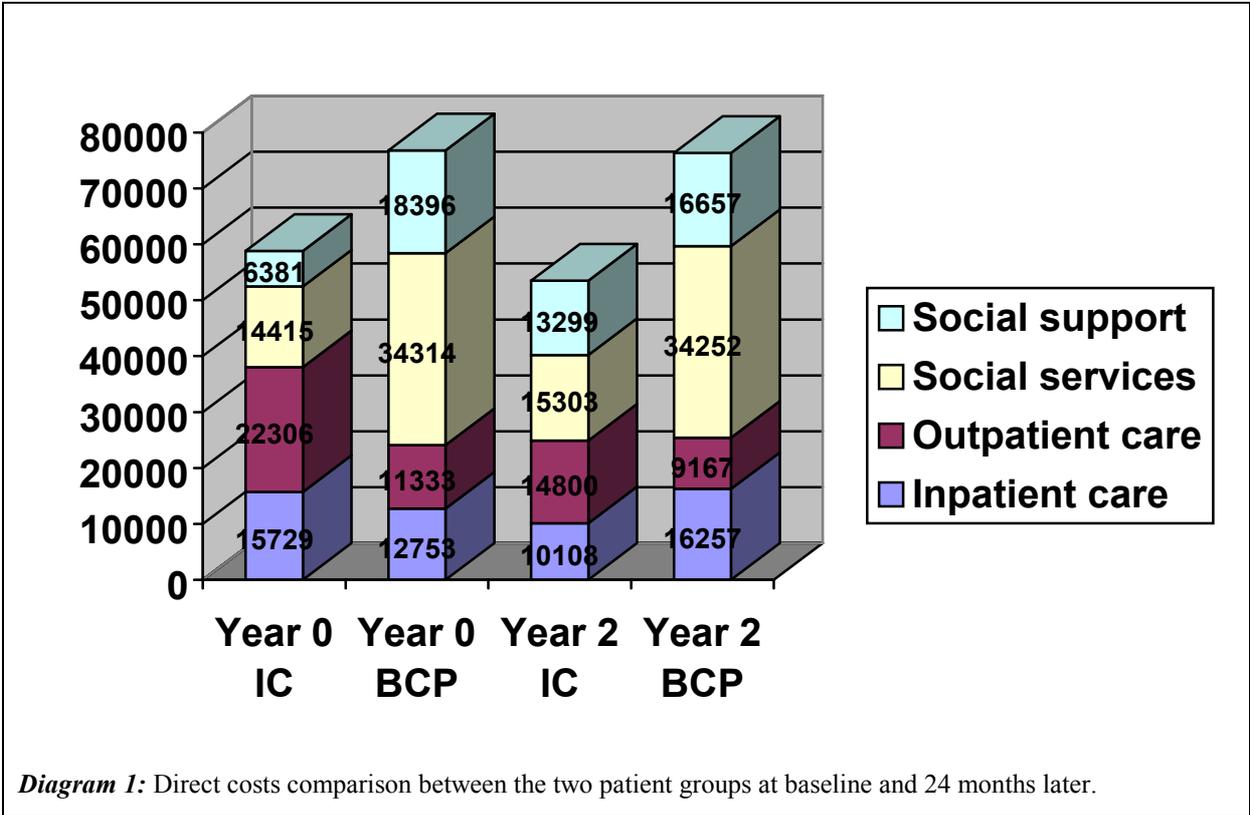
The central expectation of the study is that the group receiving *integrated care* should result in greater benefits compared to the group receiving *best clinical practice care*, without increasing costs imposed on the society. Even though the *integrated care* program is estimated to use more resources during the initial part of the program, as the staff is spending time implementing the program, the expectation is that the cost for this will be offset by the savings in form of less use of inpatient care and decreased use of health care resources over time due to training in self-management¹⁶. This analysis is therefore part of a long-term study, ranging over five years, and should be considered with caution, particularly concerning the costs of the programme.

¹⁶ A more detailed description of the programmes follows below.

Results

Estimated costs

Below follows a graphic representation of the direct cost per patient estimated at baseline and two years later. The calculation is estimated on the average direct cost of the first three months in the project, after the date of randomisation, and then the average direct costs after 24 months in the project. The direct cost is then divided on the four categories of cost and the two patients group, *integrated care* and *best clinical practice* respectively.



The average quarterly direct cost for the patients in the *integrated care* group, at baseline, was 58 850 SEK compared to 76 796 SEK for the patients in the *best clinical practice* group. After two years the direct cost had reduced slightly for the patients in *integrated care* where as they stayed the same for the patients in *best clinical practice* (53 511 SEK and 76 333 SEK respectively). One explanation to the difference in the direct cost of the two programmes is the larger proportion of patients in the *best clinical practice* group that are living in supported or

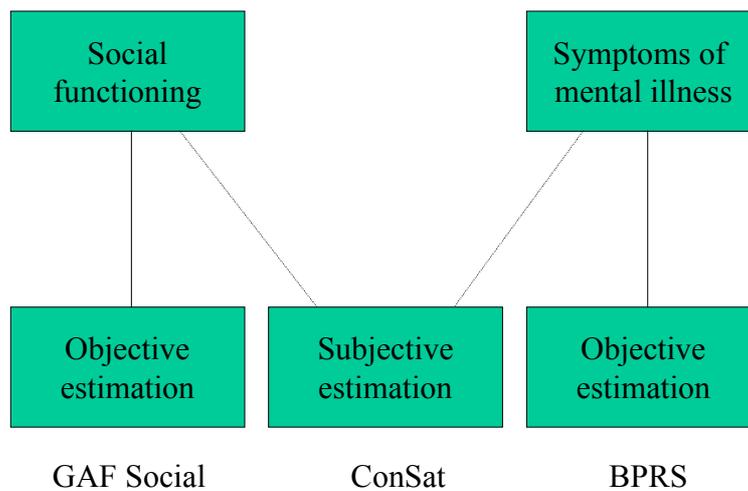
sheltered living while there were no significant differences in the medical profiles of the groups at baseline. These additional costs associated with living predate the start of the treatment programmes and in this study the living cost of a few patients can skew the baseline cost making a difficult to draw detailed conclusions.

There is also a difference between the groups in the usage of resources. The *integrated care* group uses more outpatient care whereas the *best clinical practice* group uses more social services and social support in form of home help services, personal assistants or day care centres. It is natural that the *integrated care* programme uses more outpatient care resources in the beginning of the trial as the programme is based on training of the patient using staff which belongs to outpatient care. However, after time this training should decrease and instead the patient should be able to functioning more on his own in the society. This can be seen in diagram 1 where the direct cost for outpatient care decreases over time and instead the cost for social support increases which follows from an increased use of day care activities and education.

There is another difference between the programmes. During the first year the average number of days in hospital was 36.0 days for the *integrated care* group but 42.3 days for the patient in *best clinical practice* group. During the second year the average number of days in hospital was reduces to 27.3 days for the *integrated care* group whereas it had increased to 46.7 days for the *best clinical practice* group. This could mean that the *integrated care* programme is more effective in preventing admissions to hospitals.

The outcomes¹⁷

The benefit to society from better treatment of schizophrenia is closely related to the patient's ability to function well in society. There can be objective measures of this ability, as well as ways of measuring the symptoms of the disease. Ideally, social function is as well as symptoms should be measured subjectively (i.e. by the patient himself). In practice, however, this might prove to be difficult. It may then be easier to measure the patients satisfaction with care altogether.



In order to see if there were any differences in the effects of the programme it seemed appropriate to focus three different variables, considered to be of importance in determining the benefits for the patient. Thus, due to the nature of the disease, as a schizophrenic patient is usually exposed to heavy medication and withdrawal from the society, it was decided to use the following three variables: The Global Assessment of Functioning Scale (GAF-Social), The Brief Psychiatric Rating Scale (BPRS) and Consumer satisfaction (ConSat).

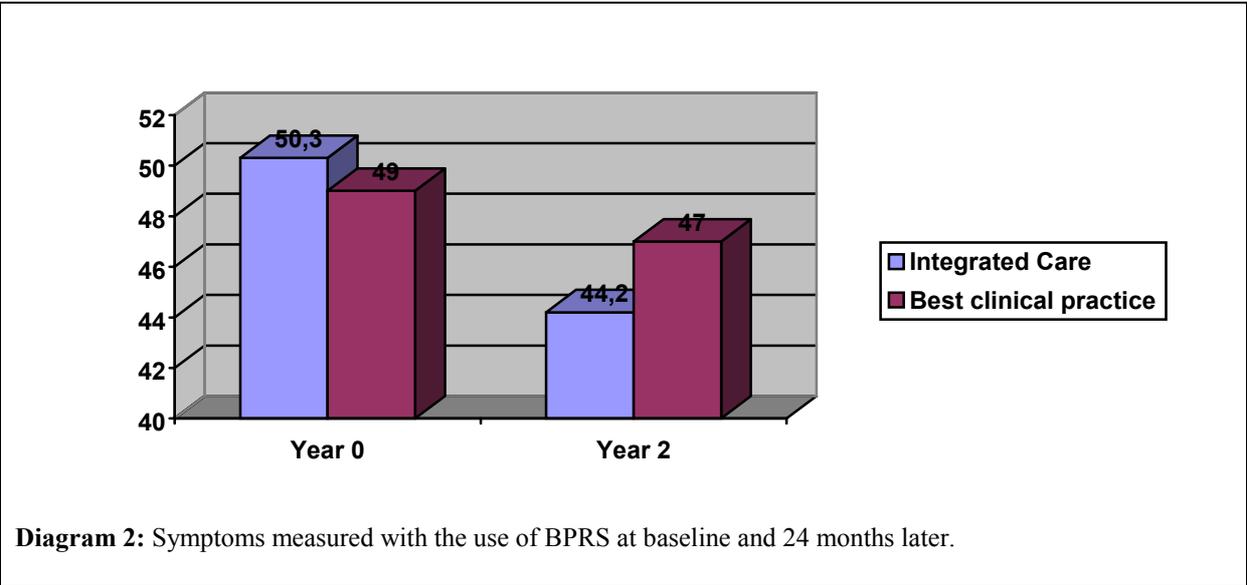
The GAF-Social scale is a rating scale that can be used as a global measure of the patients overall psychosocial state during a specified time period. The BPRS has been used extensively to assess changes in the severity of the symptoms of schizophrenic disorders. It yields a comprehensive description of major symptom characteristics. The ConSat assesses the patients satisfaction with the actual care and the effect of the care.

¹⁷ Please note that all outcome data is preliminary and should not be quoted.

Below follows a graphic presentation of the three different outcome measures for the two patient groups, evaluated at baseline and 24 months later.

Symptoms

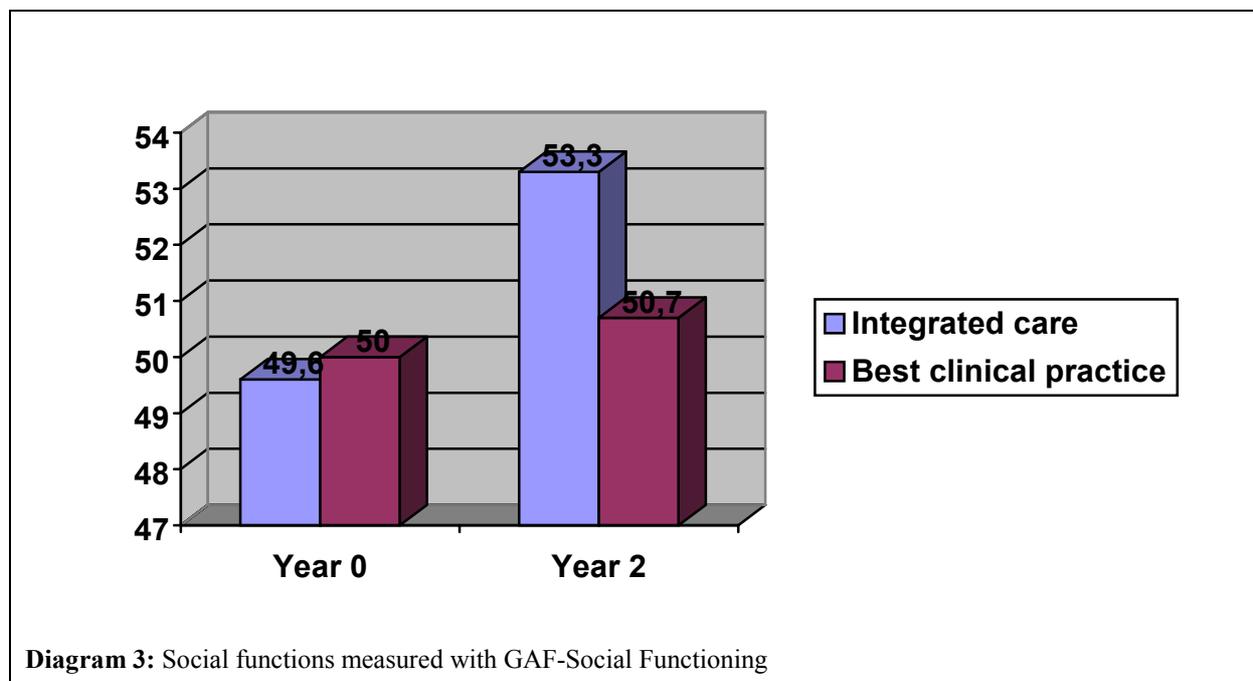
In the diagram we can see that the reduction of the symptoms are greater in the *integrated care* group than in the *best clinical practice* group. The reduction in symptoms over the two years is 6.08 and significant ($t=3.30^{18}$) for the *integrated care* group but 1.97 and insignificant ($t=0,58$) for the *best clinical practice* group. This result indicates that the *integrated care* programme have an effect on the symptoms. Another interesting result, however, is the spread over the scale. For the *integrated care* group the minimum and maximum value at baseline was 28 and 102 respectively. Two years later that span had decreased to a minimum of 16 and a maximum of 70. For the *best clinical practice* group the same phenomena occurred. At baseline the minimum and maximum was 25 and 123 respectively but two years later this had changed to 26 and 77 respectively. This result could imply that both programmes are able to reduce high levels of symptoms. Another explanation could be better medication either in form of new improved drugs or in form of better drug management (i.e. optimal doses).



¹⁸ The t is referring to the students t-distribution and the critical value is approximately 2 at the 5% significance level.

Social function

In the diagram we can see that the *integrated care* group has gained increased social competence over the two years whereas the *best clinical practice* group has stayed the same. One of the features of the *integrated care* programme is extensive training in social competence and this seems to be evidence that the training has had some result. This measure ranges from 0 (representing someone that is in persistent danger of severely hurting himself or someone else) to 100 (representing someone with superior functioning in a wide range of activities and life). A significant increase of 3.67 in social functioning was found for the *integrated care* group ($t=2,07$) whereas the increase of 0,63 for the *best clinical practice* group were insignificant ($t=0,36$). This result is not surprising considering that the major difference between the programmes is the psycho-educational elements, social network resource groups, structured communication training, structured problem solving and specific cognitive behaviour therapy for patients with persisting symptoms, that are added components to the *integrated care* programme. The result indicates that this training improves the social functioning for patients participating in the *integrated care* programme compared to those receiving *best clinical practice*.



Consumer satisfaction

In the diagram we can see that both the *integrated care* group and the *best clinical practice* group expressed an increased consumer satisfaction over the years. The *integrated care* patients on average seem to be more satisfied with their care. The SSP Consumer satisfaction scale ranges from -22 to 22. For the *integrated care* group the minimum and maximum value at baseline was -14 and 20 respectively. Two years later that span had more or less stayed the same with a minimum of -16 and a maximum of 21. The average increase in satisfaction with care over the two years was 3,67 ($t=3,23$). By contrast the increase in satisfaction with care over the two years for the *best clinical practice* group was only 0,88 and insignificant ($t=0,51$). In addition the minimum and maximum at baseline was -10 and 21 respectively but two years later this had changed to -20 and 22 respectively. This result could imply that expectations about the care for some patients in the *best clinical practice* programme were not fulfilled causing this drop in the satisfaction scale. The SSP Consumer satisfaction scale consists of eight items measuring both the satisfaction with care and the satisfaction with the effect of care. From investigation of the different items (results not shown here) it was found that the items concerning information and psychosocial assets caused the main difference in consumer satisfaction between the programmes. Again this is consistent with the content of the programmes where the *integrated care* programme is based on the concept of patient participation and to a greater extent trains and educates the patient for independent living.

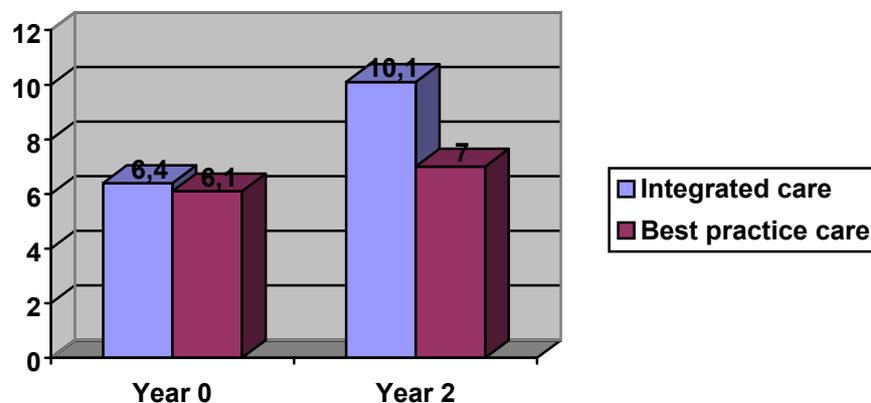


Diagram 4: Consumer satisfaction measured with SSP Consumer satisfaction scale

Summary and conclusion

This paper has presented the theory behind economic evaluation and how we want to use it in the OTP-project. This far we have managed to collect individual economic data and to start the process of estimating the costs for the patients in the two programmes. Three different outcomes measures have been used as an estimate of the benefits of the programme. The next step is to measure the indirect and intangible costs for the patients. That work is under progress and should be completed in the near future. After the comparison has been made between the *integrated care* programme and *best clinical practice* programme the next step is to divide the patients into the *controlled study no. 1* and *controlled study no. 2* to see if there are any differences in applicability of the programme with early or late intervention.

On the effect side we have seen that the *integrated care* programme dominates the *best clinical practice* programme in all the three dimensions investigated. On the cost side the difference between the program are not significant, but there is a significant difference in the use of resources. The *integrated care* program uses more resources in the outpatient care, at least during the initial stage of the programme, while the *best clinical practice* programme uses more from social services and social support. This indicates that different forms of care might be substitutes for each other.

Even though we, in this two-year outcome study, can already detect differences in the effects between the programmes it is believed that a long term comparison is of greater interest as implementation of the programme might take time. With chronic mentally-crippling diseases like schizophrenia it is not realistic to expect large improvements during short time spans. Instead those involved in the mental health care talk about making small step forwards. It is therefore promising that we can already detect improvements in the patients health after such, in perspective, short time. It is also important to keep in mind that prior to the randomisation all patients were receiving *best clinical practice*, apart for those that had there first episode of the illness when they were offered to participate in the programme. In effect this means that by offering this extended programme, without any increased cost for the society, we can provide both an improved health for the patients as well as greater satisfaction with the care making it the more cost-effective approach.

Acknowledgements

The OTP Research Group at the Göteborg University

This study was funded by grant from the Swedish Medical Research Council, Vårdalstiftelsen, Schizophrenia Fellowship in Sweden, Socialstyrelsens nationella och regionala stimulansbidrag, Königsska-Söderströmska sjukhemmet/Svenska Läkarsällskapet, CEFOS and Torsten och Ragnar Söderbergs stiftelser.

References

- Awag A.G. and Voruganti L.P., (1999) Cost-utility analysis in schizophrenia, *Journal of Clinical Psychiatry*, 60 suppl. 3: 22-28.
- Barry, M.M. & Crosby, C (1996), Quality of life as an evaluative measure an assessing the impact of community care on people with long-term psychiatric disorders: *British Journal of Psychiatry*, 168, 210-216.
- Beecham, J. (1994) Collecting information: The Client Service Receipt Inventory, *Mental Health Research Review* 1: 6-8, PSSRU, Canterbury, UK.
- Beecham, J. (1995) Collecting and estimating costs. In: Knapp, M. (ed.) *The economic evaluation of mental health care*, Arena, Ashgate Publishing Limited, Hants, England.
- Davies, L. M. & Drummond, M. F. (1990) The economics of schizophrenia. *Psychiatric Bulletin*, 14, 522-525.
- Davies, L. M. & Drummond, M. F. (1994) Economics and schizophrenia: The real cost. *British Journal of Psychiatry*, 165 (suppl. 25), 18-21.
- Dencker, S.J. & Dencker K. (1994) Does community care reduce the need for psychiatric beds for schizophrenic patients? *Acta Psychiatrica Scandinavica Supplementum*, 382: 74-79.
- Drummond, M. F., O'Brien, B., Stoddart, G. L. & Torrance, G. W. (1997) *Methods for the economic evaluation of health care programmes* (2nd edition). Oxford University Press Inc., New York, United States.
- Falloon, I. and Fadden G. (1993) *Integrated mental health care*, Cambridge University Press, Cambridge, UK.
- Falloon, I., Fadden, G., Borell, P., Kärräng, L., Ivarsson, B. and Malm U. (1997) *Integrerad psykiatri (Integrated Psychiatry)*, Psykologia, Värnamo, Sweden.
- Hargreaves, W. A., Shumway, M., Hu, T. and Cuffel, B. (1998). *The cost-outcome methods for mental health*. Academic Press, California, USA.
- Knapp, M. (ed.), (1995) *The economic evaluation of mental health care*, Arena, Ashgate Publishing Limited, Hants, England.
- Marks, I.M., Connolly, J., Muijen, M., Audini, B., McNamee, G. and Lawrence, R.E. (1994), Home-based versus hospital based care for people with serious mental illness. *British Journal of Psychiatry*. 165, 179-194.

- Meltzer, D. (1999). Perspective and the measurement of costs and benefits for cost-effectiveness analysis in schizophrenia. *Journal of Clinical Psychiatry*. 60, Supplement 3: 32-35; discussion 36-37.
- Pinkey, A.A., Gerber, G.J. & Lafave, H.G. (1991). Quality of life after psychiatric rehabilitation: the clients' perspective. *Acta Psychiatrica Scandinavica*, 83(2): 86-91.
- Ware, J.E. (1995) The MOS 36-item short-form health survey (SF-36). In: Sederer L.I. and Dickey, B. (eds.) *Outcomes assessment in clinical practice*. Baltimore, MD: Williams and Wilkins.
- Weinstein, M.C. and Stason, W.B. (1977). Foundations of cost-effectiveness analysis for health and medical practices, *New England Journal of Medicine*, 296, 716-721.
- Weisbrod B., (1981) Benefit-cost analysis of a controlled experiment treating the mentally ill, *Journal of Human Resources*, 16: 523-548.
- Weisbrod B., Stein M. and Test L. (1980) Alternatives to mental hospital treatment. II: Economic benefit-cost analysis, *Archives of General Psychiatry*, 37: 400-405.