Is phase-specific, community-oriented treatment of early psychosis an economically viable method of improving outcome?

Mihalopoulos C, McGorry P D, Carter R C

Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

Health technology
The Early Prevention and Intervention Centre (EPPIC), which consists of a number of programmes that together form a comprehensive model of treatment, was assessed. The aims of the programme were to reduce the delays in initial treatment, initiate treatment in a less traumatic manner, and to develop and deliver phase-specific interventions. The programmes included in the treatment model were the early Psychosis Assessment Team, the inpatient unit, the outpatient case-management service, the day programme, and a number of smaller therapeutic programmes that were outlined in the paper.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
The study population consisted of all young patients suffering from a first-episode psychosis and living within the EPPIC and pre-EPPIC catchment areas of Melbourne. The authors stated that the pre-EPPIC catchment area, with a population of 800,000, was half of the size of the current EPPIC area.

Setting
The setting was that of a specialist clinic. The economic study was conducted in Melbourne, Australia.

Dates to which data relate
The effectiveness evidence was derived from a single study conducted in 1993 to 1994. The resource use and effectiveness data were from the same cohort of patients. The intervention cohort data were from 1993 to 1994, while the comparator cohort data were from 1989 to 1992. The costs used were financial costs, as allocated by the financial provider who provided the service. The price year was 1993 to 1994.

Source of effectiveness data
The effectiveness data were derived from a single study and from the authors' assumptions.

Link between effectiveness and cost data
The costing was conducted retrospectively for the same cohorts of patients that participated in the efficacy study.

Study sample
The first 51 patients recruited to EPPIC were individually matched with 51 patient pre-EPPIC to obtain the study sample. The key variables used to match the individuals were age, gender, diagnosis, premorbid adjustment and marital status. No power calculations to determine the sample size were conducted. The control group (pre-EPPIC) was selected from individuals who had been treated during the period immediately prior to the commencement of EPPIC.

**Study design**

The study was a single-centre non-randomised trial with historical controls. The follow-up for both cohorts was one year. No loss-to-follow-up was reported.

**Analysis of effectiveness**

The primary health outcomes used were psychosocial functioning and the improvement in negative symptoms. Psychosocial functioning was measured using the Quality of Life Scale (QLS), while negative symptom improvement was measured using the Scale for the Assessment of Negative Symptoms (SANS). Full details of the efficacy results were not included in this paper but were published elsewhere (see Other Publications of Related Interest). The process of matching should have helped to gain comparability between the two cohorts, although some confounding variables may still have been present due to the use of historical controls.

**Effectiveness results**

The effectiveness results were given as the entry and 12-month scores for QLS and SANS.

The QLS EPPIC entry score was 40.0 and the 12-month score was 84.7 (standard deviation, SD=22.6). The pre-EPPIC entry score was 40.0 and the 12-month score was 68.8 (SD=27.3).

The SANS EPPIC entry score was 34.5 (SD=24.5) and the 12-month score was 18.8 (SD=18.1). The pre-EPPIC entry score was 29.7 (SD=19.2) and the 12-month score was 27.8 (SD=21.6).

The entry scores for QLS were estimates, and therefore, the results do not have a SD.

**Clinical conclusions**

The efficacy study provided evidence of improved clinical outcomes at 12 months after entry for both the intervention and pre-intervention periods in QLS and SANS. The EPPIC model was found to be a more efficient approach.

**Methods used to derive estimates of effectiveness**

It was not explicitly stated what methods were employed to obtain the estimates used. It would appear that the estimates have been derived on the basis of the authors’ assumptions, which had been informed by prior study samples.

**Estimates of effectiveness and key assumptions**

The QLS entry score for both EPPIC and pre-EPPIC has been estimated using QLS scores from other samples. These indicated that an entry score of 40 was a good approximation.

**Measure of benefits used in the economic analysis**

The summary measures of benefit used in the economic evaluation were both the QLS and SANS. The results for these measures are reported in the ‘Effectiveness Results’ section of this abstract.

**Direct costs**

The resource quantities and the costs were not reported separately. No discounting was conducted, as it was unnecessary (study period was one year). The resource use was given as the percentage of individuals using each service, further
details of which are available in the original paper (see Other Publications of Related Interest). The resource use and cost data were obtained from the Psychiatric Record Information System Manager, patient files, and the Service Utilization Rating Scale. The price year given was 1993 to 1994. All pre-EPPIC costs were converted to 1993 to 1994 prices. The study reported the total average costs. Only the direct costs were included. The capital costs and other hidden costs were excluded, including any funds expended beyond the allocated budgets in each model. The costs reported were the medication costs, outpatient costs and inpatient costs.

Statistical analysis of costs
The costs were not treated in a stochastic way.

Indirect Costs
No indirect costs were included in the study.

Currency
Australian dollars (Aus$).

Sensitivity analysis
Both one-way and two-way analyses were performed on the QLS and SANS scores. The cost and effectiveness parameters were varied by 50% in either direction. No justification for the ranges used was given.

Estimated benefits used in the economic analysis
See the 'Effectiveness Results' section.

Cost results
The EPPIC treatment model had a weighted average cost per patient of Aus$16,964. The pre-EPPIC treatment model had a weighted average cost of Aus$24,074 per patient. A statistical analysis of the cost data was not conducted.

Synthesis of costs and benefits
The average cost per unit improvement in outcome measure was used.

For EPPIC, a one-unit improvement in SANS cost Aus$1,081, while a one-unit improvement in QLS cost Aus$380.

For pre-EPPIC, a one-unit improvement in SANS cost Aus$1,267, while a one-unit improvement in QLS cost Aus$836.

The results of the sensitivity analyses showed that, if the costs of SANS were increased by 50% for EPPIC and decreased by 50% for pre-EPPIC, EPPIC was still found to be more cost-effective (Aus$1,621 per SANS improvement for EPPIC versus Aus$6,335 for pre-EPPIC).

In the case of a 50% decrease in the assumed clinical effectiveness and a 50% increase in the costs, EPPIC was still more cost-effective (Aus$3,242 per SANS point improvement versus Aus$4,224).

The analysis showed SANS to be very robust to changes in both the cost and effectiveness. The sensitivity results for QLS were not reported within the paper but are available on request from the authors, although it is stated that they are "somewhat less robust".

Authors' conclusions
While these early results suggest that early intervention along the lines provided by the Early Prevention and Intervention Centre (EPPIC) represent an economically viable method of improving outcomes during the first year of treatment, more long-term studies are required.

CRD COMMENTARY - Selection of comparators
The choice of the comparator appears to have been justified although the authors did not provide an explicit justification. The historical comparison allowed the new EPPIC to be evaluated in comparison with the existing programme, which was standard practice in the authors' setting.

Validity of estimate of measure of effectiveness
Full details of the study design were not given in the paper. However, the brief details that were outlined suggested that the design was appropriate for the study question. The study sample appears to have been representative of the population. The matching process should have ensured that the two cohorts were broadly comparable, although this cannot be guaranteed without more rigorous methods being employed. For further clarification as to the analyses of effectiveness, decision-makers should refer to the clinical trial publication. The use of historical rather than concurrent controls means that the study was methodologically weak. The authors, however, highlighted this weakness and attempted to minimise its impact by using a matching process to select the control group from the cohort of patients treated immediately prior to the commencement of EPPIC.

Validity of estimate of measure of benefit
Two summary measures of benefit were reported. The two health-outcome measures of benefit allowed both the improvement in negative symptoms and the improvement in psychosocial functioning to be assessed. The authors suggested that the utilisation of two measures allowed an overall outcome assessment with good validity, which took two important effects of treatment into account.

Validity of estimate of costs
The resource data were collected for each individual within the study by analysing what, and how much, treatment they received during the study period. The cost of these services was then expressed as the unit cost, and a total average cost per individual was calculated. The costs reported were financial. The authors assumed that all other hidden costs would probably be equal between the two groups. This assumption seems plausible for many of the hidden costs, although there is no reason why funds expended beyond the allocated budgets would be equal between the two groups. No duration of contact was taken into account in the costing. Also, secondary and tertiary consultations and non-client centred contacts were excluded. The effect that excluding these costs would have on the final decision is unclear. The sensitivity analyses conducted showed that increasing the costs by 50% still left EPPIC as the cost-effective option. Decision-makers should note that these cost factors were not included.

Other issues
The authors made no comparisons with other published studies, although it was unclear if such comparisons were made in the original effectiveness study. The authors noted that indirect costs would have been relevant for this patient domain, but they did not address them in the present study. Hence, the generalisability of the results could be problematic to settings that focus on a societal perspective. The reduction in inpatient utilisation greatly reduced the costs of the EPPIC strategy, which also improved outcomes. This would suggest that any clinical setting with high inpatient utilisation could not assume that such a programme would be a cost-effective option. The results of the economic evaluation were clearly reported although there was little detail outlining the effectiveness results. The authors acknowledged and comprehensively discussed the limitations of their study. In addition, they presented justified conclusions in the light of these limitations.

Implications of the study
The authors highlight the need for further research in this area. In particular, longer periods of follow-up and different
intensities of treatment in the initial treatment stages. They also suggest that future studies should try to use methodological techniques developed for international comparative studies of health outcomes, and attempt to include all the indirect costs.

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None stated.

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**Other publications of related interest**

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