Teen-focused care versus adult-focused care for the high-risk pregnant adolescent: an outcomes evaluation

Bensussen-Walls W, Saewyc E M

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 use of dedicated teen-focused prenatal clinics to provide care to high-risk pregnant adolescents. In particular, two such clinics were examined. The first, the Young Women's Clinic (YWC), was established in 1987 at the University of Washington. The YWC team consisted of a public health nurse, a social worker, a registered dietitian, certified nurse midwives, and an adolescent-medicine physician. The second clinic, Group Health Cooperative's Teen Pregnancy and Parenting Clinic (TPPC), was founded in 1990. The team at this clinic comprised a nurse clinician, a social worker, a registered dietitian, a WIC certifier, a health educator, and a family physician as medical director.

Type of intervention
Other: the provision of care to pregnant adolescents.

Economic study type
Cost-effectiveness analysis.

Study population
The study population comprised pregnant teenagers aged between 13 and 18 years.

Setting
The setting was the community, and primary and secondary care. This is because the services provided by the YWC were based in a clinic and the community, and those provided by the TPPC were based in a clinic and a hospital. The economic data were obtained from a metropolitan area of the Pacific Northwest in the USA.

Dates to which data relate
The effectiveness data were collected for high-risk teens giving birth from 1 December 1996 to 30 November 1997, and for a follow-up period of 1-year postpartum. The dates relating to resource use were not specified. One component was used to estimate the costs to 1997. The price year was not explicitly stated.

Source of effectiveness data
The effectiveness data were obtained from a single study.

Link between effectiveness and cost data
The costing was carried out retrospectively on the same patient sample as that used in the effectiveness analysis.

Study sample
The sample consisted of high-risk pregnant teens aged between 13 and 18 years, who gave birth between 1 December
1996 and 30 November 1997 at either the UWMC or Group Health Cooperative of Puget Sound (Central). Those teenagers attending the YWC were treated as an index group. Patients from the other three clinics were selected to participate in the study in accordance with nine matching criteria. The criteria, in order of priority, were age, parity, out-of-home status, past juvenile justice involvement, history of depression or suicide, illegal drug use, history of sexual and/or physical abuse, ethnicity, and trimester of entry into prenatal care. Twenty-seven matched cases were identified for three of the four clinics (YWC, TPPC and GHC), with only 25 matches found for UWMC. Thus, the total sample size was 106 patients.

Study design
The study was conducted on a retrospective basis, using a case-comparison design. Patients from two sites were included in the study. The first site was a university medical centre (UWMC), while the second site was a staff-model HMO (GHC). Each site operated both teen- and adult-focused clinics. Therefore, four clinics were included in the study. The post-delivery outcomes for these patients were recorded for up to one year postpartum. Long-term comparisons between those attending dedicated teen-focused centres and adult-focused clinics were difficult because a large proportion of the latter were lost to follow-up. Data following the hospital stay were available for less than 54% of the patients from adult clinics. Follow-up data after the 6-week postpartum examination were available for only 40% of these patients.

Analysis of effectiveness
Since the study was conducted on a retrospective basis, it appears that the analysis of the clinical study was conducted on the basis of treatment completers only, although this was not explicitly stated. The majority of the comparison cases from the four clinics matched over 66% of the criteria. Moreover, all matches satisfied at least half of the criteria. However, a number of statistically significant differences were found between the sub-groups. Participants from the UWMC were older than those from the YWC, (p<0.05). Similarly, on aggregate, teens attending adult-focused clinics were older than those attending teen-centred clinics, (p<0.05). Teenagers commenced prenatal care at the TPPC earlier than those at either the YWC, (p<0.05), or the GHC, (p<0.05). The out-of-home status of TPPC and GHC patients was also statistically significantly different, with the former (TPPC) less likely to be out-of-home at the commencement of prenatal care, (p<0.01). However, this difference in out-of-home status disappeared during pregnancy, hospital discharge and the first 6 months postpartum.

Effectiveness results
The outcomes were compared for teen- and adult-centred care, GHC and TPPC, and UWMC and YWC.

A comparison of the outcomes attained from teen- and adult-centred care during pregnancy showed that the number of missed appointments was statistically significantly lower among those receiving prenatal care from dedicated teen-focused clinics, (p<0.05). This higher attendance rate was also evident in the TPPC group in comparison with those in the GHC group, (p<0.01).

Patients at teen-focused clinics also received more maternity support visits than the comparator, (p<0.0001 for teen versus adult-centred clinics, p=0.0001 for TPPC versus GHC, and p<0.0001 for YWC versus UWMC).

Participants attending teen-centred clinics were more likely to be enrolled in state programmes designed to support families with infants, for example, First Steps, (p<0.001) and WIC, (p<0.01). This difference was also apparent in the sub-group attending TPPC in comparison with GHC, (p=0.0078 for First Steps and p<0.05 for WIC).

Clients of teen-focused clinics had better birth outcomes with significantly fewer of them having Caesarean section or forceps/vacuum-assisted deliveries, (p<0.05 for teen-focused clinics versus adult-centred care), (p<0.05 for both sub-groups).

Infant birth weight was significantly higher among the teen-centred group, (p<0.05), and also the YWC group, (p<0.05).

The gestational age at delivery was statistically significantly greater for those in the YWC group than for their
counterparts in the UWMC group, (p<0.05).

Following delivery, participants who had attended the teen-focused clinics were more likely to receive a 48-hour post-discharge home nursing visit, (p<0.01), a 2-week postpartum check, (p<0.001), and a 6- or 8-week postpartum examination, (p<0.05).

**Clinical conclusions**

The authors concluded that, compared with those attending adult-centred clinics, patients attending teen-focused clinics were slightly more likely to experience better birth outcomes. They were also slightly more likely to receive greater support from the clinic (fewer missed appointments and improved postpartum care) and the community (more likely to be enrolled in supportive programmes such as First Steps and WIC).

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

No summary measure of benefit was used. For details of the outcomes reported in the study, see the 'Effectiveness Results' section.

**Direct costs**

Two elements were used to calculate the costs. The first was the week of gestational age at the time of delivery. The second was the type of delivery (Caesarean section, forceps/vacuum extraction, spontaneous vaginal delivery). Hospital charges at the UWMC were used to estimate the costs. Data on the costs and resource use were not analysed separately. It was unclear whether the costs included those of the clinic and those for hospital delivery. It was not necessary to discount the costs since they were incurred in less than two years. The price year was not specifically stated, although the first element related to infants born at the UWMC in 1997.

**Statistical analysis of costs**

No statistical analysis was undertaken since the costs were reported as point estimates.

**Indirect Costs**

The indirect costs were not included in the study.

**Currency**

US dollars ($).

**Sensitivity analysis**

A sensitivity analysis was not carried out.

**Estimated benefits used in the economic analysis**

See the 'Effectiveness Results' section.

**Cost results**

The total costs for mothers and babies at the four clinics were $131,690 at the YWC, $140,729 at the UWMC, $123,789 at the TPPC, and $140,807 at the GHC. This suggested that the costs were lower for teen-focused centres.

While it appears that the participants have received both pre- and post-natal care from these clinics, the duration of the intervention was not explicitly stated.
Synthesis of costs and benefits
The costs and benefits were not combined.

Authors' conclusions
Teen-focused prenatal care resulted in improved health and social outcomes and better continuity of care than adult-centred clinics. In addition, these benefits were achieved without increasing the costs, and might even result in cost-savings.

CRD COMMENTARY - Selection of comparators
The comparator was justified on the grounds that most pregnant adolescents are eligible for Medicare coverage and, as such, attend adult-centred prenatal clinics. You should decide if this is a widely used health technology in your own setting.

Validity of estimate of measure of effectiveness
The analysis used a non-randomised, retrospective observational study, which may not have been appropriate for the study question. The authors acknowledged that the study sample may not have been representative of the study population. The sample comprised high-risk teens, and therefore, may not be indicative of other pregnant teens who are from a more secure and stable background.

The patient groups were shown to be broadly comparable. However, there were some differences (e.g. age, gestational age at entry, and out-of-home status). Indeed, the authors acknowledged that patients referred to the UWMC clinics may inherently experience more pregnancy complications. This would lead to an underestimation of the effectiveness of care at the UWMC. Further, although not recorded, the medical care provided in other settings may also have influenced the outcomes of these interventions. It was unclear whether the authors corrected for the potential biases arising from study design and differences between the samples. A comparison of the postpartum care received by both groups was difficult because the postpartum data for those attending the adult-centred clinics was not available.

Validity of estimate of measure of benefit
No summary measure of benefit was used.

Validity of estimate of costs
The authors did not specifically state the perspective from which the analysis was conducted. Consequently, it was unclear whether all the relevant categories of cost were included (e.g. indirect costs such as lost income). The costs and the quantities were not reported separately. No statistical analysis of the quantities was performed and this may have impacted on the reliability of the conclusions drawn from the study. A sensitivity analysis of prices was not performed. The costs of each intervention were estimated using the average costs for one centre, which raises two issues. First, as the authors stated, the use of average costs may not reflect the actual costs. Second, applying the average costs from one site to all sites may not identify differences in the costs of providing this service in different sites. These two points will have implications for the generalisability of the results to other settings.

Other issues
The authors made appropriate comparisons of their findings with those from other studies. They acknowledged that the results of their study may not be generalisable to other settings because the study focused on high-risk teens, and may not be applicable to other geographical regions. Only care provided by the prenatal clinic was taken into account. Since this study was conducted in a non-controlled setting, differences in the outcomes may be attributable to services received from other care providers. The type and level of treatment within each clinic may explain any difference in the outcomes. Further, as the authors acknowledged, the size of the sample may have been insufficient to identify statistically significant differences.
Implications of the study
The authors recommend that further research be undertaken to collect additional evidence on the costs and outcomes of teen-based prenatal clinics. In particular, this research should make use of larger samples and more sophisticated techniques than the existing study.

Source of funding
Funded in part by a grant from the Washington State Department of Health, Child, and Family Services Division.

Bibliographic details

PubMedID
11737811

Indexing Status
Subject indexing assigned by NLM

MeSH
Adolescent; Adult; Cost-Benefit Analysis; Demography; Female; Health Maintenance Organizations; Health Services Research; Hospitals, University; Humans; Male; Outcome Assessment (Health Care); Patient-Centered Care /economics/methods; Pregnancy; Pregnancy in Adolescence; Pregnancy, High-Risk; Prenatal Care /organization & administration; Program Evaluation; Retrospective Studies

AccessionNumber
22002006052

Date bibliographic record published
31/01/2004

Date abstract record published
31/01/2004