

# Evaluation of an integrated community antenatal clinic

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**SUMMARY.** *The obstetric outcome and experience of care of 96 pregnant women attending an integrated community antenatal clinic staffed by general practitioners, a community midwife and an obstetric accredited senior registrar were compared with those of 100 women receiving traditional shared antenatal care. The views of the women and their practitioners were sought; obstetric data were obtained from obstetric notes, hospital records and cooperation cards.*

*Fewer women attending the community clinic suffered from hypertension than women receiving shared care. The women attending the clinic reported that it had a friendly, relaxed and personal atmosphere. They also reported less inconvenience and a shorter waiting time for the obstetrician than women receiving shared care. They received greater continuity of care from the obstetrician but less from the general practitioners and community midwives than the control women. There was greater satisfaction with communication with staff among women attending the clinic, with the exception of the midwife whose role was not sufficiently well delineated. Practitioners in the integrated scheme appreciated the close working arrangements but experienced an increase in administrative tasks.*

## Introduction

THERE is a long history of dissatisfaction with antenatal care services.<sup>1</sup> Consumer opinion has stressed the inconvenient location of care and the impersonal atmosphere of clinics.<sup>1-5</sup> Within the medical and midwifery professions concern has been focussed on sharply varying mortality rates;<sup>6,7</sup> the roles of the various practitioners and communication between them;<sup>8-12</sup> differing aims and efficiency of antenatal care;<sup>13</sup> and duplication of care.<sup>14</sup> Several recent attempts to improve antenatal services have been reported, most involving some change in the location of care, in particular relocation of hospital care into the community.<sup>7,8,15,16</sup> Others have focussed on the integration of hospital and community antenatal care staff in the same premises;<sup>7,8,17</sup> rationalization of the scheduled number of visits women are expected to make to the various practitioners;<sup>15,18</sup> and women carrying their own obstetric notes.<sup>8,19-22</sup> All innovative schemes owe much to the enthusiasm of the practitioners who undertake them, but resources are rarely available for a full evaluation of the results and comparison with existing forms of care.<sup>23</sup> Only three of the above studies have incorporated a comparison group.<sup>16,21,22</sup>

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The community antenatal clinic described here aimed to provide pregnant women with a scheme of antenatal care in familiar local surroundings involving the integration of general practitioner, community midwife and obstetrician. The scheme was designed to increase communication between practitioners, thus avoiding duplication of visits, and to increase satisfaction among the women by providing them with continuity of care in a clinic with a friendly atmosphere situated in a more convenient location.

The evaluation of the clinic aimed to provide an account of women's experiences of their care together with an audit of obstetric outcomes, and to compare these with results from women receiving traditional shared care. Other results obtained from the study are presented elsewhere.<sup>24-27</sup>

## Community antenatal clinic

The weekly community clinic was set up in January 1982 at the new East Barnwell Health Centre, Cambridge. It was staffed by general practitioners from one practice and a community midwife who administered the clinic and saw women in her own right; it was visited fortnightly by an accredited senior obstetric registrar from the Cambridge Maternity Hospital as no consultant could commit that amount of time to the experiment on a regular basis. Three general practitioners were based in the health centre and the pregnant women under their care received general practitioner care at the surgery and attended the health centre for all their visits. The remaining three doctors in the practice were based at a surgery approximately one and a half miles away; the pregnant women under their care received general practitioner care at the surgery and attended the health centre for care from the obstetric specialist.

All pregnant women registered with the practice were eligible to join the scheme. A few women chose not to join because they wished to be under the care of a particular obstetrician or because they lived close to the maternity hospital but the numbers were too small to have influenced the results. A few women who lived close to the maternity hospital chose to join the scheme rather than attend the hospital antenatal clinic.

The women attending the community clinic carried their own obstetric records and the administrative difficulties of obtaining notes from the hospital were thus avoided. A protocol for the pattern of visits for women attending the clinic was drawn up based on the traditional pattern of monthly visits to 28 weeks of pregnancy, fortnightly visits to 36 weeks and weekly visits thereafter. The number of visits to the obstetric specialist was reduced from the usual four to six visits to three visits at 16 weeks, at 30-32 weeks and at term. It was recognized that the value of the traditional pattern of visits has been challenged<sup>13,18</sup> but it was felt that the clinic should initially concentrate on the integration of practitioners.

## Hypotheses

Given the aims of the clinic it was hypothesized that women attending it would find travel and waiting times more convenient, would be required to make fewer visits to the obstetric specialist and, overall, would receive greater continuity of care from the obstetric specialist, would report better communication with their practitioners and would express greater satisfaction with their care than would women receiving traditional shared care. It was also hypothesized that a more relaxed atmosphere in the clinic would lead to less hypertension among

women attending the community clinic than among women attending hospital clinics.

### Method

The estimated number of deliveries in the study practice was 100 per annum, a feasible population for whom an obstetric specialist could provide community care. Comparative data were required but a randomized controlled trial or a matched pairs design would have reduced the experimental population to an unacceptable level. The control sample were therefore recruited from other practices thus avoiding the bias which can occur when two systems of care are introduced in a small community. Women who had a miscarriage or termination after booking were excluded from the study.

The experimental group comprised the 96 women who attended the community clinic in its first year of operation. A consecutive sample of 100 women receiving traditional shared care at two practices elsewhere in the city formed the control group. The control practices were the same distance from the maternity hospital as the study sites, and had a similar social class mix.

Obstetric data for both groups were collected postnatally from the obstetric notes — held by the women in the experimental group and by the hospital in the case of the control group. A full obstetric and perinatal audit was undertaken covering most aspects of previous pregnancies together with details of the current pregnancy, and of labour, delivery and the puerperium. The number of visits made to general practitioners or community midwives by women in the control group at different stages of pregnancy were obtained from the cooperation cards of 43 women, the other cards being unavailable. The hospital notes showed no difference in the numbers of visits to the hospital between those women for whom cooperation cards were available and those for whom they were not.

The women in both groups were invited to take part in a survey of women's views which involved completion of questionnaires at 26–30 weeks and 37 weeks of pregnancy and at 6–8 weeks postpartum. Satisfaction with communication with practitioners was elicited by three questions: 'Do you have enough time with your midwife/general practitioner/hospital doctor?' 'Do you find it easy to talk to your...?' 'Do you have the opportunity to ask questions of your...?'

The views of the six general practitioners, the community midwife and the obstetric specialist involved in the community clinic were sought, first by interview soon after the clinic was set up and again approximately one year later by questionnaire. The 12 general practitioners and four midwives giving care to the women in the control group were asked in a questionnaire to describe how they operated shared antenatal care and to give their views about the system. Resources were insufficient to allow for interviewing each practitioner.

The data were analysed using the student's *t*-test, the chi-square test and the Kolmogorov–Smirnov test where appropriate.

### Results

The women in the two groups were similar with respect to age at delivery, parity, marital status, and planning of the pregnancy. Women in the experimental group left school earlier ( $P < 0.001$ ) and were more likely to have manual occupations ( $P < 0.05$ ), as were their partners ( $P < 0.001$ ).

#### Obstetric results

There were few statistically significant differences between the two groups. However, only 4% of the women from the experimental group had hypertension with or without proteinuria compared with 13% of controls ( $P = 0.05$ ). Fewer women from

the experimental group (64%) were breastfeeding their infants when discharged from hospital than controls (81%) ( $P < 0.005$ ), a result directly attributable to the social class composition of the samples. The mean birthweights of the two groups were not significantly different. However, when the birthweight distributions were compared using a Kolmogorov–Smirnov two-sample test, a more sensitive test which compares differences in cumulative frequency, the birthweights of the experimental group were found to be significantly lighter ( $P = 0.05$ ). This difference was related to the higher proportion of smokers in the experimental group (33% versus 17%) ( $P < 0.02$ ) but was not directly related to partner's social class.

Forty-nine percent of the experimental group but only 5% of the control group made the expected number of visits to hospital doctors or one more or one less ( $P < 0.001$ ). Women in the control group made four times as many visits to hospital doctors as women in the experimental group (a mean of 8.1 visits compared with 2.4), although there were no differences in the rates of complications of pregnancy between the two groups. When these figures were compared with the norms for each system 31% of the control group but only 17% of the experimental group made more than the expected number of visits to this source of care.

#### Women's responses

The response rate to the three questionnaires, although high overall, was higher in the experimental group (92%) than in the control group (83%) but the difference was not significant.

Table 1 shows that whereas both groups travelled similar distances to see the general practitioner or community midwife, women in the control group travelled twice as far to the hospital specialist. These differences were reflected in the journey time — 78% of women in the experimental group had journeys of 20 minutes or less to see the obstetrician but this was true for only 52% of women in the control group. Similar numbers of women in each group travelled to community care by bus or car

**Table 1.** Women's estimates of the time involved in visits to different sources of care.

	Group	
	Experimental ( <i>n</i> = 88)	Control ( <i>n</i> = 83)
<i>Mean distance of one-way journey (miles)</i>		
GP or midwife	1.4	1.2
Hospital specialist	1.8	3.3***
<i>Mean time of one-way journey (minutes)</i>		
GP or midwife	13	14
Hospital specialist	15	27***
<i>Time spent in appointment (minutes)</i>		
Midwife	8	13***
GP	12	11
Hospital specialist	11	11
<i>Total time spent at visit (minutes)</i>		
Midwife	30	23***
GP	35	30
Hospital specialist	37	70***

\*\*\* $P < 0.001$ , student's *t*-test (2 tailed) for control group versus experimental group. *n* = number of women.

thus incurring travelling costs (45% of the experimental group; 42% of the control group). However, many more control women (86%) travelled by bus or car to the obstetrician than women in the experimental group (48%).

The time involved in visiting the general practitioner was similar in both groups (Table 1). Women in the experimental group spent less time with the midwife in the clinic but longer in total at such visits than did control women. Women in the control group spent twice as long at their visits to hospital specialists as women in the experimental group though they spent the same amount of time with the obstetrician. Of those women responsible for children at the time of appointments, approximately half of the women in the control group and one third of the women in the experimental group took their children with them on visits to the obstetrician. Several women from the control group commented on the difficulties of amusing young children at the crowded hospital antenatal clinic while most women in the experimental group found childcare relatively easy.

Greater continuity of care was provided by the obstetrician in the community clinic — 86% of the experimental group reported seeing one or two hospital doctors compared with only 40% of the control group ( $P<0.001$ ) while 58% of the controls saw between three and seven doctors. However, control women saw fewer general practitioners and midwives — 89% of the control group saw one or two midwives compared with 74% of the experimental group ( $P<0.01$ ); 87% of the experimental group and 94% of the control group saw one or two general practitioners ( $P<0.02$ ).

Satisfaction with communication with practitioners was elicited in the three questions asked about each of the three main practitioners met during pregnancy (Table 2). Women attending the community clinic were more satisfied with communication with their practitioners overall and in particular with their general practitioners and obstetric specialist than women receiving shared care, but were less happy with communication with their midwives. There was no association between satisfaction with communication and parity, social class of partner or age at which women left full-time education; a weak association with women's own occupation was found for the combined groups — women with non-manual occupations were more satisfied with communication than women in manual occupations ( $P<0.05$ ). Thus, the social class differences between the samples cannot account for the differences in satisfaction. There was no association between satisfaction with communication and continuity of care for any individual type of practitioner. However, the aggregated data for all practitioners did indicate that within the control group and the combined groups women who had seen only one or two practitioners were more satisfied with communication than were those who had seen three or more practitioners ( $P<0.001$ ).

Most of the women in the experimental group commented on the atmosphere in the clinic, describing it as friendly, relaxed and personal; they enjoyed carrying their own records. Of the 48 multiparous women who had received shared care during previous pregnancies, 35 thought that care during this pregnancy had been better, 11 thought that it had been the same, and two thought that care had not been as good.

Most of the women in the control group commented favourably on their care from general practitioners and midwives but many felt that waiting for long periods in a crowded hospital clinic to see a hospital obstetrician contributed to a less personal atmosphere. When asked what type of care they would prefer 56% indicated a combination of general practitioner, midwife and obstetrician, 40% preferred all care to be given by the general practitioner and/or midwife, and 2% hospital care only. The answers of the remaining 2% were unclear.

**Table 2.** Satisfaction of women with communication with practitioners.

	Percentage of 'yes' responses <sup>a</sup>	
	Experimental group	Control group
<i>Individual questions</i>		
Enough time with:		
Midwife	83	90
GP	98	91
Hospital doctor	82	77
Easy to talk to:		
Midwife	91	99
GP	97	91
Hospital doctor	85	47***
Opportunity to ask questions of:		
Midwife	87	99**
GP	98	90
Hospital doctor	77	62*
<i>Aggregated data</i>		
Type of practitioner (3 questions)		
Midwife	87	96***
GP	97	91**
Hospital doctor	81	62***
Type of question (3 practitioners)		
Enough time	87	86
Easy to talk to	91	79***
Opportunity to ask questions	87	84
Overall (3 questions, 3 practitioners)	89	83**

\* $P<0.05$ , \*\* $P<0.01$ ; \*\*\* $P<0.001$ ,  $\chi^2$  test for control group versus experimental group. <sup>a</sup>Different number of respondents to each question.

### Practitioners' views

The practitioners involved in the new scheme considered the main advantages to be those experienced by the pregnant women, but they all appreciated the close working relationships and some were enthusiastic about the educational gains. The problems identified were the increased administration which had previously been dealt with by the maternity hospital and the split site organization of the practice which created problems for general practitioners wishing to attend the clinic. The community midwife was the least satisfied of the practitioners questioned; she had seldom been able to see and examine women because she was the main administrator of the clinic.

The 12 general practitioners from the control practices saw their pregnant women in surgery time rather than in a clinic and preferred this way of delivering antenatal care, but all agreed that there were problems in communication with community midwives. They also all agreed that there were problems with communication with the maternity hospital, for example, being informed of the results of investigations, pregnancy loss, and the date of discharge of women from hospital.

### Discussion

Community antenatal care reduced the inconvenience and cost of travel for pregnant women. The cost of care in both financial and personal terms to women experiencing shared care was much greater.

The scheme was successful in its attempt to avoid duplication of visits. It is not clear to what extent this was attributable to the existence of an agreed protocol, to the integration of prac-

tioners in the same clinic, or to the use of one obstetric record in which all practitioners recorded their observations; it is possible that it was a combination of these factors. It should be noted that the agreed protocol represented visits at the same frequency as the generally accepted pattern, which normally leads to duplication of visits.<sup>14</sup> The scheme provided greater continuity of care by the obstetric specialist, a result which cannot be explained simply in terms of the lower number of visits scheduled for this practitioner. No clear reasons are available for the greater number of midwives and general practitioners seen during pregnancy by women attending the community clinic.

Porter and Macintyre<sup>23</sup> have noted that women tend to express a preference for whatever pattern of care they have received. In the present study, more women attending the community clinic were satisfied with communication with practitioners than women receiving shared care but most multiparous women attending the community clinic felt that care had been better during this pregnancy.

A charge often levelled at consumer criticism of the maternity services is that dissatisfaction is largely confined to articulate middle-class women. However, the differences in satisfaction with communication found in this study were not attributable to social class. Continuity of care did not provide a wholly convincing explanation since, in contrast to the findings of O'Brien and Smith<sup>4</sup> in a much larger study, only a weak relationship was found. An explanation of the differences may be provided by a different interpretation of the term continuity of care. Women attending the community clinic made most visits to the general practitioners, and least to the specialist obstetrician and midwife.<sup>27</sup> Thus, the care was shared less equally, but was more continuous than in the traditional arrangement. A substantial number of women in the control group expressed a preference for care from community practitioners. If, as has been suggested,<sup>23</sup> reactions to hypothetical questions are underestimates of eventual preferences, the extent of preference for care from community practitioners may be greater than expressed by the control group.

The role of the midwife was the most problematic and least successful aspect of the scheme. In addition to seeing women for care she was the main administrator of the clinic, an activity which was visible to the women waiting. This may have led to an increased sense of urgency in the women's consultations with her, and the relatively low levels of satisfaction with midwifery care among the experimental group may be attributable to the organization of the midwife's work rather than to the women's perception of her role during the pregnancy. Midwives in the control practices held their own clinics which may account for the observed differences in consultation time and total time spent in visits to community midwives.

Results from both groups in this study indicate that many women are in favour of fewer visits to hospital obstetricians. What is not clear is how the bulk of the care can be shared most satisfactorily and effectively between the general practitioner and the community midwife. Marsh<sup>18</sup> has described a system in which most antenatal care is provided by the general practitioner and community midwife working together, and reported that pregnant women prefer this system to traditional regimes.

A study of this size cannot answer all of the questions about antenatal care, and it is possible that the satisfaction with care was some artefact of the individual practitioners concerned. It was not possible, for example, to examine the logistic implications of this system of care for a whole health district, though subsequently Huntingdon Health District has planned maternity services around integrated clinics. Results from this study support and extend the work of others<sup>7,8</sup> in showing that integrated community care can offer pregnant women and practitioners an acceptable alternative to traditional patterns of shared care.

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