A review of antenatal care initiatives in primary care settings

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SUMMARY. When hospital and community staff undertake initiatives to provide antenatal care in primary care settings the result can be improvements in women's access to care, higher uptake of care, better communication between women and professionals and more consumer satisfaction. This article reviews six such initiatives which show that pregnancy outcomes for mothers who receive their antenatal care in a primary care setting are at least as good as those for mothers who receive traditional shared care.

Introduction

IN the last 40 years, new technology has radically transformed maternity care, shifting the balance from community to hospital based antenatal care and contributing to changes in midwifery.[1] During the 1970s consumers became increasingly dissatisfied with hospital antenatal clinics, while health care professionals were concerned about the poor uptake of antenatal care by those most in need and the persistence of geographical and social class variations in perinatal mortality rates. In the discussions which followed, professional bodies,[2-4] government appointed committees[5-7] and government[8] all advocated a return to antenatal care in primary care settings as the key to improved antenatal services and the reduction of perinatal mortality rates.

This paper describes some of the initiatives that have been taken in the UK in the last 15 years to return antenatal care to primary care settings and examines whether a further shift in this direction is supported by solid evidence.

The paper is in three parts. The first part describes the origins, objectives and main characteristics of the initiatives, the second part describes how they have been evaluated and the third part looks at the evidence about the accessibility, uptake, acceptability and safety of these initiatives compared with traditional shared antenatal care. The traditional pattern of antenatal care consists of monthly visits to 28 weeks of pregnancy, fortnightly visits to 36 weeks and weekly visits thereafter. Although there is no set pattern for the ratio of visits between hospital and community sources of care, it has generally been accepted that the patient should attend a specialist clinic a minimum of four to six times.

It is evident from this review that the schemes differed in size, the way they worked, the staff employed and the women included. Each was designed to achieve a variety of objectives, although only reports of three initiatives contain an explicit statement of what these were.

Initiatives

Following a search of the UK literature since 1970 and discussions with other researchers, seven schemes were identified involving hospital and community staff working together in primary care settings — that is health centres, general practitioner surgeries or community clinics.

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Submitted: 22 June 1989; accepted: 23 April 1990.

Lambeth, London

This initiative was started in 1975 by the department of obstetrics at St Thomas's Hospital and the four partners of one general practice with 8500 patients[9-12] and approximately 100 deliveries per year. The professionals concerned were motivated by their dissatisfaction with the amount of contact they had with each other.

The initiative involved a weekly antenatal clinic in the practice staffed by the general practitioners, a community midwife and a health visitor. The obstetrician visited the clinic fortnightly.

At the first visit, the patient met all members of the primary care team — the general practitioners, the midwife and the health visitor. At the second visit, she was seen by her general practitioner and an obstetrician. At this visit, a general management plan was agreed. She was then seen by her general practitioner and the midwife for the rest of her pregnancy. Whenever appropriate, she also saw a dietitian or a health visitor with or without the general practitioner.

Each woman was given her own obstetric records at her first visit and was encouraged to bring them to all subsequent visits and to the hospital when she was admitted in labour.

Sighthill, Edinburgh

This initiative was started in 1976 by two obstetricians, a community physician and general practitioners in the Sighthill health centre serving a population of 30 000.[13-15] The initiative was a response to concern about Sighthill's perinatal mortality rate, which in the early 1970s was approximately 28 per 1000 births, and to the poor uptake of antenatal care.

About 200 women booked into the scheme each year and two clinics staffed by general practitioners, community midwives and health visitors were held each week in the health centre. Initially, the consultant visited the clinics weekly but subsequently every third or fourth week. He was also available for consultation at other times. At the end of each clinic, the professionals involved met to review management decisions.

The patient saw a general practitioner or a consultant at her first visit and a consultant, general practitioner or a midwife at subsequent visits. At the first visit, a midwife recorded the woman's history and assessed risk factors using a risk card which has since been recommended by the Royal College of Obstetricians and Gynaecologists. Subsequent management was determined by the assessed risk according to a formal protocol. During their pregnancy, women only visited the hospital for an ultrasound scan.

Easterhouse, Glasgow

Consultants started this initiative in 1978[16] because women from a peripheral housing estate found it inconvenient to attend the hospital clinic and were dissatisfied with communication with their doctors, continuity of care and mothercraft and relaxation classes.

A weekly antenatal clinic was set up in a council house on a deprived housing estate. The clinic was staffed by an obstetrician and senior registrar on alternate weeks, a hospital midwife, two community midwives, a health visitor and a social worker. No general practitioners were involved.

At the community clinic, obstetricians saw newly pregnant women on the women's alternate visits and the health visitor saw women on their second visit. At each visit, the same routine examination procedures were carried out as in the hospital clinic.

East Barnwell, Cambridge

This initiative was started in 1982 by a consultant who was concerned that women were being asked to make unnecessary antenatal visits, particularly to the general practitioner and midwife, in the first two trimesters.[17-19]

The aims of this initiative were to avoid duplication of visits, to improve communication between general practitioners, the midwife and the obstetrician, to increase consumer satisfaction, to maintain high standards of obstetric safety and to provide women with almost all their antenatal care in familiar local surroundings.

A weekly clinic at a health centre in Cambridge was staffed by general practitioners and a community midwife who administered the clinic and saw women in her own right. A senior obstetric registrar visited the clinic fortnightly and was available for advice at other times. All the staff endeavoured to meet at the end of each clinic.

All pregnant women registered with the practice were eligible to join the scheme and carried their own obstetric records. A protocol for the pattern of visits for women attending the clinic was drawn up, based on the traditional pattern of antenatal visits with the senior registrar seeing women at 16 weeks, 30–32 weeks and at term.

Tower Hamlets, London

This initiative began in 1982 in response to the need, stressed by the Royal College of Obstetricians and Gynaecologists, to integrate consultant and general practitioner care and for more efficient administrative arrangements.[20]

General practitioners in four practices and community midwives carried out booking histories and examinations in a health centre and provided all subsequent antenatal care there, except for ultrasound scans. Health visitors were also involved at some sites and a consultant visited monthly. Women carried their own obstetric notes.

Birmingham

This initiative began in 1985 when a twice-weekly clinic was set up in Balsall Heath, the most severely deprived ward in central Birmingham (Stevens A. Internal reports. Department of Obstetrics and Gynaecology, Birmingham Maternity Hospital).

The objectives of this clinic were to improve the provision of antenatal services to ethnic minorities, to increase the proportion of residents from central Birmingham who delivered at Birmingham Maternity Hospital and to develop the midwife's antenatal diagnosis and management skills.

Two clinics were held twice weekly, each one being staffed by a part-time consultant or a deputy, four community midwives, a dietitian and two link workers who liaised between women from ethnic minorities and staff to increase mutual understanding.

Before attending the clinic, women were visited at home by a community midwife and, if necessary, a link worker, who took their histories. Women then received the traditional pattern of shared care, visiting their general practitioner at set intervals. The services provided during antenatal visits to the clinic were the same as those provided in the hospital except that the consultant or a deputy only saw women routinely on the first visit. An expanded version of the traditional cooperation card was used.

Hackney

This initiative began in 1985 when the district health authority decided to centralize all deliveries at one hospital and to shift much of the antenatal care into community clinics.[21] At the same time the district health authority decided to develop a protocol for antenatal care to be followed by hospital and community clinics, and guidelines about hospital referrals for pregnant women.

Seven community clinics were set up, each staffed by one or two general practitioners, a community midwife, a hospital midwife, a liaison midwife, a health visitor and two clerks. Each obstetrician is responsible for one or more community clinics which they visit regularly and where they are available for consultation by any general practitioner within the area covered by the scheme. At other times, consultant advice could be sought by telephone.

Women booked for delivery at the clinic at six to 10 weeks carried their own records and only visited the hospital for an ultrasound scan at 16 and 34 weeks.

Evaluation methods

The seven initiatives have all been evaluated with prospective cohort studies, although to different degrees and in different ways, with evaluations of the more recent initiatives tending to be more wide-ranging and thorough than those of the earlier schemes (Table 1). In Hackney, the initiative is currently being evaluated and so it is not included on Table 1.

The scale of the studies varies with the size of the initiatives. In pilot schemes at a single site, approximately 100–200 women in total have been studied. In more extensive schemes covering the entire health district, up to 1000 women have been studied.

In all studies, comparisons have been drawn between the pregnancies of two groups of women, one receiving integrated community based care and the other receiving traditional shared care. In the Easterhouse and Birmingham studies, the groups were formed by randomly allocating women to community based or traditional shared care. In the other studies, women receiving community based care have been compared either with paired individuals receiving shared care or all other women in a similar practice or in the same area. In the Sighthill study, comparisons were drawn not only between women who did and did not receive community based care over the same five year period, but also with women in the same area in the five years before the scheme started.

It should be borne in mind that in non-randomized studies, differences in the pregnancy outcomes of women receiving community based care and traditional care may be due to biases in the sample rather than differences in the type of care they received.

Outcomes

The six studies in Table 1 have reported data about the outcomes of the initiatives (Birmingham has reported interim results). Outcomes reported in these studies include the use of primary care and hospital services, obstetric outcomes, women's experiences and views about their care and the views of professionals (Table 2). It is difficult, however, to draw direct comparisons between studies because they use different outcome measures.

Delays in booking

Three out of four studies — Sighthill, Tower Hamlets and Birmingham — show that a shift to community based antenatal care can reduce delays in booking. In Easterhouse, however, the shift to community based care had no apparent impact on delays in booking.

Table 1. Design of the six prospective cohort studies.

Location	Comparison groups	Number of patients: Hospital	Number of patients: General practice	Number of patients: Total	Exclusion criteria
Lambeth	Women opting to attend practice clinic or hospital clinic (paired)	237	237	474	—
Sighthill	All Sighthill women opting to join/not join community scheme in 1976–1980 and Sighthill women delivered 1971–75	?	1000	1000	(1) diabetes, (2) rhesus isoimmunization, (3) major cardiac problems
Easterhouse	Women randomly allocated to community based or hospital based care	78	75	153	—
East Barnwell	Women attending practice with own clinic or another practice offering shared care (similar social class mix and similar distance from maternity hospital)	88	83	171	(1) miscarriage or termination after booking
Tower Hamlets	Women opting to receive community based or shared care	50	65	115	—
Birmingham	Women randomly allocated to community based or hospital based care	450	447	897	(1) miscarriage, (2) lives outside the catchment area, (3) not delivered at Birmingham Maternity Hospital

Uptake

Two out of five studies — Sighthill and East Barnwell — indicate that a shift to community based antenatal care can improve uptake levels. In Sighthill, the rate of defaulted appointments decreased substantially over a five year period and in East Barnwell the proportion of women making unnecessary visits to hospital doctors halved. In the other studies — Lambeth, Easterhouse and Birmingham — there was no change in the default rate.

Length of visit

Two out of three studies — Lambeth and Easterhouse — show a reduction in the length of clinic visits or waiting times following a shift to community based care. In the other study — East Barnwell — the results were mixed; women spent more time waiting to see the midwife and less time waiting to see the hospital doctor.

Staff seen

Two out of three studies — Lambeth and Easterhouse — show that antenatal care in the community can provide greater continuity of care. In the other study — East Barnwell — the results were mixed; women saw fewer hospital doctors in the health centre but more general practitioners and midwives.

Use of measurements

Two out of three studies — East Barnwell and Birmingham — show that women receiving community based care underwent the same number of scans as those receiving traditional antenatal care. Evidence about women's completion of fetal movement charts is mixed; the Birmingham study showed an improvement and the East Barnwell study showed no difference.

Antenatal admissions

Evidence about the impact of a shift to community based antenatal care on antenatal admissions is also mixed. In Sighthill, there was a reduction in the number of antenatal days that women spent in hospital after the start of the initiative, but in Easterhouse there was no change.

Postnatal service use

Two studies — Easterhouse and East Barnwell — found no association between the type of antenatal care women received and their length of postnatal stay in hospital or their use of practitioners during the postnatal period.

Table 2. Data on the outcomes recorded by the six studies.

Location	Pregnancy complications	Method of delivery	Delivery complications	Postnatal complications	Women's views	Professionals' views	Gestation at first visit	Delay in booking	Antenatal visits: Number	Antenatal visits: Length	Antenatal visits: Content	Staff seen	Antenatal admissions	Postnatal stay
Lambeth	—	x	x	—	—	—	—	—	x	x	—	x	—	—
Sighthill	—	x	x	—	—	—	x	x	x	—	—	—	x	—
Easterhouse	x	x	x	x	x	—	x	x	x	x	x	x	x	x
East Barnwell	—	x	x	x	x	x	—	—	x	x	x	x	—	x
Tower Hamlets	—	—	—	—	—	—	x	x	—	—	—	—	—	—
Birmingham	—	x	x	—	—	—	—	x	x	—	x	—	x	—

Pregnancy outcomes

In Sighthill, there were fewer interventions and fewer distressed babies in the five years after the scheme started than in the five years before. In addition, perinatal mortality fell more sharply among Sighthill women receiving community based care than among Sighthill women not doing so in the previous five years. In the other four studies which have published data about pregnancy outcomes — Lambeth, Easterhouse, East Barnwell and Birmingham — there were no significant differences in the pregnancy outcomes of women receiving community based and traditional antenatal care (Table 3).

Women's views

Two studies suggest that community based antenatal care is more popular with women than hospital based antenatal care. In Easterhouse, women attending the community clinic found it an easier, cheaper and quicker destination than the hospital and were more satisfied with the information they were given and with their own level of involvement. In East Barnwell, women attending the community clinic found it easier to get to than the hospital, were more satisfied with communication with doctors and enjoyed carrying their own records.

Professionals' views

In East Barnwell, the professionals who provided community based antenatal care felt they had benefited from working more closely together, although the shift had increased the administrative burden on the practice in general and the midwife in particular.

Conclusion

The few initiatives to develop integrated community based antenatal care that have been reported in the literature in the last 15 years have evolved in response to a variety of local problems, have had a variety of objectives and have taken a variety of forms. Evaluations of these initiatives demonstrate that integrated community based antenatal care can result in improved accessibility, improved uptake, improved communication between

Table 3. Outcomes reported by the six studies.

Location	Summary	Judgement on results
Lambeth	Comparison of women attending practice and women attending hospital clinic showed no significant difference in type of delivery and baby outcomes. The main difference was that mothers saw fewer doctors in the combined clinic than in the hospital clinic.	Combined clinic not inferior to a hospital clinic on any of the parameters examined.
Sighthill	Comparison of Sighthill women in scheme in 1976–80 and Sighthill women delivered in 1971–75 showed increase in proportion booking early and decrease in proportion missing appointments, hospital admissions and intervention during delivery. Perinatal mortality among women joining the scheme fell faster than national trends.	Subjective benefits of community antenatal schemes need not be accompanied by poorer outlook for babies.
Easterhouse	Comparison of women randomly allocated to peripheral and hospital clinic showed women attending peripheral clinic found it easier to attend and more personal, saw fewer doctors, obtained more consistent advice, were more satisfied with information and involvement and spent less time in the clinic. No significant differences were found between the two groups in the number of antenatal admissions, lengths of postnatal stay, pregnancy complications, method of delivery or postnatal or neonatal complications.	A peripheral clinic offers considerable advantages to women.
East Barnwell	Compared with women receiving traditional shared care, women attending the community clinic were less likely to make more than the expected number of visits to hospital doctors. They spent less time waiting and the same amount of time with doctors and midwives. The obstetric results of women attending the community clinic and the control practice showed few statistical differences. Women attending the community clinic found it easier to attend than the hospital clinic, saw fewer hospital doctors and were more satisfied with communication with practitioners. They also found the atmosphere friendly, relaxed and personal. The practitioners involved in the community clinic appreciated the closer working relationships and were enthusiastic about the educational gains.	Integrated community care can avoid duplication of visits, is medically safe and can offer pregnant women and practitioners an acceptable alternative to traditional patterns of shared care.
Tower Hamlets	The community based booking scheme reduced the proportion of women booking late (16+ weeks) from 44% to 11% and at 20 weeks from 28% to 6%. There was no improvement in delay in booking owing to late confirmation of pregnancy.	The benefits of this scheme were due to improved attendance and reduced delays in booking women who confirmed pregnancy before 16 weeks gestation.
Birmingham	The community based scheme has been successful in both reducing gestation and increasing attendance at booking appointments. More appointments at earlier stages of pregnancy are given to women in the community based schemes and women are more likely to complete fetal movement charts. There were no significant differences in any of the obstetric outcome measures after allowance has been made for social group.	The community based scheme is meeting its objectives in terms of pregnancy outcome, and the development of midwife skills. Earlier uptake of services is also being achieved.

women and professionals, improved consumer satisfaction and pregnancy outcomes for mother and baby which are least as good as those for traditional shared care. Obstetricians, general practitioners and midwives elsewhere should, therefore, seriously consider developing similar schemes for the benefit of mothers and their babies.

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