

Should obstetricians see women with normal pregnancies? A multicentre randomised controlled trial of routine antenatal care by general practitioners and midwives compared with shared care led by obstetricians

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Abstract

Objective—To compare routine antenatal care provided by general practitioners and midwives with obstetrician led shared care.

Design—Multicentre randomised controlled trial.

Setting—51 general practices linked to nine Scottish maternity hospitals.

Subjects—1765 women at low risk of antenatal complications.

Intervention—Routine antenatal care by general practitioners and midwives according to a care plan and protocols for managing complications.

Main outcome measures—Comparisons of health service use, indicators of quality of care, and women's satisfaction.

Results—Continuity of carer was improved for the general practitioner and midwife group as the number of carers was less (median 5 carers *v* 7 for shared care group, $P < 0.0001$) and the number of routine visits reduced (10.9 *v* 11.7, $P < 0.0001$). Fewer women in the general practitioner and midwife group had antenatal admissions (27% (222/834) *v* 32% (266/840), $P < 0.05$), non-attendances (7% (57) *v* 11% (89), $P < 0.01$) and daycare (12% (102) *v* 7% (139), $P < 0.05$) but more were referred (49% (406) *v* 36% (305), $P < 0.0001$). Rates of antenatal diagnoses did not differ except that fewer women in the general practitioner and midwife group had hypertensive disorders (pregnancy induced hypertension, 5% (37) *v* 8% (70), $P < 0.01$) and fewer had labour induced (18% (149) *v* 24% (201), $P < 0.01$). Few failures to comply with the care protocol occurred, but more Rhesus negative women in the general practitioner and midwife group did not have an appropriate antibody check (2.5% (20) *v* 0.4% (3), $P < 0.0001$). Both groups expressed high satisfaction with care (68% (453/663) *v* 65% (430/656), $P = 0.5$) and acceptability of allocated style of care (93% (618) *v* 94% (624), $P = 0.6$). Access to hospital support before labour was similar (45% (302) *v* 48% (312) visited labour rooms before giving birth, $P = 0.6$).

Conclusion—Routine specialist visits for women initially at low risk of pregnancy complications offer little or no clinical or consumer benefit.

Introduction

We showed in a study of antenatal care in Scotland in 1989 that care for 97% of women was provided by obstetricians, general practitioners, and midwives (shared care).¹ Although the proportions of antenatal visits supervised by the three professional groups varied widely between hospitals, little difference was observed by antenatal risk category of the women. Antenatal care in Scotland seemed to be the result of a general application of the traditional preset schedule of visits at specified intervals for all women, which amounted to 14 visits on average.² Possible over-surveillance in the antenatal care of low risk women had been suggested by Hall *et al.*³ Government and professional groups' reports had highlighted problems

of fragmentation and lack of continuity in antenatal care.^{4,5} More recently the Scottish Office's policy review of maternity services in Scotland⁶ noted that there was a need "to identify the extent to which some of the predominantly hospital-based maternity care can develop towards more community-based care." The Cumberlege report related to England and Wales emphasised that antenatal care was "not focused in the most appropriate or consistent manner."⁸ Thus the objective of matching resources to the needs and satisfaction of women should be a main concern in developing new styles of antenatal care to offer to women. Further impetus for this trial in Scotland came from the international collaborative effort in perinatal and infant mortality of the US Department of Health and Human Resources international working group,⁹ which suggested that a multicentre randomised trial was required to examine who could provide antenatal care. The proposal for a multicentre trial was put to all consultant obstetricians in Scotland and supported by over 90% of them.

The model of care developed and tested in this study was that women at low risk of pregnancy complications could receive their routine antenatal care in primary care settings from general practitioners and midwives only. This new model of care was tested in a multicentre randomised controlled trial with shared care as the control. Comparisons of the two styles of care included clinical evaluation, measures of women's and staff satisfaction, and a health economic analysis. We report the results of clinical evaluations and evaluations of women's satisfaction.

Methods

STUDY POPULATION

A total of 224 general practitioners and 45 community midwives at 51 practices agreed to accept responsibility for the routine antenatal care of low risk women. Each practice was linked to one of nine urban or rural hospital centres throughout Scotland. The hospital centres together provide maternity care for 38% of the Scottish maternity population. The hospitals' participating consultants agreed to accept for booking for delivery under their care some low risk women whose routine antenatal care would be delivered entirely by general practitioners and midwives in the community.

Pregnant women who presented to participating general practitioners from February 1993 to March 1994 were considered for the trial. The criteria that identified women as ineligible and at high risk of antenatal complications included 18 characteristics of previous obstetric history, current pregnancy conditions, or serious medical conditions.¹ In addition, previous caesarean section was considered an exclusion criterion in this trial because those women would need to discuss delivery with their consultants.

Eligible women were informed about the trial by their general practitioners and were referred to the booking clinic with their notes flagged as eligible for

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the trial. If by the time of booking they were more than 18 weeks pregnant, or if they had seen an obstetrician before the research midwife, they were no longer eligible for the trial. The women's consent was sought after booking for delivery and after their eligibility had been rechecked by the research midwife. Randomisation was by telephone to a secretary who held the trial allocations in a series of opaque non-resealable envelopes. Restricted randomisation was used to maintain equal numbers in both arms of the trial. Permuted block size of 14-20 was used to prevent anticipation of the next trial allocation. Randomisation was not stratified.¹⁰

The estimated sample size to be recruited was 1640. Although it was recognised that this sample would not be large enough to detect differences between the groups in rare events such as maternal and perinatal mortality in low risk women, it would, for example, detect the difference between incidences of transient hypertension of 6% at general practitioner clinics versus 12% in hospital clinics, and it would detect a difference of 60% versus 70% between two groups expressing satisfaction with the receptiveness of staff to questions, at a significance level of 0.05 with 90% power.

CARE PROTOCOLS

Detailed care plans and protocols to deal with complications arising during pregnancy were defined for both arms of the trial after discussions with local coordinating obstetricians, general practitioners, and midwives for the trial centres. The clinical content was decided by expert consensus and proposed fewer visits for multiparous women than for primiparous women. The basis of the care protocols was the Grampian integrated antenatal care schedule¹¹ made generalisable for all trial centres. Routine investigations, including scans, were undertaken in primary care, but obstetricians remained responsible for recall of women identified at risk by serum screening.

DATA COLLECTION

Demographic data were collected from the record

of the booking visit. Clinical data about the index pregnancy were abstracted from medical records, shared care cards, and midwifery records after delivery. Data were collected by the research midwife at each hospital centre to describe health service use and quality of the antenatal care received. Health service use variables included details of all recorded antenatal contacts to check the wellbeing of the mother or baby. Each contact was categorised as a routine antenatal clinic visit, attendance for routine scans or blood tests only, self referrals, referrals, non-attendances, day care at designated daycare facilities, and hospital admissions up to 24 hours before delivery. The duration of gestation and the supervision, location, and investigations at each contact were also noted. Individual carers were not coded, but from specimen signatures and initials each visit was attributed to the professional group of the signatory. The total number of individuals who signed the records was taken as the number of carers. After each self referral, referral, or hospital admission, any change in style of care from that predetermined by the trial was noted. The woman either had no change or was changed to obstetrician led care (for the general practitioner and midwife group only), to hospital care, or to "other" types of care. The possible changes in care after an admission were similar, with the addition of remaining in hospital until delivery.

Data were also collected as indicators of quality of care. These included clinically defined antenatal diagnoses of maternal and fetal morbidity, failures to comply with the care protocol, intrapartum events, and pregnancy outcomes.

Reliability checks on 5% of clinical case notes were carried out for intracoder and intercoder reliability. Intracoder reliability for the nine research midwives ranged from 97.8% to 100% and intercoder reliability ranged from 97.3% to 99.3%.

A questionnaire aimed to assess women's views of their care was mailed six weeks after delivery to 97% (1712/1765) of women in the trial, excluding those women who aborted or had terminations, stillbirths, or neonatal deaths or whose babies were still in special care baby units. The questionnaire was adapted from the Office of Population Censuses and Surveys's survey manual on women's experiences of maternity care,¹² the questionnaires of the Welsh antenatal care in the valleys project,¹³ and Glasgow's midwifery development unit's antenatal satisfaction questionnaire¹⁴ and was piloted with women not in the study. Seven aspects of their experience of care were explored: overall satisfaction with their antenatal care, service provision characteristics, experience of attending clinics, relationships with staff, information acquisition, continuity of care, and acceptability of their style of care.

STATISTICAL ANALYSIS

Data management was by Epi-Info,¹⁵ and SPSS for Windows¹⁶ was used for analysis. This was a pragmatic trial and analysis was by intention to treat. The χ^2 test was used to analyse categorical data; continuous data were compared by differences between the means and 95% confidence intervals, or by the median, interquartile range, and Mann-Whitney U test as appropriate.

Results

Of 2642 low risk women referred by participating general practitioners, 2167 were still eligible after booking. Of those still eligible, 1765 (82%) consented to join the trial. Nine women withdrew from the trial: four withdrew themselves and five were withdrawn by medical staff. They were included in the follow up. At

Table 1—Baseline characteristics of women randomly allocated to the general practitioner and midwife and obstetrician led shared care groups. Values are numbers (percentages) unless indicated otherwise

	General practitioner and midwife care (n=834)	Obstetrician led shared care (n=840)	P value
Mean (95% CI) age (years)	25.8 (25.5 to 26.1)	25.6 (25.3 to 25.9)	0.28
Mean (95% CI) height (cm)	162.2 (161.7 to 162.6)	162.1 (161.7 to 162.6)	0.95
Parity:			
Primiparous	422 (50)	448 (53)	} 0.22
Multiparous	412 (50)	392 (47)	
Previous miscarriage or abortion:			
Yes	220 (26)	194 (23)	} 0.12
No	614 (74)	646 (77)	
Mean (95% CI) gestation at booking (weeks)	12.3 (12.2 to 12.5)	12.2 (12.0 to 12.4)	0.26
Smoking:			
Yes	266 (32)	245 (29)	} 0.23
No	568 (68)	595 (71)	
Partner relationship:*			
Married	543 (66)	521 (63)	} 0.40
Stable	229 (28)	240 (29)	
Single	45 (5)	60 (7)	
Separated or divorced	10 (1)	11 (1)	
Partner's occupational status:†			
Non-manual	491 (62)	487 (63)	} 0.90
Manual	183 (23)	177 (23)	
Unemployed	106 (14)	99 (13)	
Student or pupil	11 (1)	8 (1)	

CI=Confidence interval.

*Missing values excluded; n=827 for general practitioner and midwife group; n=832 for obstetrician led shared care group.

†Missing values and armed forces excluded; n=791 for general practitioner and midwife group; n=771 for obstetrician led shared care group.

follow up there were incomplete medical records (due to loss of shared care cards and women moving away) for 91 women: 44 (5%) in the general practitioner and midwife group and 47 (5%) in the shared care group. The results of the clinical evaluation of 1674 complete cases are described here (834 in the general practitioner and midwife group and 840 in shared care). Comparison of demographic characteristics of the women with complete data showed no significant differences between the baseline characteristics of the two groups (table 1).

HEALTH SERVICE USE

We had data for a total of 9035 routine clinic visits for the general practitioner and midwife group and 9735 for the obstetrician led shared care group. In comparison with the shared care group, a significantly

smaller proportion of the general practitioner and midwife group's visits were to obstetric specialists and more of their visits were supervised by general practitioners and midwives (table 2).

There were other significant differences in health service use. Women in the general practitioner and midwife group had fewer routine clinic visits than those in shared care (difference 0.8; 95% confidence interval 0.5 to 1.1). This reduction was maintained in subset comparisons between the trial groups for women with and without antenatal complications and by parity. Furthermore, only within the general practitioner and midwife group did multiparous women have significantly fewer routine clinic visits than primiparous women (table 2).

Women in the general practitioner and midwife group had fewer carers and fewer antenatal admissions, daycare episodes, and non-attendances. Whereas the proportions of women with self referrals were similar, significantly more women in the general practitioner and midwife group than in the obstetrician led shared care group were referred to hospital staff (table 2) and significantly more women in the general practitioner and midwife group changed from their predetermined style of care throughout the antenatal period. After any self referral, referral, or admission before 37 weeks' gestation, 17% (143) of the general practitioner and midwife group had their style of care changed compared with 7% (58) of the shared care group ($P < 0.001$); (70% (99/143) of the changes in care before 37 weeks in the general practitioner and midwife group were to obstetrician led shared care). Between 37 weeks' gestation until 24 hours before delivery, a further 21% (172) of the general practitioner and midwife group changed their style of care, compared with 18% (151) of the shared care group ($P < 0.01$).

Table 2—Comparison of health service use variables in the general practitioner/midwife and shared care groups. Values are numbers (percentages) unless stated otherwise

	General practitioner and midwife care (n=834)	Obstetrician led shared care (n=840)	P value
No of routine clinic visits	9035	9735	
Supervising staff member seen:			
Obstetrician*	602 (6)	2759 (28)	} <0.0001
General practitioner	4679 (52)	3707 (38)	
Midwife	3701 (41)	3219 (33)	
Not known	53 (1)	50 (1)	
Mean (95% CI) routine clinic visits	10.9 (10.7 to 11.1)	11.7 (11.5 to 11.9)	<0.0001
By antenatal complication:			
No complication	10.7 (10.4 to 11.0) (n=408)	11.7 (11.3 to 11.9) (n=370)	} †
Complication	11.0 (10.7 to 11.3) (n=426)	11.7 (11.4 to 12.0) (n=470)	
By parity:			
Primiparous	11.1 (10.8 to 11.4) (n=422)	11.7 (11.4 to 12.0) (n=448)	} ‡
Multiparous	10.6 (10.3 to 10.9) (n=412)	11.6 (11.3 to 12.0) (n=392)	
Median (interquartile range) No of carers	5 (4-7)	7 (6-9)	<0.0001
No of self referrals:			
None	566 (68)	566 (67)	} 0.6
1 Or more	268 (32)	274 (33)	
No of referrals:			
None	428 (51)	535 (64)	} <0.0001
1 Or more	406 (49)	305 (36)	
No of admissions:			
None	612 (73)	574 (68)	} 0.03
1 Or more	222 (27)	266 (32)	
No of daycare episodes:			
None	732 (88)	701 (83)	} 0.01
1 Or more	102 (12)	139 (17)	
No of non-attendances:			
None	777 (93)	751 (89)	} <0.01
1 Or more	57 (7)	89 (11)	

*Obstetrician=hospital consultant, senior registrar, registrar, senior house officer, associate specialists, and staff grade.

†For comparison between trial groups for those with and without antenatal complication: with $P < 0.0001$, without $P < 0.0001$; for comparison within trial groups by antenatal complication: general practitioner and midwife care $P > 0.2$, obstetrician led shared care $P > 0.5$.

‡For comparison between trial groups by parity: primiparous women $P < 0.01$, multiparous women $P < 0.001$; for comparison within trial groups by parity: general practitioner and midwife care $P < 0.05$, obstetrician led shared care $P > 0.5$.

Table 3—Number (percentage) of failures in care of pregnant women at low risk of complications

	General practitioner and midwife care	Obstetrician led shared care	P value
Failure to diagnose anaemia after a blood test	2 (0.3)	2 (0.2)	1.0
Failure to treat anaemia after a blood test	0 (0.0)	6 (0.7)	0.04
Failure to refer to specialist with malpresentation after 36 weeks' gestation	3 (0.9)	0 (0.0)	0.25
Failure to refer to specialist by 42 weeks' gestation	2 (0.2)	0 (0.0)	0.48
Failure to check Rhesus negative women for antibodies at 34/36 weeks' gestation	20 (2.5)	3 (0.4)	0.0008

*Valid cases. Cases omitted include early abortions or deliveries before the gestation defined in the criteria.

INDICATORS OF QUALITY OF CARE

Although the total number of failures of care was small, there were significant differences between the trial groups (table 3). Significantly more Rhesus negative women in the general practitioner and midwife group did not have an antibody check at 34/36 weeks. In the obstetrician led shared care group there were more failures to treat anaemia found through blood testing. There were no failures in either group to refer women with hypertension and proteinuria to a specialist.

Overall 51% (426) of the women in the general practitioner and midwife group experienced at least one of the pregnancy complications listed in table 4, compared with 56% (470) of the shared care group ($P > 0.05$). There were no significant differences in the incidence of any of the complications recorded except for hypertensive conditions. Compared with the shared care group, significantly fewer of the women in the general practitioner and midwife group had pregnancy induced hypertension, proteinuria, or pre-eclampsia. The trial groups did not differ significantly in conditions that were undiagnosed till admission in labour.

Table 5 compares intrapartum events, pregnancy outcomes, and the condition of the infant in the two groups. At admission in labour the number of women with no antenatal notes available was similar. Significantly fewer women in the general practitioner and midwife group had induction of labour and more had spontaneous onset of labour than in the shared care group. The groups were similar in the number of preterm deliveries, mode of delivery, undiagnosed abnormalities at birth, number of liveborn babies in special baby care units for more than 48 hours, and the number of babies who were ever breast fed in hospital.

We examined maternal and perinatal mortality. There was one maternal death at 4 weeks post partum in the general practitioner and midwife group due to a condition unrelated to antenatal care. The trial groups had similar numbers of live births, stillbirths, neonatal deaths, fetal losses <24 weeks, and terminations (table 5).

WOMEN'S SATISFACTION

There was a 78% response rate to the postal questionnaire (1335/1712); 668 respondents from the

general practitioner and midwife group and 667 from the obstetrician led shared care group. Table 6 shows the results of items from the evaluation of women's satisfaction. The groups were similar in the high proportion of women who were very satisfied with care received during pregnancy and in their views about the acceptability of their allocated style of care. In the general practitioner and midwife group, significantly more women reported getting on "very well" with their main carer (rather than "well" or "not at all") and more reported unreservedly enjoying their antenatal care. More women in this group expressed a strong preference to "see the same person" at each antenatal visit rather than agreeing that they would accept increased numbers of carers.

In the remaining issues there were no significant differences between the trial groups. In their experience of attending clinics, similar numbers in both groups felt they had to wait "far too long" at health centre clinics or at hospital clinics. A few women said they wished to see a hospital doctor but did not, with a non-significant trend of more women in the general practitioner and midwife group. There were no differences in the area of acquisition of information or in the women's satisfaction with information provided, and there were no differences between the groups in provision and access to care—for example, in attendance at antenatal classes or at antenatal visits to labour rooms.

Discussion

This multicentre trial achieved a shift in routine antenatal care from obstetric specialist to general practitioners and midwives in community settings. Previous studies include observational initiatives to place antenatal care in primary care settings, to be delivered by community and hospital staff,¹⁷ and an intervention study for low risk multiparous women to evaluate the reduction of consultant hospital clinic visits.¹⁸ They have shown improvements in women's access to care,¹⁹ higher uptake of care,²⁰ and improved continuity of care,²¹ with pregnancy outcomes considered at least as good as those women who had more hospital and specialist care as part of their routine antenatal shared care. None of these studies offered care without any routine specialist input and allocated women randomly.

Our results show gains for the general practitioner and midwife group in antenatal continuity of carer and fewer non-attendances, daycare episodes, and admissions in the antenatal period. In addition there was a statistically significant but numerically small reduction in the number of routine clinic visits for women in the general practitioner and midwife group. Only within the general practitioner and midwife group did there seem to be some focusing of care, with fewer routine visits for multiparous women than primiparous women. Women in the shared care group were already routinely seeing hospital staff; as expected, more women in the general practitioner and midwife group had more referrals and had changes in their predetermined pattern of antenatal care, but there were no differences in rates of self-referral.

Maternal and perinatal mortality are rare in samples of women who are at low risk at the outset of their pregnancy. The finding of no significant difference does not preclude the existence of a real difference (type II error).

FAILURE OF CARE

There were very few failures to adhere to the protocol in either group. The occurrence of any failure of care in the experimental general practitioner and

Table 4—Number (percentage) of diagnosed antenatal complications in women at low risk of complications of pregnancy

	General practitioner and midwife care (n=834)	Obstetrician led shared care (n=840)	P value
Pregnancy induced hypertension (sustained blood pressure >140/90)	37 (4.4)	70 (8.4)	0.002
Transient hypertension (diastolic blood pressure >90 only once)	68 (8.2)	93 (11.1)	0.04
Proteinuria (+ or more)	79 (9.6)	116 (13.9)	0.007
Pre-eclampsia (concurrent hypertension and proteinuria)	10 (1)	34 (4)	0.0005
Anaemia (Hb <100 g/l)	113 (13.6)	110 (13.1)	0.8
Multiple pregnancy	3 (0.4)	6 (0.7)	0.5
Malpresentation or unstable lie	40 (4.8)	33 (3.9)	0.5
Antepartum haemorrhage	21 (2.5)	25 (3.0)	0.7
Gestational diabetes	7 (0.8)	6 (0.7)	1.0
Hydramnios	7 (0.8)	8 (1.0)	1.0
Hyperemesis (requiring hospitalisation)	3 (0.4)	9 (1.1)	0.2
Urinary tract infection (treated with antibiotics)	71 (8.4)	59 (7.0)	0.3
Other condition*	98 (12)	94 (12)	0.8

*Including babies late for dates, sciatica, carpal tunnel syndrome, thrush, haematuria, weight gain queries, low placenta, ischaemic attack, self poisoning, deep vein thrombosis, respiratory infections, macrosoma, and grand mal seizures.

Table 5—Numbers (percentages) of intrapartum events and pregnancy outcomes

	General practitioner and midwife care (n=834)	Obstetrician led shared care (n=840)	P value
No medical notes available at admission in labour	15 (1.8)	9 (1.1)	0.3
Undiagnosed conditions at admission in labour:			
Hypertension	3 (0.4)	2 (0.2)	0.7
Multiple pregnancy	0	0	
Malpresentation	7 (0.9)	2 (0.2)	0.2
Intrauterine death	1 (0.1)	1 (0.1)	
Other condition*	2 (0.2)	4 (0.5)	0.5
Labour type:†			
Spontaneous	481 (58.5)	424 (51.6)	0.009
Induced	149 (18.1)	201 (24.5)	
Augmented	165 (20.1)	171 (20.9)	
Planned caesarean section	27 (3.2)	25 (3.0)	
Preterm delivery (<37 weeks)	38 (5)	42 (5)	0.8
Pregnancy outcome:			
Live birth	816 (97.8)	813 (96.8)	0.5
Stillbirth	4 (0.5)	3 (0.4)	
Early neonatal death	2 (0.2)	5 (0.6)	
Fetal loss <24 weeks	9 (1.1)	15 (1.8)	
Termination	3 (0.4)	4 (0.5)	
Mode of delivery:†			
Spontaneous vaginal	647 (78.9)	657 (80.0)	0.4
Forceps or ventouse	99 (11.9)	80 (9.7)	
Breech vaginal	3 (0.4)	5 (0.6)	
Caesarean sections:			
Emergency	48 (5.9)	61 (7.4)	0.4
Earlier than planned	2 (0.2)	2 (0.2)	
Planned elective	23 (2.7)	16 (2.0)	
Undiagnosed abnormality at birth	12 (1.4)	12 (1.4)	0.9
Baby in special care unit >48 hours	49 (5.9)	63 (7.7)	0.2
Baby ever breast fed in hospital	387 (47)	397 (48)	0.6

*General practitioner and midwife care: one brow presentation, one hydrocephalus; obstetrician led shared care: one brow presentation, one eclampsia (previously diagnosed as pre-eclampsia), one anaemia, one pelvic mass.

†Terminations and losses before 24 weeks' gestation omitted; n=822 for general practitioner and midwife care, n=821 for obstetrician led shared care.

Table 6—Women's satisfaction with seven aspects of their care. Values are numbers (percentages) of women answering each question

	General practitioner and midwife care	Obstetrician led shared care	P value
Overall satisfaction			
Did you enjoy your care?	(n=656)	(n=656)	
Yes	460 (70)	411 (63)	} 0.04
Usually	167 (25)	207 (31)	
Not very much	24 (4)	32 (5)	
Not at all	5 (1)	6 (1)	
How satisfied were you with the care you received during your pregnancy?	(n=663)	(n=656)	
Very satisfied	453 (68)	430 (65)	} 0.5
Sometimes satisfied	206 (31)	221 (34)	
Very dissatisfied	4 (1)	5 (1)	
Acceptability of style			
Were you happy with the arrangement of your antenatal visits?	(n=666)	(n=666)	
Yes	618 (93)	624 (94)	} 0.6
No	48 (7)	42 (6)	
Did you want to see a hospital doctor but didn't?	(n=667)	(n=666)	
Yes	55 (8)	33 (5)	} 0.09
No	612 (92)	633 (95)	
Relationship with staff			
How well did you get on with your main carer?	(n=665)	(n=665)	
Very well	469 (71)	448 (67)	} 0.04
Reasonably well	193 (29)	205 (31)	
Not very well	3 (0)	12 (2)	
Preferred level of continuity of care	(n=665)	(n=664)	
Didn't mind someone different each time	85 (13)	123 (18)	} <0.0001
Small group of 3-4 people	85 (13)	98 (15)	
One person but didn't mind someone different	301 (45)	326 (49)	
Same person each time	194 (29)	117 (18)	
Experience attending clinics			
Waiting times at health centre clinics:	(n=662)	(n=646)	
Far too long	22 (3)	29 (4)	} 0.5
Bit too long	119 (18)	110 (17)	
Happy with waiting time	521 (79)	507 (79)	
Waiting times at hospital clinics:	(n=232)*	(n=528)	
Far too long	38 (16)	59 (11)	} 0.1
Bit too long	84 (36)	191 (36)	
Happy with waiting time	110 (48)	278 (53)	
Information acquisition			
How satisfied are you with information about preparation for labour?	(n=638)	(n=639)	
Very satisfied	203 (32)	198 (32)	} 0.6
Satisfied	350 (55)	341 (53)	
Dissatisfied	64 (10)	79 (12)	
Very dissatisfied	21 (3)	21 (3)	
Service access and provision			
Did you go to antenatal classes?	(n=664)	(n=661)	
Yes	337 (51)	352 (53)	} 0.4
No	327 (49)	309 (47)	
Did you visit the labour rooms in hospital before you came in to have your baby?	(n=666)	(n=656)	
Yes	302 (45)	312 (48)	} 0.5
No opportunity	101 (15)	94 (14)	
Couldn't manage	64 (10)	73 (11)	
Not necessary	199 (30)	177 (27)	

*Number of women in general practitioner and midwife group who attended hospital clinics and answered questions about them.

midwife group was monitored throughout the trial. After two Rhesus negative women in the general practitioner and midwife group were not checked for antibodies, the research midwives noted the dates at which each Rhesus negative woman would be 36 or more weeks pregnant and should have had a blood test for the antibody check. A reminder system was put in place to prompt antibody checks not completed by 37 weeks. If a prompt was necessary this was recorded as a failure of care.

The increased incidence of failures to check for Rhesus antibodies in the general practitioner and midwife group could be a potentially serious clinical problem but it is amenable to a laboratory based reminder system. The excess of failures to treat anaemia in the shared care group may be due to communication problems being less likely in primary care settings.

COMPLICATIONS OF PREGNANCY

Another apparently positive attribute of general practitioner and midwife care was that fewer women were observed to develop pregnancy induced hypertension, proteinuria, or pre-eclampsia. This did not seem to be due to underdiagnosis because the two groups had similar numbers of women with undiagnosed hypertension at admission in labour. Reduction in transient hypertension was expected in general practitioner and midwife care because hospital visits may cause "white coat hypertension."^{22,23} The mediating effect of psychosocial factors on diastolic blood pressure has been observed in obstetric studies,²⁴ and a significant reduction in diastolic blood pressure was observed in a randomised controlled trial of companionship during labour.²⁵ However, the result in the general practitioner and midwife group of a reduction in pre-eclampsia (hitherto thought to result from biological factors such as placentation²⁶) is difficult to explain. It may, if confirmed by other studies, be a major benefit of antenatal care delivered predominantly by general practitioners and midwives.

SATISFACTION WITH CARE

It is generally acknowledged that most women will report high satisfaction with whatever style of care they receive.²⁷ In this study both groups reported that they were happy with their care, but some differences did emerge: women in the general practitioner and midwife group reported a better relationship with their general practitioner and a stronger preference to see the same person at each antenatal visit. There was no evidence that women in the general practitioner and midwife group were less involved with the hospital based resources for antenatal education and preparation for labour, as there were no differences in the numbers who attended antenatal classes and visited the labour suite before admission for delivery. If community based care is to be widely introduced these results about access to hospital resources are reassuring

Key messages

- Routine antenatal care for low risk women can be provided by general practitioners and midwives alone
- Care by general practitioners and midwives improved continuity of care: there were fewer carers, non-attendances, and hospital admissions, and marginally fewer routine visits than with specialist led shared care; incidences of hypertension, proteinuria, pre-eclampsia, and induction of labour were also lower
- Overall there were few deviations from the care protocol, but a greater proportion of Rhesus negative women in the general practitioner and midwife group did not have an appropriate check for antibodies
- The women in both trial groups were equally highly satisfied with all aspects of their care; only a small minority of women in the general practitioner and midwife group said they would have liked to have seen a hospital doctor but did not
- Although there was no net benefit from routine specialist antenatal visits, over half of women developed some complication during their pregnancy; in the general practitioner and midwife model of care, low risk women see a specialist when required and not at predefined routine visits

and necessary. It is worth noting that over a fifth in both groups felt that waiting times at health centres were "far too long" or "a bit too long"; a much smaller proportion of women from the general practitioner and midwife group attended clinics at hospital, largely for non-routine reasons, and therefore the trend of a greater proportion of women in this group reporting the waiting time too long at hospital clinic should be viewed with caution.

The overall results indicate that women were highly satisfied with the care they received. The women in the general practitioner and midwife group reported equally that they were happy with their care and it provided them with a not dissimilar experience from those who had obstetrician led shared care.

CONCLUSION

These results provide essential clinical evidence to underpin current policies of devolution of antenatal care for normal women to primary carers and are much needed in the controversy^{28,29} about whether obstetricians should routinely see all pregnant women during their antenatal care. The results of the clinical evaluation and evaluation of women's satisfaction show that women at low risk have little or no benefit from routine specialist antenatal visits. Around half the women had problems of varying seriousness at some point during pregnancy; through general practitioner and midwife care and appropriate referral the women saw a specialist according to their individual needs and not at a predefined routine visit.

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Beginning a consultant career

The initial few weeks were marked by a blend of thoughts, feelings, and emotions, some more striking than others. To my surprise there was no fear or apprehension, no awe or trepidation, and no insecurity—but excitement, confidence, achievement, and anticipation. The most notable experience was coming to the grave realisation of where the buck now rested. This was the prevailing thought when I came face to face with a patient in a bed, and the name above the bed was mine. There rapidly followed a sense of pride in having accomplished a major career goal; reticence was replaced by comfortable command. Responsibility weighed a little more heavily when faced with difficult patients or relatives, but they will inevitably crop up from time to time.

I have the uneasy feeling that some of my more experienced colleagues do not share my high hopes and expectations. Have they been worn down by the burden of increasing numbers of patients; squeezed between stringent requirements to meet patient's charter standards and the obligation to develop a consultant led service; alarmed by the threat of performance related pay; and troubled by the reduction in junior doctors' hours and

consequent augmentation of their own duties which competes with the desire to maintain a private practice? I do not know. The rising tide of expectations which has occurred on the back of the NHS reforms is threatening to submerge some doctors and they clearly need help rather than confrontation. This may form the greatest single challenge to the political and managerial framework of the NHS over the next decade.

Getting here was not easy. The road to consultant status is arduous and demands time and patience. Failure at interview is unaccustomed and deflating and can provoke feelings of unworthiness and rejection.

My inauguration has conferred a sense of belonging, of coming of age, of expectation of future progress, and anticipation of developing quality service and research. I hope to maintain personal enthusiasm through the development of management skills, careful planning of career development, and the preservation of a belief in the altruistic principles on which the NHS was founded. But then I am only just beginning my consultant career.—MICHAEL JENNINGS is a consultant in Sheffield