Local Supervising Authority

Annual Report of Supervision of Midwives and Midwifery Practice South Yorkshire

2005 - 2006

The four local health communities in South Yorkshire
Barnsley | Doncaster
Rotherham | Sheffield

Prepared for the Nursing and Midwifery Council and *NHS Yorkshire and Humber*

By

Jean Hawkins Local Supervising Authority Midwifery Officer

September 2006

Contents **Page**

List of Tables

EXECUTIVE SUMMARY

Supervision of midwives is robust, dynamic and responsive to the needs of women and families and midwives in South Yorkshire. It is recognised for the value it adds to maternity care and maternity services. 15,000 births take place in four maternity services; the majority are delivered by the 725 midwives who have notified their intention to practice in the area. Fifty five supervisors of midwives support these midwives in their practice. All four maternity services are sited in Foundation Trusts; hence a feature this year has been the emerging relationships between commissioners and providers. All the Trusts have secured the new Clinical Negligence Scheme for Trusts level one standard which includes standards for statutory supervision of midwives. Midwifery practice too is responsive to changing demands and needs. Midwives are embracing new roles in terms of improving health and wellbeing for women and their families through smoking cessation, substance and alcohol abuse, breast feeding, maternal mental health initiatives, safeguarding children and vulnerable adults and many others. Midwives are having an impact on reducing the numbers of teenagers who go on to have subsequent pregnancies as the rates decrease in South Yorkshire.

The midwifery workforce is relatively stable, with only Sheffield seeing a higher turnover rate. All the maternity services have had significant funding pressures this year and whilst there have not been any midwifery redundancies as in other parts of the country there have been and continue to be significant challenges in all four maternity services. There is an emerging change in workforce profile with a greater depth of skill mix. Sheffield took part in the 2005 National Programme to develop maternity support workers and has now placed a number in the community, working closely with community based midwives. A greater challenge for all the services will be to develop models of care that include more choice for women in terms of being cared for by a known carer. Improving access to services, particularly in the early weeks of pregnancy, is also difficult to achieve but is improving as a result of new antenatal screening programmes.

Supervisors of midwives are leading many of the changes in maternity care and are supporting midwives in this significant period of change. There is a healthy interest in supervision both from midwives and other professional groups. Three of the 4 maternity services meet the national standard for the ratio of midwives to supervisors. The fourth will do so in the near future. Interest in becoming a supervisor of midwives remains buoyant and the programme for the Preparation of Supervisors of Midwives, run by the universities of Sheffield and Leeds in conjunction with the LSA is entering its 13th year, albeit having changed significantly over this time. The most significant change is that the majority of candidates now undertake the programme at masters level. All the supervisors have worked hard to implement the changes in the Midwives Rules and Standards (NMC, 2004) during 2005/6. All the LSA guidelines have been reviewed and where appropriate have been re written and re issued.

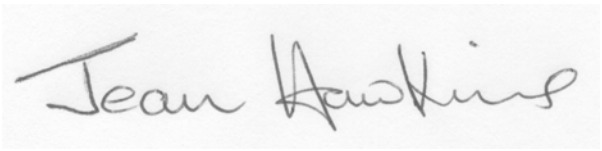
Service user involvement with supervision and the LSA has developed further during 2005/6. A service user representative is now part of the selection panel for new supervisors and the same person takes an active interest in the assessment process. The Chairs of Maternity Service Liaison Committees have welcomed the opportunity to participate in the LSA audit visits to maternity services.

No midwives have been referred to the NMC under any category by the LSA during 2005/6. The number of midwives undergoing re-training programmes (Supervised Practice) because of recognised deficits in their practice went down last year but the number of reviews that supervisors undertook increased due to the improvements in reporting systems.

This has been a successful year and the South Yorkshire LSA looks forward to working with colleagues in the newly merged LSA as part of *NHS Yorkshire and Humber* in the future.

This report will be posted onto the LSA Website for Yorkshire and Humber which will be established during 2006/7 and will therefore be available to the public.

Margaret Edwards
Chief Executive
NHS Yorkshire and Humber



Jean Hawkins
Local Supervising Authority Midwifery Officer
South Yorkshire

SEPTEMBER 2006

1. Purpose of Report

This is an annual report, requested by the Nursing and Midwifery Council. It is in response to the standard in rule 16 of the Midwives Rules (NMC, 2004).

This is a report of the South Yorkshire LSA area which is now part of *NHS Yorkshire and Humber*. It is for the period 1st April 2005 to 31st March 2006.

2. The Local Supervising Authority Midwifery Officer (LSAMO)

The LSA Midwifery Officer (MO) is appointed by the Strategic Health Authority to carry out this statutory function and Jean Hawkins is appointed to undertake this role.

3. Role of the LSA MO

The Nursing and Midwifery Council (NMC) prescribes the statutory functions of the Local Supervising Authority. During 2003/4 the NMC undertook a significant review of the Statutory Instrument i.e. the Midwives Rules and Code of Practice. In August 2004 the NMC published its revised *Midwives Rules and Standards*. The focus of LSA work in 2005/6 has been to implement these new rules and standards.

4. Developing trends affecting midwifery practice in the LSA

South Yorkshire is an area of regeneration, having declined rapidly in the eighties and nineties with the demise of the coalfields and heavy steel industries There are significant pockets of unemployment and depravation. Of the 83 electoral wards in the area, 53 are in the 20% most deprived in England. This level of deprivation is mirrored in higher than average levels of morbidity and mortality. The Yorkshire and Humber stillbirth, neonatal mortality rates are 6.1 and 3.9 respectively, ranking the area the 3rd worst in England. (CEMACH, 2005) By contrast four wards in South Yorkshire appear in the least deprived ranking for England.

4.1 The ethnic mix is varied and becoming increasingly so as more asylum seekers take up residence in the area. Ethnic minority populations are centred on the towns and city centres of Rotherham, Doncaster and Sheffield. Fewer ethnic minority groups reside in Barnsley although this town does have an Asylum Seekers Induction Centre.

4.2 Substance misuse rates are 2 to 3 times higher than the average for England and teenage pregnancy rates are also significantly higher than the average, particularly in Sheffield and Doncaster. Smoking rates in South Yorkshire are one of the highest in England and proving to be one of the most difficult areas to improve.

5. Birth projections for South Yorkshire

(Specific birth projections are not produced by ONS, but from the population projections provided trends in births locally can be estimated.)

The annual change figures show that there was a projected decrease in births between 2003 and 2004, but then slight increases in numbers to 2007. This is followed by a further decline between 2008 and 2011, before there is an increase from 2012 to 2021. Between 2022 and 2028 there is another gradual decrease in births.

5.1 The trend in fertility will also be related to the numbers of women of childbearing age. In South Yorkshire, women in this age group appear to be on the decline from 2003 to 2019, after which there is a steady increase to 2024, before another slight reduction to 2028. It would appear that the fertility rate in South Yorkshire is set to rise over the next few years with increases in births but decreases in the number of women of childbearing age.

5.2 A further point to consider related to births in South Yorkshire is that the latest figures for births occurring in 2003 indicate there is a national trend towards later childbearing. *However, in South Yorkshire births rates are higher than the national average in women aged up to 29, but are lower than in England for women aged 30 and over.*

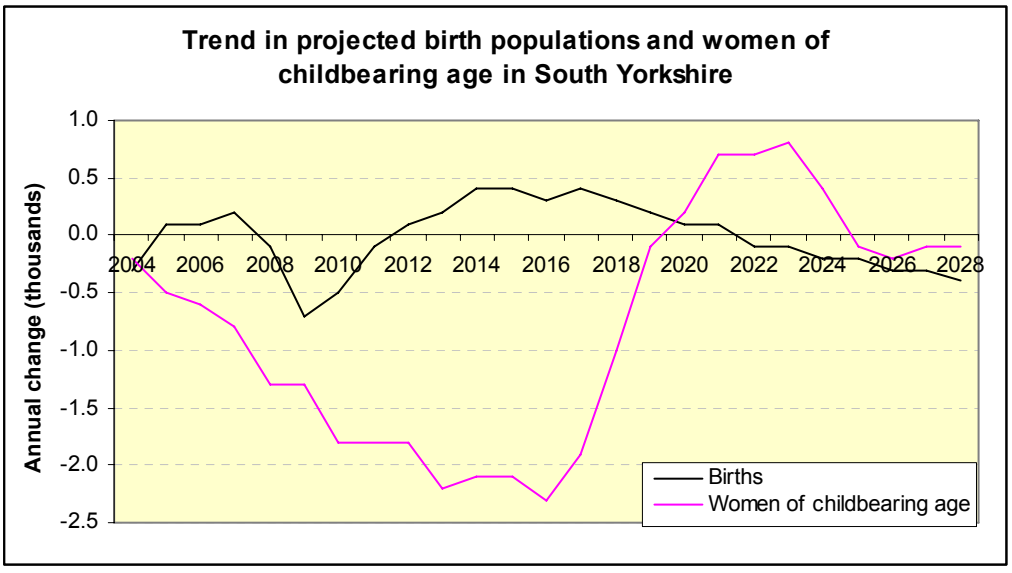


Figure 1

6 Profile of maternity services

There are four acute Trusts that provide maternity services: Barnsley, Doncaster and Bassetlaw, Rotherham and Sheffield, all of which are Foundation Trusts.

6.1 Environments vary; Sheffield has a relatively new purpose built unit, and is a tertiary referral unit for some high-risk obstetrics and neonatology. 6,600 plus births take place in Sheffield per annum.

6.2 Doncaster maternity services are in a sixties building but did have a major refurbishment, with midwife designed birthing rooms, 5 years ago. It is a district general hospital and undertakes about 3,500 births a year. Bassetlaw is part of the Doncaster Foundation Trust and is situated some 18 miles away in Worksop and is within the boundary of East Midlands Strategic Health Authority. Bassetlaw provides a full maternity service to about 1200 women a year but does transfer high risk cases to Doncaster as there are only limited neonatal services on site. Data relating to Bassetlaw has not been included in the South Yorkshire report.

6.3 Rotherham is within a district general hospital and undertakes approximately 2,400 births every year. Barnsley is similar in size and activity to Rotherham. It also had some superficial redecoration with modernisation monies but it is in need of major redesign or new build. A capital scheme is planned to relocate women's and children's services and with which the LSA MO has been involved.

Further details of facilities are included in appendix two.

7. Maternity services activity **(data based on returns from maternity services)**

7.1 The birth rate is relatively stable in Barnsley, Rotherham and Doncaster but has increased by over 10% in Sheffield in the last three years. This has led to increased pressure in the system in Sheffield and a plan to increase the numbers of midwives has been delayed due to competing priorities.

7.2 The rate of women having normal births is 67.8% overall. Barnsley has increased its normal birth rate by 2% in the last year, which coincides with the increase in women using the home from home birthing facilities.

7.3 There are marginal fluctuations in the overall rate of women having caesarean sections. Although Barnsley again has had a reduction of 3% in one year, three of the four maternity services have a rate less than the average for England. Sheffield has a rate 1.5% above the rate for England and compares favourably with similar tertiary referral units in the country.

The following table provides a comparison of data for the four maternity services in South Yorkshire. Further comprehensive breakdown of activity is provided in appendix two.

COMPARATIVE MATERNITY SERVICES DATA FOR SOUTH YORKSHIRE 2002 TO 2006

Maternity Service	No. births	Normal delivery rate	Total Caesarean Section rate	Home births	Unplanned home birth rate (BBA)
Barnsley					
05-06	2494	70.9%	17.5%	.6%	.3%
04-05	2406	68.2%	20.5%	.5%	.5%
03-04	2256	67.5%	22%	.5%	.5%
02-03	2343	69.7%	20.9%	.8%	.8%
Doncaster					
05-06	3643	72.4%	19.8%	.9%	.2%
04-05	3499	71.8%	19.2%	NA	NA
03-04	3406	69%	20%	.29%	.82%
02-03	3540	72%	16.8%	1.3%	1.1%
Rotherham					
05-06	2629	67.7%	19.1%	1.4%	.3%
04-05	2617	65.4%	18.4%	.9%	.1%
03-04	2536	65.5%	21.5%	.82%	.59%
02-03	2593	65.9%	20.6%	.9%	.8%
Sheffield					
05-06	6660	63.1%	23.0%	2.4%	.3%
04-05	6683	64.6%	22.4%	2.9%	.05%
03-04	6081	62.3%	23.0%	1.4%	.8%
02-03	6649	63.4%	22.6%	2.6%	.1%

Overall summary of key activity for South Yorkshire for 2005-6

	TOTAL	%
CLINICAL ACTIVITY		
Total women delivered	15,258	
Overall normal delivery rate	10,393	68.1%
Total delivered in hospital	14,948	98.0%
Total number of babies born	15,424	
Number of hospital births in water *(3 units figures only)*	101	0.66%
Total number of women booked under midwife-led care *(3 units figures only)*	5,520	36.2%
INTERVENTIONS		
Planned inductions	3,153	20.7%
Episiotomies	1,693	11.1%
Planned caesareans	1,245	8.2%
Emergency caesareans	1,908	12.5%
Total caesareans	3,153	20.7%
HOME BIRTHS		
Number of intentional home births attended by a midwife	245	1.61%
Women delivered at home with no midwife present, including those delivered at home or in transit by ambulance crew and delivered by a midwife when hospital birth planned.	65	0.43%
PUBLIC HEALTH DATA		
Number of women initiating breastfeeding *(3 units figures only)*	7,779	50.98%
MATERNITY OUTCOMES DATA		
Number of babies born alive	15,334	99.4%
Number of stillbirths	90	0.58%
Number of early neonatal deaths (i.e. at 6 days and under)	55	0.36%
Number of late neonatal deaths (i.e. 7 – 28 days) *(2 units figures only)*	13	0.08%

8. Midwifery workforce

Unit	Full time		Part time	
	2004	2005	2004	2005
Barnsley	63%	60%	37%	40%
Doncaster	41%	50%	59%	50%
Rotherham	40%	37%	60%	63%
Sheffield	35%	38%	65%	62%

8.1 No maternity services in South Yorkshire have reduced their establishment of midwives, but likewise none have had increases, even where there have been gaps between the current establishment and *Birthrate Plus* analysis. This has particularly affected Sheffield where a plan to increase the midwifery establishment by 7 wte midwives has not come to fruition

8.2 Recruitment to vacant midwifery posts has slowed right down to the extent that some units have not been able to find posts for qualifying student midwives.

8.3 Changes in skill mix have enabled services to develop the role of the maternity support worker. Sheffield took part in the national Maternity Support Worker programme and has now developed a community support worker who works under the direct supervision of midwives in antenatal clinics.

8.4 Improving Working Lives has had a significant impact on the midwifery workforce with the majority of midwives now preferring to work fewer but longer shifts. The impact of this for supervision is that supervisors are required to be very flexible in finding ways to meet with the midwives they supervise.

For women, however, the impact of midwives working longer shifts means that the chances of being cared for during labour by the same midwife is greater.

8.5 Age profile of midwives

The age profile of midwives continues to go up in line with the national trend. 23% of midwives in South Yorkshire are aged 55 to 60, an increase of 0.9% from last year. 7.3% of midwives are aged 60 and above. The

majority of these are midwives who have retired and returned to work on flexible retirement schemes.

8.6 Age profile of midwives 2004/05 and 2005/06 in South Yorkshire

	Barnsley		Doncaster		Rotherham		Sheffield	
% in age group	2004/05	2005/06	2004/05	2005/06	2004/05	2005/06	2004/05	2005/06
18-24	3.6	1.8	4.4	3.1	0.8	1.6	2.9	2.4
25-34	20.0	23.2	15.1	18.6	14.0	14.9	18.5	20.8
35-44	46.4	41.1	39.5	41.6	47.1	43.0	39.4	39.3
45-49	20.9	22.3	16.6	12.4	19.0	21.5	19.4	19.0
50-54	4.5	6.2	14.6	16.8	9.9	9.9	9.4	8.2
55-59	2.7	3.6	5.9	5.6	6.6	6.6	7.9	8.2
60+	1.8	1.8	3.9	1.9	2.5	2.5	2.4	2.1
No of midwives	110	112	205	161	121	121	340	331

8.7 Student midwife commissions

Academic year	Commissioned numbers	Student intake	Completers
2001/02	35 /15	34 / 10	25
2002/03	38 / 15	31/ 14	26
2003/04	38/ 30	37/ 30	13
2004/05	34/ 12	37/ 10	n/a
2005/06	36/ 13	31 / na	n/a

Numbers represent long and short programmes

There was a small increase in the numbers of pre registration (long) commissions for 2005/6 but overall the contracted commissioned numbers of pre registration long and short programmes for the next three years have gone down from 51 to 43.

9 Models of midwifery practice

9.1 Midwives are working very hard to provide women with excellent midwifery care. Women are able to make choices about their care within maternity services although the choice of place of birth is less transparent. Midwifery led care is now part of main-stream care for uncomplicated pregnancies. Being cared for by the same midwife during labour is more achievable because of longer shifts but being cared for by a known carer is more difficult to achieve.

9.2 Examples of good practice include the Barnsley home from home unit; community midwives staff the unit during the day, which is situated away from the main labour ward. In Sheffield there are two very successful one to one teams whose birth outcomes are very impressive compared to mainstream services.

9.3 Midwives are increasingly developing roles to address the public health needs of their local populations. Evidence to support this are the number of midwives who are specializing in services such as smoking cessation, teenage pregnancy, substance misuse, safeguarding children and vulnerable adults, maternal mental health etc.

9.4 The Maternal Health Strategy for Sheffield is grounded in ensuring that the public health needs of the population are addressed. It draws the links between maternity services and improving low birth weight, reducing 2nd unwanted pregnancies to teenagers, smoking cessation, reducing unnecessary medical interventions and improving infant mortality.

9.5 Barnsley is in the process of developing a maternity strategy and started off the process by having a service user consultation event where a number of supervisors of midwives and the LSA MO were also invited to attend. Over 70 women took part in the event which focused on the choices do women want and how to improve access to services.

9.6 Co-location of community midwives and colleagues from other organisations and agencies including the voluntary sector is forging ahead under the auspices of community *Children's Plans*. Space in *Children's Centres* is often at a premium so ways of virtual co-location are being developed.

9.7 All the services also provide antenatal day assessment and labour ward triage. However in some instances triage has become so popular that it is becoming a victim of its own success and is creating bottle necks rather than solving them.

9.8 All the services have embraced the developments in antenatal and neonatal screening. Antenatal Downs Syndrome screening meets the current national standard and units are working towards meeting the 2007 target. Thalassaemia and sickle cell screening was introduced in October 2004 in Sheffield, which is a high prevalence area. Low prevalence screening will be introduced in the three remaining communities in March 2007. All pregnant women may access a dating scan in South Yorkshire.

9.9 Newborn hearing screening is now fully operational in the four maternity services and the newborn blood spot programme includes screening for haemoglobinopathies, EMCAD, cystic fibrosis and phenylketonuria and hypothyroidism.

9.10 Triage assessment is established or in the process of coming on line in all 4 maternity services although they vary in where they are sited and how they function.

9.11 Neonatal Services have been reviewed in response to government policy and the impact of the recommendations is being considered by maternity services.

9.12 Impact on supervision of midwives

It is noteworthy that statutory supervision operates in a highly complex clinical environment, where midwifery practice is becoming even more specialised in diverse clinical environments. Supervisors need to keep abreast of such changes if they are going to continue to support midwives. Midwives are working tremendously hard most of the time and supervisors are supporting midwives whilst ensuring that practice continues to develop and improve.

Supervisors are engaged in all forums where practice is be developed and services redesigned, including multi professional strategy development groups. More over new relationships are being built with PCT commissioners who have come to understand the nature of statutory supervision of midwives. The implications are that midwives and supervisors need to have an awareness of how national policy is interpreted into commissioning plans for maternity services.

Supervisors are also aware of the need to engage with services users in much more meaningful ways. All the services are including information on supervision of midwives in information for the public, including contact details. The majority of supervisors have it on their name badges and where possible on door signs. Some have posters or notices in public places on how to contact a supervisor of midwives. Service users are integral to strategic development groups as well as maternity services liaison forums.

9.13 Profile of specialist midwifery roles in South Yorkshire

Specialist midwifery roles	Barnsley	Doncaster	Rotherham	Sheffield
Consultant midwife	No	No	No	No
Practice Development Midwife	No	No	No	1.2wte
Infant Feeding Co-ordinator	1wte (PCT funded)	Part of matron's role	0.8wte	0.5wte
Bereavement Midwife	0.8wte	0.5wte	0.8wte	1.6wte
Sure Start Midwives	0.8wte	NA	3 wte	7.9wte
Drug/alcohol dependency midwife	1 wte	1 wte	1 wte	2.6wte
Child protection midwife	1 wte	No	0.6wte	0.7wte
Pregnant teenagers co-ordinator	0.8wte	0.8wte	0.4wte	No
Midwife Ultrasonographer	No	No	No	Yes (2.8wte)
Domestic Violence Midwife	No	Community midwives with a special interest	One midwife with an interest	Yes (0.2wte)
Clinical Governance/ Risk Management Midwife	0.8wte	1 wte	1 wte	1 wte
Antenatal Screening Co-ordinator	1 wte	1 wte	1 wte	2.2wte

This table demonstrates the wide range of roles that midwives are undertaking, many of these midwives are also supervisors of midwives.

10 Maternity Unit Closures

Closure of maternity units in South Yorkshire is rare although there were three occasions during 2005/6 when the Jessop Wing in Sheffield closed to admissions for a short period of time. The LSA MO was informed on both occasions both at the point of closure and re opening. Excessively high peaks in activity were the reason for each closure.

11 Maternal Deaths

There were 7 maternal deaths in South Yorkshire in 2005/6. For reasons of confidentiality no further information can be given. Where appropriate the LSA MO was informed by a supervisor of all deaths and a report was sent to the LSA. There was one case where further follow up action by the LSA was undertaken.

12 How the practice of midwives is supervised

Guidelines for supervision of midwives forms the basis of the framework for supervision in South Yorkshire. They stem from the Standards for Supervision of Midwives, which in turn are an interpretation of the Rules and Standards (NMC, 2004). A major review of all the guidelines has been undertaken during 2005/6, led primarily by Carol Lee, a highly experienced supervisor of midwives. The following guidelines have either been updated or developed. It is intended to publish these guidelines onto a website during 2006/7. In the interim, supervisors of midwives have an electronic copy of these guidelines, and they are freely available on request to the LSA office.

12.1 GUIDLEINES FOR SUPERVISORS OF MIDWIVES IN SOUTH YORKSHIRE

- ► Terms of Reference for the LSA Guideline and Education Group
- ► Guideline Writing
- ► Arrangements for Supervision
- ► Role Description of the Supervisor of Midwives
- ► Role of the Contact Supervisor of Midwives
- ► Guideline for the Nomination and Selection of Supervisors of Midwives- National Guideline

- Guideline for the Nomination and Selection of Supervisors of Midwives- Local Guideline
- Voluntary Resignation from the Role of Supervisor of Midwives- National guideline
- Poor Performance and Removal from Appointment of Supervisors of Midwives- National Guideline
- Post Registration Education in Practice Requirements for Supervisors of Midwives
- Guidelines on Maintenance and Storage of Supervisory Records for Supervisors of Midwives in England- National Guideline
- Reporting and investigating serious untoward incidents by a supervisor of midwives
- Supported and Supervised Practice
- Suspension from Practice by the Local Supervising Authority
- Empowering a Positive Culture in Midwifery
- Maternal Deaths

12.2 Choice of supervisor of midwives

All midwives are informed in writing that they may choose their named supervisor of midwives. This letter is sent to midwives during their preceptorship/ induction. During this time they are allocated a supervisor of midwives who monitors their progress through their preceptorship or induction. The LSA monitors compliance with this standard by asking midwives during the LSA audit visit and by reviewing the standard letter.

When new supervisors have been appointed, existing caseloads need to be adjusted. At that point all midwives are asked to express a preference for their named supervisor, giving a first, second and third choice. This system ensures that there is a fair ratio of midwives to supervisors. Again this is monitored by the LSA which has sight of the caseloads per supervisor during the audit visit.

12.3 Supervisor of midwives availability

During working hours a midwife would be expected to contact her named supervisor if required or speak to any supervisor she prefers.

It is noteworthy that the audit of supervision undertaken by Kirby (2004) found that supervisors in this part of the country considered they operate as supervisors all of the time as opposed to just on the occasions when they undertook supervision duties. This is reassuring for midwives given that the majority (two to one) of supervisors have a direct clinical role.

There is an on call system in all four maternity units so that a supervisor is available 24/7. This is monitored during the LSA audit visit.

Supervisors record all advice given to midwives.

12.4 Audit and monitoring of supervision of midwives

All four maternity units underwent an LSA annual audit and monitoring visit between January and March 2005. The audit monitoring tool is based on the standards for supervision of midwives (*see appendix one*)

The process by which monitoring is undertaken is explained within the audit document, (*appendix one*). The auditing team comprised of the LSA MO, an experienced supervisor of midwives and the Lay Chair of the Maternity Services Liaison Committee. Three out of the four Chairs agreed to take part. They received a copy of the Audit and Monitoring Assessment Tool in advance of the visit and copies of various documents explaining the role of the supervisor of midwives, the LSA and NMC and the purpose of the visit.

During the visit the Lay Chairs were encouraged to lead the verification process on the standards relating to user participation.

12.5 This was the first year that Lay Chairs have undertaken audit and monitoring visits in conjunction with the LSA. They personally evaluated the experience well and felt that they were able to get a real sense of how the service operated. One Lay Chair felt that she was able to challenge a number of perceptions midwives and supervisors had of their service and this added value to the audit visit.

The LSA intends to build on user inclusion in the audit process during 2006/7.

12.6 *Where standards were only partially met an action has been agreed with each team of supervisors of midwives and will be reviewed as part of the process next year.*

13. Appointments, resignations and removals of supervisors of midwives

Apart from Sheffield where there has been some movement, the four teams of supervisors are relatively stable. All the resignations are as a result of career progression where individuals have left their substantive posts and Trusts.

Location	Appointments			Resignations			Removals
	03-04	04-05	05-06	03-04	04-05	05-06	All years
Barnsley	1	2	1	0	2	2	0
Rotherham	0	1	1	0	0	1	0
Doncaster	0	1	3	0	1	2	0
Sheffield	2	5	6	na	1	3	0

13.1 There are two supervisors of midwives whose substantive appointments are with the universities in Sheffield. Their respective case loads are also within the university, although they link to the Sheffield and Barnsley supervisors' teams as part of their link lecturer roles. One of the Sheffield appointments was in fact to the university.

13.2 The ratio of supervisors to midwives meets the recommended NMC standard of 1 to 15 or less in Rotherham, Doncaster and Sheffield. Barnsley has had some unpredictable resignations of supervisors who have moved Trusts. It is anticipated that three new appointments will be made in Barnsley during 2006/7.

The full list of supervisors of midwives is at appendix three.

14. Engagement with Higher Education Institutions

Supervisors and the LSA MO link to higher education on a number of different fronts, this includes the following:

- Student midwives all have a named supervisor of midwives with whom they link during their programme to enable them to become familiar with statutory supervision. Students report that they have a good understanding of the role and function of supervision during LSA audit visits.
- All pre registration curriculum design groups have a supervisor of midwives as a member of the group with Sheffield Hallam University and the University of Sheffield (the latter for post registration programmes)
- All curriculum validation documents refer to statutory supervision of midwives throughout.
- The LSA MO also sits on strategic planning groups for pre registration midwifery programmes and attends validation events.
- The LSA MO lectures to student midwives on the LSA function and policy relating to maternity services

- The Preparation of Supervisors of midwives programme is co delivered by universities of Sheffield and Leeds with the three LSA MO's from Yorkshire and Humber and East Midlands
- The Consortium for the Preparation of Supervisors of Midwives Programme is chaired by LSA MO.
- The LSA MO was involved with the University of Sheffield QAA during 2005-6, representing midwifery leadership. Overall nursing and midwifery programmes were commended; the final detailed report has not been published yet.

14.1 Overall the LSA MO has an excellent working relationship with the universities in South Yorkshire. Sheffield Hallam University was awarded the contract for pre registration midwifery from 2006. The LSA MO has been closely involved with setting up processes and systems to enable work to proceed to successful validation of the pre registration programme in time for the first cohort to commence at the end of September 2006.

15 LSA Investigations, outcomes and trends

The LSA MO undertook 8 investigations during 2005-6.

15.1 Outcomes:

- Three midwives successfully completed periods of supervised practice
- Care of obese women was reviewed in a supervisors' network meeting and a subgroup was formed to develop guidelines
- Bi annual meetings with the ambulance service were initiated and have been very useful in developing a shared understanding of roles and responsibilities as well as a forum to review protocols.
- In two cases there was no further action

15.2 Trends

Given the small number of cases it is difficult to analysis trends but common issues included poor record keeping, understanding of accountability and poor communication skills.

16. Reviews and complaints

The LSA is not aware of any external reviews of maternity services.

Sheffield health community is currently undergoing its Joint Inspection Review which includes maternity services. The outcome of which is expected in December 2006. Doncaster, similarly underwent its Joint Inspection in January 2006, the outcome of this has not been published to date..

The LSA is not aware of any complaints about the discharge of the statutory function.

END

Local Supervising Authorities of England

South Yorkshire NHS Strategic Health Authority

The LSA Audit and Monitoring Process for Statutory Supervision of Midwives In South Yorkshire

Introduction

The LSA audit and monitoring process for the statutory supervision of midwives is based on the NMC Midwives Rules and Standards (2004). These rules and standards are the framework and the LSA Midwifery Officers for England have developed standards for statutory supervision that reflect and interpret the rules. This audit tool is made up of criteria that contributes to the acheivment of these standards.

Audit Process

The process for the audit will take a self/peer review approach, as in the previous year. Verification of evidence by the LSA Midwifery Officer and others will be by employing a targeted sampling technique. Self/peer review is recognised as a powerful tool that stimulates professional development and decentralises power creating awareness of personal accountability[1][2][2][3][3][4].

Ideally the evidence in support of achievement of the LSA standards should be continually updated and stored in box files available for verification by the LSA officer at any time

The audit team will consist of the LSA Midwifery Officer, a user representative from the MSLC, and an experienced supervisor of midwives.

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[1][2] Cheyne H., Niven C. & Mc Ginley M. 2003 The peer project: a model of peer review. British Journal of Midwifery. 11 (4) 227-232.
[2][3] Malkin K.F. (1994) A standard for professional development: the use of self and peer review; learning contracts and reflection in clinical practice. Journal of Nursing management. 2 (3) 143-148.
[3][4] Ackerman N. (1991) Effective peer review. Journal of Nursing Management. 22 (8) 48A-49D.

The audit outcomes of all maternity services will be collated to provide the NMC with evidence of achievement of their standards for LSA.

Preparation

1. Using the response columns of the standards supervisors should document their achievement or otherwise to each criterion and record the nature of the evidence in support of achievement. This evidence could, for example, take the form of minutes of meetings; membership and terms of reference of various committees; diary of time spent on supervisory activities; audit outcomes; reports. Evidence should be collated against the criteria of the standards and stored in box files or similar. It is important that the evidence presented is contemporary to that audit year.

2. Prepare a presentation to be made to the LSAMO and others on the audit visit day, of the current strategy for supervision to include highlights of achievements and an action plan based on the out come of the self/peer review of LSA standards.

3. Arrangements should be made with managers to release a cross section of midwives to meet with the audit team to elicit midwives' views of supervision. The views of midwives will form part of the triangulation process.

4. On the day of the audit visit the boxed evidence and the completed assessment need to be available for the audit team to target sample. This will take the form of examination of evidence related to randomly selected criteria from each of the five standards. Discrepancies between the local assessment and the verification exercise will lead to additional criteria being validated.

5. A programme for the actual visit should consist of a two hour meeting with supervisors to review the self assessment and evidence. The visiting team should meet with groups of service users and midwives, (separately). It is desirable but not essential that the Executive Director of Nursing and the Clinical Director are also available to meet with.
6. The programme for day should commence at 9.30 am, unless a different time has been agreed.

7. The programme should conclude with a meeting between the supervisory and audit teams when verbal feedback will be provided by the team.

A written report will be sent to the contact supervisor within four weeks and the supervisory team should then revise their strategy and action plan for the following year thus completing the audit cycle.

Women Focused Maternity Services

Standard 1. Supervisors of Midwives are available to offer guidance and support to women accessing a midwifery service that is evidence based in the provision of women centred care.

Criteria	Yes	No	Part.	Supporting Evidence	Comments/Recommendations
1.1 Supervisors of Midwives participate in 'Maternity User Forums' to ensure that the views and voice of service users inform the development of maternity services.					
1.2 Information is available to women including local arrangements for statutory supervision.					
1.3 There is a working philosophy that promotes women and family centred care enabling choice and decision making in individualised clinical care.					
1.4 Supervisors support midwives to promote informed decision making about care for					

women and families.					
1.5 Supervisors support midwives in respecting the right of women to refuse any advice given and record in an individual care plan.					

Supervisory Systems

Standard 2. Supervisors of Midwives are directly accountable to the Local Supervising Authority for all matters relating to the statutory supervision of midwives and a local framework exists to support the statutory function.

Criteria	Yes	No	Part.	Supporting Evidence	Comments/Recommendations
2.1 The supervisory team should be such as to provide a ratio no greater than 1:15 supervisors to supervisees.					
2.2 Employers provide designated time for Supervisors of Midwives to undertake their role.					
2.3 LSA processes are followed in the nomination, selection and appointment of Supervisors of Midwives.					
2.4 Supervisors of Midwives work within the framework of LSA standards, policies and guidelines.					

2.5 LSA guidelines and policies are accessible to midwives and the public.					
2.6 Supervisors of Midwives receive the Intention to Practise forms (ITP), check for accuracy and validity prior to forwarding them to the LSA, or before entering on the LSA database, within the agreed time frames.					
2.7 Supervisors of Midwives review midwives' eligibility to practise annually, confirming such through the NMC registration service.					
2.8 Supervisors of Midwives maintain records of supervisory activities that are stored for seven years in such a way as to maintain confidentiality.					
2.9 Regular meetings between Supervisors of Midwives are convened to share information in a timely fashion and the					

proceedings are recorded. .					
2.10 Evidence exists that all Supervisors of Midwives engage in networking locally, regionally and nationally.					
2.11 There is a local strategy for supervision and an action plan is developed following audit.					
2.12 Each Supervisor of Midwives has a direct line of communication to the LSA for support and advice.					
2.13 Each Supervisor of Midwives completes at least 15 hours of approved study in each registration period.					
2.14 Each Supervisor of Midwives meets with the LSAMO locally and through LSA events.					
2.15 Secretarial support is provided for Supervisors of					

Midwives in their administrative role.					
2.16 The practice of statutory supervision by each Supervisor of Midwives is subject to audit by the LSA and removal from appointment if their performance falls below an acceptable standard.					

Leadership

Standard 3. Supervisors of Midwives provide professional leadership and nurture potential leaders.

Criteria	Yes	No	Part.	Supporting Evidence	Comments/Recommendations
3.1 Supervisors of Midwives are perceived as innovators and leaders of midwifery.					
3.2 Through peer or self-nomination future Supervisors of Midwives are identified and supported in their nomination.					
3.3 Appropriate mentorship mechanisms are in place to provide leadership for student supervisors undertaking the preparation course.					
3.4 Preceptorship is provided for newly appointed Supervisors of Midwives to					

enable their development as leaders.					
3.5 There are supervisory mechanisms to support leadership development in a variety of ways.					
3.6 Supervisors of Midwives contribute to the development, teaching and assessment of programmes of education leading to registration as a midwife and the continuous professional development of all midwives.					

Equity of Access to Statutory Supervision of Midwives

Standard 4. Supervisors of Midwives are approachable and accessible to midwives to support them in their practice.

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Criteria	Yes	No	Part.	Supporting Evidence	Comments/Recommendations
4.1 There is 24 hours access to Supervisors of Midwives for all midwives irrespective of their employment status.					
4.2 Each midwife has a named Supervisor of Midwives, of her/his choice, with the option to change to another.					
4.3 Each midwife attends a supervisory review, at least annually, in which her/his individual practice and any education and development needs are identified and a written action plan agreed.					

4.4 Midwives' views and experience of statutory supervision are elicited regularly, at least once in every 3 years and outcomes inform the local strategy for supervision.					
4.5 Confidential supervisory activities are undertaken in designated rooms that ensure privacy.					
4.6 Supervisors support midwives in maintaining clinical competence and the development of new skills.					
4.7 Student midwives are supported by the supervisory framework					

Midwifery Practice

Standard 5. Supervisors of Midwives support midwives in providing a safe environment for the practice of evidence based midwifery.

Criteria	Yes	No	Part.	Supporting Evidence	Comments/Recommendations
5.1 Supervisors of Midwives are involved in formulating policies, setting standards and monitoring practice and equipment.					
5.2 Supervisors of Midwives participate in developing policies and evidence based guidelines for clinical practice.					
5.3 Supervisors of Midwives ensure that midwives are made aware of new guidelines and policies and that all midwives have access to documentation in electronic or hard copy.					
5.4 Supervisors of Midwives participate in reflective activities that inform and support midwives in practice.					

5.5 Supervisors participate in audit of the administration and destruction of controlled drugs.					
5.6 Supervisors of Midwives make their concerns known to their employer in the maternity service when inadequate resources may compromise public safety.					
5.7 When allegations are made of suspected sub-optimal care an investigation is undertaken by a Supervisor of Midwives and the midwife is offered the support of another Supervisor of Midwives.					
5.8 Pro-active approaches are used to support midwives when deficiencies in practice have been identified.					
5.9 The recommendation for a midwife to undertake a period of supervised practice is discussed with the LSAMO who is also informed when such a					

programme is completed.					
5.10 Allegations of serious professional misconduct are reported to the LSAMO together with a full written report and recommendations. These records must be retained for 25 years.					
5.11 Supervisors of Midwives notify managers of investigations being undertaken and of action plans agreed.					
5.12 Clinical Governance strategies acknowledge statutory supervision of midwives.					
5.13 The LSAMO is informed of any serious incident relating to maternity care or midwifery practice.					
5.14 Audit of record keeping of each midwife takes place annually and outcome feedback is provided.					

5.15 Supervisors support midwives participating in clinical trials ensuring that the Midwives rules & standards and the Code of professional conduct are adhered to.					

	Barnsley	Doncaster	Rotherham	Sheffield
CLINICAL ACTIVITY				
Total women delivered	2477	3598	2635	6548
Total delivered in the hospital	2441	3548	2590	6369
Total number of babies born	2494	3643	2627	6660
Number of hospital births in water	0	28	0	73
Total number of women booked under midwife-led care (Taken as a % of deliveries)	22.0% (545)	14.2% (510)	Not fully implemented	68.2% (4465)
Total number of women transferred to consultant care	n/a	124	Not able to identify	n/a
Are you able to monitor reasons for transfer?	Yes	Yes	No	Yes
HOME BIRTHS				
Number of intentional home births attended by a midwife	0.6% (14)	0.9% (33)	1.4% (37)	2.4% (161)
Women delivered at home with no midwife present, including those delivered at home or in transit by ambulance crew	0.3% (8)	0.2% (6)	0.3% (8)	0.3% (18)
Babies born at home, attended by a midwife, when intended/planned for hospital delivery	0.6% (14)	0.3% (11)		
Total deliveries in the home	1.5% (36)	1.4% (50)	1.7% (45)	2.7% (179)
Number of homes births in water	0.08% (2)	0	n/a	n/a

	Barnsley	Doncaster	Rotherham	Sheffield
PUBLIC HEALTH DATA				
Number of women initiating breastfeeding	52.5% (1301)	51% (1830)	58.8% (1551)	71.0% (4648)
Number of women breastfeeding on discharge to Health Visitor	45% (1103)	44% (1598)	n/a	n/a
Number of women smokers at time of: booking	22.8% (564)	27.5% (990)	24.8% (645)	15.9% (1041)
Delivery	23.0% (569)	10.2% (368)	20.3% (537)	16.6% (1085)
Number of babies born to women under 18 years old (at time of delivery)	n/a	1.6% (56)	.72% (94)	2.4% (154)
MATERNITY OUTCOMES DATA				
Number of babies born alive	99.6% (2485)	99.6% (3628)	99.0% (2609)	99.3% (6612)
Number of stillbirths	9	15	18	48
Number of early neonatal deaths (i.e. at 6 days and under)	2	29	4	20
Number of late neonatal deaths (i.e. 7 – 28 days)	n/a	n/a	1	12

	Barnsley	Doncaster	Rotherham	Sheffield
INTERVENTIONS				
Normal delivery rate	70.9% (1770))	72.4% (2638)	67.7% (1781)	63.1% (4204)
Planned inductions	21.6% (536)	23.8% (857)	17.6% (465)	19.8% (1295)
Accelerated labours (including ARM and Syntocinon, or both)	15.5% (385)	18.8% (678)	n/a	28.1% (1838)
Episiotomies	10.1% (250)	16.1% (579)	13.7% (362)	7.7% (502)
Epidurals with vaginal births	14.7% (363)	15.7% (566)	21.9% (578)	13.4% (876)
Epidurals/spinals with caesarean sections	n/a	15.6% (563)	14.5% (383)	19.2% (1258)
Planned caesarean sections	8.1% (202)	7.9% (285)	8.0% (210)	8.4% (548)
Emergency caesarean sections	9.4% (232)	11.8% (426)	11.1% (292)	14.6% (958)
Total caesarean sections	17.5%	19.8%	19.1%	23.0%
Forceps deliveries Midwife	0	0	0	0
Doctor	4.9% (121)	2.8% (99)	4.4% (116)	5.8% (381)
Ventouse deliveries Midwife	0	0	0	0
Doctor	6.6% (163)	4.9% (178)	8.7% (228)	8.7% (569)
Vaginal breech deliveries Midwife	0	0.5% (17)	0	0

Doctor	0.2% (6)	0.2% (6)	0.8% (22)	0.6% (39)
	Barnsley	**Doncaster**	**Rotherham**	**Sheffield**
FACILITIES				
Type of unit (consultant/midwife/GP)	Cons	Cons	Cons/MW	Cons
Total number of maternity beds (including delivery beds)	46	63	44	101
Number of obstetric theatres	2	2	1	3
Staffed by midwifery staff (other than receiving baby)	No	No	Yes	No
Staff by theatre staff	Yes	Yes	Yes – at night	Yes
High dependency beds	Yes	Yes	Yes	Yes
Early pregnancy unit	Yes	Yes	Yes	Yes
Fetal medicine unit	No	No	Yes	Yes
Antenatal day assessment unit	Yes	Yes	Yes	Yes
Birthing pool	No – plumbed in but not using at present	Yes	Yes	Yes
Bereavement/quiet room	Yes	Yes	No	Yes
Partners accommodation on AN ward	No	Yes	Yes	No
Family kitchens	No	No	Yes	No
Security system: Controlled door entry	Yes	Yes	Yes	Yes
Baby tagging	Yes	No	No	Yes
Pressure mattresses	No	No	No	No
Midwife-led beds	Yes	No	Yes	Yes

	Barnsley	Doncaster	Rotherham	Sheffield
Intrapartum GP care	No	No	No	No
Transitional care cots	No	No	Yes – in progress	Yes
Neurophysiological examination of the newborn	Yes	Yes	Yes	Yes
Ultrasound scans	No	Yes	Yes	Yes
Amniocentesis	No	No	No	No
Induction of labour by prostaglandin	No	No	Yes	No
by syntocinon	No	No	Yes	No
Ventouse deliveries	No	No	No	No
Forceps deliveries	No	No	No	No
Six week postnatal examination	No	Yes	No	No
Cervical smears	No	Yes	Yes	No
Specialised counseling	Yes	Yes	Yes	Yes
External cephalic version	No	No	No	No

	Barnsley	Doncaster	Rotherham	Sheffield
STAFFING ESTABLISHMENT				
Total number of whole time equivalent midwives employed	86.05	103.6	96.26	240.96
Total number of midwives employed (head count – allowing for part-time staff)	97	130	122	320
Total number of midwives notifying intention to practice (including non-employed midwives, e.g. independent practitioners, educationalists, researchers)	115	179	122	324
Total use of NHS Professional, Bank, Agency	0	-		-
Vacancies according to funded establishment	0	24.94	0	0
Vacancies according to Birthrate Plus defined establishment	0	-	0	14
Birthrate Plus undertaken – which year?	2003	2003	2005	2001
Birthrate Plus in progress (Yes/No)	Yes	No	No	No
Birthrate Plus planned – when?	n/a	n/a	n/a	n/a
Ratio of midwives in post (WTE) to births	1 : 28.69	1 : 35.16	1 : 27.4	1 : 28
Adjusted ratio of births to midwives excluding maternity leave, long-term sickness, secondments away from unit etc.	n/a	n/a	n/a	1 : 32
% Annual sickness rate Long term	n/a	n/a	n/a	n/a
Short term	n/a	n/a	n/a	n/a
% of “one to one care in labour”	n/a	n/a	Approx 70%	Estimated 60%
Average length of postnatal stay	24 hours	12 hours		1.8 days
Midwife to non-midwife skill mix	1 : 6	1:0.21	1 : 5	n/a

	Barnsley	**Doncaster**	**Rotherham**	**Sheffield**
Current ratio of supervisors to midwives	1 : 21-23	1 : 13	1 : 12	1 : 18-20
Number of student supervisors of midwives	3 to start in Sept 2006	3	0	4
Specialist Midwifery Posts				
Consultant midwife	0	1 / 1	0	0
Lecturer practitioner	0	0	0	0
Practice Development Midwife	0	0	0	2 / 1.2
Infant Feeding Co-ordinator	0	Was part of matron's role	1 / 0.8	1 / 0.5
Bereavement Midwife	1 / 0.8	1 / 0.5	1 / 0.8	2 / 1.6
Sure Start Midwife	2 / 0.8	0	4 / 3	11 / 7.93
Drug/alcohol dependency midwife	1 / 1	1 / 1	2 / 1	3 / 2.6
Child protection midwife	2 / 1	0	1 / 0.6	1 / 0.71
Pregnant teenagers co-ordinator	1 / 0.8	1 / 0.8	1 / 0.4	0
Midwife Ultrasonographer	0	0	0	4 / 2.8
Domestic Violence Midwife	0	2 with special interest – substantive post community MW	0	1 / 0.2
Clinical Governance/Risk Management Midwife	1 / 0.8	1 / 1	1 / 1	1 / 1
Antenatal Screening Co-ordinator	1 / 1	1 / 1	1 / 1	3 / 2.2
Counselling service Midwife			1 / ?	
Diabetes Midwife			1 / ?	
Practice Educators				5/3.95
Complaints				2 / 1

	Barnsley	Doncaster	Rotherham	Sheffield
TRANSFERS				
Is there an escalations policy?	No	Policy for closing maternity unit	Yes	Yes
How often has it been used?	n/a	-	none	3
Number of intra-uterine transfers out to other units	n/a	n/a	7	n/a
Number of intra-uterine transfers in from other units	n/a	6?	0	578
Number of other transfers Mother	n/a	n/a		-
Baby	n/a	n/a		-
NEONATAL UNIT				
Managed within the remit of the Head of Midwifery (Yes/No)	No	No	No	Yes
Regional or sub-regional referral centre (Yes/No)	No	Yes	No	Yes
Number of midwives employed within NNU notifying their intention to practice	0	2	n/a	0
Total cots	13	20	16	34
Neonatal intensive care	2	4	2	12
High dependence	0	0	14	4
Special care	11	16		18
Transitional care	0	0	0	6
Parents' accommodation (Yes/No)	Yes	Yes	Cared for on postnatal ward, in process of developing further	Yes

		Barnsley	Doncaster	Rotherham	Sheffield
NNU CLOSURES					
Reason for closure:	staffing levels	Yes	Yes	Yes	Yes
	equipment		Yes		
	capacity	Yes	Yes		
	cot availability			Yes	
	infection				Yes
Is there a guideline for closure of NNU?		Yes	No	Yes	Yes
ADDITIONAL STATS					
CNST Level achieved		Level 1	Level 1	Level 1	Level 1
BFI Status		No		No	
Number of complaints about midwifery practice		7	6	24 (Obs/gynae) 11 (Obs)	5
Number of serious untoward incidents (SUI) related to midwifery practice		0	2	-	-

STATISTICAL SUMMARY FOR SOUTH YORKSHIRE

Incidents/Complaints	**Number**
Number of serious untoward incidents (SUIs) related to midwifery practice *(2 units figures only)*	2
Number of complaints about midwifery practice	42

	TOTAL	**%**
CLINICAL ACTIVITY		
Total women delivered	15,258	
Overall normal delivery rate	10,393	68.1%
Total delivered in hospital	14,948	98.0%
Total number of babies born	15,424	
Number of hospital births in water *(3 units figures only)*	101	0.66%
Total number of women booked under midwife-led care *(3 units figures only)*	5,520	36.2%
Total number of women transferred to consultant care *(1 units figures only)*	124	0.8%
INTERVENTIONS		
Planned inductions	3,153	20.7%
Episiotomies	1,693	11.1%
Planned caesareans	1,245	8.2%
Emergency caesareans	1,908	12.5%
Total caesareans	3,153	20.7%

	TOTAL	%
HOME BIRTHS		
Number of intentional home births attended by a midwife	245	1.61%
Women delivered at home with no midwife present, including those delivered at home or in transit by ambulance crew and delivered by a midwife when hospital birth planned.	65	0.43%
PUBLIC HEALTH DATA		
Number of women initiating breastfeeding *(3 units figures only)*	7,779	50.98%
MATERNITY OUTCOMES DATA		
Number of babies born alive	15,334	99.4%
Number of stillbirths	90	0.58%
Number of early neonatal deaths (i.e. at 6 days and under)	55	0.36%
Number of late neonatal deaths (i.e. 7 – 28 days) *(2 units figures only)*	13	0.08%

APPENDIX THREE

Barnsley District General Foundation Trust

Name of Supervisor	
Bron Goodwin	
Bev Sicero	
Sue GIBSON	**Contact Supervisor of Midwives**
Sharon HARDY	
Sandra NEWMAN (Contact supervisor)	
Pam TARN	

Rotherham District General Foundation Trust

Name of Supervisor		
M	**BARNES**	
M K	**BOOTH**	
P	**CALLADINE**	
J M	**GILLIVER**	
T	**JENKINSON**	
J M	**LANCASHIRE**	
J	**LOVETT**	**Contact Supervisor of Midwives**
K A	**NORTON**	
S	**VELAMAIL**	
K	**SCHOFIELD**	
A	**SPILLANE**	

Jessop Wing, Sheffield Teaching Hospital Foundation Trust

D. BARTHOLOMEW	
J. BRENNAN	
S. R. CLARKE	
S. E. COPELAND	
K. DRABBLE	
S. E. A. FREEMAN	
G. HUNT	
C. JONES	
L. LONGMUIR	
W. A. MARTIN	
T. OXLEY	
D. ROBINS	
G. S. A. SEAR	
J. STAFFORD	
C. THORNBER	
A Stanley	
J. A. WALSH	**Contact supervisor of midwives**
D. E. WATKINS	
J Costello	
S Kinnish	
M Baxter	
C Ford	

DONCASTER WOMEN'S HOSPITAL

Name of Supervisor & PIN Number *Please include independent Midwives who are supervisors*		
P	**Holland**	
J	**Saunders**	
C	**Keegan**	
M	**BATHGATE**	
J	**BURNS**	
M	**DALTON**	
K S	**DENNIS**	
C	**LEE**	**Contact supervisor of midwives**
V M	**LIDDLE**	
C M	**LIVINGSTON**	
L	**MEARS**	
M L M	**MOFFAT**	
V S	**KNIGHT**	
S E	**SMITHSON**	
D	**WRIGHT**	

Sheffield University

Heather Wilkins	
Celia Yearley	