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Dear Colleague

Perinatal & Infant Mortality Report - 2010

This report covers the **West Mercia NHS Cluster** and its constituent LAs and provider units in reference to the West Midlands (WM), and includes stillbirth, perinatal and infant mortality data up to 2010.

To put mortality rates within context of the characteristics of the population served, the report also includes results from the PEER regional maternity data collection, which was in place in all units in 2010 (Section 2).

The report also examines trends within the main subgroups. For the first time, we are including analysis of perinatal deaths from 30 weeks, to help us track some of the potentially avoidable deaths, at gestational ages where immaturity plays a lesser role (Section 8).

The results within each section can be summarised as follows:

Section	Main Finding
1. Birth rate	Upward trend in Cluster, following regional and national trends
2. Maternity population	Low deprivation rates, but varying in KPIs. Wide variation in IUGR detection, with units above as well as below regional average
3. Stillbirths	Below WM average, and downward trend. LAs mostly within prediction interval adjusted for social deprivation.
4. Stillbirth categories	Largest group: fetal growth restriction. Slight upward trend in congenital anomaly related stillbirths
5. Early neonatal & perinatal rates	Below WM average and follows regional and national trend
6. Infant deaths	Below WM and national average, and following downward trend. LAs within or below deprivation-adjusted prediction interval
7. Infant death categories	Largest groups immaturity (downward trend) and congenital anomalies (upward trend). Neither significant because small numbers
8. Perinatal deaths from 30+weeks	Largest category: fetal growth restriction - shows clear downward trend (although not yet statistically significant because of numbers).

More specific comments are made within the respective sections.
As always, the team at the Institute is happy to provide supplementary information as required.

With sincere regards



Professor Jason Gardosi
Director

METHODS & DEFINITIONS

- Mortality rates are calculated for deaths based on year of delivery.
 - Mortality data are reported annually and for 3 year moving average.
 - 'Previabie' neonatal or infant deaths: <22 weeks gestation and/or <500g
 - Cases allocated to trusts/units using place of birth, and to Cluster/PCT/LA using maternal postcode at birth
 - Deliveries at home or elsewhere (e.g. born before arrival) allocated to intended place of delivery at booking
 - Death classifications: ReCoDe - *BMJ*. 2005;331:1113-7 ; Fetal & Neonatal : *BJOG* 1986;93:1213-23.
 - Fetal/Intrauterine Growth Restriction (FGR/IUGR): below 10th customised weight-for-gestation centile
-
- Deprivation scores for individual cases (births and deaths) are derived by linking maternal postcode at birth to area-based measures. Index of Multiple Deprivation (IMD 2007) is based on the ordering of deprivation scores for Lower Super Output Areas in England and Wales. Quintile 5 describes the most deprived 20% nationally.

ABBREVIATIONS

HES - Hospital Episode Statistics

ONS - Office for National Statistics

PEER - Perinatal Episode Electronic Record

SCB - Safeguarding Children's Board

DATA SOURCES

Deaths (numerator) - PI collects all fetal losses (from 20 weeks gestation including stillbirths) and infant deaths (up to 1 year of age) for the West Midlands. Cases are notified by co-ordinators from maternity and tertiary paediatric units, using perinatal death notifications (PDNs). In order to ensure high ascertainment, cases are cross-matched with ONS statutory notifications (stillbirth and death registrations), Safeguarding Children's Boards (SCB; infant deaths), pathology reports, and HES inpatient deaths.

NB Mortality rates will occasionally differ from ONS Vital Statistics because PI data are regularly updated with late ascertained cases.

Births (denominator; population-based) - ONS birth registrations are the denominators used in calculating mortality rates for Clusters, PCTs, or LAs.

Births (denominator; service-based) - PI collects annual denominator data from all West Midlands units through the Heads of Midwifery. These are used when calculating mortality rates for trusts or units.

PEER database. The Perinatal Episode Electronic Record was established under the regional Investing for Health (IfH) programme to provide standardised patient level data across the West Midlands. It uses a regularly updated regional dataset http://www.pi.nhs.uk/peer/peerdata_collection.htm which was version 1.7 during the period reported here (Jan-Dec 2010). PEER is quality assured through regular crosschecks and audits. It is used for unit, PCT and Cluster based standardised reports (www.pi.nhs.uk/peer/peerview) as well as bespoke data requests.

Key Performance Indicators (KPIs), as established and agreed under the SHA's IfH programme. Definitions are available here: http://www.pi.nhs.uk/rpnm/IfH_KPI_Evidence_Targets.pdf

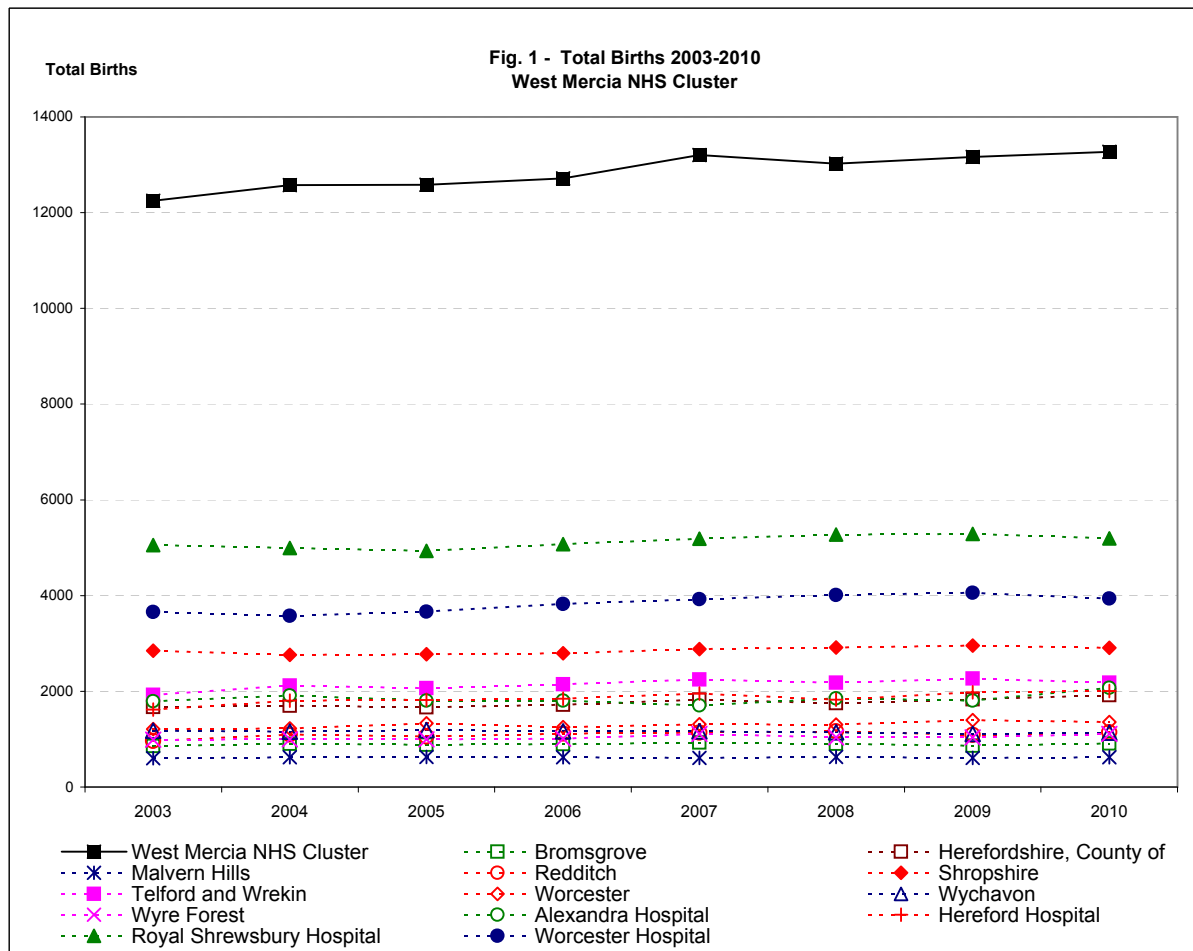
AUTHORS / CITATION:

Abdel ElSheikh, Asad Malik, Jason Gardosi. Perinatal and Infant Mortality Report 2010: West Mercia NHS Cluster. West Midlands Perinatal Institute, 2012

1. Births: West Mercia NHS Cluster, West Midlands 2002-2010

Source: ONS

	2003	2004	2005	2006	2007	2008	2009	2010
England and Wales	624816	643026	649094	672966	693356	712328	709936	726879
West Midlands	64080	66300	66350	68064	70472	72126	71452	72459
West Mercia NHS Cluster	12245	12579	12581	12715	13205	13023	13163	13271
LA/UA								
Bromsgrove	858	905	882	894	932	905	865	912
Herefordshire, County of	1672	1698	1664	1720	1827	1754	1831	1916
Malvern Hills	603	621	626	623	607	627	606	619
Redditch	961	1099	1054	1118	1134	1161	1092	1141
Shropshire	2851	2758	2773	2793	2879	2913	2954	2907
Telford and Wrekin	1923	2118	2067	2145	2245	2177	2269	2177
Worcester	1209	1223	1329	1249	1309	1307	1399	1354
Wychavon	1178	1158	1188	1161	1165	1143	1111	1135
Wyre Forest	990	999	998	1012	1107	1036	1036	1110
Delivery Unit								
Alexandra Hospital	1790	1910	1807	1806	1703	1852	1808	2075
Hereford Hospital	1618	1806	1816	1848	1950	1823	1981	2004
Royal Shrewsbury Hospital	5057	4991	4931	5075	5187	5272	5291	5195
Worcester Hospital	3655	3576	3666	3822	3925	4013	4060	3941



Comment:

The Table and Figure illustrate the birth rate trend in E&W, WM and West Mercia Cluster, and its constituent LAs and units (data up to 2010)

2. Demographics: West Mercia NHS Cluster, 2010

Source: PEER | Jan - Dec, 2010

	West Midlands	West Mercia NHS Cluster	Bromsgrove LA	Herefordshire LA	Malvern Hills LA	Redditch LA	Shropshire LA	Telford and Wrekin LA	Worcester LA	Wychavon LA	Wyre Forest LA	Alexandra Hospital	Hereford Hospital	Shrewsbury Hospital & MLUs	Worcester Hospital
Total Births:	72,459	13,271	912	1,916	619	1,141	2,907	2,177	1,354	1,135	1,110	2,075	2,004	5,195	3,941
Submissions:	58,718	8,031	592	1,793	289	703	1,722	1,287	669	517	459	1,247	1,999	3,175	1,886
% Submissions:	81.0	60.5	64.9	93.6	46.7	61.6	59.2	59.1	49.4	45.6	41.4	60.1	99.8	61.1	47.9
Deprivation - IMD Quintile															
1 (least)	8.6%	12.8%	43.4%	4.3%	10.0%	16.8%	9.0%	7.7%	17.5%	25.7%	9.8%	23.0%	4.7%	8.5%	18.2%
2	12.7%	21.4%	31.8%	16.1%	38.4%	11.9%	27.2%	17.5%	21.4%	24.2%	19.0%	21.1%	16.1%	22.4%	23.3%
3	16.5%	31.4%	17.4%	52.6%	29.1%	17.9%	37.2%	13.5%	26.2%	36.2%	20.0%	19.0%	51.9%	27.4%	28.2%
4	21.2%	20.7%	7.4%	16.3%	15.6%	27.6%	22.4%	32.5%	11.1%	13.9%	30.7%	21.8%	16.6%	26.5%	16.4%
5 (most)	41.0%	13.6%	0.0%	10.7%	6.9%	25.7%	4.3%	28.8%	23.9%	0.0%	20.5%	15.1%	10.7%	15.2%	13.9%
Ethnic Origin															
African	3.5%	0.7%	0.3%	0.7%	0.0%	0.6%	0.5%	1.9%	1.1%	0.2%	0.2%	0.6%	0.6%	1.0%	0.4%
African Caribbean	2.0%	0.3%	0.0%	0.2%	0.0%	0.6%	0.3%	0.3%	0.2%	0.0%	0.7%	0.3%	0.2%	0.3%	0.3%
British European	67.9%	87.5%	93.4%	87.1%	89.9%	80.5%	93.3%	86.0%	79.0%	84.1%	89.6%	86.1%	87.2%	90.1%	84.3%
Eastern European	3.7%	4.6%	0.5%	7.7%	3.8%	8.0%	1.5%	2.4%	5.7%	9.9%	2.6%	4.9%	7.5%	2.1%	5.7%
Middle Eastern	1.1%	0.1%	0.2%	0.2%	0.0%	0.0%	0.1%	0.0%	0.2%	0.2%	0.0%	0.1%	0.2%	0.1%	0.1%
South Asian	15.6%	3.0%	2.9%	0.7%	1.0%	7.2%	0.8%	5.9%	8.0%	1.0%	1.5%	4.9%	0.8%	3.0%	3.8%
Bangladeshi	1.9%	0.2%	0.0%	0.1%	0.0%	0.2%	0.1%	0.1%	0.5%	0.0%	0.7%	0.1%	0.8%	0.2%	0.3%
Indian	5.1%	1.1%	2.4%	0.5%	0.7%	1.1%	0.5%	2.3%	1.4%	1.0%	0.9%	1.3%	0.5%	1.3%	1.2%
Pakistani	8.6%	1.7%	0.5%	0.1%	0.3%	5.9%	0.1%	3.5%	6.1%	0.0%	0.0%	3.6%	0.2%	1.5%	2.2%
Other/Mixed	6.2%	3.9%	2.7%	3.4%	5.2%	3.2%	3.5%	3.5%	6.0%	4.6%	5.3%	3.0%	3.6%	3.5%	5.4%
Migrants															
Non UK Born	20.6%	9.7%	5.0%	14.2%	8.9%	17.6%	2.0%	5.8%	17.9%	16.8%	7.0%	12.2%	14.0%	4.0%	13.6%
Maternal Age															
< 16	0.2%	0.2%	0.2%	0.1%	0.3%	0.1%	0.2%	0.3%	0.0%	0.2%	0.2%	0.1%	0.1%	0.2%	0.2%
< 18	1.9%	1.6%	0.3%	1.7%	1.0%	1.6%	1.5%	1.6%	2.2%	2.3%	1.5%	1.3%	1.6%	1.6%	1.9%
< 20	6.9%	6.1%	3.6%	5.7%	3.1%	5.5%	6.0%	7.9%	6.7%	7.2%	7.0%	5.0%	5.4%	7.0%	6.6%
20 - 24	22.4%	21.3%	13.0%	22.4%	19.4%	21.3%	19.6%	27.4%	17.9%	18.8%	25.1%	19.6%	21.6%	22.9%	19.6%
25 - 29	29.2%	26.8%	20.5%	27.2%	25.3%	29.2%	26.0%	29.9%	26.5%	25.9%	27.5%	26.6%	27.4%	27.0%	26.2%
30 - 34	25.4%	26.9%	35.7%	24.7%	30.1%	29.2%	27.2%	22.4%	29.9%	28.8%	24.2%	31.0%	25.2%	25.0%	28.7%
35 - 39	13.1%	15.5%	21.5%	16.6%	19.4%	13.1%	16.4%	10.0%	16.6%	16.4%	13.3%	14.9%	16.9%	14.3%	16.2%
35+	16.1%	18.9%	27.2%	20.0%	22.1%	14.8%	21.2%	12.4%	19.0%	19.3%	16.2%	17.8%	20.5%	18.0%	18.8%
40+	3.0%	3.4%	5.8%	3.4%	2.8%	1.7%	4.8%	2.4%	2.4%	2.9%	2.8%	2.9%	3.6%	3.7%	2.6%
Body Mass Index															
< 18.5	3.3%	2.7%	2.4%	2.3%	0.7%	2.0%	3.3%	3.9%	2.1%	3.5%	0.9%	2.5%	2.3%	3.4%	2.0%
18.5 - 24.9	48.0%	49.0%	50.5%	50.9%	46.7%	47.7%	48.3%	45.2%	51.3%	53.4%	48.4%	48.2%	50.8%	47.2%	50.7%
25 - 29.9	28.3%	27.9%	28.7%	27.6%	29.1%	29.2%	28.8%	26.9%	27.1%	24.9%	29.1%	28.9%	27.4%	27.6%	27.0%
30 - 34.9	12.4%	12.4%	14.2%	11.2%	13.3%	13.6%	12.4%	14.3%	10.7%	10.4%	12.6%	13.8%	11.3%	13.8%	11.5%
35 - 39.9	5.1%	5.5%	3.3%	5.2%	6.0%	5.3%	5.0%	7.0%	6.2%	4.3%	6.5%	5.3%	5.4%	5.7%	5.7%
30+	20.4%	20.4%	18.4%	19.3%	23.5%	21.1%	19.6%	24.0%	19.5%	18.2%	21.7%	20.5%	19.6%	21.8%	20.4%
35+	7.6%	8.0%	4.2%	8.1%	10.2%	7.4%	7.2%	9.6%	8.9%	7.8%	9.0%	6.9%	8.3%	8.1%	8.8%
40+	2.5%	2.5%	0.9%	2.9%	4.2%	2.1%	2.2%	2.6%	2.7%	3.5%	2.7%	1.6%	2.9%	2.3%	3.2%

cont'd

	West Midlands	West Mercia NHS Cluster	Bromsgrove LA	Herefordshire LA	Malvern Hills LA	Redditch LA	Shropshire LA	Telford and Wrekin LA	Worcester LA	Wychavon LA	Wyre Forest LA	Alexandra Hospital	Hereford Hospital	Shrewsbury Hospital & MLUs	Worcester Hospital
Prematurity															
< 37 Weeks	6.0%	6.0%	5.6%	5.9%	4.5%	5.9%	4.7%	5.0%	6.8%	10.7%	8.2%	4.8%	6.2%	4.9%	8.5%
< 34 Weeks	1.8%	1.7%	1.0%	1.4%	1.4%	2.5%	1.6%	1.6%	1.7%	2.8%	2.2%	0.9%	1.5%	1.5%	2.5%
Onset of Labour															
Induced	22.3%	23.9%	22.2%	19.9%	23.7%	24.5%	26.5%	23.0%	28.4%	25.3%	25.8%	22.9%	20.1%	25.3%	26.5%
Mode of Delivery															
Forceps/Ventouse	10.6%	10.8%	14.4%	11.9%	10.1%	12.3%	10.3%	9.1%	8.8%	9.7%	10.4%	13.5%	11.6%	10.0%	9.5%
Caesarean Section	23.0%	20.8%	22.2%	26.3%	24.6%	22.5%	14.5%	13.5%	24.5%	21.8%	30.7%	20.5%	27.3%	13.9%	24.9%
Elective	9.2%	9.4%	13.4%	11.7%	14.4%	9.7%	6.0%	5.3%	10.6%	9.5%	13.7%	10.0%	12.1%	5.4%	11.3%
Non-Elective	13.8%	11.4%	8.8%	14.6%	10.2%	12.8%	8.4%	8.1%	13.8%	12.3%	17.0%	10.5%	15.2%	8.5%	13.6%
Outcome															
Apgar < 7 @ 5 Min.	1.4%	1.2%	1.2%	1.2%	1.4%	1.0%	1.3%	1.0%	1.8%	1.6%	0.9%	1.1%	1.1%	1.2%	1.4%
NICU Admission (37+ Wks) ^a	2.3%	2.7%	1.5%	3.5%	1.0%	2.7%	**	**	3.3%	2.4%	1.3%	2.6%	3.4%	**	2.4%
Early Booking < 13 Weeks [*]															
Average	83.7%	81.5%	85.5%	77.9%	83.4%	84.3%	83.8%	74.9%	84.8%	80.0%	90.7%	83.8%	78.2%	80.1%	84.8%
Range ^b	(63.1% - 90.7%)	(78.2% - 84.8%)													
Fetal growth restriction [*]															
Birthweight <10th cust. centile															
Average	13.8%	13.0%	12.0%	13.3%	10.2%	17.0%	12.5%	14.7%	10.2%	12.6%	11.0%	14.6%	13.1%	13.5%	11.1%
Range ^b	(10.3% - 16.4%)	(11.1% - 14.6%)													
FGR Detection															
Average	31.0%	27.3%	23.8%	32.9%	32.1%	32.0%	18.7%	22.7%	30.8%	40.0%	25.5%	27.3%	34.3%	20.3%	35.0%
Range ^b	(11.5% - 48.3%)	(20.3% - 35%)													
Detection after referral for FH															
Average	61.5%	60.4%	50.0%	97.7%	80.0%	92.3%	39.3%	37.5%	71.4%	78.6%	83.3%	60.0%	98.0%	37.2%	80.5%
Range ^b	(30.9% - 72.5%)	(37.2% - 98%)													
Smoking [*]															
At booking	18.8%	19.5%	12.2%	19.9%	14.0%	17.9%	18.2%	26.3%	17.0%	18.7%	24.4%	17.1%	19.9%	21.8%	18.5%
Late in pregnancy	13.6%	15.2%	6.8%	13.2%	14.5%	11.1%	15.5%	22.0%	12.9%	16.2%	16.9%	10.4%	13.1%	18.1%	15.1%
Ceased During Pregnancy	27.3%	21.3%	44.2%	29.6%	5.9%	30.7%	16.5%	16.3%	22.5%	11.5%	30.3%	32.3%	28.7%	16.8%	17.8%
Range ^b	(15.4% - 61.4%)	(16.8% - 32.3%)													
Breastfeeding Initiation [*]															
Average	60.5%	68.2%	74.3%	66.0%	77.5%	65.8%	71.2%	62.3%	73.3%	73.1%	58.2%	68.0%	65.3%	68.3%	71.0%
Range ^b	(43.1% - 78.0%)	(65.3% - 71%)													

Notes

^{*} KPI - Definitions are available [here](#) ^{**} No data given as submissions of denominator <100 ^a Collected since 10/2010 only; 12 months data to 09/2011 shown

^b Range based on annual average within WM or Cluster

Comment:

This table compares the characteristics of the maternity population in the West Midlands overall with that in West Mercia Cluster and its constituent LAs and maternity units. Average ascertainment of data through PEER was only 60% in 2010 and has fallen further since. Social deprivation rates are lower than in the West Midlands overall, but show variation between individual LAs and provider units. Breastfeeding rates are above the regional average, but the KPIs for early booking, detection of fetal growth restriction, and smoking cessation are all below the respective rates in the West Midlands.

3. Stillbirths 2003-2010

West Mercia

Numbers

	2003	2004	2005	2006	2007	2008	2009	2010
England and Wales*	3565	3517	3473	3590	3585	3617	3688	3714
West Midlands	395	383	404	391	399	414	433	394
West Mercia NHS Cluster	60	64	68	64	74	64	60	58
LA/UA								
Bromsgrove	8	3	6	6	3	1	2	5
Herefordshire, County of	5	5	7	12	12	2	6	5
Malvern Hills	2	5	8	0	1	4	1	3
Redditch	5	6	2	6	6	7	6	8
Shropshire	17	12	7	12	15	18	12	18
Telford and Wrekin	10	20	12	11	16	14	13	9
Worcester	3	6	7	4	8	8	6	2
Wychavon	2	4	7	4	6	4	4	7
Wyre Forest	8	3	12	9	7	6	10	1
Delivery Unit								
Alexandra Hospital	11	9	8	9	8	6	9	11
Hereford Hospital	6	6	10	12	15	2	5	5
Royal Shrewsbury Hospital	33	32	24	30	30	31	31	27
Worcester Hospital	13	17	29	13	18	19	21	16

Rate/1,000

	2003	2004	2005	2006	2007	2008	2009	2010	2010 C.I.
England and Wales*	5.7	5.5	5.4	5.3	5.2	5.1	5.2	5.1	4.9 - 5.3
West Midlands	6.2	5.8	6.1	5.7	5.7	5.7	6.1	5.4	4.9 - 6.0
West Mercia NHS Cluster	4.9	5.1	5.4	5.0	5.6	4.9	4.6	4.4	3.4 - 5.6
LA/UA									
Bromsgrove	9.3	3.3	6.8	6.7	3.2	1.1	2.3	5.5	2.3 - 12.8
Herefordshire, County of	3.0	2.9	4.2	7.0	6.6	1.1	3.3	2.6	1.1 - 6.1
Malvern Hills	3.3	8.1	12.8	0.0	1.6	6.4	1.7	4.8	1.6 - 14.2
Redditch	5.2	5.5	1.9	5.4	5.3	6.0	5.5	7.0	3.6 - 13.8
Shropshire	6.0	4.4	2.5	4.3	5.2	6.2	4.1	6.2	3.9 - 9.8
Telford and Wrekin	5.2	9.4	5.8	5.1	7.1	6.4	5.7	4.1	2.2 - 7.8
Worcester	2.5	4.9	5.3	3.2	6.1	6.1	4.3	1.5	0.4 - 5.4
Wychavon	1.7	3.5	5.9	3.4	5.2	3.5	3.6	6.2	3.0 - 12.7
Wyre Forest	8.1	3.0	12.0	8.9	6.3	5.8	9.7	0.9	0.2 - 5.1
Delivery Unit									
Alexandra Hospital	6.1	4.7	4.4	5.0	4.7	3.2	5.0	5.3	3.0 - 9.5
Hereford Hospital	3.7	3.3	5.5	6.5	7.7	1.1	2.5	2.5	1.1 - 5.8
Royal Shrewsbury Hospital	6.5	6.4	4.9	5.9	5.8	5.9	5.9	5.2	3.6 - 7.6
Worcester Hospital	3.6	4.8	7.9	3.4	4.6	4.7	5.2	4.1	2.5 - 6.6

3 year moving averages

	03-05	04-06	05-07	06-08	07-09	08-10	08-10 C.I.
England and Wales	5.5	5.4	5.3	5.2	5.1	5.1	5.0 - 5.2
West Midlands	6.0	5.9	5.8	5.7	5.8	5.7	5.4 - 6.1
West Mercia NHS Cluster	5.1	5.2	5.4	5.2	5.0	4.6	4.0 - 5.3
LA/UA							
Bromsgrove	6.4	5.6	5.5	3.7	2.2	3.0	1.5 - 5.9
Herefordshire, County of	3.4	4.7	5.9	4.9	3.7	2.4	1.4 - 4.0
Malvern Hills	8.1	7.0	4.8	2.7	3.3	4.3	2.2 - 8.5
Redditch	4.2	4.3	4.2	5.6	5.6	6.2	4.1 - 9.4
Shropshire	4.3	3.7	4.0	5.2	5.1	5.5	4.1 - 7.2
Telford and Wrekin	6.9	6.8	6.0	6.2	6.4	5.4	3.9 - 7.5
Worcester	4.3	4.5	4.9	5.2	5.5	3.9	2.4 - 6.4
Wychavon	3.7	4.3	4.8	4.0	4.1	4.4	2.7 - 7.3
Wyre Forest	7.7	8.0	9.0	7.0	7.2	5.3	3.3 - 8.5
Delivery Unit							
Alexandra Hospital	5.1	4.7	4.7	4.3	4.3	4.5	3.1 - 6.6
Hereford Hospital	4.2	5.1	6.6	5.2	3.8	2.1	1.2 - 3.6
Royal Shrewsbury Hospital	5.9	5.7	5.5	5.9	5.8	5.6	4.6 - 6.9
Worcester Hospital	5.4	5.3	5.3	4.3	4.8	4.7	3.6 - 6.0

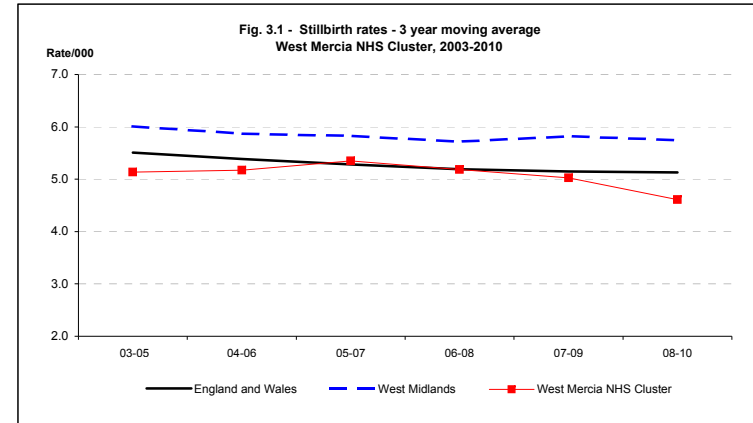


Fig 3.1 Stillbirth trend for West Mercia NHS Cluster, West Midlands and England and Wales, 2003 - 2010.

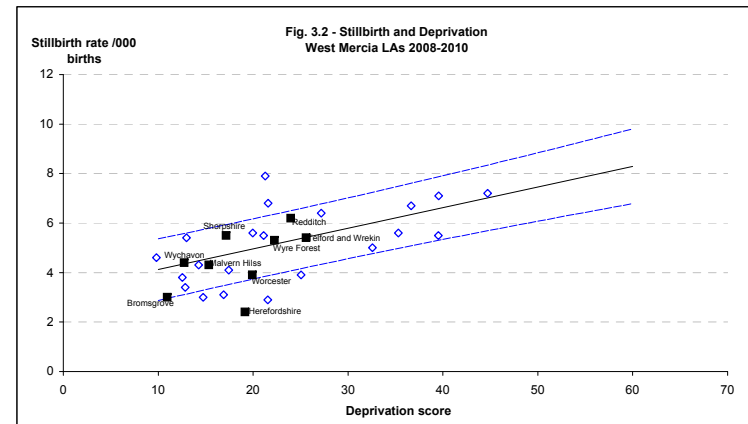


Fig 3.2 Stillbirth rates for last triennium (2008-10) for the West Mercia NHS Cluster, plotted against each LA's deprivation score (IMD 2007). Regression lines represent 90% prediction intervals, based on WM 2003 - 2010.

Comments:

The tables present year on year numbers and rates of stillbirth for Cluster, LAs and provider units, as well as 3 year averages.

Figure 3.1 shows that stillbirth rates are below the WM average and follow a (non-significant) downward trend.

Figure 3.2, each LA's stillbirth rate is plotted according to its respective deprivation score. Most are within the prediction limits adjusted for deprivation.

4. Stillbirths in West Mercia NHS Cluster, 2003 -2010: Classification in main groups

Groups based on ReCoDe classification

	West Mercia NHS Cluster		Alexandra Hospital		Hereford Hospital		Royal Shrewsbury Hospital		Worcester Hospital	
Births 2008-10	39457		5735		5808		15758		12014	
MAIN GROUPS - 2008-10	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
Congenital anomaly	39	1.0	4	0.7	2	0.3	20	1.3	10	0.8
Fetal growth restriction	67	1.7	10	1.7	5	0.9	29	1.8	23	1.9
Placenta / Umbilical chord	31	0.8	5	0.9	4	0.7	12	0.8	10	0.8
Maternal conditions	2	0.1	0	0.0	0	0.0	3	0.2	0	0.0
Infection	5	0.1	1	0.2	0	0.0	5	0.3	1	0.1
Intrapartum asphyxia	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Miscellaneous	8	0.2	0	0.0	0	0.0	4	0.3	4	0.3
Unclassified / Unexplained	30	0.8	6	1.0	1	0.2	16	1.0	8	0.7

Births	2003	2004	2005	2006	2007	2008	2009	2010
	12245	12579	12581	12715	13205	13023	13163	13271

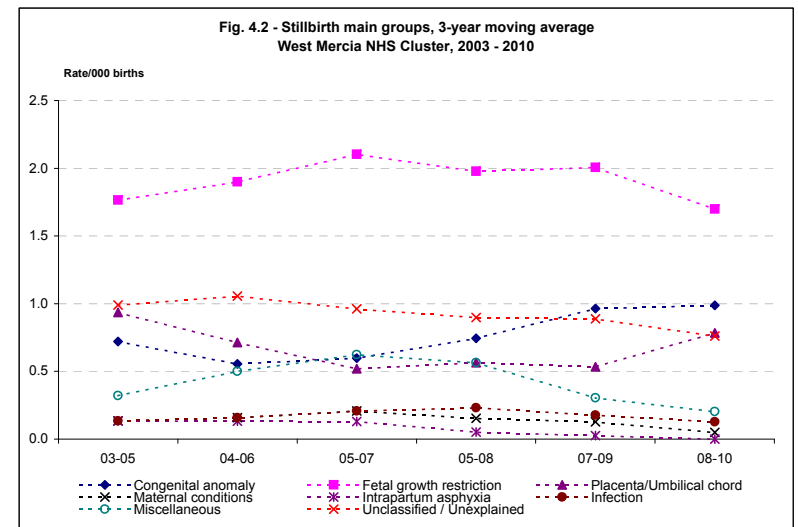
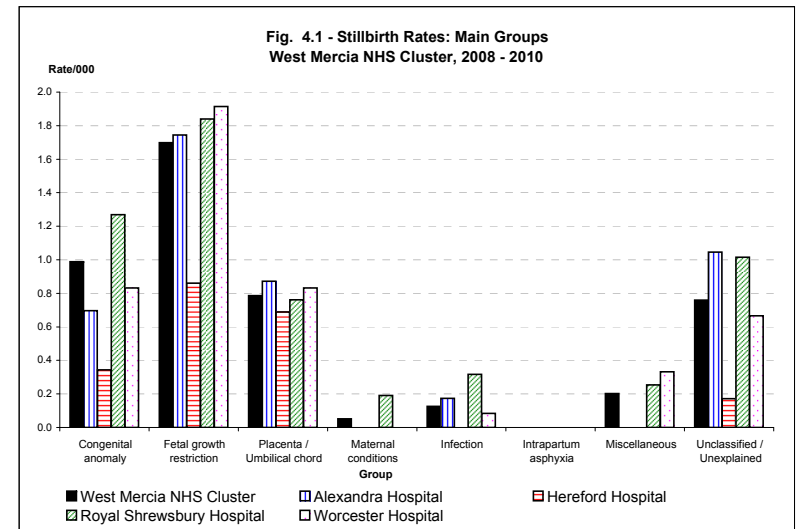
MAIN GROUPS West Mercia NHS Cluster Numbers									
Congenital anomaly		14	4	9	8	6	15	17	7
Fetal growth restriction		19	23	24	25	32	20	27	20
Placenta/Umbilical chord		14	13	8	6	6	10	5	16
Maternal conditions		1	2	2	2	4	0	1	1
Infection		1	2	2	2	4	3	0	2
Intrapartum asphyxia		1	1	3	1	1	0	0	0
Miscellaneous		3	2	7	10	7	5	0	3
Unclassified / Unexplained		7	17	13	10	14	11	10	9

3-year moving averages	03-05	04-06	05-07	05-08	07-09	08-10
Congenital anomaly	0.7	0.6	0.6	0.7	1.0	1.0
Fetal growth restriction	1.8	1.9	2.1	2.0	2.0	1.7
Placenta/Umbilical chord	0.9	0.7	0.5	0.6	0.5	0.8
Maternal conditions	0.1	0.2	0.2	0.2	0.1	0.1
Infection	0.1	0.2	0.2	0.2	0.2	0.1
Intrapartum asphyxia	0.1	0.1	0.1	0.1	0.0	0.0
Miscellaneous	0.3	0.5	0.6	0.6	0.3	0.2
Unclassified / Unexplained	1.0	1.1	1.0	0.9	0.9	0.8

Comments:

Fig 4.1. shows the main categories of stillbirth within the Cluster and provider units. Although proportions vary, the largest category is fetal growth restriction within each unit.

Fig 4.2. shows 3 year moving average trends - with no significant overall change in main groups, although an apparent upward trend in congenital anomalies in recent years. Interpretation within subgroups is limited by small numbers.



6. Infant Deaths 2002-2010

West Mercia

Numbers

	2003	2004	2005	2006	2007	2008	2009	2010
England and Wales*	3274	3234	3217	3329	3309	3369	3312	3140
West Midlands	477	419	424	407	423	459	456	406
West Mercia NHS Cluster	62	61	67	55	54	60	63	46
LA/UA								
Bromsgrove	4	5	5	7	4	1	6	3
Herefordshire, County of	5	8	13	7	3	10	5	7
Malvern Hills	1	1	3	1	0	1	1	1
Redditch	9	4	10	7	12	2	5	6
Shropshire	18	7	11	16	12	16	15	8
Telford and Wrekin	7	12	11	8	6	17	14	10
Worcester	7	9	4	6	7	6	9	2
Wychevon	4	6	3	1	3	4	4	4
Wyre Forest	7	9	7	2	7	3	4	5
Delivery Unit								
Alexandra Hospital	8	7	11	7	6	3	7	8
Hereford Hospital	5	8	8	3	6	8	5	7
Royal Shrewsbury Hospital	27	18	25	23	24	28	23	18
Worcester Hospital	11	24	13	9	17	10	18	13

Rate/1,000

	2003	2004	2005	2006	2007	2008	2009	2010	2010 C.I.
England and Wales*	5.3	5.1	5.0	5.0	4.8	4.8	4.7	4.3	4.2 - 4.5
West Midlands	7.5	6.4	6.4	6.0	6.0	6.4	6.4	5.6	5.1 - 6.2
West Mercia NHS Cluster	5.1	4.9	5.4	4.3	4.1	4.6	4.8	3.5	2.6 - 4.6
LA/UA									
Bromsgrove	4.7	5.5	5.7	7.9	4.3	1.1	7.0	3.3	1.1 - 9.7
Herefordshire, County of	3.0	4.7	7.8	4.1	1.7	5.7	2.7	3.7	1.8 - 7.5
Malvern Hills	1.7	1.6	4.9	1.6	0.0	1.6	1.7	1.6	0.3 - 9.1
Redditch	9.4	3.7	9.5	6.3	10.6	1.7	4.6	5.3	2.4 - 11.5
Shropshire	6.4	2.5	4.0	5.8	4.2	5.5	5.1	2.8	1.4 - 5.5
Telford and Wrekin	3.7	5.7	5.4	3.7	2.7	7.9	6.2	4.6	2.5 - 8.5
Worcester	5.8	7.4	3.0	4.8	5.4	4.6	6.5	1.5	0.4 - 5.4
Wychevon	3.4	5.2	2.5	0.9	2.6	3.5	3.6	3.5	1.4 - 9.1
Wyre Forest	7.1	9.0	7.1	2.0	6.4	2.9	3.9	4.5	1.9 - 10.5
Delivery Unit									
Alexandra Hospital	4.5	3.7	6.1	3.9	3.5	1.6	3.9	3.9	2.0 - 7.6
Hereford Hospital	3.1	4.4	4.4	1.6	3.1	4.4	2.5	3.5	1.7 - 7.2
Royal Shrewsbury Hospital	5.4	3.6	5.1	4.6	4.7	5.3	4.4	3.5	2.2 - 5.5
Worcester Hospital	3.0	6.7	3.6	2.4	4.4	2.5	4.5	3.3	1.9 - 5.7

3 year moving averages

	03-05	04-06	05-07	06-08	07-09	08-10	08-10 C.I.
England and Wales	5.1	5.0	4.9	4.8	4.7	4.6	4.5 - 4.7
West Midlands	6.8	6.3	6.2	6.2	6.3	6.2	5.8 - 6.5
West Mercia NHS Cluster	5.1	4.9	4.6	4.4	4.5	4.3	3.7 - 5.0
LA/UA							
Bromsgrove	5.3	6.4	5.9	4.4	4.1	3.7	2.0 - 6.9
Herefordshire, County of	5.2	5.5	4.4	3.8	3.3	4.0	2.6 - 6.1
Malvern Hills	2.7	2.7	2.2	1.1	1.1	1.6	0.6 - 4.8
Redditch	7.4	6.4	8.8	6.2	5.6	3.9	2.3 - 6.6
Shropshire	4.3	4.1	4.6	5.2	4.9	4.5	3.3 - 6.1
Telford and Wrekin	4.9	4.9	3.9	4.8	5.6	6.2	4.6 - 8.4
Worcester	5.3	5.0	4.4	4.9	5.5	4.2	2.6 - 6.7
Wychevon	3.7	2.9	2.0	2.3	3.2	3.6	2.0 - 6.2
Wyre Forest	7.8	6.0	5.2	3.8	4.4	3.8	2.2 - 6.6
Delivery Unit							
Alexandra Hospital	4.7	4.5	4.5	3.0	3.0	3.2	2.0 - 5.0
Hereford Hospital	4.0	3.5	3.0	3.0	3.3	3.5	2.2 - 5.3
Royal Shrewsbury Hospital	4.7	4.4	4.8	4.9	4.8	4.4	3.5 - 5.6
Worcester Hospital	4.4	4.2	3.4	3.1	3.8	3.4	2.5 - 4.6

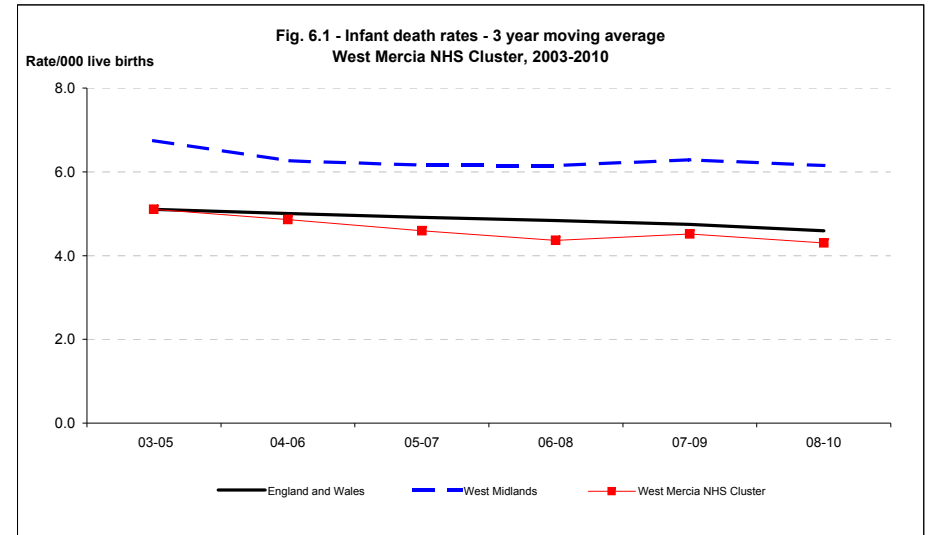


Fig 6.1 Infant death trend for West Mercia NHS Cluster, West Midlands and England and Wales, 2002 - 2010.

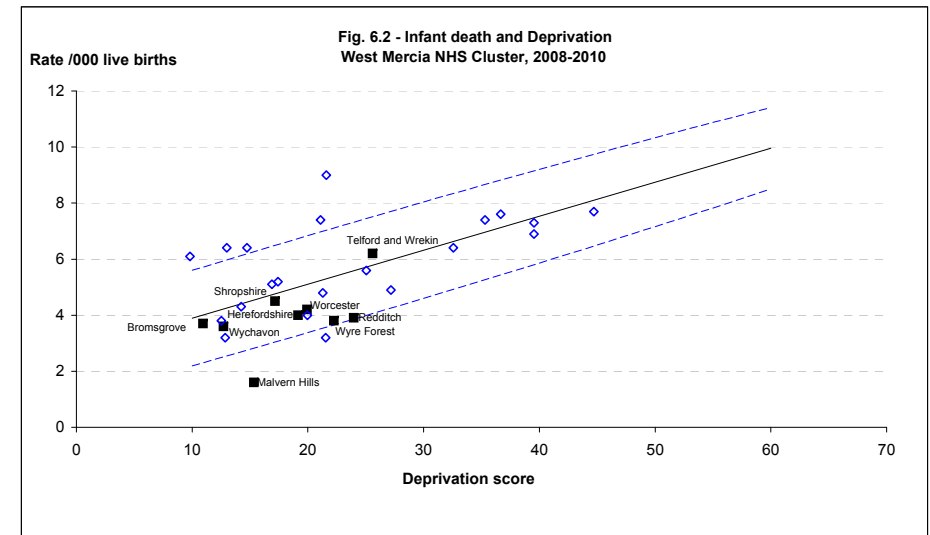


Fig 6.2 Infant death rates for last triennium (2008-10) for the West Mercia NHS Cluster, plotted against each LA's deprivation score (IMD 2007). Regression lines represent 90% prediction intervals, based on WM 2002 - 2010.

Comments:

The tables present year on year numbers and rates of infant deaths for the Cluster, LAs and provider units, as well as 3 year averages. **Figure 6.1** shows that the infant mortality rate follows the national and WM downward trends. In **Figure 6.2**, each LA's infant mortality rate is plotted according to its respective deprivation score. Most are within or below the prediction limits adjusted for social deprivation.

7. Infant Deaths in West Mercia NHS Cluster, 2003 -2010: Classification in main groups

Groups based on Fetal/Neonatal/Infant classification

	West Mercia NHS Cluster		Alexandra Hospital		Hereford Hospital		Royal Shrewsbury Hospital		Worcester Hospital	
Births 2008-10	39275		5709		5796		15669		11958	
MAIN GROUPS - 2008-10	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
Congenital anomaly	56	1.4	8	1.4	4	0.7	25	1.6	12	1.0
Pre-viability	11	0.3	0	0.0	3	0.5	3	0.2	4	0.3
Pulmonary immaturity	42	1.1	1	0.2	8	1.4	16	1.0	7	0.6
Intrapartum asphyxia	13	0.3	1	0.2	3	0.5	5	0.3	4	0.3
Infection	27	0.7	5	0.9	1	0.2	11	0.7	5	0.4
SUDI	8	0.2	2	0.4	0	0.0	3	0.2	5	0.4
Miscellaneous	10	0.3	1	0.2	2	0.3	3	0.2	3	0.3
Unclassified	13	0.3	0	0.0	2	0.3	6	0.4	5	0.4

	2003	2004	2005	2006	2007	2008	2009	2010
Live births	12185	12515	12513	12651	13131	12959	13103	13213

MAIN GROUPS West Mercia NHS Cluster

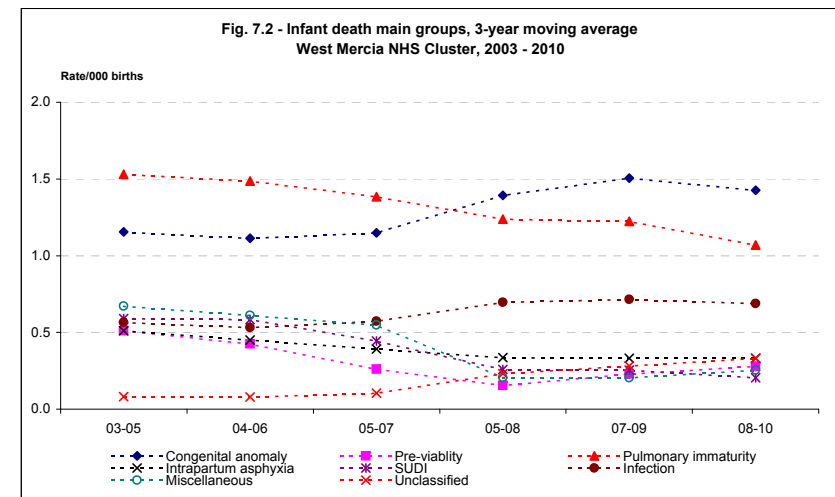
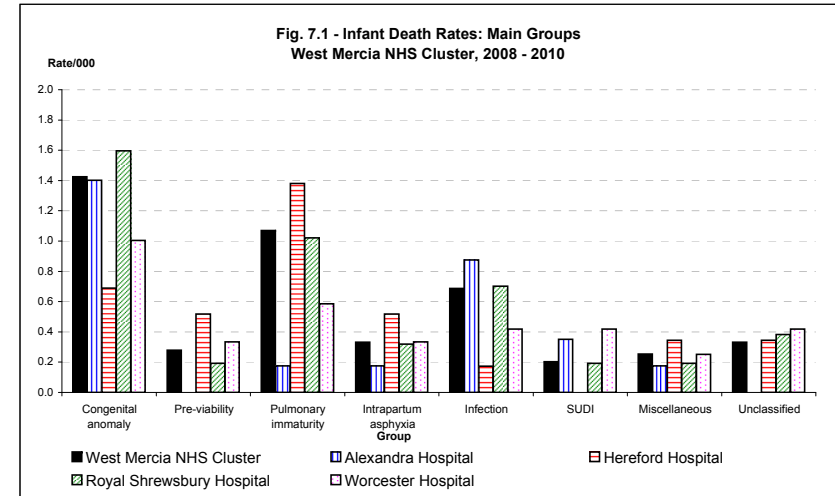
Numbers	2003	2004	2005	2006	2007	2008	2009	2010
Congenital anomaly	17	15	11	16	17	21	21	14
Pre-viability	5	8	6	2	2	2	5	4
Pulmonary immaturity	16	23	18	15	20	13	15	14
Intrapartum asphyxia	9	5	5	7	3	3	7	3
Infection	10	4	7	9	6	12	10	5
SUDI	3	8	11	3	3	4	3	1
Miscellaneous	5	5	15	3	3	2	3	5
Unclassified/Undocumented	2	1		2	2	5	4	4

3-year moving averages	03-05	04-06	05-07	05-08	07-09	08-10
Congenital anomaly	1.2	1.1	1.1	1.4	1.5	1.4
Pre-viability	0.5	0.4	0.3	0.2	0.2	0.3
Pulmonary immaturity	1.5	1.5	1.4	1.2	1.2	1.1
Intrapartum asphyxia	0.5	0.5	0.4	0.3	0.3	0.3
Infection	0.6	0.5	0.6	0.7	0.7	0.7
SUDI	0.6	0.6	0.4	0.3	0.3	0.2
Miscellaneous	0.7	0.6	0.5	0.2	0.2	0.3
Unclassified	0.1	0.1	0.1	0.2	0.3	0.3

Comment:

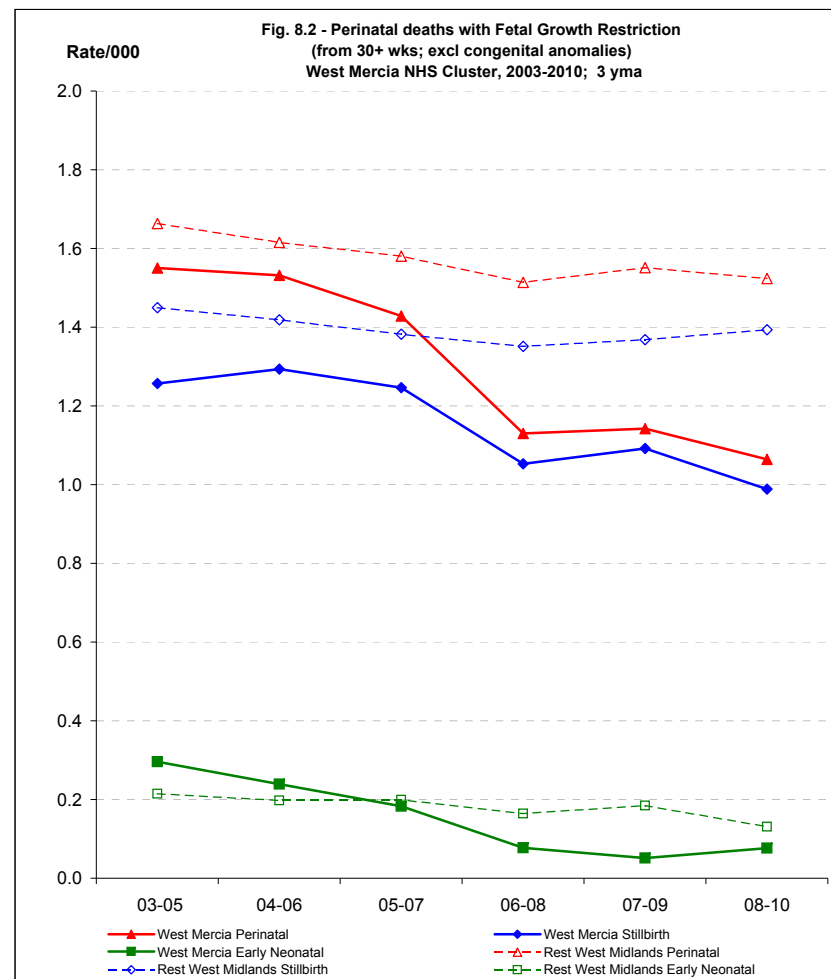
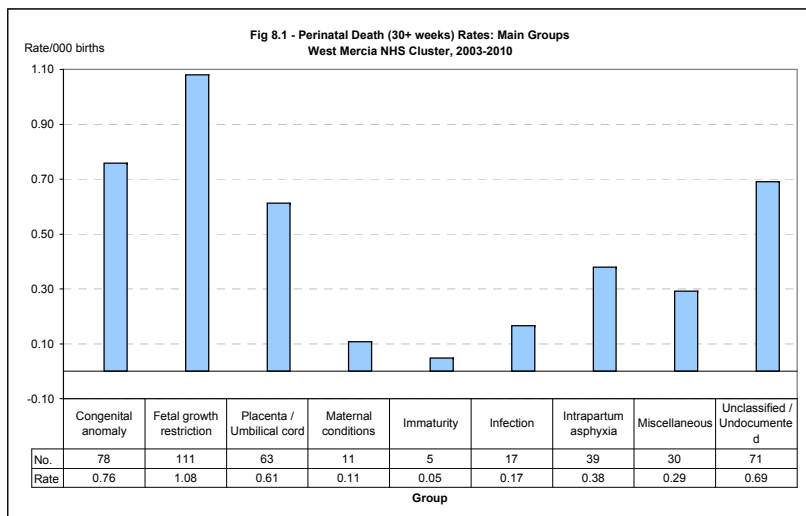
The tables and Fig 7.1. show the main categories of infant deaths within the Cluster and the respective units. Congenital anomalies and immaturity related deaths represent the largest category, the latter varying with the level of neonatal unit.

Fig 7.2. shows 3 year moving average trend analysis, which indicates decreases in immaturity related mortality and increases in congenital anomaly deaths (both trends non significant).



8. Perinatal deaths from 30 weeks - West Mercia NHS Cluster, 2003-2010

MAIN GROUPS



TRENDS IN PERINATAL DEATHS WITH FETAL GROWTH RESTRICTION

Numbers - PDN

	2003	2004	2005	2006	2007	2008	2009	2010	p
Rest of West Midlands									
Perinatal	81	86	98	79	86	95	90	84	0.386
Stillbirth	73	72	86	73	71	88	80	78	
Early Neonatal	8	14	12	6	15	7	10	6	
West Mercia									
Perinatal	17	22	19	17	19	8	18	16	0.167
Stillbirth	13	19	15	15	18	8	17	14	
Early Neonatal	4	3	4	2	1	0	1	2	

Rate/1,000

	2003	2004	2005	2006	2007	2008	2009	2010	2010 C.I.
Rest of West Midlands									
Perinatal	1.56	1.60	1.82	1.43	1.50	1.61	1.54	1.42	1.15 - 1.76
Stillbirth	1.41	1.34	1.60	1.32	1.24	1.49	1.37	1.32	1.06 - 1.64
Early Neonatal	0.16	0.26	0.22	0.11	0.26	0.12	0.17	0.10	0.05 - 0.22
West Mercia									
Perinatal	1.39	1.75	1.51	1.34	1.44	0.61	1.37	1.21	0.74 - 1.96
Stillbirth	1.06	1.51	1.19	1.18	1.36	0.61	1.29	1.05	0.63 - 1.77
Early Neonatal	0.33	0.24	0.32	0.16	0.08	0.00	0.08	0.15	0.04 - 0.55

3 year moving averages

	03-05	04-06	05-07	06-08	07-09	08-10	03-05 C.I.	08-10 C.I.
Rest of West Midlands								
Perinatal	1.66	1.62	1.58	1.51	1.55	1.52	1.47 - 1.88	1.35 - 1.72
Stillbirth	1.45	1.42	1.38	1.35	1.37	1.39	1.27 - 1.65	1.23 - 1.58
Early Neonatal	0.21	0.20	0.20	0.16	0.18	0.13	0.15 - 0.30	0.09 - 0.20
West Mercia								
Perinatal	1.55	1.53	1.43	1.13	1.14	1.06	1.20 - 2.00	0.79 - 1.44
Stillbirth	1.26	1.29	1.25	1.05	1.09	0.99	0.95 - 1.67	0.72 - 1.35
Early Neonatal	0.30	0.24	0.18	0.08	0.05	0.08	0.17 - 0.53	0.03 - 0.22

Comment:

This analysis looks at perinatal deaths from 30+ weeks gestation. The main categories are shown in Fig 8.1., with deaths associated with fetal growth restriction being the largest group.

Fig 8.2. shows the trend in perinatal deaths with fetal growth restriction. The rate has decreased from 1.59 in 2003-5 to 1.06 per 1000 in 2008-10 (-32%) in West Mercia, but numbers are small and the trend does not reach significance (p=0.167).