



Crystal Court, Aston Cross  
Birmingham, B6 5RQ

Telephone 0121 687 3400  
Facsimile 0121 687 3401  
E-mail: office@pi.nhs.uk  
Website: www.pi.nhs.uk

**Director**  
Professor Jason Gardosi MD FRCOG FRCSED

Direct Dial: 0121 687 3500  
E-mail: jason.gardosi@pi.nhs.uk

2 December 2010

**Perinatal & Infant Mortality - 2009 Unit Report:  
WORCESTERSHIRE ACUTE HOSPITALS NHS TRUST**

This report provides the latest update of stillbirth, perinatal and infant mortality rates for your Trust, as well as for the West Midlands and England & Wales. The report is delayed because of the late release by ONS of the 2009 births and deaths extracts which we cross check our cases with, and the Vital Statistics national reference data, which became available only in November this year.

The report includes

- yearly rates and three-year moving averages, summarised for stillbirths and infant deaths, as well as early neonatal, neonatal and perinatal death rates for comparison with other sources;
- 'corrected' mortality rates, after exclusion of congenital anomalies and pre-viable births;
- main categories / causes of stillbirths and infant deaths for your unit and the West Midlands

Additional information relevant to your PCT's maternity population has been presented in the respective Cluster reports which have been sent out earlier this year, and are available on [www.pi.nhs.uk/pnm/clusterreports](http://www.pi.nhs.uk/pnm/clusterreports)

As always, specific information relating to your unit is available on request ([www.pi.nhs.uk/data](http://www.pi.nhs.uk/data)). In addition, we are currently completing development of a web based interactive tool, and will be able to display mortality rates and trends on-line in the New Year.

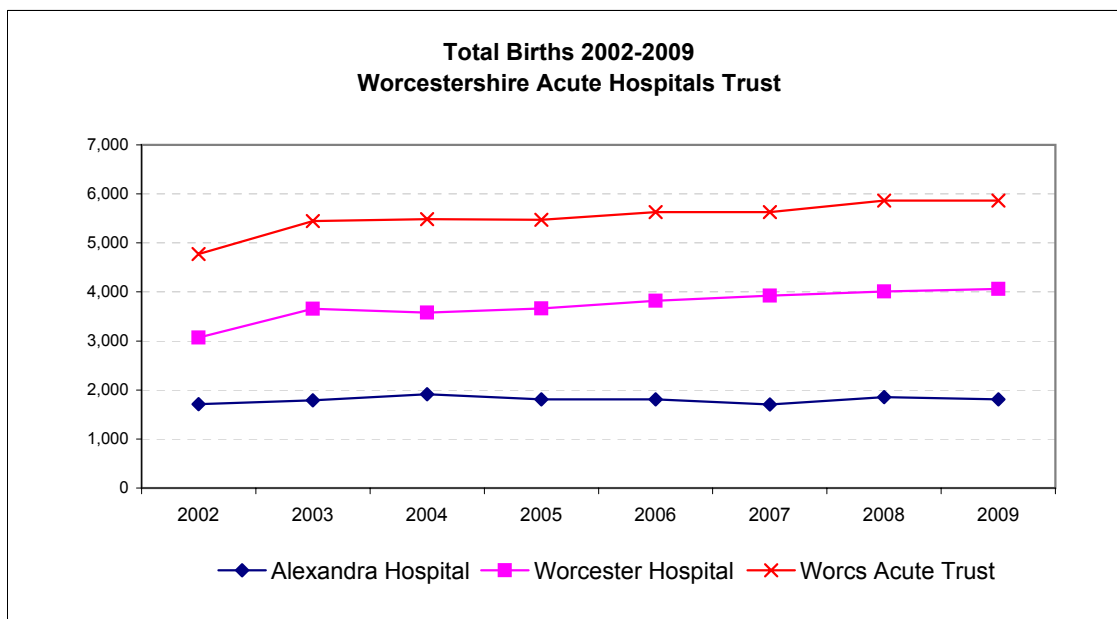
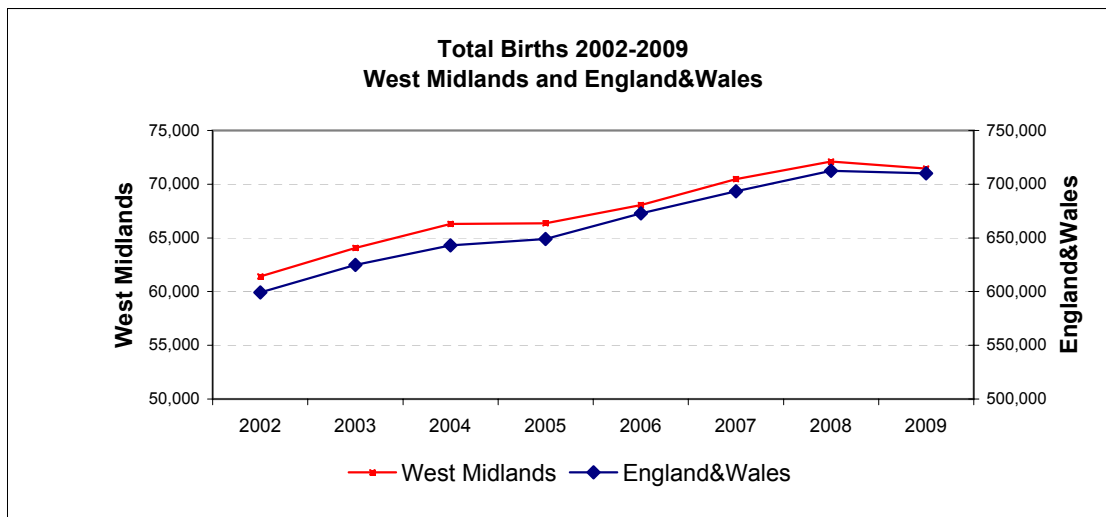
With sincere regards,

Professor Jason Gardosi  
Director, Perinatal Institute

# 1. Births: Worcestershire Acute Hospitals NHS Trust, WM and E& W 2002-2009

Source: ONS

	2002	2003	2004	2005	2006	2007	2008	2009
England&Wales	599,279	624,816	643,026	649,094	672,966	693,356	712,328	709,936
West Midlands	61,417	64,079	66,285	66,351	68,063	70,476	72,110	71,455
Worcs Acute Trust	4,776	5,444	5,486	5,473	5,628	5,628	5,864	5,867
Alexandra Hospital	1,710	1,790	1,910	1,807	1,806	1,703	1,852	1,808
Worcester Hospital	3,066	3,654	3,576	3,666	3,822	3,925	4,012	4,059



## 2 A: Stillbirths 2002-2009

### Numbers

	2002	2003	2004	2005	2006	2007	2008	2009
England and Wales*	3365	3565	3517	3473	3590	3585	3617	3688
West Midlands	391	395	383	403	392	398	416	414
Worcs Acute Trust	29	24	26	37	22	25	25	29
Alexandra Hospital	8	11	9	8	9	8	6	8
Worcester Hospital	21	13	17	29	13	17	19	21

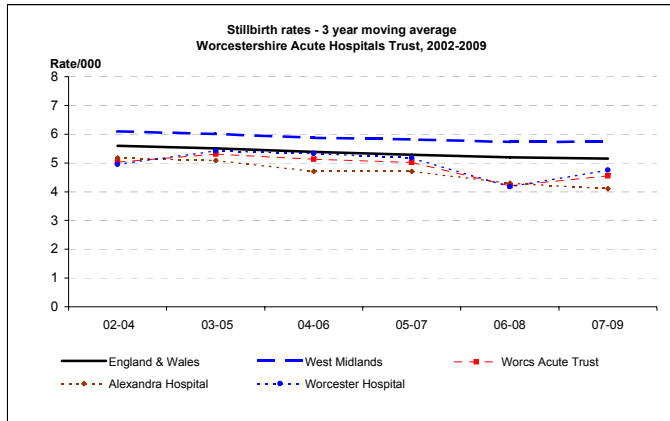
### Rate/1,000

	2002	2003	2004	2005	2006	2007	2008	2009	2009 CI
England and Wales*	5.6	5.7	5.5	5.4	5.3	5.2	5.1	5.2	5.0 - 5.4
West Midlands	6.4	6.2	5.8	6.1	5.8	5.6	5.8	5.8	5.3 - 6.4
Worcs Acute Trust	6.1	4.4	4.7	6.8	3.9	4.4	4.3	4.9	3.4 - 7.1
Alexandra Hospital	4.7	6.1	4.7	4.4	5.0	4.7	3.2	4.4	2.2 - 8.7
Worcester Hospital	6.8	3.6	4.8	7.9	3.4	4.3	4.7	5.2	3.4 - 7.9

### 3 year moving averages

	02-04	03-05	04-06	05-07	06-08	07-09
England & Wales	5.6	5.5	5.4	5.3	5.2	5.1
West Midlands	6.1	6.0	5.9	5.8	5.7	5.7
Worcs Acute Trust	5.0	5.3	5.1	5.0	4.2	4.6
Alexandra Hospital	5.2	5.1	4.7	4.7	4.3	4.1
Worcester Hospital	5.0	5.4	5.3	5.2	4.2	4.8

\*ONS



## 2 B: Stillbirths 2002-2009 - CORRECTED

(Excluding major congenital anomalies)

### Numbers

	2002	2003	2004	2005	2006	2007	2008	2009
West Midlands	282	284	279	311	268	284	290	259
Worcs Acute Trust	19	17	23	28	19	20	16	20
Alexandra Hospital	7	8	7	5	7	5	5	8
Worcester Hospital	12	9	16	23	12	15	11	12

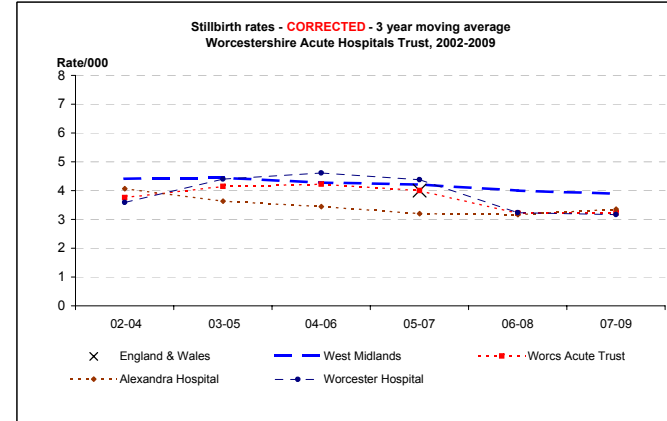
### Rate/1,000

	2002	2003	2004	2005	2006	2007	2008	2009	2009 CI
England and Wales**	4.1	4.1	4.1	4.1	4.1	3.9	4.0	3.6	3.2 - 4.1
West Midlands	4.6	4.4	4.2	4.7	3.9	4.0	4.0	3.6	3.2 - 4.1
Worcs Acute Trust	4.0	3.1	4.2	5.1	3.4	3.6	2.7	3.4	2.2 - 5.3
Alexandra Hospital	4.1	4.5	3.7	2.8	3.9	2.9	2.7	4.4	2.2 - 8.7
Worcester Hospital	3.9	2.5	4.5	6.3	3.1	3.8	2.7	3.0	1.7 - 5.2

### 3 year moving averages

	02-04	03-05	04-06	05-07	06-08	07-09
England & Wales	4.0	4.0	4.0	4.0	3.9	3.9
West Midlands	4.4	4.4	4.3	4.2	4.0	3.9
Worcs Acute Trust	3.8	4.1	4.2	4.0	3.2	3.2
Alexandra Hospital	4.1	3.6	3.4	3.2	3.2	3.4
Worcester Hospital	3.6	4.4	4.6	4.4	3.2	3.2

\*\*CEMACH



x = England & Wales 3 y adjusted average from CEMACH

### 3. Stillbirths, 2002 -2009: Classification in main categories

Categories based on ReCoDe classification

	2002	2003	2004	2005	2006	2007	2008	2009
Births	4776	5444	5486	5473	5628	5628	5864	5867

#### MAIN CATEGORIES

##### Numbers

Congenital anomaly	4	6	1	5	3	1	5	4
Fetal growth restriction	15	11	11	13	8	11	7	16
Placenta/Umbilical cord	5	4	5	5	1	1	5	3
Maternal conditions	0	1	0	1	0	3	0	1
Infection	2	0	1	0	0	3	1	0
Intrapartum asphyxia	0	0	0	1	1	0	0	0
Miscellaneous	0	0	1	4	3	0	1	1
Unclassified / Unexplained	3	2	7	8	6	6	6	4

##### 3-year moving averages

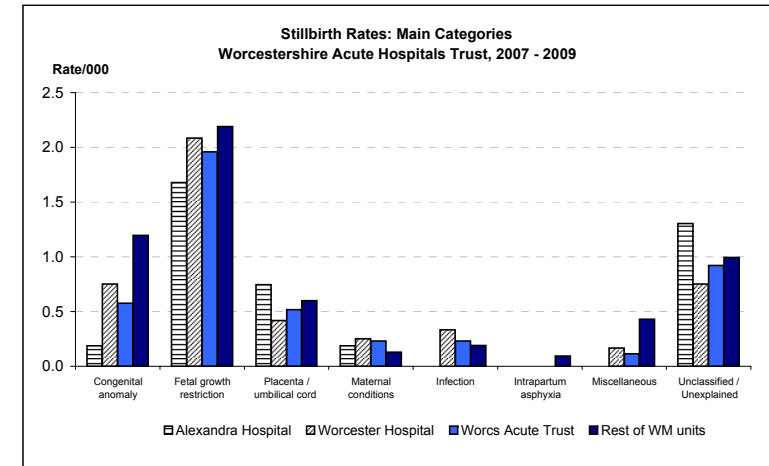
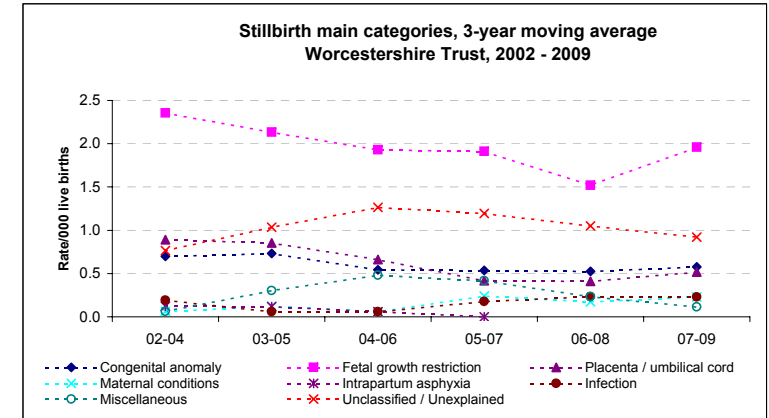
	02-04	03-05	04-06	05-07	06-08	07-09
Congenital anomaly	0.7	0.7	0.5	0.5	0.5	0.6
Fetal growth restriction	2.4	2.1	1.9	1.9	1.5	2.0
Placenta / umbilical cord	0.9	0.9	0.7	0.4	0.4	0.5
Maternal conditions	0.1	0.1	0.1	0.2	0.2	0.2
Infection	0.2	0.1	0.1	0.2	0.2	0.2
Intrapartum asphyxia	0.0	0.1	0.1	0.1	0.1	0.0
Miscellaneous	0.1	0.3	0.5	0.4	0.2	0.1
Unclassified / Unexplained	0.8	1.0	1.3	1.2	1.1	0.9

Births 2007-9

#### MAIN CATEGORIES - 2007-9

Congenital anomaly	1	0.2
Fetal growth restriction	9	1.7
Placenta / umbilical cord	4	0.7
Maternal conditions	1	0.2
Infection	0	0.0
Intrapartum asphyxia	0	0.0
Miscellaneous	0	0.0
Unclassified / Unexplained	7	1.3

	Alexandra Hospital 5,363		Worcester Hospital 11,996		Worcs Acute Trust 17,359		Rest of WM units 200,448	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate
Congenital anomaly	1	0.2	9	0.8	10	0.6	240	1.2
Fetal growth restriction	9	1.7	25	2.1	34	2.0	439	2.2
Placenta / umbilical cord	4	0.7	5	0.4	9	0.5	120	0.6
Maternal conditions	1	0.2	3	0.3	4	0.2	26	0.1
Infection	0	0.0	4	0.3	4	0.2	38	0.2
Intrapartum asphyxia	0	0.0	0	0.0	0	0.0	19	0.1
Miscellaneous	0	0.0	2	0.2	2	0.1	86	0.4
Unclassified / Unexplained	7	1.3	9	0.8	16	0.9	199	1.0



#### 4 A: Infant Deaths 2002-2009

##### Numbers

	2002	2003	2004	2005	2006	2007	2008	2009
England and Wales*	3144	3274	3234	3217	3329	3309	3369	3312
West Midlands	407	476	419	423	407	422	458	455
Worcs Acute Trust	16	19	30	23	15	22	13	25
Alexandra Hospital	7	8	7	11	6	6	3	7
Worcester Hospital	9	11	23	12	9	16	10	18

##### Rate/1,000

	2002	2003	2004	2005	2006	2007	2008	2009	2009 CI
England and Wales*	5.3	5.3	5.1	5.0	5.0	4.8	4.8	4.7	4.5 - 4.9
West Midlands	6.7	7.5	6.4	6.4	6.0	6.0	6.4	6.4	5.8 - 7.0
Worcs Acute Trust	3.4	3.5	5.5	4.2	2.7	3.9	2.2	4.3	2.9 - 6.3
Alexandra Hospital	4.1	4.5	3.7	6.1	3.3	3.5	1.6	3.9	1.9 - 8.0
Worcester Hospital	3.0	3.0	6.5	3.3	2.4	4.1	2.5	4.5	2.8 - 7.0

##### Infant death rates - 3 year moving average - PDN

	02-04	03-05	04-06	05-07	06-08	07-09
England & Wales	5.2	5.1	5.0	4.9	4.8	4.8
West Midlands	6.8	6.7	6.3	6.1	6.1	6.3
Worcs Acute Trust	4.2	4.4	4.1	3.6	2.9	3.5
Alexandra Hospital	4.1	4.7	4.4	4.3	2.8	3.0
Worcester Hospital	4.2	4.2	4.0	3.3	3.0	3.7

\*ONS

#### 4 B: Infant deaths 2002-2009 - CORRECTED

Corrected = excluding major congenital anomalies, <22 weeks gestation and <500g birthweight

##### Numbers

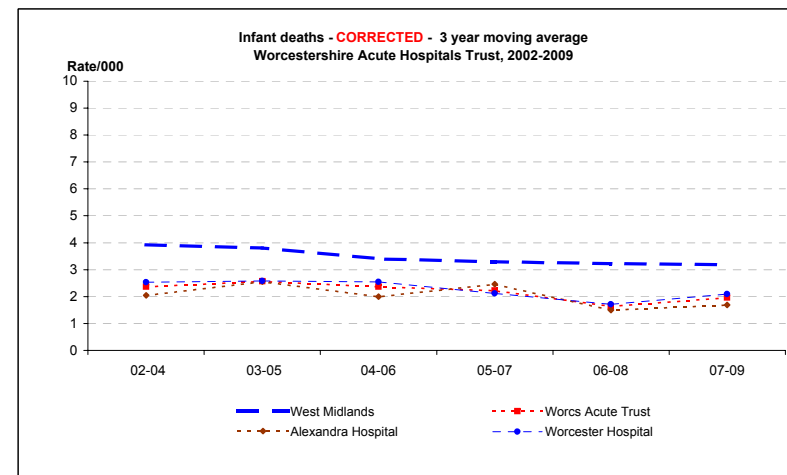
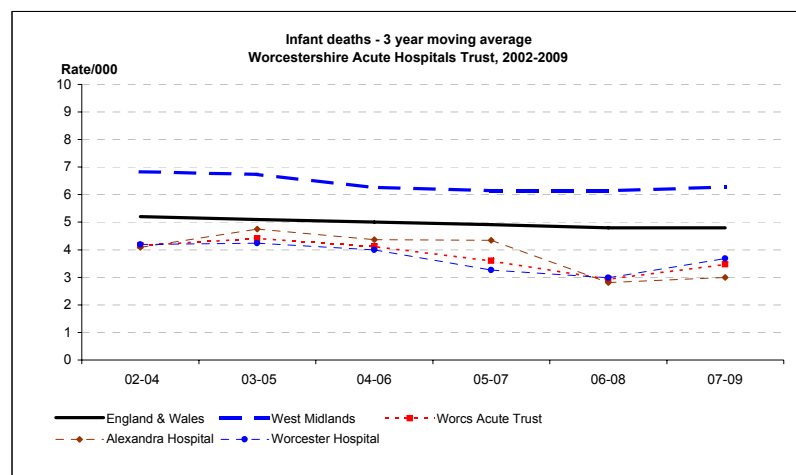
	2002	2003	2004	2005	2006	2007	2008	2009
West Midlands	238	274	236	235	208	228	240	211
Worcs Acute Trust	11	8	18	16	5	16	7	11
Alexandra Hospital	4	3	4	7		6	2	1
Worcester Hospital	7	5	14	9	5	10	5	10

##### Rate/1,000

	2002	2003	2004	2005	2006	2007	2008	2009	2009 CI
West Midlands	3.9	4.3	3.6	3.6	3.1	3.3	3.3	3.0	2.6 - 3.4
Worcs Acute Trust	2.3	1.5	3.3	2.9	0.9	2.9	1.2	1.9	1.1 - 3.4
Alexandra Hospital	2.4	1.7	2.1	3.9	0.0	3.5	1.1	0.6	0.1 - 3.1
Worcester Hospital	2.3	1.4	3.9	2.5	1.3	2.6	1.3	2.5	1.3 - 4.6

##### Infant death rates - 3 year moving average - PDN

	02-04	03-05	04-06	05-07	06-08	07-09
West Midlands	3.9	3.8	3.4	3.3	3.2	3.2
Worcs Acute Trust	2.4	2.6	2.4	2.2	1.6	2.0
Alexandra Hospital	2.0	2.6	2.0	2.5	1.5	1.7
Worcester Hospital	2.5	2.6	2.5	2.1	1.7	2.1



## 5. Infant Deaths, 2002-2009: main categories

Categories based on Fetal/Neonatal/Infant classification

	2002	2003	2004	2005	2006	2007	2008	2009
Live Births	4747	5420	5460	5436	5606	5603	5839	5838

### MAIN CATEGORIES

#### Numbers

Congenital anomaly	4	6	7	2	7	4	5	6
Previabile	1	3	5	5	0	2	1	2
Pulmonary immaturity	4	4	12	8	4	11	2	3
Intrapartum asphyxia	2	3	4	3	0	0	0	3
Infection	3	4	3	0	0	2	4	4
SUDI	0	1	3	3	1	3	2	1
Miscellaneous	3	0	1	7	1	2	0	1
Unclassified	0	1	0	0	2	0	0	7

#### 3-year moving averages

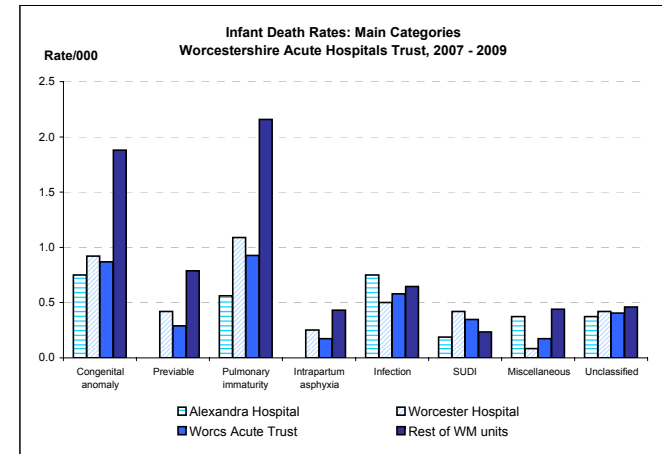
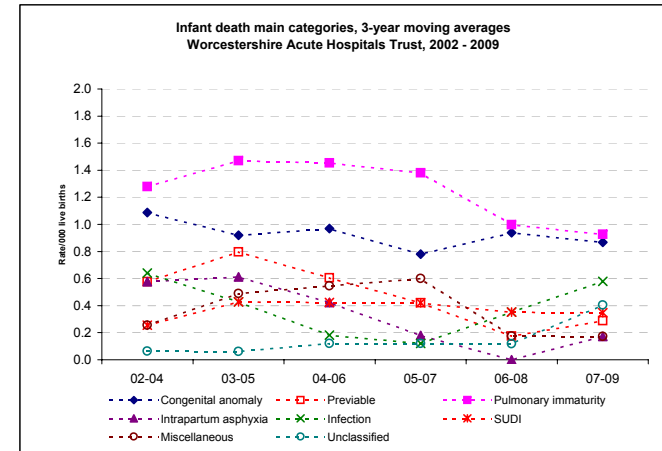
	02-04	03-05	04-06	05-07	06-08	07-09
Congenital anomaly	1.1	0.9	1.0	0.8	0.9	0.9
Previabile	0.6	0.8	0.6	0.4	0.2	0.3
Pulmonary immaturity	1.3	1.5	1.5	1.4	1.0	0.9
Intrapartum asphyxia	0.6	0.6	0.4	0.2	0.0	0.2
Infection	0.6	0.4	0.2	0.1	0.4	0.6
SUDI	0.3	0.4	0.4	0.4	0.4	0.3
Miscellaneous	0.3	0.5	0.5	0.6	0.2	0.2
Unclassified	0.1	0.1	0.1	0.1	0.1	0.4

Live Births 2007-9

Alexandra Hospital	Worcester Hospital	Worcs Acute Trust	Rest of WM units
5,341	11,939	17,280	199,323

#### MAIN CATEGORIES - 2007-9

	No.	Rate	No.	Rate	No.	Rate	No.	Rate
Congenital anomaly	4	0.7	11	0.9	15	0.9	375	1.9
Previabile	0	0.0	5	0.4	5	0.3	157	0.8
Pulmonary immaturity	3	0.6	13	1.1	16	0.9	430	2.2
Intrapartum asphyxia	0	0.0	3	0.3	3	0.2	86	0.4
Infection	4	0.7	6	0.5	10	0.6	129	0.6
SUDI	1	0.2	5	0.4	6	0.3	47	0.2
Miscellaneous	2	0.4	1	0.1	3	0.2	88	0.4
Unclassified	2	0.4	5	0.4	7	0.4	92	0.5



## 6 A: Early Neonatal deaths 2002-2009

Early neonatal = birth to age 7 days

### Numbers

	2002	2003	2004	2005	2006	2007	2008	2009
England and Wales*	1628	1726	1714	1681	1750	1762	1763	1715
West Midlands	234	266	255	270	245	268	258	246
Worcs Acute Trust	10	10	20	14	7	14	4	12
Alexandra Hospital	4	3	3	9	2	5	2	3
Worcester Hospital	6	7	17	5	5	9	2	9

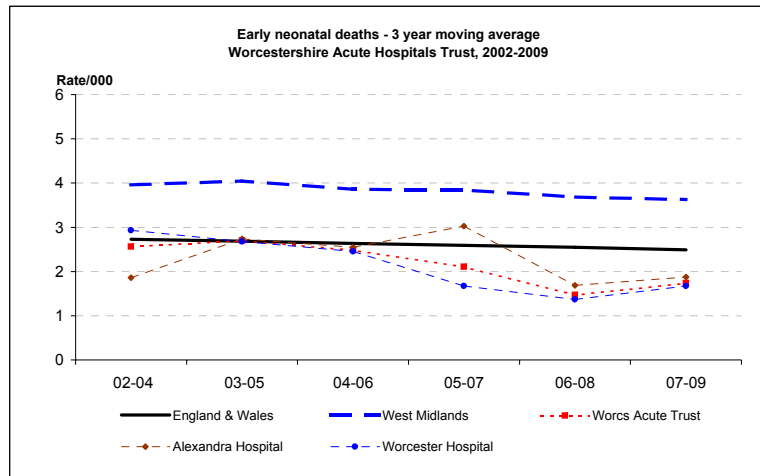
### Rate/1,000

	2002	2003	2004	2005	2006	2007	2008	2009	2009 CI
England and Wales*	2.7	2.8	2.7	2.6	2.6	2.6	2.5	2.4	2.3 - 2.5
West Midlands	3.8	4.2	3.9	4.1	3.6	3.8	3.6	3.5	3.1 - 3.9
Worcs Acute Trust	2.1	1.8	3.7	2.6	1.2	2.5	0.7	2.1	1.2 - 3.6
Alexandra Hospital	2.4	1.7	1.6	5.0	1.1	2.9	1.1	1.7	0.6 - 4.9
Worcester Hospital	2.0	1.9	4.8	1.4	1.3	2.3	0.5	2.2	1.2 - 4.2

### 3 year moving averages

	02-04	03-05	04-06	05-07	06-08	07-09
England & Wales	2.7	2.7	2.6	2.6	2.6	2.5
West Midlands	4.0	4.0	3.9	3.8	3.7	3.6
Worcs Acute Trust	2.6	2.7	2.5	2.1	1.5	1.7
Alexandra Hospital	1.9	2.7	2.5	3.0	1.7	1.9
Worcester Hospital	2.9	2.7	2.5	1.7	1.4	1.7

\*ONS



## 6 B: Early Neonatal Deaths 2002-2009 - CORRECTED

Corrected = excluding major congenital anomalies, <22 weeks gestation and <500g birthweight

### Numbers

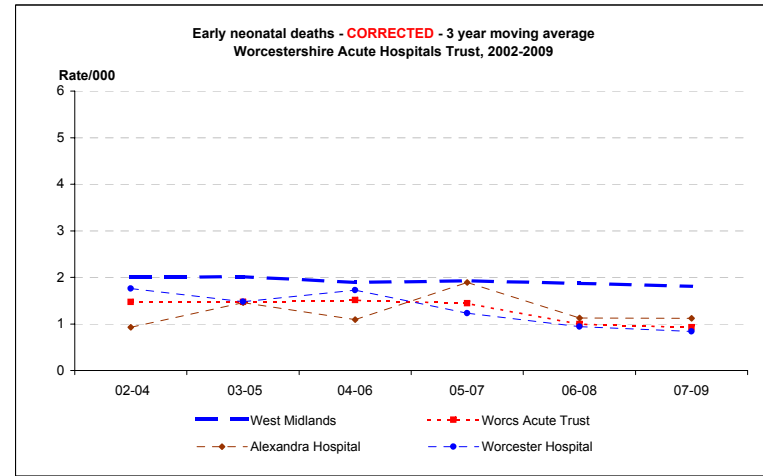
	2002	2003	2004	2005	2006	2007	2008	2009
West Midlands	118	134	129	131	117	144	130	110
Worcs Acute Trust	7	4	12	8	5	11	1	4
Alexandra Hospital	2	2	1	5		5	1	
Worcester Hospital	5	2	11	3	5	6		4

### Rate/1,000

	2002	2003	2004	2005	2006	2007	2008	2009	2009 CI
West Midlands	1.9	2.1	2.0	2.0	1.7	2.1	1.8	1.5	1.3 - 1.9
Worcs Acute Trust	1.5	0.7	2.2	1.5	0.9	2.0	0.2	0.7	0.3 - 1.8
Alexandra Hospital	1.2	1.1	0.5	2.8	0.0	2.9	0.5	0.0	0.0 - 2.1
Worcester Hospital	1.6	0.5	3.1	0.8	1.3	1.5	0.0	1.0	0.4 - 2.5

### 3 year moving averages

	02-04	03-05	04-06	05-07	06-08	07-09
West Midlands	2.0	2.0	1.9	1.9	1.9	1.8
Worcs Acute Trust	1.5	1.5	1.5	1.4	1.0	0.9
Alexandra Hospital	0.9	1.5	1.1	1.9	1.1	1.1
Worcester Hospital	1.8	1.5	1.7	1.2	0.9	0.8



## 7 A: Neonatal deaths 2002-2009

Neonatal = birth to age 28 days

### Numbers

	2002	2003	2004	2005	2006	2007	2008	2009
England and Wales*	2129	2234	2223	2205	2331	2269	2299	2251
West Midlands	294	329	314	327	316	316	321	321
Worcs Acute Trust	13	12	22	17	9	16	7	15
Alexandra Hospital	6	4	4	10	2	5	2	3
Worcester Hospital	7	8	18	7	7	11	5	12

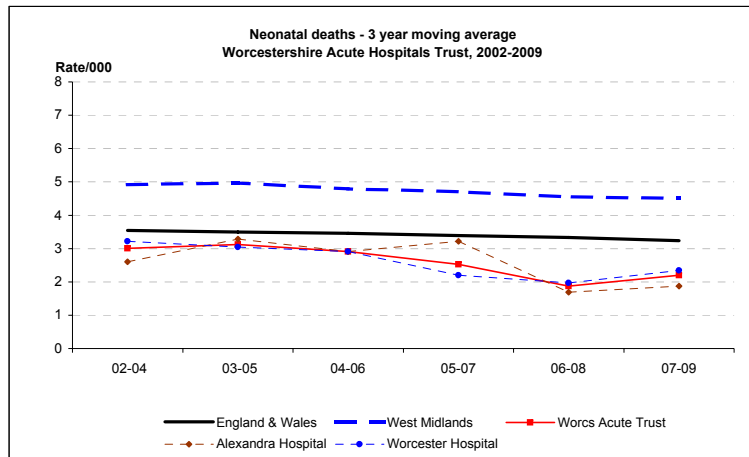
### Rate/1,000

	2002	2003	2004	2005	2006	2007	2008	2009	2009 CI
England and Wales*	3.6	3.6	3.5	3.4	3.5	3.3	3.2	3.2	3.1 - 3.3
West Midlands	4.8	5.2	4.8	5.0	4.7	4.5	4.5	4.5	4.1 - 5.0
Worcs Acute Trust	2.7	2.2	4.0	3.1	1.6	2.9	1.2	2.6	1.6 - 4.2
Alexandra Hospital	3.5	2.2	2.1	5.6	1.1	2.9	1.1	1.7	0.6 - 4.9
Worcester Hospital	2.3	2.2	5.1	1.9	1.8	2.8	1.3	3.0	1.7 - 5.2

### 3 year moving averages

	02-04	03-05	04-06	05-07	06-08	07-09
England & Wales	3.5	3.5	3.5	3.4	3.3	3.2
West Midlands	4.9	5.0	4.8	4.7	4.6	4.5
Worcs Acute Trust	3.0	3.1	2.9	2.5	1.9	2.2
Alexandra Hospital	2.6	3.3	2.9	3.2	1.7	1.9
Worcester Hospital	3.2	3.0	2.9	2.2	2.0	2.3

\*ONS



## 7 B: Neonatal Deaths 2002-2009 - CORRECTED

Corrected = excluding major congenital anomalies, <22 weeks gestation and <500g birthweight

### Numbers

	2002	2003	2004	2005	2006	2007	2008	2009
West Midlands	157	176	166	172	168	172	168	149
Worcs Acute Trust	10	5	13	11	5	13	4	7
Alexandra Hospital	4	2	2	6	0	5	1	0
Worcester Hospital	6	3	11	5	5	8	3	7

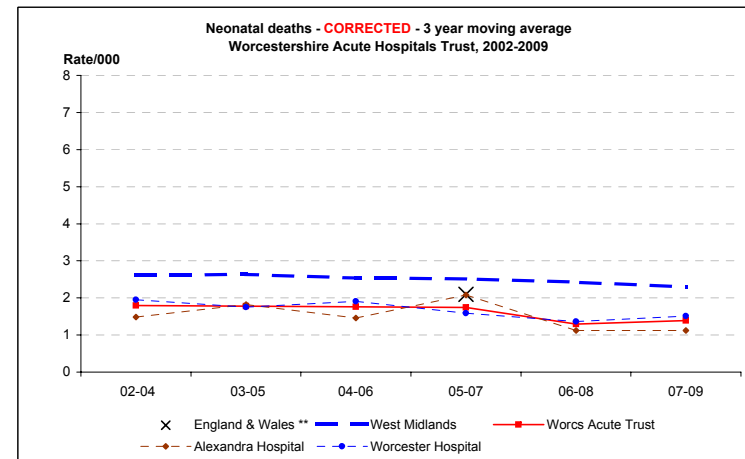
### Rate/1,000

	2002	2003	2004	2005	2006	2007	2008	2009	2009 CI
England and Wales**	2.1	2.3	2.1	2.1	2.3	2.0	2.3	2.1	1.8 - 2.5
West Midlands	2.6	2.8	2.5	2.6	2.5	2.5	2.3	2.1	1.8 - 2.5
Worcs Acute Trust	2.1	0.9	2.4	2.0	0.9	2.3	0.7	1.2	0.6 - 2.5
Alexandra Hospital	2.4	1.1	1.1	3.3	0.0	2.9	0.5	0.0	0.0 - 2.1
Worcester Hospital	2.0	0.8	3.1	1.4	1.3	2.0	0.8	1.7	0.8 - 3.6

### 3 year moving averages

	02-04	03-05	04-06	05-07	06-08	07-09
England & Wales **	2.1	2.1	2.1	2.1	2.1	2.1
West Midlands	2.6	2.6	2.5	2.5	2.4	2.3
Worcs Acute Trust	1.8	1.8	1.8	1.7	1.3	1.4
Alexandra Hospital	1.5	1.8	1.5	2.1	1.1	1.1
Worcester Hospital	2.0	1.8	1.9	1.6	1.4	1.5

\*\*CEMACH



x = England & Wales 3 y adjusted average from CEMACH



## 8 A: Perinatal Deaths 2002-2009

Perinatal = stillbirths and early neonatal deaths

### Numbers

	2002	2003	2004	2005	2006	2007	2008	2009
England and Wales*	4993	5291	5231	5154	5340	5347	5380	5403
West Midlands	625	661	638	673	637	666	674	656
Worcs Acute Trust	39	34	46	51	29	39	29	41
Alexandra Hospital	12	14	12	17	11	13	8	11
Worcester Hospital	27	20	34	34	18	26	21	30

### Rate/1,000

	2002	2003	2004	2005	2006	2007	2008	2009	2009 CI
England and Wales*	8.3	8.5	8.1	7.9	7.9	7.7	7.6	7.6	7.4 - 7.8
West Midlands	10.2	10.3	9.6	10.1	9.4	9.5	9.3	9.2	8.5 - 9.9
Worcs Acute Trust	8.2	6.2	8.4	9.3	5.2	6.9	4.9	7.0	5.2 - 9.5
Alexandra Hospital	7.0	7.8	6.3	9.4	6.1	7.6	4.3	6.1	3.4 - 10.9
Worcester Hospital	8.8	5.5	9.5	9.3	4.7	6.6	5.2	7.4	5.2 - 10.5

### 3 year moving averages

	02-04	03-05	04-06	05-07	06-08	07-09
England & Wales*	8.3	8.2	8.0	7.9	7.7	7.6
West Midlands	10.0	10.0	9.7	9.6	9.4	9.3
Worcs Acute Trust	7.6	8.0	7.6	7.1	5.7	6.3
Alexandra Hospital	7.0	7.8	7.2	7.7	6.0	6.0
Worcester Hospital	7.9	8.1	7.8	6.8	5.5	6.4

\*ONS

## 8 B: Perinatal Deaths 2002-2009 - CORRECTED

Corrected = excluding major congenital anomalies, <22 weeks gestation and <500g birthweight

### Numbers

	2002	2003	2004	2005	2006	2007	2008	2009
West Midlands	400	418	408	442	385	428	420	369
Worcs Acute Trust	26	21	35	36	24	31	17	24
Alexandra Hospital	9	10	8	10	7	10	6	8
Worcester Hospital	17	11	27	26	17	21	11	16

### Rate/1,000

	2002	2003	2004	2005	2006	2007	2008	2009	2009 CI
West Midlands	6.5	6.5	6.2	6.7	5.7	6.1	5.8	5.2	4.7 - 5.7
Worcs Acute Trust	5.4	3.9	6.4	6.6	4.3	5.5	2.9	4.1	2.8 - 6.1
Alexandra Hospital	5.3	5.6	4.2	5.5	3.9	5.9	3.2	4.4	2.2 - 8.7
Worcester Hospital	5.5	3.0	7.6	7.1	4.4	5.4	2.7	3.9	2.4 - 6.4

### 3 year moving averages

	02-04	03-05	04-06	05-07	06-08	07-09
West Midlands	6.4	6.4	6.2	6.1	5.9	5.7
Worcs Acute Trust	5.2	5.6	5.7	5.4	4.2	4.1
Alexandra Hospital	5.0	5.1	4.5	5.1	4.3	4.5
Worcester Hospital	5.3	5.9	6.3	5.6	4.2	4.0

