NHS England

Thames Valley Children and Maternity Strategic Clinical Network

# Report Thames Valley Still Birth Audit 2014

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# Thames Valley Strategic Clinical Network

# Children and Maternity

# Report

# Thames Valley SCN Still Birth Audit

# 2014

**December 2014**

## Introduction

This is the report of a six month audit of stillbirths in Thames Valley undertaken following concern at the national high stillbirth rates in England and regional variation. This audit of local cases of stillbirth was undertaken to establish whether there were particular areas of practice which could be improved. The methodology, results, and recommendations are presented for consideration and adoption.

## Definition

Stillbirth: a baby born after 24 completed weeks of pregnancy with no signs of life.

## Facts and Figures on Infant Mortality and Stillbirths

Stillbirth rates in the UK are higher than might be expected in a high income country: approximately one in 200 babies is stillborn (4.9 stillbirths per 1,000 births). There have been approximately 3,300 stillbirths per year in recent years. Furthermore, there has been little change in UK rates over the past 20 years. (Figures 1 and 2) There is both regional and local variation in stillbirth rate. (Figures 3 and 4)

Many of these stillbirths and deaths are preventable. Reducing infant deaths and stillbirths is a priority for the NHS and government, captured in the NHS and Public Health Outcomes Frameworks. TVSCN therefore identified stillbirths as a key priority for the Children and Maternity Network.

There are a number of risk factors for stillbirth and infant death. These include maternal age, maternal smoking, maternal obesity, socioeconomic position, multiple birth, and influenza. Stillbirth rates are highest for mothers aged under 20 or over 40. Smoking in pregnancy doubles the risk of stillbirth. Being overweight or obese may double the odds of stillbirth, and the risk increases with BMI. Multiple births tend to have lower birth-weights than singletons and are associated with a higher risk of stillbirth. There is evidence that having flu during pregnancy may be associated with premature birth and smaller birth size and weight.

**Figure 1** **Still birth rate per 1000 live births England 2003-2013**

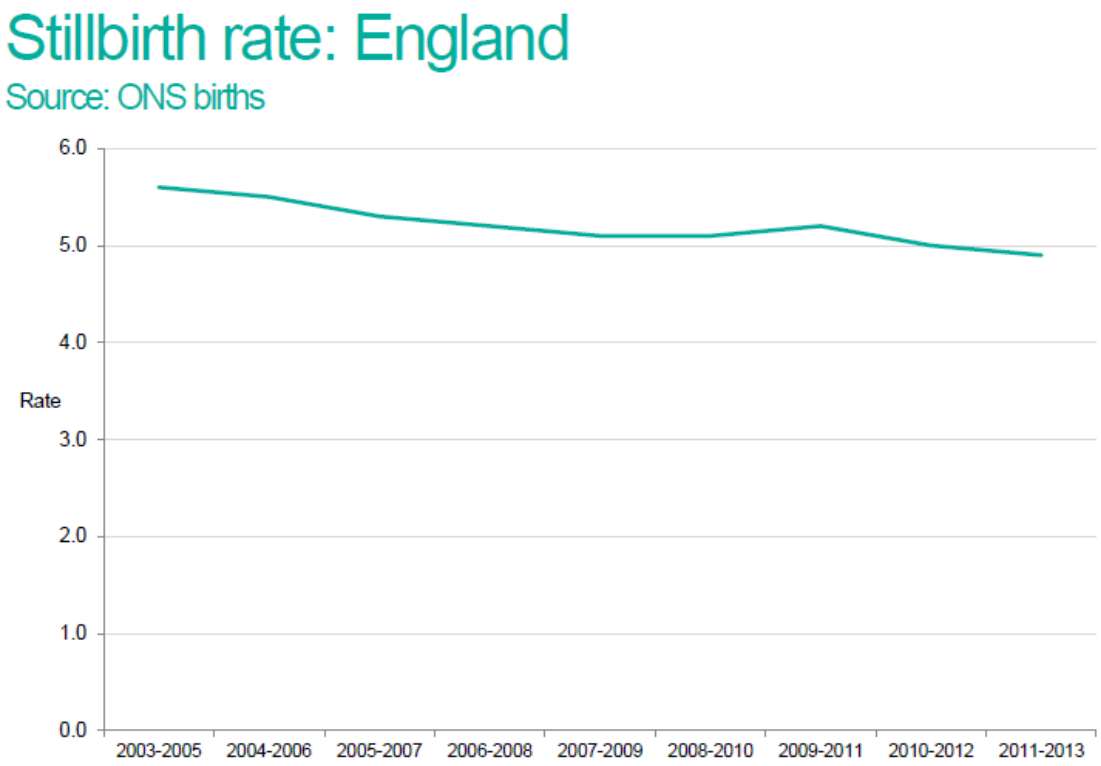



**Figure 2** **International stillbirth rates**

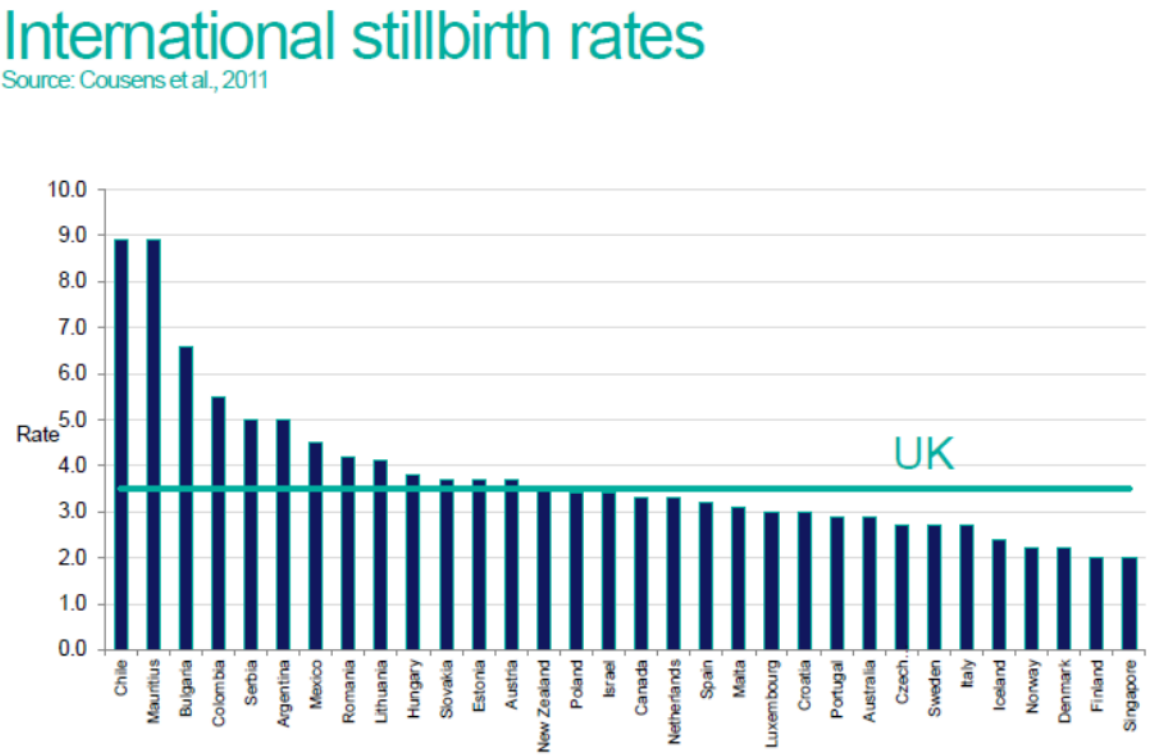


**Figure 3** Regional variations in stillbirth 2003-2013

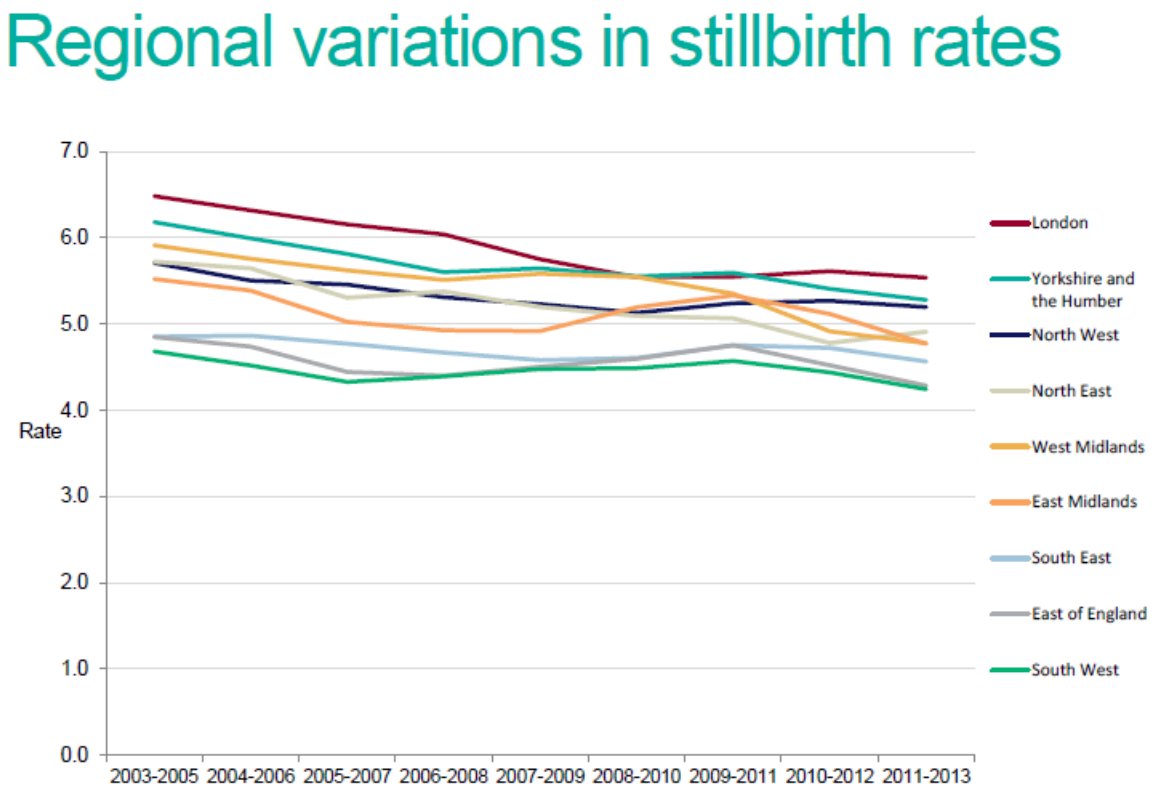
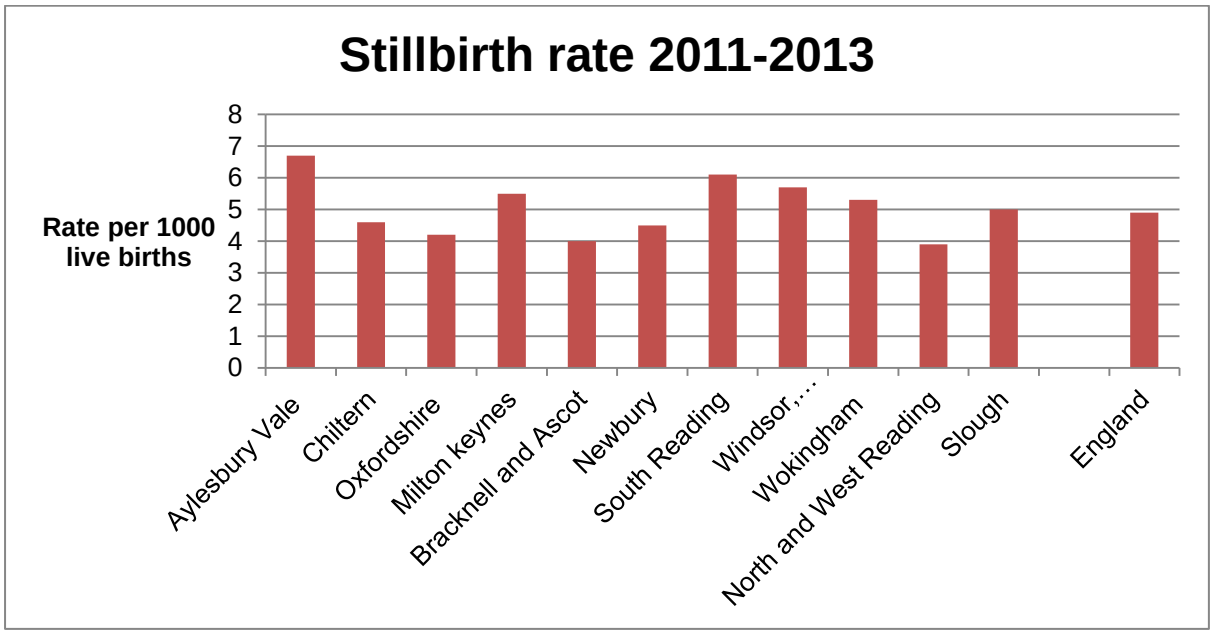



**Figure 4** Thames Valley and Milton Keynes Stillbirth rates 2011-2013 (3 year average)



**Methodology of TVSCN Still Birth Audit**

All Head of Midwifes in Thames Valley including Milton Keynes were asked to take part in the Still Birth Audit. It was agreed that a midwife in each Trust would complete the still birth audit tool and the SCN would pay for each case reviewed. The audit was of all stillbirths over a six month period December 2013-May 2014. The audit tool is the tool used by Oxford University Hospital and the data is that collected by the national MBRRACE-UK (Mothers and Babies: Reducing Risk through Audits and Confidential Enquiries across the UK) online system. Six Trusts took part: Royal Berkshire NHS Foundation Trust, Frimley Park, Wexham Park, Oxford University Hospitals, Buckinghamshire Healthcare Trust and Milton Keynes. It should be noted that Milton Keynes only submitted 2 cases and at the time of the audit was not officially part of the SCN; however the 2 cases were included.

Following completion of the audit TVSCN collated each case into a spreadsheet in order to review each case. The Network also established an expert Still Birth group made up of Obstetricians and Midwives. The expert group then reviewed each case separately. Three groups were defined;

- **Group 1** – clear explanation independent of care e.g. congenital/genetic abnormality
- **Group 2** – there is an explanation and it might have been influenced by improvement in care
- **Group 3** – there is no obvious explanation

The Network TVSCN then brought the expert group together to discuss each case and key recommendations were agreed.

**Results**

Details of 71 cases were collected from 6 trusts over a 6 month period. (Data collection from MK was incomplete)

**Table 1** **Data Origin**

| Trusts | No of cases |
|---|---|
| Bucks | 15 |
| Frimley | 14 |
| Heatherwood & Wexham | 15 |
| Milton Keynes | 2 |
| Oxford | 18 |
| Royal Berks | 7 |
| Total | 71 |

**Demographics and Risk Factors**

***1. Age***

The age distribution of mothers is shown in Table 2. There were an excess of older mothers with 31% of mothers aged more than 35 years compared with a regional average of 25% (national average 20%). National figures show an increase in stillbirth rate with increasing maternal age (1.7 fold increase for mothers aged more than 40years). Six mothers (8.4%) of the cohort were aged more than 40 years.

**Table 2** **Age Distribution**

| Age Group | No of cases |
|---|---|
| Under 25 | 8 |
| Age 25 - 29 | 16 |
| Age 30 - 34 | 25 |
| Age 35 - 39 | 16 |
| Age 40 - 44 | 6 |
| Total | 71 |

### *2. Smoking in Pregnancy*

The stillbirth rates doubles in mothers who smoke during pregnancy. Nine mothers in this cohort were smokers (12.6%). This is above average for the region (approx. 8%) but in line with National figures.

### *3. Obesity*

The BMI at booking is shown in Table 3. There was an excess of obese mothers - 22% were obese at booking (14% expected for age distribution in the general population). There was a six fold excess of gross obesity (BMI >40).

**Table 3** **BMI distribution**

| Booking BMI range | No of cases |
|---|---|
| Under 20 | 5 |
| 20-24.9 | 26 |
| 25-29.9 | 23 |
| 30-35 | 9 |
| 35-40 | 2 |
| >40 | **4*** |
| Unreported | 2 |

#### *4. Multiple Births*

There is a doubling of stillbirth risk in multiple pregnancies. There were 4 cases of multiple pregnancies in this cohort.

#### *5. Pre-existing Diabetes*

There is a 4.56 fold increased risk of stillbirth in mothers with pre-existing diabetes. Only 2 mothers in this cohort had pre-existing diabetes.

#### *6. Timing*

Nationally 92% of stillbirths occur in the antepartum period in this cohort only 4 infants were alive at the onset of labour (94.4% antepartum stillbirth).

#### *7. Distribution by group*

There were 26 cases in Group 1, 33 in Group 2 and 12 in Group 3.

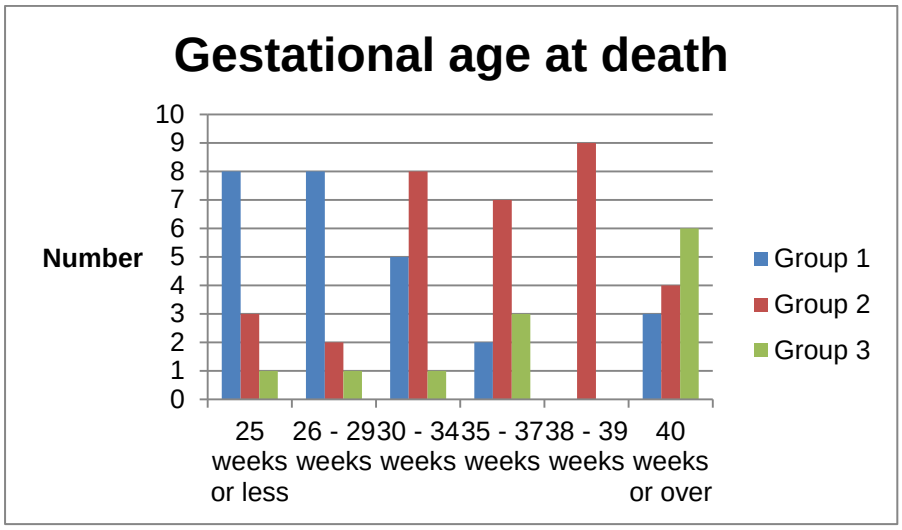
**Table 4 Distribution by Group**

| Group | No of cases |
|---|---|
| Group 1 | 26 |
| Group 2 | 33 |
| Group 3 | 12 |
| Total | 71 |

**Group 1 - clear explanation independent of care**

The majority in this group (15 cases) had fetal abnormalities. A further 3 had early and severe intrauterine growth restriction (IUGR). The median age at death was 27 weeks – please see figure 5 for more detail.

**Figure 5 Gestational age at death**




**Group 2 - there is an explanation and it might have been influenced by improvement in care**

The largest group were infants with IUGR – n = 17 (52%). Symphisio-fundal height measurements were not always taken; issues were identified where late onset IUGR was not identified; there were issues with interpretation of scans. There were 6 cases where mothers were felt to have had poor medical care during pregnancy including use of aspirin and care of diabetes. There were 3 cases of infection without timely identification. There were cases of poor communication particularly between professionals working in different organisations. Overall 27 of the 33 cases in this group (82%) had modifiable care issues identified.

**Group 3 - there is no obvious explanation**

There were 12 infants in this group (17%). This is considerably less than the national CMACE unexplained category (28%) but in keeping with the estimates from the Perinatal Institute in Birmingham. Six (50%) of these deaths were post term (figure 5).

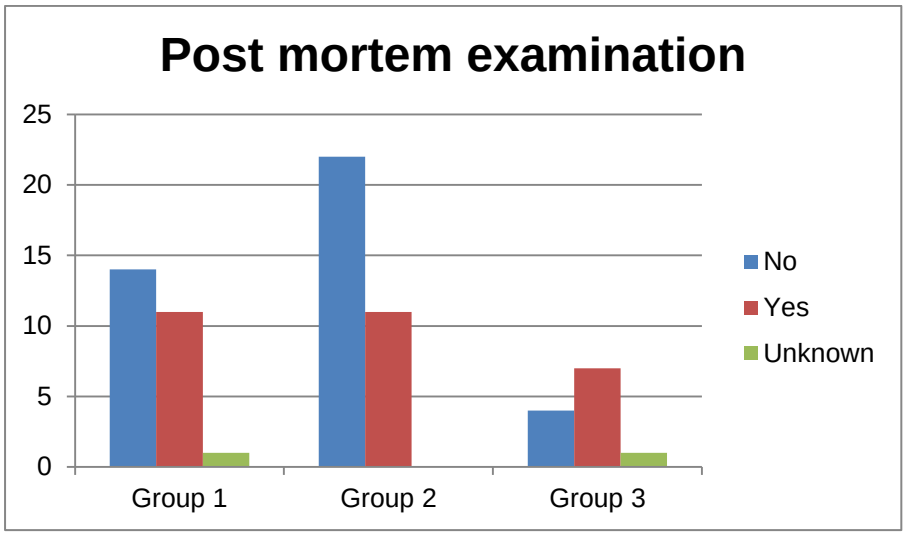
### *8. Symphisio-fundal height measurement*

Of the 71 cases reviewed 33 had symphisio-fundal height measured at each antenatal visit. A further 8 had serial scans and 2 died at less than 26 weeks without opportunity for measurement. That leaves 28 cases where there were opportunities to make measurements which were missed.

### *9. Post mortem*

Only 29 cases (41%) had post-mortems performed. Distribution by Group is shown in figure 6.

**Figure 6 Post Mortem Examinations by Group**




## Discussion

Local stillbirth rates are variable and overall are not better than England average. This audit of local cases of stillbirth was undertaken to establish whether there were particular areas of practice which could be improved.

In keeping with national data there were an excess of older and very obese women in the study. Very few stillbirths (5.6%) occurred in labour.

The 26 stillbirths in group 1 had a clear explanation independent of care and most were infants with congenital or genetic abnormalities or with such poor early growth that it was incompatible with survival.

The 33 stillbirths in group 2 had evidence of a contributing cause and in most cases areas with a potential for improvements in care were identified. A number of mothers had pre-existing risk factors where (following NICE guidance see Appendix 1.) aspirin should have been prescribed but was not. There were individual cases where other early pregnancy advice e.g. use of high dose folic acid, glucose tolerance tests was not followed. The panel considered that a further educational programme for midwives and general practitioners should be provided. Although potential for improvement of care was identified it is important to state that in only a minority of cases was it clear that the outcome might have been altered.

Fetal growth retardation was identified in 52% and in some this was identified and being monitored but in others the monitoring was inconsistent or the IUGR appeared to be of late onset. Routine scanning, when performed, was at 28, 32 and 36 weeks with no further monitoring until death, which could be post term. The panel felt that if only 3 scans could be provided, because of scanning availability/costs, then the timing of these 3 should be altered. Ideally further scans after 36 weeks should be offered to at risk women.

It was of concern that overall symphisio-fundal height was recorded at each visit in only around 60% of women. The panel was clear that symphisio-fundal height should be recorded at every antenatal visit. Further the educational programme to ensure that every midwife and every doctor measure symphisio-fundal height in the same way should continue and be accelerated. This should be checked and audited.

There were individual cases where communication between professionals was poor. In particular this was noticeable where a woman moved between providers. The panel felt it very important that

women should be given a discharge summary from each pregnancy which contained specific advice about the need for any special measures in a subsequent pregnancy and that hand held notes should be fulsome if a mother was moving between providers.

The panel were surprised and concerned at the low post mortem rate. Even allowing for cultural/religious objections the professionals experience was that where the need for a post mortem was explained sensitively the uptake rates were much higher and highest in the group 3 mothers where there was no explanation for the stillbirth. The panel felt that each Trust should examine how post mortem consent is sought and by whom in order to improve uptake.

## Conclusion

In conclusion the panel made five recommendations;

1. There is a need for further education of primary care and midwifery staff on features of pre conception and early pregnancy care highlighting the need for things such as aspirin, high dose folic acid, good diabetic care etc. There should be discussion on how this can be provided in 2015.
2. The measurement of symphisio-fundal height should be standardised across TV/MK and recorded at each antenatal visit.
3. Each Trust should consider whether women who are having serial scans should have either additional scans or the timing of routine scans altered such that late pregnancy is covered.
4. Every professional should be aware of the need for good communication and ensure a full history is available where a woman is moving between providers. Each discharge summary after pregnancy should contain specific advice about the need for any special measures in any subsequent pregnancy and should be provided to the mother.
5. Each Trust should examine how post mortem consent is sought and by whom in order to improve the uptake of post mortem after stillbirth.

December 2014

## Appendix 1 Summary of NICE guidance on aspirin in pregnancy

**Advice regarding use of aspirin in pregnancy to reduce risk of preeclampsia has been outlined by NICE (1)**

- **reducing the risk of hypertensive disorders in pregnancy**
  - **advise women at high risk of pre-eclampsia to take 75 mg of aspirin daily from 12 weeks until the birth of the baby.**
    - **women at high risk are those with any of the following:**
      - **hypertensive disease during a previous pregnancy**
      - **chronic kidney disease**
      - **autoimmune disease such as systemic lupus erythematosis or antiphospholipid syndrome**
      - **type 1 or type 2 diabetes**
      - **chronic hypertension**
  - **advise women with more than one moderate risk factor for pre-eclampsia to take 75 mg of aspirin daily from 12 weeks until the birth of the baby.**
    - **factors indicating moderate risk are:**
      - **first pregnancy**
      - **age 40 years or older**
      - **pregnancy interval of more than 10 years**
      - **body mass index (BMI) of 35 kg/m2 or more at first visit**
      - **family history of pre-eclampsia**
      - **multiple pregnancy**

**Reference:**

**(1) NICE (August 2010). Hypertension in pregnancy - the management of hypertensive disorders during pregnancy**