AGAINST: The increased PNMR over weekends is proof that we require a 7 day maternity service

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Palmer et al (BMJ 2015;351:h5774) demonstrated that perinatal mortality was 5-10% higher at weekends than weekdays and this was widely reported by UK news media. About two thirds of perinatal deaths are stillbirths and about 90% of stillbirths follow pre-labour death of the baby (Smith & Fretts, Lancet 2007;**370**:1715-25). Hence, most babies stillborn on a Saturday will have died on a weekday. Hence, it is difficult to draw firm inferences about quality of out of hours care using analyses of all cause perinatal mortality. However, a previous study using nationally collected Scottish data from 1985 to 2004, focused on neonatal deaths attributed to intrapartum anoxia and actually showed stronger associations, with a ~50% increase in the risk of this type of neonatal death at the weekend (Pasupathy et al, BMJ 2010;341:c3498.). Does this prove that we require a 7 day maternity service? Increasing the capability of Delivery Units to be at the same level for the full 168 hours of the week as they are 09.00 to 17.00 Monday to Friday would require huge expenditure. The absolute risk of this type of neonatal death is about 2 to 3 per 10,000 term livebirths. About 1 in 4 of these losses could be attributed to the out of hours effect. Hence, the huge expenditure would only prevent a relatively modest number of deaths, and even this assumes that increased spending would be effective. Every medical system is constrained by resources. The UK choses to spend a much smaller proportion of its GDP on healthcare than comparable high income countries, hence our resources are more constrained still. The use of medical interventions in the UK is overseen by NICE (https://www.nice.org.uk/). They have a threshold of costs (currently between £20,000 and £30,000 per quality adjusted life year gained), above which even potentially life-saving treatment may not be recommended. The epidemiological observations do not establish that money spent on a 7 day a week maternity service would be cost-effective when compared with other areas of spending.

Should resources be moved from other parts of the maternity system to improve out of hours care on Delivery Units? Given that the majority of all perinatal deaths are antepartum stillbirths, a shift in resources towards delivery unit and away from antenatal care could actually increase perinatal

mortality. The MBRRACE 2015 Confidential Enquiry analysed a representative sample of term, normally formed antepartum stillbirth (https://www.npeu.ox.ac.uk/mbrrace-uk/reports) and found that in about half of cases there were deficiencies in care which may have contributed to the death. Given that ~1000 such losses that occur annually, redirecting resources from antenatal to intrapartum care could lead to increased perinatal mortality, through more failures in antenatal care. All approaches to reducing perinatal mortality should be focused on achieving the greatest possible reduction in the context of available resources. Hence, a single epidemiological observation is very unlikely to justify an immediate change in the delivery of care if it carries significant cost implications. These issues apply to all healthcare systems as all healthcare systems are financially constrained. They may be even more important in low and middle income countries. However, in such settings, intrapartum complications account for a much greater proportion of perinatal deaths (Lawn et al, Lancet 2011;377:1448-63). Hence, such decisions will need to be informed by local data, rather than by extrapolating observations from countries such as the UK.