Royal College of Obstetricians & Gynaecologists

What might 24/7 consultant-delivered obstetric care mean for maternal and neonatal outcomes?

Hannah Knight

Royal College of Obstetricians & Gynaecologists

Acknowledgements

- Co-authors: Jan van der Meulen, Ipek Gurol-Urganci, Gordon Smith, Amit Kiran, Steve Thornton, David Richmond, Alan Cameron and David Cromwell
- Health Services Research and Policy, London School of Hygiene and Tropical Medicine
- Clinical Effectiveness Unit, Royal College of Surgeons

Overview

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- Policy context: the seven-day NHS
- Maternity services in the UK
- What does the literature say?
- New evidence from the UK
- Conclusions

The seven-day NHS

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David Cameron

Cameron vows to transform NHS into world's first seven-day health service

PM set to use first major speech since election to promise the NHS will be in safe hands 'for every generation to come'

Nicholas Watt Chief political correspondent

Monday 18 May 2015 07.30 BST

Cameron: 'There is nothing that embodies the spirit of One Nation coming together – noth that working people depend on more – than the NHS.' Photograph: Rex Shutterstock

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NHS 7 day services

From: Department of Health
First published: 30 October 2015

Information on the government's plans for the NHS to provide a 7 day service by 2020.

Contents

- Documents
- News and speeches

The government is committed to working with the NHS to make sure that:

- people can get the access they need to GP services
- people in need of hospital care at weekends, both those with emergency needs and those already in hospital, get the same high quality of care as they would during the week

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Research and analysis

Research into the 'week hospital mortality

Weekend mortality for emergency admissions. A large, multicentre study

P Aylin,[1] A Yunus,[1] A Bottle,[1] A Majeed,[1] D Bell[2]

[1]Dr Foster Unit at Imperial College, Department of Primary Care and Social Medicine, Imperial College London, London, UK
[2]Department of Medicine, Imperial College London, Chelsea and Westminster Campus, London, UK

Correspondence to

ABSTRACT

Background Several studies have identified higher mortality
weekend
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Method
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at a level not generally applicable to more general emergency hospital care.

thebmj

BMJ 2013;346:f2424 doi: 10.1136/bmj.f2424 (Published 28 May 2013)

RESEARCH

Day of week of procedure and 30 day mortality for elective surgery: retrospective analysis of hospital episode statistics

OPEN ACCESS

P Aylin *clinical reader in epidemiology and public health*[1], R Alexandrescu *research associate*[1], M H Jen *research associate*[1], E K Mayer *Walport clinical lecturer*[2], A Bottle *senior lecturer in medical statistics*[1]

[1]Dr Foster Unit at Imperial College, Department of Primary Care and Public Health, School of Public Health, Imperial College, London W6 8RP, UK; [2]Department of Surgery and Cancer, St Mary's Hospital, Imperial College, London W2 1NY, UK

Increased mortality associated with admission: a case for expanded sev

Nick Freemantle and colleagues discuss the findings of their up admissions and the implications for service design

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Health

Jeremy Hunt 'misrepresented weekend deaths data'

22 October 2015 | Health

BMA responds to lancet studies on 'weekend effect'

Issued: 11 May 2016

Commenting on two important new studies published in The Lancet that show the 'weekend effect' is a major oversimplification of a complex picture, and links with medical staffing levels are either speculative or non-existent, Dr Mark Porter, BMA chair of council, said:

"These academics are the latest in a long line of health professionals and leading experts to challenge the government on its misleading use of figures. The past week has seen a flurry of studies which confirm what doctors have been saying all along: there is a lack of evidence showing that the "weekend effect" is linked to medical staffing levels.

"It is a far more complicated picture than the one the government has tried to portray. The health secretary should be very careful with his narrative and pay attention to proper investment and joint working with healthcare staff, rather than obsessing about medical employment contracts.

"The BMA believes patients should have access to the same high quality of care, seven days a week. If the government want to make more services available across seven days, then it needs to explain how it will staff and pay for them at a time when existing services are struggling to keep up with demand."

thebmj

BMJ 2016;353:i2750 doi: 10.1136/bmj.i2750 (Published 16 May 2016)

EDITORIALS

The weekend effect: now you see it, now you don't

OPEN ACCESS

New evidence reinforces concerns about the government's use of evidence

Martin McKee *professor of European Public Health*

London School of Hygiene and Tropical Medicine, London WC1H 9SH, UK

1136/bmj.h5624 (Published 22 October 2015)

NEWS

BMJ editor writes to Hunt over misuse of weekend mortality data

What about maternity services?

Royal College of Obstetricians & Gynaecologists

Current situation on UK labour wards

Royal College of Obstetricians & Gynaecologists

- All maternity units have a consultant on call
- Analysis of workforce data shows there is a year-on-year increase in consultant presence on the labour ward, especially in the evenings, overnight and at weekends
- In 2014/15, 67% of hospitals had consultants present on the labour ward for 60 hours per week, or more (2015 RCOG Census)

What does the literature say?

Royal College of Obstetricians & Gynaecologists

Ref: BJOG Vol:123 (July 2016 issue)

24-hour consultant labour ward cover should be mandatory in tertiary obstetric hospitals

BJOG PERSPECTIVES

For: The presence of a fully trained obstetrician should be mandatory in tertiary obstetric hospitals

SUSAN P. WALKER, PROFESSOR MATERNAL FETAL MEDICINE, AUSTRALIA

The increased perinatal mortality rate over weekends is proof that we require a 7-day maternity service

BJOG PERSPECTIVES

FOR: No baby should die simply because they are born at a weekend

JONATHAN M SNOWDEN, ASSISTANT PROFESSOR, DEPARTMENT OF OBSTETRICS & GYNECOLOGY, OREGON HEALTH & SCIENCE UNIVERSITY, USA **ELLEN L TILDEN,** ASSISTANT PROFESSOR, SCHOOL OF NURSING, OREGON HEALTH & SCIENCE UNIVERSITY, USA **AARON B CAUGHEY,** PROFESSOR AND CHAIR, DEPARTMENT OF OBSTETRICS & GYNECOLOGY, OREGON HEALTH & SCIENCE UNIVERSITY, USA

Few developments in history have improved population health as dramatically as the advent of skilled

cornerstone of strengthened obstetric services. Although the impact of nurse and anaesthesia staffing on

obstetric procedures (e.g. caesarean delivery) in the developed world (Caughey et al. *Obstet Gynecol*

AGAINST: 24-hour consultant presence doesn't enhance training and supervision of trainees

BJOG PERSPECTIVES

VIJAY ROACH, VICE-PRESIDENT ROYAL AUSTRALIAN AND NEW ZEALAND COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS, AUSTRALIA

Contemporary tertiary obstetric units have traditionally been staffed by accredited trainees on-site with a fully trained obstetrician available for telephone consultation, able to attend

ric care, advocating for midwifery-lead care purporting better outcomes. The examples cited can, and do, occur in low-risk settings. Would the midwives want a consultant hovering around

who cannot accept a less than perfect outcome. It reflects a generational shift in the expectations of trainees. They want to work less, are unwilling to make a decision, let alone take ulti-

AGAINST: Shifting resources towards delivery units and away from antenatal care could increase perinatal mortality

BJOG PERSPECTIVES

GORDON C S SMITH, PROFESSOR, DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY, UNIVERSITY OF CAMBRIDGE AND NIHR CAMBRIDGE COMPREHENSIVE BIOMEDICAL RESEARCH CENTRE, THE ROSIE HOSPITAL, CAMBRIDGE, UK

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 prelabour death of the baby (Smith and Fretts *Lancet* 2007;370:1715–25). Hence, most

and even this assumes that increased spending would be effective. Every medical system is constrained by resources. The UK chooses 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

that in about half of cases there were deficiencies in care that may have contributed to the death. Given that ~1000 such losses 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

What does the literature say?

Royal College of Obstetricians & Gynaecologists

Pasupathy et al (2010) BMJ; 341

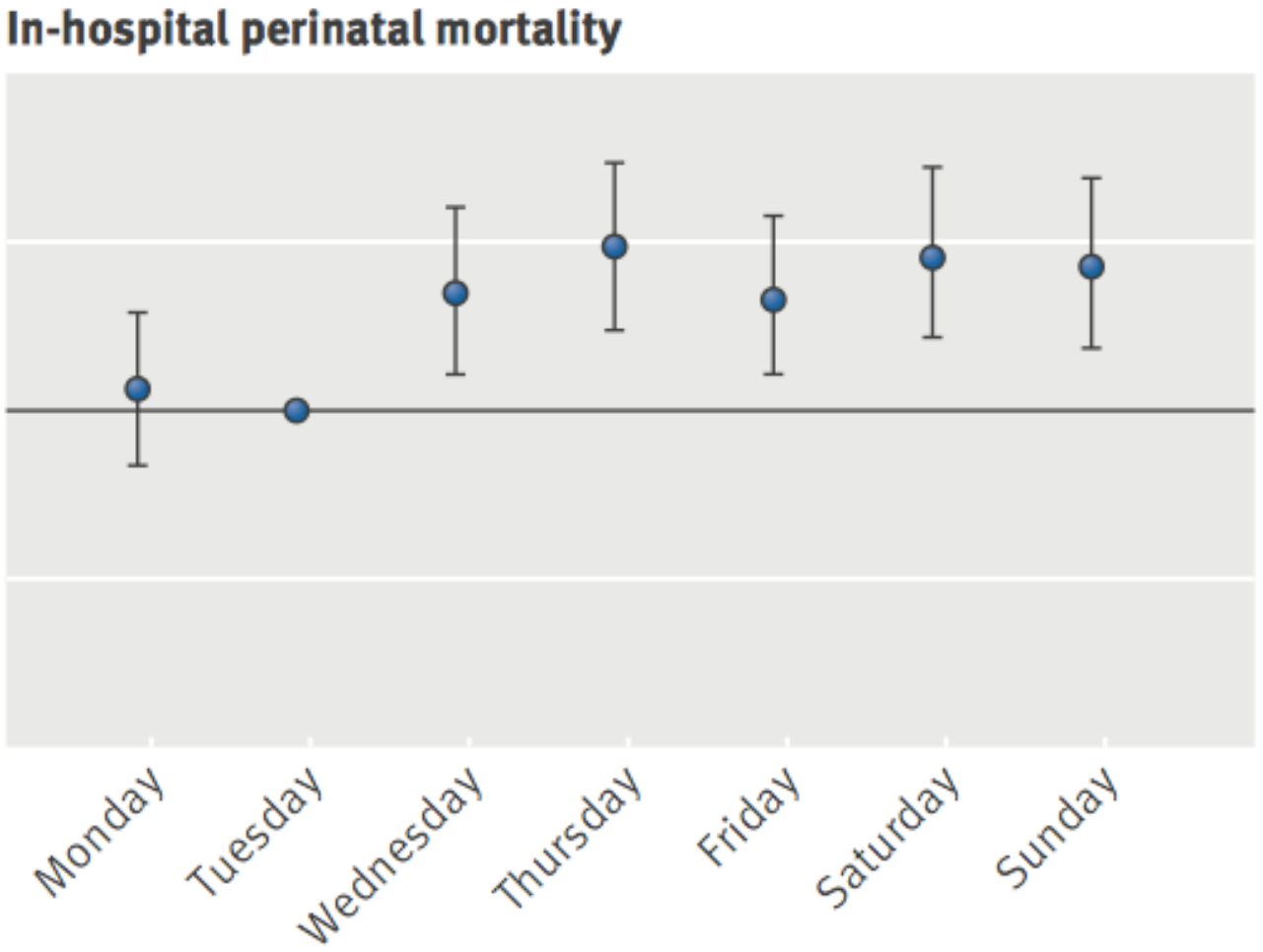
- Scottish data on 1 million liveborn, term, cephalic, singleton births between 1985 and 2004
- Reported a neonatal mortality rate (excluding deaths due to congenital abnormalities) of 0.42 per 1,000 between 09:00 and 17:00 on Monday to Friday and a rate of 0.56 per 1,000 outside of this time
- Limitation – “limited capacity to identify the causal pathways leading to observed associations”

What does the literature say?

Royal College of Obstetricians & Gynaecologists

Palmer et al. (2015) BMJ; 351

- England hospital data: 1,349,599 deliveries from 2010-2012
- Compared to babies born on a Tuesday, babies delivered at weekends had a higher mortality rate (7.3 per 1,000 babies compared to 6.4 per 1,000)



What does the literature say?

Royal College of Obstetricians & Gynaecologists

- Palmer et al. did look at workforce census data on hours of consultant presence - no consistent association between outcomes and staffing was identified
- Limitations:
  - antepartum stillbirths included in mortality indicator
  - choice of reference day
  - no information on time of day

What does the literature say?

Royal College of Obstetricians & Gynaecologists

Gijsen et al (2012) BMC Pregnancy and Childbirth

- 449,714 infants born in the Netherlands
- Addressed the issue of ‘bias by indication’ (different treatment for women with different needs) by looking at subgroups based on intervention
- For infants whose mothers required obstetric interventions during labour and delivery, birth in the evening or at night was associated with an increased risk of an adverse perinatal outcomes (but no ‘weekend effect’)
- Exposure variable = time of delivery

What about consultant presence?

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Very few studies have explicitly examined the extent to which variation in consultant presence on the labour ward contributes to maternal and neonatal outcomes – most simply look at weekdays vs. weekends, or day vs. night

2 single-site UK studies:

- Woods et al. (2013) found no association between consultant presence and low Apgar score at 1 and 5 minutes
- Ahmed et al. (2015) found no evidence of the benefits of introducing resident 24/7 consultant cover on patient care in a tertiary maternity unit

Methods

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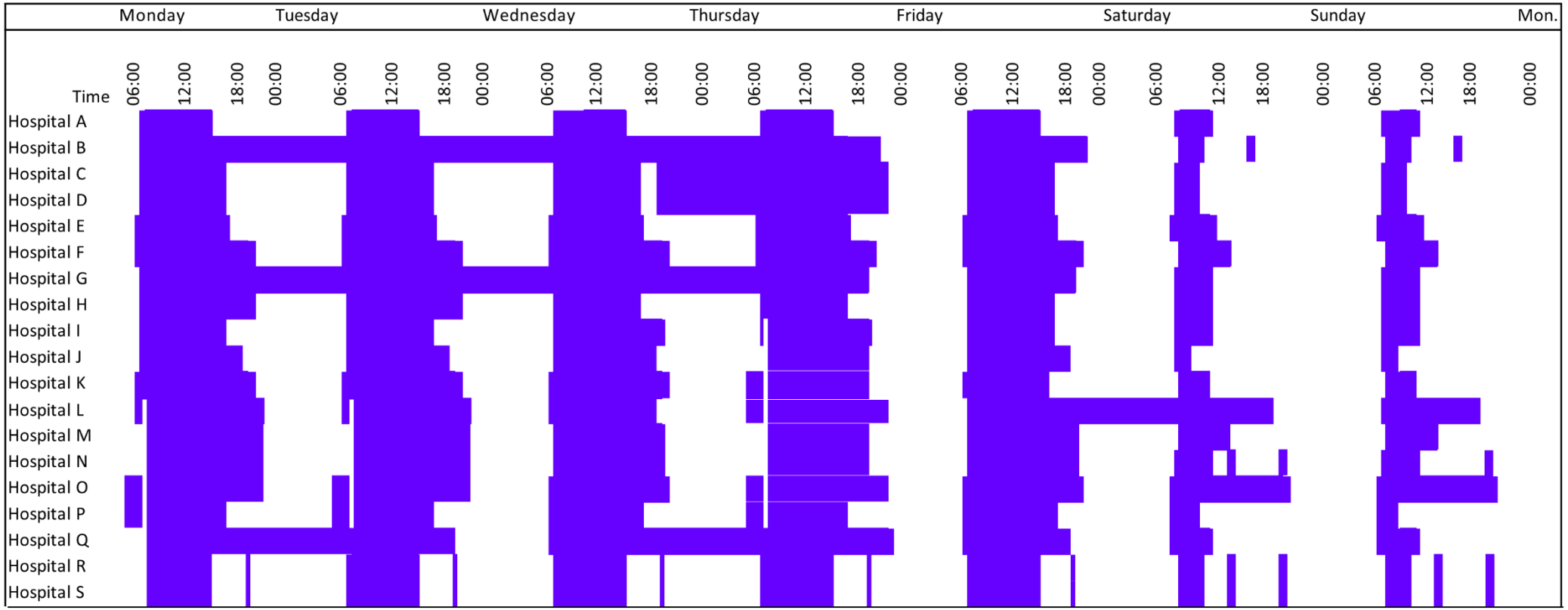
- Multicentre cohort study (n = 87,501)
- 19 UK obstetric units provided their clinical datasets for deliveries during 2012-13.
- Participating units included small, medium and large hospitals.
- Data from units' consultant rotas used to define 'routine on-site consultant presence at time of birth'
- Exclusions: prelabour caesarean, stillbirths, <28 weeks
- Multilevel multivariable logistic regression used to estimate the crude and adjusted effects of consultant presence on maternal and neonatal outcomes
- Potential confounding variables controlled for in all models were: maternal age, ethnicity, BMI, smoking status, parity, previous CS, gestational age, fetal presentation, baby's sex and birthweight.

Findings

Royal College of Obstetricians & Gynaecologists

- 87,501 singleton live births during the year; 55.8% occurred ‘out-of-hours’ (the birth rate peaked between 22:00 and 05:00)
- Obstetric rotas ranged from 51 to 106 hours of on-site labour ward cover per week.



Findings

Royal College of Obstetricians & Gynaecologists

Crude and adjusted odds ratios for adverse perinatal outcomes, comparing 'in-hours' and 'out-of-hours'

Outcome measures	'In-hours'		'Out-of-hours'		Crude OR	Adjusted OR (95% CI)		P value
	N	Rate (%)	N	Rate (%)				
Onset of labour / Mode of delivery								
Intrapartum CS	38,674	13.43	48,827	12.72	0.92	0.93	(0.89 to 0.98)	0.003
Instrumental delivery	38,674	16.97	48,827	15.61	0.91	0.92	(0.89 to 0.96)	<0.001
Maternal outcomes								
Severe perineal tear (among vaginal deliveries)	30,788	3.58	39,967	3.27	0.90	0.92	(0.85 to 1.00)	0.054
Severe PPH (>1500ml)	30,858	2.38	36,094	2.31	1.01	1.03	(0.93 to 1.14)	0.589
Neonatal outcomes								
Apgar score <7 at 5 minutes	38,384	1.25	47,206	1.33	1.06	1.06	(0.93 to 1.20)	0.374
Cord pH <7.1	33,887	0.82	42,615	0.94	1.13	1.12	(0.96 to 1.31)	0.158
Admission to neonatal care	33,004	6.73	41,415	5.93	1.00	0.99	(0.93 to 1.06)	0.854

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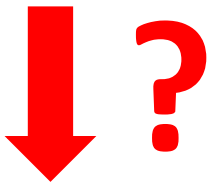

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No difference

Limitations

Royal College of Obstetricians & Gynaecologists

- Organisational-level measure of consultant presence, as opposed to individual patient level
- No information on other groups of staff
- Information on timing of birth, not timing of ‘critical event’
- Non-random sample of maternity units

Conclusions

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- Whilst it is generally agreed that on-site consultant presence is beneficial in terms of improved organisation and training, there is less agreement on the direct benefit to women in labour, and a lack of evidence to support the superiority of the 24/7 on-site vs the on-call system in the interest of patient outcomes.
- There is however, a huge disparity in the cost of these different models
- There is a need for more robust evidence on the quality of care afforded by different models of labour ward staffing

Conclusions

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Bray et al. (2016). Lancet

“Because solutions are likely to come at substantial financial and opportunity cost, policy makers, health-care managers, and funders need to ensure that the reasons for temporal variation in quality are properly understood and that resources are targeted appropriately.”

Black (2016). Lancet:

“Jumping to policy conclusions without a clear diagnosis of the problem should be avoided because the wrong decision might be detrimental to patient confidence, staff morale, and outcomes.”

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Questions?

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