<table>
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<tr>
<th>Time</th>
<th>Schedule</th>
<th>Speaker/Presenter</th>
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<tbody>
<tr>
<td>12:30-13:30</td>
<td>Lunch</td>
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<td>13:30-13:45</td>
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<td>Dr Cassie Aldridge</td>
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<td>The weekend effect: HES data and case mix adjustment</td>
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<td>Conclusions</td>
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HiSLAC Project Meeting  
Feb 11th 2014  
10:30-13:00hrs  
Academy of Medical Royal Colleges,  
10 Dallington Street, ... Mike Clancy, Dr Cassie 
Aldridge, Ms Amun Boyal, Ms Deborah Williams 
Apologies: Prof Russell Mannion, Mr Peter Rees
Introductions: HiSLAC Collaboration

PARTNER ORGANISATIONS: Universities of Birmingham, Leicester, Brunel & Warwick; University Hospitals Birmingham, University Hospitals Southampton, Royal Brompton, Heart of England NHS Foundation Trust, Academy of Medical Royal Colleges, RCP, RCoA, CEM, SAM, FICM; Endorsed by NHS England and NHS Confederation

PROJECT MANAGEMENT COMMITTEE: Julian Bion (CI); Cassie Aldridge (Proj Man); Peter Rees (PPI), Chris Roseveare, Tim Evans, Mark Temple, Mike Clancy (clinical leads); Richard Lilford (Methodology & Health Economics lead), Joanne Lord & Sam Watson (Health Economics); Alan Girling (Stats), Gavin Rudge (NHS data); Amun Boyal (Research fellow); Russell Mannion (Health services); Carolyn Tarrant & Liz Sutton (Ethnography), Yen-Fu Chen (Systematic Review)

INFORMATICS: Daniel Ray, Felicity Evison

COMMUNICATION: Louise Rowan

OVERSIGHT AND GOVERNANCE COMMITTEE: Michael Rawlins (Chair), Jennifer Dixon (Nuffield Trust), Peter Lees (Faculty Medical Leadership & Management), Paddy Storrie (PPI), Alastair Henderson (AoMRCs), Matt Sutton (Health Economics), Naomi Fulop (Healthcare organisation and Management)

SCIENTIFIC ADVISORY BOARD: Mary Dixon-Woods, Derek Bell, Andrew Goddard, Mike Grocott, Kathy Rowan, Julie Moore, Deborah Williams, Simon Bennett, Keith Willett, Mike Durkin, Jerry Nolan, David & Kay Schofield, Tim Doran, Carl Macrae.

LOCAL PROJECT LEADS: Senior specialists in 126 Trusts in England

HSDR PROGRAMME MANAGER: Sue Pargeter
HiSLAC Project Meeting  
Feb 11th 2014 
10:30-13:00hrs  
Academy of Medical Royal Colleges, 
10 Dallington Street, ... Mike Clancy, Dr Cassie 
Aldridge, Ms Amun Boyal, Ms Deborah Williams 
Apologies: Prof Russell Mannion, Mr Peter Rees
Focus of the HiSLAC Project

- Acutely ill non-operative patients
- Unscheduled hospital admission
- Weekend-weekday mortality difference
- Weekend-weekday difference in specialist intensity
- Contextual factors
- Health economics

*KEY COMPONENTS OF A 7-DAY NHS*
Election 2015: Cameron promises 'seven-day NHS' by 2020

David Cameron: "With a future Conservative government, we would have a truly seven-day NHS"
Context & Initiatives

- Health & Social Care Act
- Francis Report
- RCP: Future Hospital Commission
- AoMRCs:
  - Benefits of consultant-delivered care
  - 7-day consultant-present care
- NICE service delivery standards for acute medical emergencies 2015-17
- NHS England
  - Transforming urgent & emergency care
  - 7-day services 10 standards
  - 5-year plan: financial challenges
Policy Drivers, 7-day services
http://www.england.nhs.uk/ourwork/qual-clin-lead/7-day-week/

• Convenience & equity
• Costs and efficiencies
• Demography
• Integration
• Safety
The Government will introduce a £3.8 billion pooled budget for health and social care services, shared between the NHS and local authorities, to deliver better outcomes and greater efficiencies through more integrated services for older and disabled people.
There is a growing body of evidence to suggest that where there is a lack of access to clinical services over a seven day period, patients do not always experience parity of access to the optimum treatment or diagnostic test. This can result in delays to their treatment that can contribute to less favourable clinical outcomes.

However, some clinical services are responding very positively to seven day demand for their services and can clearly demonstrate the benefits for both patients, their carers and often staff. These case studies provide practical examples of where clinical teams across a wide range of both hospital and community services have started to implement changes to the delivery of their services. This is improving access for their patients both out of traditional 8am to 6pm, Monday to Friday services and also across the weekend period, resulting in fewer delays in healthcare delivery.

There is not a ‘one size fits all’ answer to this challenging problem, particularly where access to resources can be a serious challenge, however, these case studies demonstrate some very practical examples of how teams have overcome this challenge and what can be achieved to deliver extended services in a sustainable way. We hope that you will be able to use the experiences and models of delivery and adapt and adopt them to your own services, improving ‘equality of treatment or outcome regardless of the day of the week’, and ensuring all of our patients achieve the best clinical outcomes as well as a positive experience of care.

Sir Bruce Keogh,
NHS Medical Director
Weekend hospitalization and additional risk of death: NHS England inpatients 2009-10


Conditional Hazard Associated with Admission to Hospital by Day of the Week of Admission (a) and day of death (b).

Hazard ratios and 95% confidence intervals compared to Wednesday

OR risk of death for admission on Sunday vs Wednesday = 1.16 (1.14-1.18) p < .0001
Not just the NHS...

USA data

Conditional Hazard Associated with Admission to US Hospital by Day of the Week of Admission (a) and day of death (b). Hazard ratios and 95% confidence intervals compared to Wednesday

Hazard ratios and 95% confidence intervals from the US model examining time to in-hospital death or censorship (at out of hospital death or 30 days) within 30 days of admission
### An International Phenomenon:
Hospital weekend-weekday mortality: unselected admissions

<table>
<thead>
<tr>
<th>Ref</th>
<th>Population (n)</th>
<th>Weekend-weekday mortality</th>
<th>OR or RR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freemantle 2010</td>
<td>England &amp; USA all adm (14,217,640)</td>
<td>% Died 1.16 (1.14-1.18)</td>
<td></td>
</tr>
<tr>
<td>Mohammed 2012</td>
<td>NHS England elective (1,535,267) &amp; emergency (3,105,249)</td>
<td>Elective 0.77% vs 0.53% Emerg 7.06% vs 6.53%</td>
<td>Elective 1.32 Emergency 1.09</td>
</tr>
<tr>
<td>Aylin 2010</td>
<td>NHS England emergency (4,317,866)</td>
<td>5.2% vs 4.9%</td>
<td>1.1 (1.08-1.11)</td>
</tr>
<tr>
<td>Buckley 2012</td>
<td>63 Australian hospitals critical incidents</td>
<td></td>
<td>Incident rate ratio 2.74 (2.55-2.93)</td>
</tr>
<tr>
<td>Cram 2004</td>
<td>California, emergency admissions (641,860)</td>
<td>6.7% vs 6.4%</td>
<td>1.03 (1.01-1.06)</td>
</tr>
<tr>
<td>Barba 2006</td>
<td>Spain, emergency admission (35,993)</td>
<td>2.4% vs 1.7%</td>
<td>1.04 (1.18-1.62)</td>
</tr>
<tr>
<td>Ricciardi 2011</td>
<td>USA emergency (29,991,621)</td>
<td>2.7% vs 2.3%</td>
<td>1.1 (1.1-1.11)</td>
</tr>
<tr>
<td>Sharp 2013</td>
<td>USA emergency (4,225,973)</td>
<td></td>
<td>1.026 (1.005-1.048)</td>
</tr>
<tr>
<td>Dr Foster guide 2001-2011</td>
<td>UK hospitals (n?)</td>
<td>Circa 8.5% vs circa 7.3%</td>
<td>n/a</td>
</tr>
</tbody>
</table>

**Average 0.53% increase in mortality with weekend admission (= circa 25,000 patients)**
Day of week of procedure & 30 day mortality for elective surgery: retrospective analysis of HES

Aylin P et al. BMJ 2013; 346: f2424
Causation?

Processes?
- Errors, delays:
  - Diagnosis
  - Treatment
- Organisation of care
  - Discontinuities
  - Miscommunication
- Delayed presentation

Structures?
- Availability of staff
  - Doctors
  - Nurses / AHPs
- Diagnostic tests
- Information gaps

Case mix?
You ARE more likely taken to hospital at Study confirms that worse on a Saturday

- Chances of recovery are jeopardised because senior doctors are absent and tests are not always available
- Study finds that Sunday patients are 16 per cent more likely to die than those admitted on a Wednesday
- Health Secretary Andrew Lansley says the findings are 'unacceptable'

Sunday hospital admissions 'a bigger risk'

A new study has found that “patients are more likely to die in hospital if they are admitted at the weekend”, according to BBC News. The broadcaster said the research backs up previous studies suggesting patients admitted to hospital at the weekend have a lower chance of survival.

The new study in question looked at over 14 million admissions to English NHS hospitals over the financial year of 2009/10.

NHS hospitals: weekend death rates up to a third higher

More than 3,000 people could be saved every year if weekend hospital cover and access to key medical facilities was as good as during the working week, a major analysis indicates.

Hospital death rates jump at the weekend by up to 40 per cent

The risk of dying in an NHS hospital after being admitted at the weekend is up to 40 per cent higher for some illnesses than for admissions during the working week, according to new research.
However, changes to the consultant contract are now in prospect, following the publication of our own Review of compensation levels, incentives and the Clinical Excellence and Distinction Award schemes for NHS consultants and the government’s acceptance of a “compelling case” for changes to the consultant contract. We note also the announcement by the Secretary of State for Health that doctors’ pay arrangements needed to be affordable and sustainable in the longer term, and that he would be seeking to agree changes to doctors’ contracts to better support seven day working in the NHS alongside better availability of community services and primary care. Our report
“The truth is that you are actually more likely to die if you turn up at the hospital at the weekend. Some of the resources are not up and running. The key decision-makers aren’t always there.”
Evolving attitudes: from holyday to holiday

You who have believed, when called for prayer on the day of Jumu'ah [Friday], then proceed to the remembrance of Allah and leave trade.

Torah: Remember to keep the Sabbath Day holy [Saturday]

"In Staffordshire, if a person leaves home at the end of his week's work on the Saturday afternoon to spend the evening of Saturday and the following Sunday with friends...he is said to be spending his week-end at So-and-so." Notes and Queries 1879 [OED]
HiSLAC Research Question & Hypotheses

• **Q:** Is the difference in weekend-weekday mortality rates attributable to weekend-weekday differences in consultant (specialist) provision for patients admitted as medical emergencies to English NHS hospitals?

• **Hypothesis 1:** Increasing the intensity (number and duration) of specialists providing direct patient care at weekends will reduce mortality rates in patients admitted as medical emergencies to English NHS hospitals at weekends.

• **Hypothesis 2:** Contextual factors will influence the extent to which increased specialist intensity can be implemented.

• Parallel Health Economics modelling
HiSLAC Methods: Phase 1

✓ 12 months, Feb 2014-Feb 2015
✓ Establish collaboration
✓ Acquire HES data 2003-2014
✓ Develop measures of specialist intensity
  – Point Prevalence Survey
  – Directorate-level questionnaire

• Systematic reviews – programme theory
• Health economics model (Phase 2)
HiSLAC Methods: Phase 2

- 48 months to Feb 2019
- Link specialist intensity to weekend admission mortality: difference-in-difference analysis
- Detailed diagnostic examination of 10 high and 10 low-intensity hospitals
  - PAS & HES data local level
  - Case Record Reviews
  - Ethnography
- Definitive health economics model
Aims of today

• Phase 1 results
  – Your interpretation

• Phase 2 planning
  – Your comments & proposals

• Opportunities & challenges: new approaches to improving patient care: the next 5 years
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<td>Point Prevalence Survey and Directorate-Level</td>
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<td></td>
<td>Questionnaire</td>
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HiSLAC Phase 1
Mapping Specialist Intensity

Cassie Aldridge
Mapping Specialist Intensity

Build a national collaboration of acute Trusts and HiSLAC Local Project Leads. 126 agreed to participate, 115 did in 2014.
HiSLAC metrics

Two instruments:

• Point Prevalence Survey (PPS)
• Directorate Level Questionnaire (DLQ)

Thank you for your help!
# Point Prevalence Survey

**Sunday June 15th & Wednesday 18th 2014**

### Point Prevalence Survey Questions, all specialist staff in the Trust

*Specialists = all CCT holders (consultants and associate specialists)*

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes / No</th>
<th>If Yes...</th>
<th>Approximatively how long did you spend providing direct care? (Max 12 hours)</th>
<th>Were you the specialist responsible for continuing care of these patients? (i.e.: ‘named consultant’)</th>
<th>Which of the following locations best describe where you spent most time delivering direct patient care? (number of choices not limited)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Last Sunday [date] were you physically present in the hospital at any point between 08:00h-20:00hrs providing direct clinical care to patients who had been admitted for their current admission episode as an emergency to an in-patient bed including CDUs/Observation wards?</td>
<td>YES / NO</td>
<td>If Yes...</td>
<td>Yes □</td>
<td>Some □</td>
<td>No □</td>
</tr>
<tr>
<td>2. Last Wednesday [date] were you physically present in the hospital at any point between 08:00h-20:00hrs providing direct clinical care to patients who had been admitted for their current admission episode as an emergency to an inpatient bed including CDUs/observation wards?</td>
<td>YES / NO</td>
<td>If Yes...</td>
<td>Yes □</td>
<td>Some □</td>
<td>No □</td>
</tr>
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</table>
Point Prevalence Survey Responses

Total HiSLAC PPS Responses Over Time

Response timeline

Reminders do impact response rates
Point Prevalence survey response rates

14,533 evaluable responses

Response rates by Trust: mean = 44%, range 16% - 77%.
77/115 (67%) Trusts of 115 had response rates ≥40%
Correcting for response rates
Weak selection bias for Sunday data
Weekend-weekday differences
Overall, 3.6 times as many specialists attending acutely ill patients on a Wednesday as a Sunday.
Weekend-weekday differences

On average, there are half the number of specialist hours per 10 emergency admissions on a Sunday compared to Wednesday.

Specialist hours per 10 emergency admissions (Sun/Wed)

Mean = 0.49
Can we rely on the PPS data?

Validity & Representativeness

• Intensity patterns consistent with experience
• Nature of high vs low-intensity hospitals
• Correlation with Directorate Level Questionnaire (DLQ)
Sunday-Wednesday intensity differences
Less marked for acute specialities

<table>
<thead>
<tr>
<th>Speciality</th>
<th>Specialists on Sunday</th>
<th>Specialists on Wednesday</th>
<th>Sunday % of Wednesday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency Medicine</td>
<td>110</td>
<td>231</td>
<td>48%</td>
</tr>
<tr>
<td>Intensive Care Medicine</td>
<td>118</td>
<td>250</td>
<td>47%</td>
</tr>
<tr>
<td>Anaesthesia</td>
<td>196</td>
<td>588</td>
<td>33%</td>
</tr>
<tr>
<td>Surgical specialities</td>
<td>431</td>
<td>1448</td>
<td>28%</td>
</tr>
<tr>
<td>AIM, GIM and Ologies with acute component (Med Spec 1)</td>
<td>49 + 21 + 450 = 520</td>
<td>223 + 55 + 1824 = 2102</td>
<td>25%</td>
</tr>
<tr>
<td>Med specs 2 (specialities with low acute component)</td>
<td>62</td>
<td>324</td>
<td>19%</td>
</tr>
<tr>
<td>Lab &amp; diagnostics</td>
<td>173</td>
<td>941</td>
<td>18%</td>
</tr>
</tbody>
</table>

Table 2. Percentage specialists present on a Sunday compared to Wednesday by speciality.
Total specialists vs total emergency admissions

Consistent pattern: UTHs vs DGHs

Number of specialists surveyed against number of emergency admissions for each participating Trust
Workload: Specialist hours vs emergency admissions: Sunday & Wednesday

Expected pattern overall (more admissions, more specialist hours), but substantial variation between Trusts
Not relationship between intensity and overall size:

Specialist intensity **not** related to total emergency admissions
Directorate Level Questionnaire

• Asked CSLs for Emergency Department, Acute Medical Unit, Intensive Care Unit and Adult Medical Ward about specialist rotas.

• Comparison with PPS.

• Asked for additional information on clinical practice.

• 42 Trusts supplied full data sets and an additional 39 supplied partial data sets. 34 Trusts did not return data.
Correlation between DLQ and PPS

Reasonable correlation with data returned from the DLQ adds validity to the PPS data.

Sunday specialist hours per 10 emergency admissions, all clinical areas

\[ r = 0.52 \]
How often are patients reviewed by a specialist on Sundays?

- **AMU**: 50% reviewed daily, 30% reviewed less than daily
- **ICU**: 90% reviewed daily, 10% reviewed less than daily
- **Acute Wards**: 70% reviewed daily, 30% reviewed less than daily

Do you currently have consultant vacancies resulting in gaps in cover?

- **ED (+ CDU)**: 60% with vacancies
- **AMU**: 80% with vacancies
- **ICU**: 40% with vacancies
- **Acute Wards**: 60% with vacancies
What will the project do with this data?

• The data suggests the PPS instrument provides a reasonable measure of specialist intensity.
• The data provides a baseline measurement of specialist intensity across acute Trusts.
• PPS will be repeated annually to monitor changes in specialist intensity over time.
• Explore possibility of a causal link to differences between weekday/weekend mortality.
HES Data

Gavin Rudge

HiSLAC Project Informatics
What are our data made of?

• Every period of time spent under the care of a consultant in the UK has a standard data set collected with over 250 possible variables
• These are called episodes.
• Most spells in hospital involve one episode of care, although about 10% of cases involve more.
• These are captured on hospital IT systems and uploaded to a data warehouse each month.
What are our data made of?

• The contents of this warehouse are cleaned and checked and become Hospital Episode Statistics (HES).

• I get an anonymised copy of this warehouse for England, and build my own mirror of it in the University.

• We then ‘mine’ these data to understand how populations in England use acute hospitals.
How do we process these data?

- We attach an indicator of socio-economic status based on the area of residence.\(^1\)
- We attach a case mix indicator by matching the main diagnosis on discharge to the Clinical Classification Software (CCS)\(^2\) group.
- We flag cases as surgical or non-surgical\(^3\)
- Exclude day cases and transfers.

\(^1\)The income domain score of the Index of Multiple Deprivation 2010
\(^2\)Healthcare Cost and Utilisation Project
\(^3\)Dr Foster Intelligence AHRQ indicator methodology
Statistical modelling

• Two models, surgical admissions and non-surgical.
• Response variable: died / survived.
• Predictor variables: Age, sex, case mix group, weekend yes / no, trust.
• We use a simple logistic regression model.
• We express the relative probabilities of dying as odds ratios.
Challenges

• Setting up the IT architecture was complex, but was achieved within budget and ahead of schedule.

• Getting governance approval has involved many iterations of application submissions and is still ongoing to secure historical, secular trend data.

• We have data from 2008/09 until 2012/13 already loaded cleaned and coded.
Specialist Intensity and the Weekend Mortality effect

Alan Girling
HiSLAC Project Statistician
Summary

• Strong evidence for the weekend effect in current HES mortality data
• Strong evidence for weekend deficit in hours of care from specialist survey
• Differences apply across the system, with little direct evidence of correlation at the trust level
• Hope for system-wide improvement in both weekend hours and weekend admission mortality
• In future years, trust-level effects may be detectable if weekend improvements occur at different rates
Preponderance of trusts above the 45° line: i.e. higher death rates for Sunday admissions compared to Wednesday.
Weekend mortality effect (2): Mortality by day of admission

<table>
<thead>
<tr>
<th>Day</th>
<th>Admitted</th>
<th>Survived</th>
<th>Died</th>
<th>Died %</th>
<th>RR</th>
<th>OR</th>
<th>LCL</th>
<th>UCL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sat</td>
<td>359,476</td>
<td>348,484</td>
<td>10,992</td>
<td>3.06</td>
<td>1.187</td>
<td>1.20</td>
<td>1.17</td>
<td>1.24</td>
</tr>
<tr>
<td>Sun</td>
<td>346,389</td>
<td>335,693</td>
<td>10,696</td>
<td>3.09</td>
<td>1.199</td>
<td>1.24</td>
<td>1.21</td>
<td>1.28</td>
</tr>
<tr>
<td>Mon</td>
<td>446,776</td>
<td>435,257</td>
<td>11,519</td>
<td>2.58</td>
<td>1.001</td>
<td>1.01</td>
<td>0.98</td>
<td>1.04</td>
</tr>
<tr>
<td>Tues</td>
<td>434,551</td>
<td>423,122</td>
<td>11,429</td>
<td>2.63</td>
<td>1.021</td>
<td>1.02</td>
<td>0.99</td>
<td>1.05</td>
</tr>
<tr>
<td>Wed</td>
<td>432,728</td>
<td>421,585</td>
<td>11,143</td>
<td>2.58</td>
<td>1.000</td>
<td>1.00</td>
<td>0.99</td>
<td>1.05</td>
</tr>
<tr>
<td>Ref</td>
<td></td>
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<td>Reference group</td>
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<tr>
<td>Thurs</td>
<td>438,346</td>
<td>426,917</td>
<td>11,429</td>
<td>2.61</td>
<td>1.013</td>
<td>1.01</td>
<td>0.98</td>
<td>1.04</td>
</tr>
<tr>
<td>Fri</td>
<td>452,651</td>
<td>440,379</td>
<td>12,272</td>
<td>2.71</td>
<td>1.053</td>
<td>1.04</td>
<td>1.01</td>
<td>1.07</td>
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<tr>
<td>Total</td>
<td>2,910,917</td>
<td>2,831,437</td>
<td>79,480</td>
<td>2.73</td>
<td>--</td>
<td>--</td>
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Weekend hospitalization and additional risk of death: NHS England inpatients 2009-10


Hazard Associated with Admission to Hospital by Day of the Week of Admission.

Risk of death for admission on Sunday vs Wednesday = 1.16
Confidence Interval (1.14-1.18) p < .0001
Weekend mortality effect: By trust (adjusted weekend:weekday odds ratios)

Most Odds Ratios are greater than 1. I.e. Mortality is higher for weekend admissions.
Weekend Specialist Intensity Deficit (survey data): Sunday/Wednesday specialists present by trust

- Ratio is less than 50% for every trust. Also Sunday specialist hours per emergency admission is less (average = 49% of Wednesday)
- Confirmed by Directorate-Level Questionnaire
Relationship across hospitals?

• Use Sunday-to-Wednesday ratios for both mortality and intensity to capture “weekend effects”
  – More robust against effect of socio-economic and geographical differences between hospitals
  – ... and against unmeasured case-mix differences between hospitals
• Relationship detectable only if meaningful variation in intensity ratios between hospitals
  – Sampling biases/fluctuations
  – Survey is a snapshot for one particular week, mortality is annual figure.
The Weekend Mortality Ratio is plotted against two Specialist intensity Ratios:
1. Numbers Present
2. Time worked

The association is weak for both measures.
A (tentative) “Case-mix” explanation?

All trusts experience fewer Emergency Admissions on a Sunday than on a Wednesday. But the weekend effect may be attenuated in trusts where the Sunday admission rate is relatively close to Wednesday.

• Consistent with a “Case-Mix” explanation for (at least part of) the weekend effect if the reduction in Sunday admission rates applies only to less severe cases.
• If true, this explanation indicates a failure of case-mix adjustment.
• Non-significant relationships using current data
  – May be no meaningful intensity differences between trusts (All trusts have HiSLAC ratios less than 1)
  – HiSLAC measure degraded by sampling fluctuations and local biases
• Over several years,
  – Assess global changes in WE effect and HiSLAC ratios across system
  – Analysis of between and within Trust variation in HiSLAC measure
  – ... to detect HiSLAC effect between hospitals if different trusts change/improve HiSLAC at different rates
Published HSMRs and Specialist Intensity

- The plots reflect overall differences between trusts, though open to interpretation.

- The suggested relationships do not account for weekend/weekday differences.
Summary

• Strong evidence for the weekend effect in recent HES mortality data
• Strong evidence for weekend deficit in hours of care from specialist survey
• Differences apply across the system, with little direct evidence of correlation at the trust level
• Hope for system-wide improvement in both weekend hours and weekend admission mortality
• In future years, trust-level effects may be detectable if weekend improvements occur at different rates
Mechanisms: patient and staff opinions

Amunpreet Boyal & Liz Sutton
What causes the weekend effect?
Patient and staff opinions

• Two focus groups with PPI and clinicians conducted in Nov 2014, at one hospital site.

• Purpose: To explore experiences of the differences between care at the weekends as compared to the weekday, and how these differences contribute to the ‘weekend effect’.
Focus groups

• Focus group A – 7 Patient and relatives

• Focus group B – 8 clinicians, including consultants, nurses and junior doctors

Focus group data fed into:

1) Generating core search terms for literature reviews
2) Framing the ethnography work-stream and HiSLAC programme theory

Plan on running 4 more focus groups to extend and validate findings
Focus group analysis

• Focus groups were audio-recorded, transcribed verbatim and anonymised.

• Data analysis – thematic analysis using the constant comparative approach.

• The data were open-coded using NVivo 10 and key themes identified.

• Data summaries, visual mapping of themes and interrelationships between themes were used to aid analysis.

• Validating data – summaries sent to participants.
Themes
Staffing levels

- Participants said that:
  - Global staffing levels were lower at the weekend, and staff tended to be less experienced.
  - Reduced availability of specialists, and a lack of regular senior review at weekends impacted negatively on the timeliness and quality of decision making, and on patient management.
  - Continuity of staff (both medical and nursing) was lower and staff often did not have knowledge of individual patient cases or local systems.
  - Weekends were compounded by poorer quality of handover and communication due to lower capacity.
Staffing and escalation

‘You’re relying on a good nurse to pick up the warning signs that they’re falling ill and then highlight it, and then the first doctor to treat it hopefully will escalate it in a timely way. [But] actually, it’s – even though the F1 has done what’s appropriate for their level of training and gone, ‘OK, I’ve done what I can. I need an SHO to see it’, by the time the SHO sees it, it’s then two or three hours later; by the time the registrar sees it, it’s another two.’ (Clinician)
Support Services

- Lower capacity in diagnostic services introduced delays in diagnosis and management decisions.

- Lack of weekend availability of allied services delayed patient recovery. Additionally, lower availability of pharmacists could increase risk of medication error.

I’m not quite sure whether an extra consultant on the ward helps, it’s more things like the x-rays, the physio, the treatment stuff that just goes on pause (PPI)
Weekend work ethic

• A different work ethic at the weekend - taking the form of ‘holding’ patients rather than actively managing care and planning ahead.

• Reduction of staff, continuity of care and knowledge of individual patients.

• Overall, lack of senior decision makers, capacity and support infrastructure.

Often the overall plan [at the weekend] will be ‘Wait until the specialist team’s here. We’ll patch it or we’ll do something until then, and get them to see them on Monday.’ Now, they’ll have then a big backlog of referrals of these patients on Monday and it may be in terms of the investigations that they’re not done and seen till later in the week, as well. (clinician)
Case mix

• Patients admitted at weekends were thought to be sicker, more likely to have injuries sustained through dangerous leisure activities, and more likely to be involved in violent episodes or to be intoxicated. This could contribute to explaining higher mortality, as well as putting additional pressure on the service.

‘Obviously on Friday and Saturday night, [people] do a lot of drinking and go out and get into fights and bash people round the head. And you often see that with the traumas coming through. [...] You’re going to get a lot of people with drink-related problems. [...] There’s certain types as you’re aware will have an increased morbidity whenever they come in. It may be just that these patients mostly present at weekend’. (Clinician)
Patient flow and community services

• Lack of capacity and fewer senior decision-makers meant that patient flow was not as effective at weekends, making it more likely that patients coming in would get lost in the system or end up as outliers on the ‘wrong’ wards.

I think the location of the patients, as well, that are nursed outside of the speciality that they’re meant to be in, so the nurses may not always be used to looking after those type of patients so they’re not as acutely aware of what really needs to be flagged up as a priority. (clinician)

• The lack of availability of primary care and community services at the weekend was seen as resulting in increased pressure in terms of patients coming into hospital, and making discharge at weekends more risky.
What causes the weekend effect?

Summary

• Organisation of care.

• The level and nature of hospital staffing at the weekend, continuity of care and communication.

• The availability and capacity of support services within the hospital.

• Patient case mix.

• Features of the wider NHS environment at the weekends, including availability of GP and community services.
DISCUSSION