Workload Survey:
How busy are we during on-call period?

Dr Michael Lee, Dr Jason Ng, Dr Nelson Cheung,
Dr Andrew Chan, Dr Stephanie Chu, Miss Bonnie Leung, Dr CT Hung.
Introduction

• On-call duty is physically and emotionally demanding
• Doctor workload reform is a priority area under HA
• Insufficient local data of the workload and work pattern of different specialties in regional hospital
Objectives

- To understand the nature of on-call activities
  - Workload (How much?)
  - Pattern of activities (How urgent?)
- The information is useful for manpower allocation and workload reform in future.
Method of data collection

• Period

• Survey
  – Real time, prospective
    • Self completed
      – Adopted and modified from the survey used in KWC
Survey participants

• Hospital
  – Queen Elizabeth Hospital

• Staff
  – 7 clinical departments
    • Medicine
    • Surgery
    • Neurosurgery
    • O & G
    • O & T
    • Pediatric
    • Clinical oncology
  – Medical officer or resident with different seniorities
On call period
# KCC Doctors on-call activities data collection form

<table>
<thead>
<tr>
<th>Name</th>
<th>Dr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade</td>
<td>Residency / Medical Officer / Associate Consultant / Senior Medical Officer</td>
</tr>
<tr>
<td>Specialty</td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>dd/mm/yy</td>
</tr>
<tr>
<td>Start time</td>
<td></td>
</tr>
<tr>
<td>End time</td>
<td></td>
</tr>
</tbody>
</table>

Please insert a "X" in the appropriate space(s).

<table>
<thead>
<tr>
<th>Who called you?</th>
<th>Urgency</th>
<th>Level of skill needed</th>
<th>Patient's condition</th>
<th>Venue of activity</th>
<th>Activities description &amp; duration of task (mins)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Own Department Dr.</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>5 5</td>
</tr>
<tr>
<td>Own Department Nursing</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>5 3 3</td>
</tr>
<tr>
<td>Others</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>1</td>
</tr>
</tbody>
</table>

Example:

- I received a call at 08:59 and I spent 90 MINS for performing operation.
- I received my 1st call at 08:15 and I spent 5 MINS for giving the treatment to patient, 5 MINS for explaining the situation to the relatives/patients, 5 MINS...
Areas of interest

<table>
<thead>
<tr>
<th>Who called you?</th>
<th>Urgency</th>
<th>Level of skill needed</th>
<th>Patient's condition</th>
<th>Venue of activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Own Department Dr.</td>
<td>Left from previous shift</td>
<td>Needed at once</td>
<td>More than just mine</td>
<td>Life or Limb threatening</td>
</tr>
<tr>
<td>Other Department Dr.</td>
<td>Needed at once</td>
<td>Within the hour</td>
<td>Appropriate for me</td>
<td>Physiological unwell</td>
</tr>
<tr>
<td>Own Dept. Nursing</td>
<td>During the shift</td>
<td>Outside the shift</td>
<td>Less than mine</td>
<td>Physiological normal</td>
</tr>
<tr>
<td>Other Dept. Nursing</td>
<td></td>
<td></td>
<td>Non-medical</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Activities description & duration of task (mins)

<table>
<thead>
<tr>
<th>CLINICAL</th>
<th>TREATMENT</th>
<th>RELATIVES</th>
<th>XRAY</th>
<th>PROCEDURES</th>
<th>OPERATION</th>
<th>DISCUSSION</th>
<th>PHONE ADVICE/VERBAL ORDER</th>
<th>ARREST</th>
<th>D/S</th>
<th>MEDICAL REPORT</th>
<th>CONSULTATION</th>
<th>WARD ROUND</th>
<th>FORMS</th>
<th>PHLEB</th>
<th>SET IV</th>
<th>ECG</th>
<th>BREAK</th>
<th>SLEEP</th>
<th>OTHER</th>
</tr>
</thead>
</table>
Stages

• 3 stages

1. Medical staffs for voluntary participation
2. Orientation classes to standardize the approach of data collection
3. Survey for on-call activities
Results

• No of participants: 58
• No. of surveys: 68
<table>
<thead>
<tr>
<th>Department</th>
<th>No. of assigned participants</th>
<th>No. of questionnaire received</th>
<th>Response rate % (per person)</th>
</tr>
</thead>
<tbody>
<tr>
<td>O &amp; T</td>
<td>10</td>
<td>5</td>
<td>50</td>
</tr>
<tr>
<td>O &amp; G</td>
<td>8</td>
<td>13</td>
<td>88</td>
</tr>
<tr>
<td>Medicine</td>
<td>9</td>
<td>13</td>
<td>89</td>
</tr>
<tr>
<td>Surgery</td>
<td>10</td>
<td>11</td>
<td>90</td>
</tr>
<tr>
<td>Pediatric</td>
<td>8</td>
<td>12</td>
<td>100</td>
</tr>
<tr>
<td>Neurosurgery</td>
<td>5</td>
<td>6</td>
<td>100</td>
</tr>
<tr>
<td>Clinical oncology</td>
<td>8</td>
<td>8</td>
<td>100</td>
</tr>
<tr>
<td>Overall</td>
<td>58</td>
<td>68</td>
<td>86</td>
</tr>
</tbody>
</table>
Results

• What is the pattern of activities?
• Is the model of hospital @ night fit for us?
• How can we reduce the workload at night?
Results

• What is the pattern of activities?
• Is the model of hospital @ night fit for us?
• How can we reduce the workload at night?
Who called you?

- Own Nurse: 58%
- Own Dr: 19%
- Other Dr: 8%
- Other Nurse: 6%
- Others: 9%
Venue of activity

Where?

- Ward: 79%
- O/T/ICU/Others: 8%
- A&E/Adm Ward: 0%
- Labour Ward: 7%
- Others: 6%
Total Workload vs time (by Department)
Total Workload vs time (by Department)
Total Workload vs time (by Department)
Total Workload vs time (by Department)
Total Workload vs time (by Department)
Results

• What is the pattern of activities?
• Is the model of hospital at night fit for us?
• How can we reduce the workload at night?
Results

• What is the pattern of activities?
• Is the model of hospital @ night fit for us?
• How can we reduce the workload at night?
Time for attention

How urgent?

- Within the Hour: 51%
- Needed at once: 17%
- During the Shift: 30%
- Outside Shift: 3%
Patient’s condition

How urgent?

- Physiological unwell: 57%
- Physiological Normal: 38%
- Life/Limb Threatening: 6%
On-Call Activities - urgency

<table>
<thead>
<tr>
<th>Activities</th>
<th>A</th>
<th>B</th>
<th>QEH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tasks related to life-threatening condition</td>
<td>4%</td>
<td>5%</td>
<td>6%</td>
</tr>
</tbody>
</table>

1-2% difference

=> 1850-bed hospital

=> ~200-300 patients
Level of skill needed

5% tasks can be shared

Appropriate for me: 92%

Less than mine: 4%
Non-Medical: 1%
More than just mine: 3%
In the setting of heavy workload with predominant urgent/semi-urgent duties, in which most were considered to be appropriate for the staff, is hospital @ night a feasible option?

Difficult to share duties among different specialties
Results

• What is the pattern of activities?
• Is the model of hospital @ night fit for us?
• How can we reduce the workload at night?
Results

• What is the pattern of activities?
• Is the model of hospital @ night fit for us?
• How can we reduce the workload at night?
Overall workload activity
Ward round vs other clinical duties
Workload after office hour

Workload (mins)

Hours

17:00-18:00
19:00-20:00
21:00-22:00
23:00-24:00
01:00-02:00
03:00-04:00
05:00-06:00
07:00-08:00

Clinical
Total
Workload after office hour

Workload (mins)

17:00-18:00 19:00-20:00 21:00-22:00 23:00-24:00 01:00-02:00 03:00-04:00 05:00-06:00 07:00-08:00

Hours

Urgent Non-urgent Technical

Clinical Total
Technical work after office hour

(e.g. drip setting, blood taking)

Workload (mins)

↑ after 5 pm
↓ after midnight

Hours
Implications

• 1. Reduce technical work after office hour
• 2. Shift non-urgent clinical duty from night time to day time
Strategies

• **Extend working hours** for routine daytime activities
  – e.g. phlebotomist, ECG nurse
  – Only to midnight
• **Empower nursing staff**
  – e.g. drip setting and blood taking
Implications

1. Reduce technical work after office hour

2. Shift *non-urgent* clinical duty from night time to day time
Redistribution of non-urgent clinical duties to daytime

How urgent?

- Within the Hour: 51%
- During Shift: 38%
- Outside Shift: 36%
- Needed: once 17%

Non-urgent clinical duty
Strategies

Reduce **non-urgent duty** at night time

- **Department** based
  - E.g. consultation, screening lab results, operation
- Reinforce **nursing staff and intern education**
- Reduce **night time admission**
- Exempt **out-patient duty** of the residents/MO in the morning
Limitations

• **Sample bias**
  – Response rate: 86%
  – Small sample size
  – Only 1-2 on-call activities sampled
  – Period in Sept 2007

• **Accuracy bias**
  – Self reporting
  – Retrospective memory
  – Subjective decision
  – Not verified by nurse/operator
Summary

Workload pattern and urgency

• Peak hour starts from 8 am to noon
• Overall workload drops to ~1/2 to 1/3 at night, individual department has considerable workload at nighttime
• 92% duties are considered to be appropriate
• 5% tasks can be shared by others
Conclusion

• To render the doctor work reform a success, data collection of the present situation is utmost important

• “One size does not fit all”
  – Difficult to share on-call duties among different specialties
  – Reduce non-urgent and technical work after office hour
Acknowledgement

Dr Michael Lee  Dr CT Hung

Team members
Dr Nelson Cheung
Dr Andrew Chan
Dr Stephanie Chu
Miss Bonnie Leung
Acknowledgement

**Coordinators**

*Dr KC Chan*

*Dr Eric Lee*

*Dr WH Li*

*Dr Peter So*

*Dr CW Tse*

*Dr TS Tse*

*Dr Edmond Wong*
# Acknowledgement

## Participants

<table>
<thead>
<tr>
<th>C W Tse</th>
<th>YL Lai</th>
<th>CW Wong</th>
<th>CW Yau</th>
<th>S Wong</th>
<th>CH Tam</th>
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<tr>
<td>P Chan</td>
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<td>SM Wong</td>
<td>I Ip</td>
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<td></td>
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</tbody>
</table>
Token of thanks
Any difference in activities?
Activity- urgency

• Patients with life-threatening conditions
  – Surgery (9%), Medicine (6%)

• Needed at once
  – Clinical Oncology (34%), Pediatrics (33%)
Activity- nature

Ward round

• Medicine, Pediatrics: 8-9 am – 1 pm
• Surgery, O&T: 8 am – 9 am
• NS, O&G: 8-10 am
Activity

Technical works

• Pediatrics
• NS, Oncology
• Medicine
• Not much technical works in O&T, Surgery
### Operation time

#### Neurosurgery

**Proportion of operation workload (Dept. of NS)**

<table>
<thead>
<tr>
<th>Department</th>
<th>Minutes</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neurosurgery</td>
<td>operation(avg)</td>
<td>32.50</td>
</tr>
</tbody>
</table>

#### Surgery

**Proportion of operation workload (Dept. of Surgery)**

<table>
<thead>
<tr>
<th>Department</th>
<th>Minutes</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgery</td>
<td>operation(avg)</td>
<td>230.91</td>
</tr>
</tbody>
</table>

| Operation(avg.) | 263.41 | 18% |