

**For Information  
on 12 April 2010**

**Legislative Council Panel on Health Services**

**Final Report on Doctor Work Reform**

**PURPOSE**

This paper briefs Members on the outcome of the Doctor Work Reform (DWR) programmes implemented by the Hospital Authority (HA), the improvement of doctors' working hour in public hospitals and the way forward.

**BACKGROUND**

2. The reform has been carried out with the three-fold objectives of improving quality of patient care; managing risks for enhanced patient care; and providing quality doctor hours for service and training. The Panel on Health Services was briefed on the objectives and strategies of the reform vide paper CB(2)1266/07-08(03) in March 2008 and on the outcome of interim review of the pilot reform programmes vide paper CB(2)1476/08-09(04) in May 2009.

3. The implementation of the pilot reform programmes is monitored by the Steering Committee on Doctor Work Hours (the Steering Committee) established by HA. The HA Board endorsed on 25 February 2010 the final report on Doctor Work Reform submitted by the Steering Committee. The executive summary of the report is annexed for reference. The full report is available to the public via HA's internet website ([www.ha.org.hk](http://www.ha.org.hk)).

**IMPLEMENTATION AND REVIEW OF PILOT PROGRAMMES**

4. Since the end of 2007, HA has embarked on various doctors' work reform programmes in selected public hospitals<sup>1</sup>. In implementing the reform programmes, HA has continued to communicate with relevant staff, stakeholders and patient groups to collect feedback on the model and programmes of doctor reform.

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<sup>1</sup> The pilot programmes were launched in Pamela Youde Nethersole Eastern Hospital under the Hong Kong East Cluster; United Christian Hospital under the Kowloon East Cluster; Caritas Medical Centre, Princess Margaret Hospital and Yan Chai Hospital under the Kowloon West Cluster; and Alice Ho Miu Ling Nethersole Hospital and North District Hospital under the New Territories East Cluster.

5. The pilot programmes have generally improved the quality of patient care and safety and enabled the delivery of more timely and protocol-based services to patients. The working environment of doctors has also improved with strengthened manpower, greater support from non-medical health carers and enhanced core competency of staff. The details and outcome of the major reform programmes are set out below -

**(a) *Deployment of doctors to pressurized areas***

HA has allocated a total of \$182 million from 2007-08 to 2009-10 to implement the pilot work reform programmes and created 348 new posts in various grades. The number of doctors has increased by 289 from July 2007 to July 2009. Among them, 121 doctors have been deployed to the six specialties where there are issues of doctors' prolonged work-hour<sup>2</sup>, while 70 new Resident Trainees have been deployed to hospital clusters to relieve the heavy workload of doctors with a view to attaining HA's target on doctors' working hour.

**(b) *Re-engineering of emergency operating theatre (EOT) services***

Four acute public hospitals have expanded their day-time EOT capacity on weekdays and cleared more than 30% of their backlog operations that were previously performed at night. In some of the hospitals, the EOT service is re-engineered to reduce night-time activities so that only genuine emergency operations will be performed at night. The proportion of EOT time used at night, relative to the total EOT time used throughout the day, has dropped by 50% in the pilot hospitals in the second quarter of 2009 as compared to the same period in 2007.

**(c) *Establishment of Emergency Medicine wards***

The Emergency Medicine Wards (EMWs) piloted in three acute hospitals are considered effective in improving the quality of care for short-stay patients and the efficiency in handling acute patient admissions through multi-disciplinary and cross-specialty collaboration. Under the pilot programme, EMWs have helped reduced the number of avoidable admissions to clinical specialties via the Accident and Emergency Departments by 19.7%. A new model of patient care has been adopted at the pilot hospitals where

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<sup>2</sup> The six specialties included Neurosurgery, Surgery, Obstetrics & Gynaecology, Paediatrics, Medicine as well as Orthopaedics & Traumatology.

patients could receive initial investigation and treatment at night in the EMWs and be discharged or transferred on the following day. This model has helped buffer hospital admissions at night and reduced the total number of medical admission by 33%. The EMWs are considered useful in tackling the increasing service demand for inpatient service and hence alleviating workload of different specialties.

**(d) *Introduction of care technician services***

HA has recruited and trained 95 care technicians to provide round-the-clock blood-taking, electrocardiogram and intravenous cannulation services in six acute public hospitals, thereby relieving the heavy workload of healthcare professionals. With this pilot programme, 11,117 doctor work hours have been saved on average each month.

**(e) *Other supportive work reform programmes***

**(i) *Enhancing senior nurse coverage in an acute secondary hospital***

HA has set up a team of trained and experienced nurses to enhance the senior nurse coverage by providing advanced clinical nursing support, undertaking protocol-based patient assessment and clinical interventions, and coordinating response to clinical emergencies during out-of-hours.

**(ii) *Introducing a common ward language to all hospital clusters***

To facilitate early detection of patient's critical conditions for timely specialist intervention, HA has unified the approach of communication among hospitals through the integrated observation chart with Modified Early Warning Score (MEWS). This initiative has been rolled out to all hospital clusters.

**(iii) *Strengthening the core competency of health carers***

To improve patient safety and control risk during out-of-hours, HA has organized cluster-based training for 91 basic trainees and 14 nurses in the surgical stream specialties

to enhance their core competency. HA has also conducted clinical skills enhancement programmes for 287 experienced nurses to enhance their clinical skills and professional competency in acute care management and clinical supervision.

(iv) *Piloting an electronic handover system in selected acute hospitals*

HA piloted an electronic handover system in three acute public hospitals to facilitate structured and comprehensive multi-disciplinary handover of critically ill and unstable patients. The initiative helps to ensure continuity and safety of patient care and improve clinical supervision during out-of-hours.

## **IMPROVEMENT OF DOCTORS' WORKING HOUR**

6. On doctor work hours, HA's target is to reduce the average weekly work hours of doctors to not more than 65 by the end of 2009; and to gradually reduce their continuous work hours to a reasonable level (of not more than 16 to 24 hours) in the long run. HA has made significant improvements in its doctors' working conditions both in average weekly work hours and continuous work hours -

(a) *Average Weekly Work Hours*

- (i) The proportion of doctors working for more than 65 hours per week on average had dropped from around 18% in September 2006 (involving around 900 doctors in 12 clinical specialties) to 4.8% by the end of December 2009<sup>3</sup> (involving 252 doctors in 10 clinical specialties<sup>4</sup>). The proportion of doctors reported to have worked for more than 70 hours per week on

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<sup>3</sup> The methodology adopted in monitoring doctor work hour in 2006 and 2009 is different. The figures of the 2006 survey were captured retrospectively through self-report from sampled doctors of various specialties in a defined period. The figures of 2009 survey were captured prospectively based on the rostered on-site work hours plus the called-back hours of 5,261 doctors working in 222 clinical departments of all HA hospitals over a 26-week reporting cycle through self-report.

<sup>4</sup> The 10 specialties are Surgery (18.6%), Obstetrics & Gynaecology (17.9%), Orthopaedics & Traumatology (15.6%), Neurosurgery (12.5%), Paediatrics (7%), Ophthalmology (6.7%), Cardiothoracic Surgery (5.6%), Ear, Nose & Throat (4.9%), Intensive Care Unit (1.5%) and Internal Medicine (1.5%).

average had also dropped from 10% to 1% in the same period.

- (ii) The proportion of doctors working for more than 65 hours per week on average in the rank of Medical Officer/ Resident has dropped from 24% to 7% while that of senior doctors has dropped from 3.6% to 0.6%. The most significant improvement are found to be in the specialty of Neurosurgery (from 73% to 13%), Paediatrics (from 40% to 7%), Surgery (from 45% to 19%), Oncology (from 26% to 0%), Obstetrics & Gynaecology (from 40% to 18%) and Medicine (from 21% to 2%).

**(b) *Continuous Work Hours***

Following the pilot work reform programmes and as a result of the revamp of doctors' on-call arrangements and granting of rest time for on-site on-call duties, the number of doctors undertaking on-site on-call duties for more than 24 hours in one go dropped from 340 in 2006 to 221 in 2009. The proportion of overnight on-site on-call doctors having immediate post-call time-off thus increased from 64% in 2006 to 82.4% in 2009.

7. In analyzing the outcome of the change of doctor work hours, the Steering Committee noted that a number of factors may have affected the effect of the pilot programmes in reducing doctor work hours, such as the unexpected outbreak of human swine influenza in 2009, wastage of doctors in pressurized specialties and the number of medical graduates from local universities. Also, to sustain the quality of clinical services for the benefit of patients, the change of on-call system and reduction of doctor work hour have to be made in a gradual manner in certain departments with highly sub-specialized structure.

**WAY FORWARD**

8. HA will consolidate the experience gained from doctor work reform and keep the momentum to implement various initiatives to improve doctors' working conditions while concurrently enhancing patients' safety and quality of care. Committed to improving doctors' work-life balance, HA will strive to achieve the target of capping the working hours of all frontline doctors to 65 hours per week and to bring down doctors' continuous work hours to a reasonable level in the long run through deployment of additional manpower and resources to pressurized areas; enhancement of skills of staff; revamping of traditional care models; on-call system and work procedures; partnership with the private sector and patients projects, etc. HA will also monitor the

corporate working hour through a long-term mechanism and will take into account the working conditions of doctors in different specialties in its manpower and resource planning.

9. HA will continue to engage the doctors and stakeholders in taking forward the doctor work reform initiative. Specifically, HA will continue to obtain feedback from frontline doctors and work closely with the Hong Kong Academy of Medicine to assess the long-term impacts of the target of work hour on specialist training of doctors.

### **Advice Sought**

10. Members are invited to note the content of this paper.

**Hospital Authority**  
**April 2010**



## **EXECUTIVE SUMMARY**

### **Final Report on Doctor Work Reform by The Steering Committee on Doctor Work Hour Hospital Authority**

#### **INTRODUCTION**

001 The Hospital Authority (“HA”) was committed to improving the working conditions of frontline doctors and enhancing the quality of care for patients in public hospitals. Following a doctor work hour survey conducted in September 2006, it was estimated that 18% of public hospital doctors (i.e. about 900) worked for more than 65 hours per week on average while 35% of overnight on-site on-call doctors (i.e. about 120) did not have post-call time-off the next day. HA established the Steering Committee on Doctor Work Hour (“Steering Committee”) in October 2006 under the lead of Dr C H LEONG, GBS, JP, Former Chairman of HA, to look into matters related to doctors’ long working hours and oversee the implementation of various pilot work reform strategies since the fourth quarter of 2007. Two advisory committees, namely, the Cluster Administration and Specialty Advisory Committee and the Doctors Staff Group Consultative Committee, were also set up to solicit feedback on the impacts of the work reform strategies on doctors’ work, training and patient services.

## **REFORM OBJECTIVES AND TARGETS**

002 The whole premise of Doctor Work Reform was not merely to reduce doctor work hour but also to streamline workflow, reshuffle work activities and ensure the quality and safety of patient care. HA's Doctor Work Reform carried the three-fold objectives of quality patient care through teamwork, risk management for enhanced patient safety as well as quality doctor hours for service and training. It sought to manage the undesirable phenomena of long weekly and continuous work hours, high intensity activities and low morale of the frontline doctors while not compromising the quality of their specialist training in HA. It was HA's target to reduce public hospital doctors' average weekly work hours to not exceeding 65 by the end of 2009 and their continuous work hours to a reasonable level in the long run while ensuring the quality of care and patient safety.

## **BELIEFS AND DIRECTIONS**

003 The Steering Committee believed that Doctor Work Reform could not be taken along without improving staff morale. Corporate reform in the following directions could thus address issues related to doctor's excess work and boost their morale:

- a) The weekly work hours of doctors should not exceed 65 in general while those currently working for fewer than 65 hours should also be benefited from the reform.
- b) Doctors should not work continuously for more than 16 – 24 hours.
- c) Overtime work of doctors exceeding their conditioned hours should be recognised financially.
- d) Manpower should be rationally increased in certain clinical specialties on a need basis.
- e) Promotion of doctors should be encouraged in HA, taking into consideration their competency, qualifications and years of service.

## **COMMUNICATION AND CONSULTATION – LOCAL MODEL OF REFORM**

- 004 The Steering Committee strategised for HA's Doctor Work Reform with due consideration of its "People First" culture, patient safety, reform workability and rationality, affordability as well as service sustainability. Reference was drawn from overseas experience and findings of local studies; and a local model of reform was adopted upon wide consultation and on-going communication with the stakeholders and professional organizations, including frontline doctors and nurses, specialty representatives, patient groups, hospital management, senior executives of the HA Head Office as well as the Hong Kong Academy of Medicine ("HKAM"). The Doctor Work Reform Strategic Planning Workshop held on 23 March 2007, involving more than 40 frontline staff and 9 specialties, framed the reform discussion while the ensuing HA-wide consultation paper sent to every doctor in HA and the HKAM in May 2007 laid the foundation of reform. Since 2007, HA had convened over 262 communication sessions, with a cumulative attendance of over 5,660 staff members, with a view to collating their feedback on the work reform strategies and communicating on the reform implementation; and sharing forums with overseas and local experts' input were also conducted to exchange views on the work reform and refine the strategies for rollout in public hospitals. Around 200 feedbacks had been received from staff in various disciplines; and these had been considered and addressed by the Steering Committee in formulating its reform and implementation strategies.
- 005 The Steering Committee first submitted its Doctor Work Reform Recommendation Report to the HA Board for deliberation on 29 November 2007 and furnished an Interim Pilot Review Report on Doctor Work Reform for review on 26 February 2009. The HA Board welcomed the work reform strategies and supported the direction of reform in general. On the other hand, progress updates were made to the Health Services Panel of the Legislative Council of the Hong Kong Special Administrative Region in March and July 2008 as well as May 2009. Close liaison and collaboration were also maintained with patient groups, community leaders as well as the HKAM in order to keep links on the work reform strategies and implementation progress, and collate their feedback on the reform impacts on patient safety and doctors' specialist training in public hospitals.

## WORK REFORM STRATEGIES AND PILOT PROGRAMMES

006 HA's Doctor Work Reform was developed and implemented along four strategic directions, viz., targeted deployment of resources, optimising total workload, changing doctors' existing work patterns as well as enhancing the core competencies of healthcare professionals working as one care team. **While it was an attempt to rationalise doctor work hours that triggered this exercise, the reform itself was not a number's game nor was it aimed to nourish a clock-watching culture in clinical practice. The whole reform was about better teamwork and explicit sharing of responsibilities to provide better and more efficient patient care.** It entailed a cultural change in the work practice of doctors and modernising the roles of health carers while revamping the conventional mode of care delivery for patients in public hospitals.

007 To verify the efficacy of the work reform strategies in attaining the corporate targets and objectives, HA had embarked on four key pilot programmes in selected acute hospitals since the fourth quarter of 2007, namely, deployment of doctors to pressurised areas, re-engineering of emergency operating theatre ("EOT") services, establishment of Emergency Medicine Wards ("EMWs") as well as introduction of care technician services. Reform Task Groups were formed to review the pilot work reform outcomes, share good practices and recommend the rollout strategies for the Steering Committee's consideration. Besides, supportive work reform programmes were in place to further relieve the workload of frontline doctors without compromising the quality of care and patient safety.

### A. Deployment of Doctors to Pressurised Areas

008 Deployment of resources and manpower was a key strategy under Doctor Work Reform to improve the working conditions of doctors and ensure the quality of care and patient safety. HA set aside a total of \$182 million from 2007/08 to 2009/10 and supported the creation of 348 new posts, including 38 doctors, to launch various reform-related programmes. There was a net increase of 289 doctors (i.e. 6%) in HA from July 2007 to July 2009, with 121 doctors (i.e. 42% of 289 doctors) deployed to the six pressurised specialties with prolonged doctor

work hours. Besides, HA allocated a total of 70 new Resident Trainees to different specialties in 2008/09 and 2009/10 and had acceded to all hospital clusters' requests for allocating Resident Trainees in 2009/10 in order to attain the work hour targets. Despite the hiccups encountered by the pilot hospital in recruiting part-time private practitioners to help out in the surgical out-patient clinics under the booming private market, HA kept on drawing in private expertise through the contemporaneous flexible employment strategy and public-private partnership programmes to tackle both the increasing workload and staff wastage in public hospitals. The number of part-time doctors employed by HA had risen from 29 in March 2007 to 44 in July 2009.

## **B. Re-engineering of Emergency Operating Theatre (“EOT”) Services**

009 Four acute public hospitals expanded their day-time emergency operating theatre capacity on weekdays in order to clear their backlog emergency operations formerly performed at the night time. At certain pilot sites, EOT services were also re-engineered as to manage cases of genuine emergency at night only while semi-urgent and elective operations were reshuffled to the day time with greater manpower and facility support. Patients could then have safer operations while the workload of on-call doctors would be reduced at night. It was targeted that patients' waiting time for emergency operations could be shortened by expanding the EOT capacity in the extended day. In the review period, more than 30% of backlog operations were cleared in the pilot hospitals while the utilization ratio of EOT time at night, relative to the total EOT time used throughout the whole day, had dropped by 10% - 50%. The outcome varied among the pilot sites and was more conspicuous in acute secondary than acute tertiary hospitals. However, patients could in general enjoy better hospital care by having earlier operations, stronger clinical supervision and other clinical support for day-time surgeries as well as fewer complications. Besides, hospitals would benefit from shorter patient stay and a higher level of patient satisfaction. The pilot programme was supported by the health carers for further rollout to other hospitals.

### **C. Establishment of Emergency Medicine Wards (“EMWs”)**

010 Three acute public hospitals piloted the EMW initiative to reduce avoidable admissions, improve the quality of short-stay patient care and the efficiency in handling acute patient admissions. Since commencement of the programme, admissions to medical wards via the Accident and Emergency Departments had dropped by 4.8% –19.7% in the pilot hospitals. A new model of patient care emerged in an acute public hospital where its newly established EMW served to buffer hospital admissions at night while patients, upon receiving initial investigation, treatment and stabilization in the EMW, would be discharged or transferred out the following day. Under this new model, the emergency medical admissions at night and the total medical admissions had been reduced by 51% and 33% respectively in the review period. Despite the confounding factors and teething problems that were encountered in the pilot phase, EMWs had improved the quality of care in terms of service timeliness and shortened hospital stay; and provided a suitable platform for multi-disciplinary and cross-specialty collaboration in managing selected acute conditions. Besides, EMWs had reduced much of the disturbance caused to the other clinical specialties by centrally managing patients suffering from psychiatric problems as well as violent and drug overdosed patients; and were deemed to have considerable potential for tackling the rising service volume and reducing avoidable hospital admissions, hence workload of other clinical specialties.

### **D. Introduction of Care Technician Services**

011 To relieve doctors and nurses from technical tasks and mundane activities, 95 care technicians were recruited and trained to provide round-the-clock blood-taking, electrocardiogram and intravenous cannulation in six acute public hospitals. The programme was well received by both healthcare professionals and patients, for doctors and nurses could refocus their time on core clinical decision making and professional duties while patients would benefit from timely and safe fast-track services in public hospitals. It was estimated that a total of 11,117 doctor hours per month were saved in the pilot hospitals. Patient safety was assured with nil critical incidents reported so far; and there was great potential for HA to develop and expand the functions of well-trained non-medical staff to relieve the heavy workload of healthcare professionals in public hospitals.

## **E. Other Supportive Work Reform Programmes**

012 Apart from the key pilot work reform strategies, HA also set in the following supportive work reform programmes to improve the quality of care and patient safety:

### **a) Enhancing the senior nurse coverage in an acute secondary hospital**

- A team of trained and experienced nurses was set up to provide advanced clinical nursing advice and support, undertake protocol-based patient assessment and clinical interventions, and coordinate response to clinical emergencies during out-of-hours. Clinical risks due to slimmer manpower at night were reduced and the workload of on-site on-call doctors was lessened with improved continuity of patient care. Although there were local staff concerns and varied legal views about the extended roles of nurses, most clinical specialties and clinical support departments in the pilot hospital were supportive to this pilot work reform programme.

### **b) Introducing a common ward language to all of HA's hospital clusters**

- The initiative involved use of an integrated observation chart with Modified Early Warning Score (MEWS) and a unified approach of communication using SBAR (i.e. situation, background, assessment and recommendation for patient management) to facilitate early detection of potentially critical conditions for timely specialist intervention. On the whole, the quality of patient monitoring and assessment was improved, as was the communication in a multi-disciplinary team for safer and more effective patient management. However, local data were yet to be gathered to support its efficacy, thus hindering wider launch of the track-and-trigger system for improved patient safety.

012    **c)    Piloting an electronic handover system in selected acute public hospitals**

- HA built an electronic handover platform in order to facilitate structured and comprehensive multi-disciplinary handover of critically ill and unstable patients, ensure continuity and safety of patient care and improve out-of-hour clinical supervision. Three acute public hospitals piloted this programme via the current Clinical Management System (“CMS”). User surveys showed that the great majority of respondents found it easily accessible, user-friendly and able to streamline the care process; and most had opted to build this electronic handover function in the CMS (Version III) in future.

**d)    Strengthening the core competency of health carers**

- Finally, to ensure patient safety and control risks during out-of-hours, HA conducted a cluster-based training course, in collaboration with the HKAM specialty colleges, for 91 basic trainees and 14 nurses in the surgical stream of specialties in the past two years. In addition, three commissioned clinical skills enhancement programmes were organised in 2008/09 to equip 287 experienced nurses with enhanced clinical skills and professional competency in acute care management and clinical supervision. 95 care technicians were also trained to take up basic care duties from the healthcare professionals. These training programmes were well received by the clusters as a means to strengthen the health carers’ core competency and enhance the quality of care and patient safety in public hospitals.

## **ATTAINMENT OF REFORM OBJECTIVES**

### **A. Quality Patient Care through Teamwork**

013 With the implementation of Doctor Work Reform in the pilot hospitals, the quality of patient care was in general enhanced on the following aspects:

- a) improved access to emergency operations at the daytime with augmented operating theatre capacity and greater manpower and facility support while patients in emergent and urgent conditions having proper care and management at night;
- b) enhanced quality of care for short-stayed patients and reduced length of hospital stay without a corresponding rise in the unplanned re-admission rate through provision of fast-track services and multi-disciplinary care in the EMWs;
- c) timely care upon introduction of round-the-clock care technician services and due assessment given by senior nurses with enhanced roles during out-of-hours;
- d) better continuity of care for critically ill and unstable patients through implementation of a structured electronic handover system among health carers in various disciplines and specialties; and
- e) general improvement in hospital care by more vigilant and trained doctors resulting from a strengthened workforce, less intense workload and reduced work hours.

### **B. Risk Management for Enhanced Patient Safety**

014 With the introduction of various work reform strategies, the potential risks of clinical errors that were associated with sleep-deprived doctors and incongruent deployment of healthcare resources to meet clinical needs at night had been tackled. The Steering Committee was glad to learn that there was no critical incident related to the work reform strategies and it was anticipated that patient safety could be further enhanced when the work reform programmes were strategically rolled out to other public hospitals in phases. In the pilot phase, patient safety had been enhanced in the following respects:

- a) reduced doctors' on-call frequency by changing the overnight on-site on-call system into a partial shift system supported by off-site specialists and cross-coverage of doctors in certain specialties;
- b) pooled medical staff to manage acute patients in EMWs according to established care pathways with a corresponding drop of repetitive activities in other specialties at night;
- c) protocol-based assessment of acutely admitted patients and response to clinical emergencies under the supportive work reform programme of enhanced senior nurse coverage at night;
- d) timely specialist intervention upon introduction of a common ward language to facilitate early detection of potentially critical patient conditions; and
- e) enhanced core competency of doctors in recognising, assessing and managing patients in critically ill and unstable conditions in both emerging and urgent situations through structured training in collaboration with different clusters and clinical specialties.

### **C. Quality Doctor Hours for Service and Training**

015 HA, as per the Steering Committee's recommendations, set in a corporate mechanism to monitor doctor work hour in a structured, broad-brush and prospective approach in 2009. Doctors' rostered hours of on-site work were monitored over a 26-week reporting cycle while off-site calls and called-back duties were also recognised as work in monitoring doctor work hour. Moreover, flexibility was allowed for clinical departments to adjust the duration of their daytime duty hours in the monthly call roster so as to reflect doctors' work patterns in the departments. The doctor work hour monitoring exercise was completed in 2009 with the support of a centrally-designed Doctor Work Hour Calculator; and a corporate Central Doctor Work Hour Monitoring System was developed to facilitate data submission and management reporting on doctor work hour.

016 HA made great strides in improving doctors' working conditions in the past years as a result of the pilot work reform programmes and the clinical departments' initiatives to revamp doctors' on-call arrangements and granting of protected rest time during doctors' on-site on-call duties. Doctors were thus able to deliver better patient care and acquire quality professional training in higher vigilance.

**a) Average Weekly Work Hours**

- i) The proportion of doctors working for more than 65 hours per week on average dropped from around 18% in September 2006 (involving around 900 doctors in 12 clinical specialties) to 4.8% by the end of December 2009 (involving 252 doctors in 10 clinical specialties). The proportion of doctors working for more than 70 hours per week on average also dropped from 10% to 1% in the same period.
- ii) The proportion of outliers (i.e. doctors working for more than 65 hours per week on average) in the rank of Medical Officer / Resident dropped from 24% to 7% whereas that of outlying senior doctors dropped from 3.6% to 0.6%.
- iii) The drop in the proportion of outliers was most significant in Neurosurgery (from 73% to 13%), Paediatrics (from 40% to 7%), Surgery (from 45% to 19%), Oncology (from 26% to 0%), Obstetrics & Gynaecology (from 40% to 18%) and Medicine (from 21% to 2%).

**b) Continuous Work Hours**

- i) The number of doctors undertaking on-site on-call duties for more than 24 hours at one go dropped from 340 in September 2006 to 244 and 221 on the snapshot holiday (July 1) and weekday (July 8) respectively in 2009.
- ii) The proportion of overnight on-site on-call doctors having post-call time-off the next day rose from 65% in 2006 to 85.2% and 82.4% on the snapshot holiday and weekday respectively in 2009.
- iii) The number of overnight on-site on-call doctors who did not have post-call time-off the next day dropped from 120 in September 2006 to 36 and 39 on the snapshot holiday and weekday respectively in 2009.

- 017 The Steering Committee was not entirely contented with the outcomes and recognised that the data, while not fully representing doctors' actual work hours including overtime beyond rostered hours and called-back hours unreported by the frontline doctors, furnished an index of their average working conditions in public hospitals. Given the limited scale of pilot work reform implementation and the various confounding factors that presented increasing workload and rising challenges to HA in the past years, like outbreak of human swine influenza and the financial tsunami, continued wastage of doctors in pressurised specialties as well as the corporate initiative to reduce untaken annual leave of all staff hence accrued financial balance towards the end of the year, the current outlying situation could be the best attainable outcome in the meantime. On the other hand, it was noted that the majority of overnight on-site on-call doctors who did not have post-call time-off the next day involved senior calls or less intense on-site workload at night. These on-call doctors should have more uninterrupted rest time during their on-site call and were more able to take longer hours of post-call work.
- 018 It was anticipated that, when the work reform strategies were rolled out to all hospital clusters, coupled with a rational increase in workforce for certain pressurised specialties, and pragmatic work arrangements were introduced to revamp doctors' on-call systems, the number of outliers should be further reduced in different clinical specialties and the entire organization should be able to fully attain the corporate work hour targets with corresponding improvements in both doctors' work-life balance and professional training. The quality of care and patient safety would also be enhanced in public hospitals. On the other hand, the Steering Committee was cognizant of the extra work and call duties performed by certain frontline doctors, especially those in the middle call layer in busy specialties, in order to attain the work hour targets. Their exemplary performance, professionalism and dedication were highly appreciated.
- 019 As far as doctors' training was concerned, the HKAM had expressed concerns over the work reform impacts on doctors' training. Although it supported rolling out the work reform strategies to all public hospitals and reiterated that limiting doctors' average weekly work hours to 65 should not have major impact on their

postgraduate medical training, a further reduction in the work hour target would in principle have long-term impacts. The Steering Committee was given to understand that the HKAM would take a more comprehensive approach and use simulation technology to enhance the quality of postgraduate medical education. Besides, HKAM had commissioned an internal working group to study the correlation between work hours and specialist training. It would define the core competencies of trainee doctors before conducting a cohort study to assess the long-term impacts of work reform on doctors' training. Consultations and surveys with fellows, trainees and trainers would also be conducted while a combination of competency and time-based training using simulation technology would be provided to ensure the quality of post-graduate medical education under HA's new work hour arrangements.

#### **KEY SUCCESS FACTORS TO IMPROVE WORK HOURS**

020 The Steering Committee had identified a number of key success factors to improve the working conditions of frontline doctors without compromising the quality of care and patient safety, namely, determined clinical leadership in changing doctors' existing on-call systems, launch of effective work reform strategies as well as frontline doctors' accommodation of new models of operation and care delivery. Upon review of the latest doctor work hour data, the Steering Committee also came up with the following recommendations in order to improve the outlying situation of doctors working beyond the cap of 65 hours per week on average in a pragmatic manner:

- a) For pressurised specialties with a relatively high level of staff wastage in recent years – the deficiency could be made up by robust staff retention strategies, revamping their on-call systems and prompt replacement of the vacancies
- b) For specialties where the work reform strategies might not fully address the prolonged work hour issues and the night-time activities could barely be reshuffled to the daytime (e.g. Paediatrics and Obstetrics & Gynaecology) – the deficiency could be made up by rationally deploying additional doctors and streamlining workflow and the care procedures so as to optimise workload

- c) For highly sub-specialised units that had grave patient safety concerns over reducing the number of on-site doctors at night (e.g. Cardiothoracic Surgery and Neurosurgery) - the deficiency could be made up by enhancing frontline doctors' core competency and launching crossover on-site on-call cover among specialties in the same service stream
- d) For other outlying specialties (e.g. Ear, Nose, Throat, Ophthalmology, Intensive Care Unit and Internal Medicine) – the deficiency could be made up by revamping doctors' on-call system and strengthening off-site specialist support for on-site on-call doctors.

## **CONFOUNDING FACTORS AND ISSUES OF CONCERN**

021 While commending the valuable efforts made by different clinical departments in piloting the work reform strategies and revamping their on-site on-call systems, the Steering Committee had also identified a number of factors that had crucial impacts on full attainment of the work hour targets in the entire organization and maximising the impacts of the work reform strategies at the reform sites in the pilot phase:

### **a) Socio-economic Factors**

- i) downturn of the global economy which brought forth greater reliance and more utilization of public hospital services, hence increased workload for clinical departments and frontline doctors but reduced difficulties in employing part-time private practitioners to support the hospital operation;
- ii) outbreak of the Human Swine Influenza (H1N1) in the local society since May 2009 which had pushed up emergency admissions, hence workload, to different specialties, in particular the medical wards; and
- iii) the Court of Final Appeal's judgment on doctors' claims, which ruled that doctors were entitled to a holiday on rest days and statutory / public holidays, including being off-site on call, would have impacts on the implementation of on-call systems in public hospitals on the said days.

021    **b) System Factors**

- i) delineated roles of acute tertiary hospitals in providing acute trauma as well as certain neurosurgical and obstetric operations, which made them less malleable to reshuffle their night-time activities to the extended day;
- ii) adequacy of day-time operating theatre capacity for elective procedures which drove Surgeons to take on the EOT sessions at night to perform semi-elective procedures; pre-existing set-up and inadequate provision of hospital beds in EMWs which had direct impacts on their efficacy in reducing both avoidable hospital admissions and workload in related clinical specialties at night;
- iii) extent of service networking for certain specialties and absence of a comprehensive treat-and-transfer mechanism among the cluster hospitals, thus lessening the efficiency in transferring patients between hospitals for managing complicated problems;
- iv) varied views as to the legality of extending the professional roles of trained non-medical staff in healthcare delivery, despite the increasing trend in overseas countries, thus limiting the scope of functions performed by the senior nurses and care technicians in the pilot hospitals;
- v) increasing wastage of professional staff under a booming private market in recent years which affected the sustainability of service targets and succession planning in delivering quality healthcare services;
- vi) shortage of medical graduates in the coming years which affected the manpower deployment to the pressurised specialties and the flexibility of refining the on-site on-call systems in different clinical departments; and
- vii) provision of core competency and refresher training which was essential for health carers to deliver safe care, proper patient assessment and management as well as mutual on-site on-call cover among specialties in the same service stream at night.

021 **c) Operational Factors**

- i) different modes of operation customised for local needs which rendered various degrees of success in launching the same work reform strategies at different pilot sites;
- ii) conventional work practice of frontline doctors, like certain surgeons performing elective operations at night, thus prolonging the work hours of on-site doctors; and
- iii) varied views among the frontline doctors and staff union representatives as to the scope and means of doctor work hour monitoring, like discount of statutory / public holidays from the recommended calculation formula, capture of rostered versus actual work hour, handling of off-site telemedicine in certain specialties, etc.

**d) Cultural Factors**

- i) collaboration among clinical specialties which affected the provision of fast-track care in a multi-disciplinary setting and their success in revamping doctors' work patterns with reduced on-site on-call frequency;
- ii) clinical leadership and determination which were vital to revamping the on-site on-call duty hence improving the working conditions and morale of frontline doctors in clinical departments; and
- iii) reservation of certain health carers to accept the enhanced roles of trained non-medical staff and certain doctors' reluctance to change their work practice and call systems as to reduce both their workload and work hour.

## **THE STEERING COMMITTEE'S RECOMMENDATIONS**

022 Following a thorough review of the pilot work reform strategies and other supportive work reform programmes, the Steering Committee put forward the following recommendations for HA's consideration:

## Rollout of Work Reform Strategies

### 023 A. Deployment of Doctors to Pressurised Areas

- a) HA was recommended to continue deploying additional doctors to the pressurised specialties with prolonged work hour issues via the established Resident Trainee allocation mechanisms and plan its workforce with reference to the competing service demands, supply of medical graduates, trainee admissions in different specialty colleges, manpower wastage, doctors' working conditions as well as service sustainability for the entire organization. This would even out the average workload of frontline doctors in different specialties and improve their working conditions and morale. Moreover, better and safer care could be delivered by more vigilant doctors in public hospitals. [Para 217 a]
- b) HA was recommended to continue exploring different means of collaboration with the private healthcare sector, developing Family Medicine Specialist Clinics and engaging in further public-private partnership programmes, in order to alleviate the workload in the public sector and ensure the quality of care and safety for public hospital patients. [Para 217 b]
- c) HA was recommended to continue rationalising its hospital services, streamlining work procedures, reviewing its manpower level and work arrangements, and fostering multi-disciplinary collaboration in care delivery in order to identify any possible room for optimising workload and improving doctors' working conditions in public hospitals. [Para 217 c]

**B. Re-engineering of Emergency Operating Theatre (“EOT”) Services**

- a) HA was recommended to re-engineer the EOT services in all acute public hospitals with 24-hour emergency services in order to clear the backlog emergency operations and optimise patients’ access to emergency services. Different modes of EOT services could be introduced after 22:00 hours to support emergency operations at night. In order to maximise the service outcome, additional funding, if any, should first be allocated to expand the EOT capacity of acute secondary hospitals in the extended day. [Para 319 a]
- b) HA was recommended to manage the issues of inadequate day-time operating theatre capacity in order to clear the backlog elective operations, avoid exploitation of EOT slots for non-emergency operations and reduce the night activities of surgeons and their work hours. [Para 319 b]
- c) HA was recommended to review the work practice and institute changes in the work practice in the surgical stream specialties in order to optimise the need for operation at night, improve patient safety by operating in the extended day and reduce the number of overnight on-site on-call doctors in public hospitals. [Para 319 c]
- d) HA was recommended to delineate the roles and service scopes of different hospitals, explore further room for service networking, formulate acute trauma and neurosurgical diversion mechanisms and develop protocol-based escort medicine service in all hospital clusters in order to ensure patient safety and support the treat-and-transfer arrangement. [Para 319 d]
- e) HA was recommended to explore the feasibility of providing general resident call coverage for patients who were physiologically unstable in the surgical stream specialties with reference to the global trend and the practice in the private healthcare market. [Para 319 e]

025 **C. Establishment of Emergency Medicine Wards (“EMWs”)**

- a) HA was recommended to adopt appropriate modes of emergency care for acutely admitted patients in accordance with the local situations and the pre-existing set-ups of different Accident and Emergency Departments. For those acute hospitals that had already set up their EMWs, HA was recommended to continue refining the service models in order to augment their impacts on reducing avoidable hospital admissions, alleviate the workload of clinical specialties and improve the quality and safety of emergency care. [Para 422 a]
- b) HA was recommended to address the critical issues of disproportionate hospital beds and system support, inadequate collaboration among the clinical specialties and the need for strengthened core competency training of EMW physicians in order to maximise the service outcome and synergise for greater success in providing quality emergency care for selected acute patient conditions. [Para 422 b]
- c) HA was recommended to expand the scope of community care in order to reduce avoidable admissions and enhance the service efficiency of public hospitals. [Para 422 c]

026 **D. Introduction of Care Technician Services**

- a) HA was recommended to extend round-the-clock care technician services to all acute hospitals in order to improve patient services and relieve doctors and nurses from mundane and repetitive technical tasks so that they might refocus on core clinical decision making and other professional duties. [Para 513 a]
- b) HA was recommended to regularly review the scope of functions of non-medical staff, provide appropriate competency and refresher training and conduct periodic safety reviews with reference to the prevailing practice in overseas countries and the local private market, in order to further alleviate the workload of healthcare professionals and ensure that safe and quality services were provided as in line with the evolving healthcare needs of the society. [Para 513 b]

## Improving the Quality of Care and Patient Safety

- 027 a) HA was recommended to enhance the professional and core competency of all nurses in acute care coordination, patient assessment, responsiveness and emergency stabilization through development of clinical protocols and regular training. The roles of other allied health professionals, where appropriate, could also be extended in order to relieve the workload of doctors and improve the healthcare services in public hospitals. [Para 638 a]
- b) HA was recommended to enhance the senior nurse coverage, supplemented by regular safety audits, so as to provide advanced, protocol-driven and competency-based nursing support for clinical departments in all acute hospitals at night. HA might look to the manpower supply and the peculiar situations in different hospitals and set up teams of senior nurses or gear up all night nurses to perform the enhanced functions. Both approaches could improve the continuity of care and patient safety while lessening frontline doctors' workload and ultimately their on-site on-call frequency and work hours. [Para 638 b]
- c) HA was recommended to extend the common ward language to all public hospitals as appropriate and establish a uniform approach of multi-disciplinary communication in the care process. A sound track-and-trigger system, supported by clear protocols and detailed guidelines, should be set up to ensure that deteriorating and potentially critical patient conditions could receive timely specialist intervention. Besides, regular compliance audits and user reviews should be conducted in order to build evidence of system efficacy and ensure that both doctors and patients could benefit from the work reform programme for reduced workload and safer service. [Para 638 c]
- d) HA was recommended to continue formulating, updating and promulgating both intra and inter-departmental clinical management protocols and electronic patient pathways which involved multi-disciplinary healthcare professionals, coupled with regular clinical audits and performance management, in order to optimise and improve care through teamwork. [Para 638 d]

- e) HA was recommended to clear with relevant professional bodies on the core competency of health carers in different disciplines and develop a framework to facilitate enhancing their scope of professional duties in delivering quality healthcare services. Continuous stakeholder communication and engagement would definitely smooth out the knotty issues. [Para 638 e]
- f) HA was recommended to integrate the electronic handover platform into the upcoming Clinical Management System (Version III) and extend its application to all clinical specialties and hospital clusters in order to facilitate structured and comprehensive handover of critically ill and unstable patients between shifts, ensure continuity and safety of patient care and strengthen clinical supervision during out-of-hours. A designated team should be identified to coordinate the system development and rollout arrangement. [Para 638 f]

### **Attaining Quality Doctor Hours for Service and Training**

- 028
- a) HA was recommended to continue monitoring doctors' working conditions in a structured, broad-brush and prospective approach and incorporate doctor work hour reported for different specialties as a key consideration in its workforce planning. A long-term doctor work hour monitoring mechanism was recommended to be set up with the following arrangements, and a designated team should be set up to coordinate the work hour monitoring exercise:
    - i) For departments that were yet to fully attain the 65-hour cap for all its doctors in 2009 and those having reported prolonged continuous work hours in the second reporting cycle in 2009, HA was recommended to review their work hour data every half year until the work hour targets were attained.
    - ii) For other clinical departments, HA was recommended to review their work hour data at an interval of 3 years. [Para 735 a]

- 028      b)      HA was recommended to apply appropriate means of operation and viable work patterns to various clinical specialties and hospital clusters in order to enhance the frontline doctors' work-life balance without compromising their training opportunities and the quality and safety of patient care. Pragmatic solutions should also be worked out for different clinical specialties in order to gradually attain the long-term targets of reducing doctors' continuous work hours to 16 on weekdays and 24 at weekends and holidays. In the interim, HA was recommended to grant post-call half-day time-off to doctors on overnight on-site on-call and arrange mutual-cover sleep time for 4 consecutive hours for those who were on overnight on-site on-call duty exceeding 24 hours, subject to adequate manpower, operational practicability and service sustainability. [Para 735 b]
- c)      HA was recommended to continue its efforts to reduce doctor work hour to a reasonable level and review clinical departments' manpower arrangements, instead of recompensing the outliers with time-off for work done in excess of 65 hours per week on average. HA was recommended to continue engaging different stakeholders in formulating viable solutions, balancing the need for granting day-offs for on-call duties against the need for up-keeping patient safety in public hospitals, and ensure that public money was properly used at all times. [Para 735 c]
- d)      HA was recommended to continue facilitating doctors' training, organising refresher courses in collaboration with different clusters and specialty colleges, and introducing various supportive modes of training in order to strengthen the core competency skill set of frontline doctors in acute care management under a multi-disciplinary setting. HA was also recommended to work closely with the HKAM in evaluating the work reform impacts on doctors' training in different specialties. [Para 638 g]

## Targeted Deployment of Resources

- 029 a) HA was recommended to prudently deploy its limited resources to pressurised areas, with due regard to equity, right incentive and sustainability of the work reform initiatives. Given a limited healthcare budget, coupled with the engulfing financial tsunami and the epidemic outbreak in the community, the demand for public healthcare services, hence service volume and workload, would definitely rise in the coming years. Resource utilization should therefore be prioritised for those programmes that had a greater potential for increasing the system efficiency, optimising workload, enhancing the quality of care and patient safety as well as improving staff morale. Meanwhile, HA was recommended to continually explore different ways to reconfigure its hospital services and rationalise its service provision for the ultimate benefits of patients and the society. [Para 810 a]
- b) HA was recommended to develop a sound and appropriate honorarium system, with due regard to affordability and sustainability concerns, in order to financially recognise doctors' excess work hours in a broad-brush and nominal approach. In this connection, an enhanced honorarium system using doctors' average weekly work hours to differentiate bandings of doctors in different call tiers, specialties and hospital settings should serve the purpose while not incentivising them to over-roster or self-generate overwork for more pay. On the other hand, HA might consider supplementing the enhanced honorarium system with the established special honorarium scheme in order to recognise frontline doctors' contribution to ad hoc clinical activities. [Para 810 b]

## The Way Forward

- 030 a) HA was recommended to keep the momentum of reform, roll out effective work reform strategies to other public hospitals in phases and continue its various service rationalization initiatives in order to improve doctors' work-life balance and ensure the quality of patient care, taking into account the "People First" culture, patient safety, prudent use of public money, rationality, operational practicability and service sustainability. [Para 904 a]

- 030    b)    HA was recommended to continue developing a flexible workforce with extended roles to meet the evolving healthcare needs of the society, reinforcing risk management through protocol-based care and technology-based pathways, as well as fostering teamwork among the healthcare professionals in order to deliver quality and safe care in public hospitals. [Para 904 b]
- c)    HA was recommended to extend its scope of community and ambulatory services with improved system support and expand its public-private partnership programmes in order to reduce avoidable admissions and workload in public hospitals and manage patients in a safer, more convenient and cost effective manner. [Para 904 c]
- d)    HA was recommended to keep track of doctors' working conditions and introduce pragmatic work arrangements in the light of different clinical specialties' readiness and operational practicability in order to gradually attain the continuous work hour targets of 16 hours on weekdays and 24 hours at weekends and holidays in the long run. [Para 904 d]
- e)    HA was recommended to keep in close liaison and communication with stakeholders at all levels in revamping its on-call systems while not compromising the quality and safety of patient care in public hospitals. Collaboration with the HKAM should also be continued in monitoring the effects of reduced work hours on doctors' specialist training. [Para 904 e]

*Steering Committee on Doctor Work Hour  
Hospital Authority  
February 2010*

**Key Outcomes of Pilot Programmes  
Doctor Work Reform, Hospital Authority**

**I. Overall Assessment of Doctor Work Reform Strategies**

<b>Work Reform Strategy</b>	<b>Quality Care</b>	<b>Enhanced Safety</b>	<b>Night-time Workload</b>
1. Deployment of Doctors to Pressurised Areas Services			
2. Re-engineering of Emergency Operating Theatre			
3. Establishment of Emergency Medicine Wards			
4. Introduction of Care Technician Services			
5. Core Competency Training of Doctors			
6. Enhanced Roles of Nurses			
7. Common Ward Language			
8. Electronic Handover System			

**1. Deployment of Doctors to Pressurised Areas**

(For All Pilot Reform Sites and Hospital Clusters)

- \$182 Mn injected from 2007/08 to 2009/10, supporting 348 new posts
- Net increase of 289 doctors from Jul 2007 to Jul 2009 in all clinical specialties, with 121 doctors deployed to the six pressurised clinical specialties with prolonged work hour issues
- 70 Resident Trainees allocated to pressurised clinical specialties for reform-related purposes in 2008/09 and 2009/10

**2. Re-engineering of Emergency Operating Theatre Services**

(Pilot Sites : Caritas Medical Centre, North District Hospital, United Christian Hospital and Yan Chai Hospital)

- Proportion of emergency operating time used at night, relative to the total EOT time used, reduced by 10% – 50% in the pilot hospitals
- More than 30% of the backlog operations cleared

### 3. Establishment of Emergency Medicine Wards

(Pilot Sites : Caritas Medical Centre, Pamela Youde Nethersole Eastern Hospital and Princess Margaret Hospital)

- Avoidable admissions to clinical specialties reduced by up to 19.67% (Medicine), 7.26% (Surgery) and 5.18% (Orthopaedics & Traumatology)

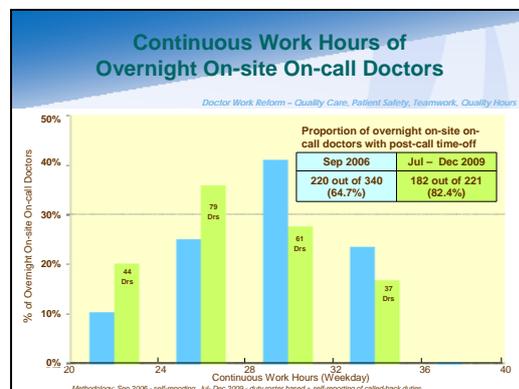
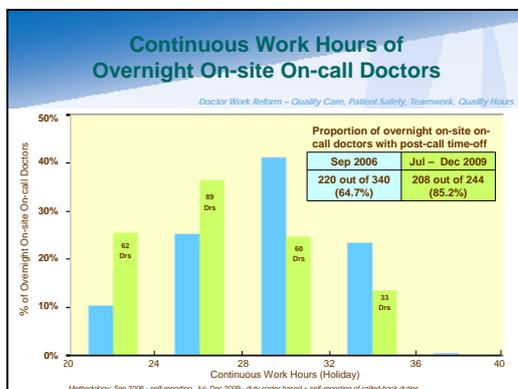
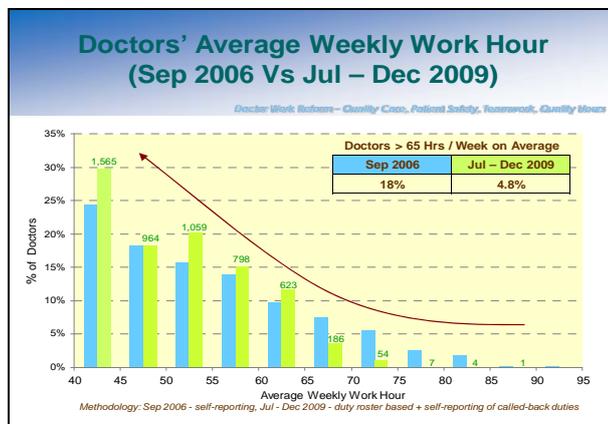
### 4. Introduction of Care Technician Services

(Pilot Sites : Alice Ho Miu Ling Nethersole Hospital, Caritas Medical Centre, Pamela Youde Nethersole Eastern Hospital, Princess Margaret Hospital, United Christian Hospital and Yan Chai Hospital)

- Estimated doctor work hours saved in 6 hospitals: 11,117 hours / month on average

## II. Improvements in Doctors' Working Conditions

	September 2006	July – December 2009
Doctors working for > 65 hrs/wk on average	18%	4.8%
Overnight on-site on-call doctors with post-call time-off the next day	65%	85.2% (Holiday) 82.4% (Weekday)



## 1. Average Weekly Work Hours > 65

Specialty	Sep 2006	Jul – Dec 2009
HA Overall	900 (Around 18%)	252 out of 5,261 (4.79%)
Neurosurgery	73%	12 out of 96 (12.5%)
Surgery	45%	90 out of 483 (18.63%)
Obstetrics & Gynaecology	40%	39 out of 218 (17.89%)
Paediatrics	40%	23 out of 329 (6.99%)
Orthopaedics & Traumatology	29%	51 out of 327 (15.6%)
Oncology	26%	0%
Cardiothoracic Surgery	22%	2 out of 36 (5.56%)
Internal Medicine	21%	19 out of 1,241 (1.53%)
Ear, Nose, Throat	16%	4 out of 82 (4.88%)
Ophthalmology	13%	10 out of 149 (6.71%)
Psychiatry	12%	0%
Intensive Care Unit	4%	2 out of 131 (1.53%)

\* Methodology: 2006 – retrospective self-reporting  
2009 – prospective & duty-roster based + self-reporting of called-back duties

## 2. Continuous Work Hours

(Proportion of overnight on-site on-call doctors with post-call time-off the next day)

Sep 2006	Jul – Dec 2009 (Holiday)	Jul – Dec 2009 (Weekday)
220 out of 340 (64.7%)	208 out of 244 (85.2%)	182 out of 221 (82.4%)

\* Methodology: 2006 – retrospective self-reporting; 2009 – prospective & duty-roster based

### **III. Quality Patient Care through Teamwork**

1. Improved access to emergency operations at daytime and proper care and management of patients in emergent and urgent conditions at night
2. Enhanced quality of care for short-stayed patients and reduced length of hospital stay in Emergency Medicine Wards
3. Timely care technician services and due patient assessment during out-of-hours
4. Better continuity of care for critically ill and unstable patients through the electronic handover system in a multi-disciplinary team
5. General improvement in hospital care by more vigilant and trained doctors resulting from a strengthened workforce, less intense workload and reduced work hours

### **IV. Risk Management for Enhanced Patient Safety**

1. Reduced doctors' on-call frequency through a partial shift system supported by off-site specialists and cross-coverage of doctors in certain specialties
2. Management of acute patients in Emergency Medicine Wards according to established care pathways
3. Protocol-based assessment of acutely admitted patients and coordinated response to clinical emergencies
4. Timely specialist intervention for potentially critical patient conditions detected through application of an integrated observation chart and a standardised communication tool
5. Enhanced core competency of doctors in recognising, assessing and managing patients in critically ill and unstable conditions in both emerging and urgent situations through structured training