Legislative Council Panel on Health Services

**Supplementary Information following
the Meeting on 10 February 2014**

At the Panel meeting on 10 February 2014 at which surgical outcomes management in the Hospital Authority (HA) was discussed, some Members asked for "the methodology used in, and the outcome of, HA's recent study on resources utilisation by its patient populations which had taken into account cross-cluster utilisation of hospital services, including a breakdown of the average resources utilised by each patient by hospital clusters". This notes provides the requested supplementary information.

HA's recent study on resources utilisation by its patient populations

2.   Assessing demand and resource utilization by its patient population in different clusters for public healthcare services is a complicated task.   While population data by the Census and Statistics Department (C&SD) residing in different districts is used as a starting point, HA also considers the following factors which could affect patient behavior when assessing the patients population and thus the actual demand for public healthcare services in individual clusters –

(a) The underlying differences in the demographic characteristics (age in particular) of the population residing in different districts will contribute to differences in incidence, pattern and prevalence of disease in different clusters;

(b) The varying socio-economic status of the residential population among districts will lead to different patient preference for public or private healthcare providers.   In other words, the proportion of residential population of the catchment districts of a cluster demanding public healthcare services may not be the same as that in another cluster;

(c)   The residential population data provided by C&SD does not fully reflect the daytime population[1].   Due to factors like education and work, population in a cluster fluctuates in different time periods and varies in different localities.   Such fluctuation can affect demand for healthcare services;

(d)   The target patient population of a cluster may also extend to residents outside its boundary due to referral to designated centres for centralized specialist services, spillover from neighbouring regions (geographical proximity to residential area or workplace), or patients' own preference.

3.   In order to calculate the throughputs and resource requirement of different clusters to enable meaningful comparison across clusters, HA has adopted the Diagnosis Related Group (DRG)[2] methodology as an estimation tool since 2009-10.   With this methodology, the acute inpatient workload is measured in terms of the number of episodes treated after adjusting for case complexity.   As the resources consumed in acute inpatient services represent consistently around 50% of the total resources consumed in each cluster, this complexity adjusted workload can serve as a good proxy to the total resource requirement across clusters.

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[1]   Daytime population refers to the number of people on top of the residential population, driven by different daytime activities, such as education, work, businesses and trade (financial and commercial districts, banks and convention / exhibition centres, etc.), shopping (malls and shops, markets, restaurants, etc.), recreation (parks, squares, museums, cultural and other tourist attractions, etc.), or in the process of transit from one destination to another.

[2]   The Diagnosis Related Groups (DRG) is an internationally-adopted casemix classification system originally developed by Professor R. Fetter and his colleagues at Yale University in the late 1960s. The DRG system classifies acute inpatient episodes into different groups based on the level of complexity of diagnosis or procedures performed, demographic characteristics of patients such as age and gender, complications and co-morbidities involved as well as their discharge status. The different groups of DRG can reflect patient's varying level of resource requirement which also serves as an analogy for providers' throughputs.

Resources by Hospital Clusters

4.   The result of HA's recent study on resource utilization by its patient population using the DRG methodology is shown in the following table –

	HKEC	HKWC	KCC	KEC	KWC	NTEC	NTWC	HA Total
Residential Population %[3]	11.3%	7.5%	7.1%	14.1%	26.6%	18.4%	15.1%	7.2M
Patient %[4]	11.0%	8.6%	13.3%	13.1%	24.4%	16.5%	13.0%	3.1M
Complexity-adjusted acute inpatient workload[5]	10.4%	12.8%	13.4%	11.0%	23.5%	16.7%	12.1%	1.5M
Recurrent Funding %[6]	11.0%	11.6%	13.9%	10.7%	23.2%	16.5%	13.2%	$44.4B[7]

The first two rows of the table show the percentages of population residing and patients treated in each cluster.   The last two rows of the table show the complexity-adjusted acute inpatient workload and percentage of HA's total funding allocated to each cluster.   The figures of the last two rows are largely comparable, illustrating the fact that HA's resource allocation to clusters largely follows patient services.

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[3]   Mid 2012 population (excluding marine population).

[4]   The summation of patients received care in all clusters in 2012-13 was 3.6M. The figure is greater than the total number of patient headcounts received care in HA (3.1M) as some patients received service from more than one cluster.

[5]   The figure is that measured in 2012-13 in Weighted Episode (WE), which is a measurement of acute inpatient workload in terms of the number of episodes treated after adjusting for case complexity using the DRG methodology.   For example, an episode of treating a patient with burns will consume 1 WE of resources whereas an episode of treating a patient with bone marrow transplantation will consume 14 WE.

[6]   The figure represents the cluster's share of HA's total recurrent funding for cluster for the year 2013-14.

[7] $44.4B was the total recurrent funding to HA in the 2013-14 Estimate.   Apart from allocations to clusters, this funding also covered corporate-wide centralised services.