

## Appendix 1

### Manpower planning

Manpower planning and estimation was carried out based on the objective of providing a comprehensive and seamless care for local patients who require Paediatric Endocrinology and Metabolism services as mentioned in the proposal. With this objective in mind,

- I) we reviewed the existing manpower situation in all Hospital Authority hospitals with Endocrinology and Metabolism services. Information was obtained from a voluntary reporting survey by paediatric colleagues with current involvement in Endocrinology and Metabolism and also from personal communication with the in charge Endocrine and Metabolism specialists within the respective HA hospitals. The result of this 'stock take' is summarized in Table 1.

**Table 1. Current manpower situation in HA hospitals with Endocrinology & Metabolism service**

| HA# Hospital | Specialists* in Endocrinology | Specialists* in Metabolism | Specialists* in both Endocrinology & Metabolism | Trainees in either Endocrinology or Metabolism | Total                 |
|--------------|-------------------------------|----------------------------|---|--|-----------------------|
| AHNH         | 1                             |                            |   |  | 1                     |
| CMC          | 1                             | 1 <sup>^</sup>             |   | 1  | 2 + 1 <sup>^</sup>    |
| KWH          |                               |                            | 1   | 1  | 2                     |
| PMH          |                               | 1 + 1 <sup>^</sup>         |   | 1  | 2 + 1 <sup>^</sup>    |
| PWH          | 2                             | 2                          |   | 2  | 6                     |
| PYNEH        | 3                             |                            |   |  | 3                     |
| QEH          |                               |                            | 3   | 1  | 4                     |
| QMH          |                               | 1 <sup>^</sup>             | 4.5   | 1  | 5.5 + 1 <sup>^</sup>  |
| TKOH         |                               |                            | 1   | 1  | 2                     |
| TMH          | 2                             | 2 + 1 <sup>^</sup>         |   | 1  | 5 + 1 <sup>^</sup>    |
| UCH          | 5                             |                            |   | 1  | 6                     |
| Total        | 14                            | 5 + 4 <sup>^</sup>         | 9.5   | 10   | 38.5 + 4 <sup>^</sup> |

#Alice Ho Miu Ling Nethersole Hospital (AHNH), Caritas Medical Centre (CMC), Kwong Wah Hospital (KWH), Princess Margaret Hospital (PMH), Prince of Wales Hospital (PMH), Pamela Youde Nethersole Eastern Hospital (PYNEH), Queen Elizabeth Hospital (QEH), Queen Mary Hospital (QMH), Tseung Kwan O Hospital (TKOH), Tuen Mun Hospital (TMH), United Christian Hospital (UCH)

\* Specialists are paediatricians who have fulfilled the criteria for admission as fellows of the Hong Kong College of Paediatricians and have involvement in Endocrinology and or Metabolism at their individual hospital

<sup>^</sup> Colleagues (Neurologists) providing neurometabolic services

On head count, there are 42.5 colleagues currently involved in Endocrinology and or Metabolism. Yet almost all of them are involved on a part time basis with variable degree of involvement as they also have clinical duties in other areas like General Paediatrics or another paediatric subspecialty. At the same time, the less complex endocrine and metabolic workload may have been shared out by other general paediatric colleagues within the different hospitals.

In the absence of a comprehensive patient data registry and non-uniform coding system for diagnosis and procedures among the different HA hospitals, estimating existing workload via the Clinical Data Analysis Reporting Systems (CDARS) was considered incomplete and thus inaccurate on reflecting existing workload.

- II) We also conducted an internet search on Endocrinology and Metabolism staffing in a number of established overseas centres in Australia, Singapore, England, Canada and USA. The results of this internet search are summarised in Table 2.

**Table 2. Medical staffing in Endocrinology and Metabolism at different overseas centres**

| Country<br>population*   | Hospital#                               | Endocrine<br>No. | Metabolic<br>No. | Website   |
|--|---|------------------|------------------|---|
| <b>Australia</b><br>NSW<br>(7.3 million)<br><br>Victoria/<br>Tasmania<br>(5.5 + 0.5 million)<br><br>Queensland<br>(4.5 million)<br><br>South<br>Australia<br>(1.6 million) | The Children's Hospital at Westmead     | 11               | 5                | <a href="http://www.chw.edu.au/">http://www.chw.edu.au/</a>                               |
|  | John Hunter Children's Hospital         | 3                | ?                | <a href="http://www.kaleidoscope.org.au">http://www.kaleidoscope.org.au</a>               |
|  | Sydney Children's Hospital              | 8                | 1                | <a href="http://www.sch.edu.au/">http://www.sch.edu.au/</a>                               |
|  | Royal Children's Hospital Melbourne     | 7                | 3                | <a href="http://www.rch.org.au/rch/home.cfm">http://www.rch.org.au/rch/home.cfm</a>       |
|  | Monash Children's Hospital              | 3                | ?                | <a href="http://www.monashchildrens.org.au/">http://www.monashchildrens.org.au/</a>       |
|  | Royal Children's Hospital Brisbane      | 3                | 2                | <a href="http://www.health.qld.gov.au/">http://www.health.qld.gov.au/</a>                 |
|  | Women's and Children's Hospital, Adel   | ?                | 4                | <a href="http://www.wch.sa.gov.au/">http://www.wch.sa.gov.au/</a>                         |
|  | Flinders Women & Children Hospital      | 5                | ?                | <a href="http://www.flinders.sa.gov.au/">http://www.flinders.sa.gov.au/</a>               |
| <b>Singapore</b><br>(5 million)  | KK Women's & Children Hospital          | 4                | ?                | <a href="http://www.kkh.com.sg/Pages/Home.aspx">http://www.kkh.com.sg/Pages/Home.aspx</a> |
|  | University Children's Medical Institute | 4                | 2 (genetics)     | <a href="http://www.nuh.com.sg/">http://www.nuh.com.sg/</a>                               |
| <b>England</b>   | Birmingham Children's                   | ?                | 4                | <a href="http://www.bch">http://www.bch</a>   |

|                            |   |                |                 |   |
|----------------------------|---|----------------|-----------------|---|
|                            | Hospital                                |                |                 | <a href="http://www.org.uk/">org.uk/</a>  |
|                            | Great Ormond Street Hospital            | 8              | 6               | <a href="http://www.gosh.nhs.uk/">http://www.gosh.nhs.uk/</a>                                     |
|                            | Royal Manchester Children's Hospital    | 6              | 3               | <a href="http://www.cmft.nhs.uk/">http://www.cmft.nhs.uk/</a>                                     |
| <b>Canada</b>              |   |                |                 |   |
| Toronto<br>(2.6 million)   | The Hospital for Sick Children          | 6              | 14 <sup>^</sup> | <a href="http://www.sickkids.ca/">http://www.sickkids.ca/</a>                                     |
| Vancouver<br>(0.6 million) | BC Children's Hospital                  | 9 (+5 fellows) | ?               | <a href="http://www.bcchildrens.ca/default.htm">http://www.bcchildrens.ca/default.htm</a>         |
| Montreal<br>(1.6 million)  | Montreal Children's Hospital            | 9              | 3               | <a href="http://www.thechildrenshospital.com/en/">http://www.thechildrenshospital.com/en/</a>     |
| Hamilton<br>(0.5 million)  | McMaster Children's Hospital            | 5              | 3 (genetics)    | <a href="http://www.mcmasterchildrenshospital.ca/">http://www.mcmasterchildrenshospital.ca/</a>   |
| <b>USA</b>                 |   |                |                 |   |
|                            | Children's Hospital Boston              | 35             | 8 + ?           | <a href="http://specialists.childrenshospital.org/">http://specialists.childrenshospital.org/</a> |
|                            | The Children's Hospital of Philadelphia | 19             | 5               | <a href="http://www.chop.edu/">http://www.chop.edu/</a>   |

\* Population data from Wikipedia

# These hospitals may not be the only paediatric units that provide specialty services in the regions

<sup>^</sup> Both clinical and metabolic geneticists

? Data not available via internet

We understand that there are a lot of limitations with information obtained this way as direct head to head comparison with any other institution is impossible. There could be great variation in case-mix and complexity owing to ethnic differences, especially for metabolic diseases. This exercise enabled us to gauge and compare the staffing situation of the institutions whose services are more familiar to local colleagues.

- III) Existing well established overseas service models with published guidelines in United Kingdom and Australia were reviewed in further details.

*Endocrinology service (ES)*

From the United Kingdom model with reference to recommendation by the British Society for Paediatric Endocrinology and Diabetes, one full time paediatric endocrinologist per one million of the population was advocated. This individual provided services in both tertiary and regional settings. Where research was a key

component of the appointment, the maximum clinical service commitment was adjusted to be 0.6 Full Time Equivalents (FTE). Thus the final figure after taking all these into consideration was one endocrinologist per 600,000 population headcount. The UK model also recommended one endocrinologist to serve 100- 150 diabetes mellitus and 20 – 30 congenital hypothyroidism patients in regional hospitals settings. ([http://www.bsped.org.uk/training/syllabus/requirements/training\\_eurosyllabus\\_accr\\_editation.html](http://www.bsped.org.uk/training/syllabus/requirements/training_eurosyllabus_accr_editation.html)). Applying these figures to the Hong Kong setting, 12 FTE Paediatric endocrinologists at CEP and 4-5 part time endocrinologists at regional centres would be recommended.

From the Australian model, information was based on a manpower survey by the Australasian Paediatric Endocrine Group (APEG) that was undertaken in 2011 and personal communication with Professor George Werther, Director of the Department of Endocrinology and Diabetes and Centre for Hormone Research at the Royal Children's Hospital and Murdoch Children's Research Institute Victoria Australia (letter attached). The survey revealed that there were 35 endocrinologists (FTE) serving a population of 22 million people. Hence, for a population of ~7.3 million in HK, it would be ~12 FTE endocrinologists.

Another way to estimate manpower is to compare just to Melbourne (population~4 million) and Sydney (population ~4.5 million). Data showed that there were 8-12 effective full-time endocrinologists working in each city. These endocrinologists also provided an outreach service covering an additional one million population outside the city. Taking 12 as a more ideal staffing number, for the current HK population of 7.3 million, an estimate of 16 FTE endocrinologists will be needed.

#### *Metabolic service (MS)*

As metabolic service in a number of overseas centres is included under genetic services, information on manpower for metabolic services alone is less easy to access. Taking reference from the metabolic service at The Children's Hospital at Westmead which is serving a similar population of ~7 million in New South Wales Australia, their number of full time metabolic paediatricians is ~4-5. The number of FTE metabolic paediatricians in Melbourne serving a population of ~5.5 million is ~3.

Summarising the above I, II and III sources of information and taking into account the relative lower prevalence of Type 1 diabetes mellitus in HK when compared to UK and Australia, we would like to propose 10 FTE endocrinologists and 4-5 FTE metabolic paediatricians serving in the future CEP. An additional 4-5 part-time endocrinologists will provide mainly endocrine services and to a lesser extent metabolic services in the regional hospitals. Part time appointments at CEP and vice versa at regional hospitals will facilitate close collaboration and continuous professional development between

staff working at the CEP and regional hospitals. Under HA system, the employment rank of a full-time endocrinologist / metabolic paediatrician is equivalent to Associate Consultant or above.

## Letter from Professor George Werther

Sent: Thursday, March 01, 2012 8:07 AM

To: Kiran Belaramani; Betty BUT, QEH CON(PAED)

Subject: RE: Kiran from Hong Kong

Dear Kiran and Betty,

Good to hear from both of you.

We undertook a manpower survey through APEG last year, which will give you some indication.

The results are attached. There may be some discrepancy in the full-time versus part-time components, but I would assume that the numbers in Question 4 (which is the critical bit for you, notwithstanding the projected numbers in Question 6 - some being ambit claims).

In Question 4, each centre indicated current staffing and then tried to project future requirements in Question 6.

Of course, Australia's geography is very different to HK, with 22 million people spread over a land mass similar to the US.

On the other hand, most of our population is in the large cities (2009 and 2010), and the remaining 3 million not shown in small towns:

|    |                                     |   |           |           |
|----|-------------------------------------|---|-----------|-----------|
| 1  | <a href="#">Sydney</a>              | <a href="#">New South Wales</a>                               | 4,504,469 | 4,575,532 |
| 2  | <a href="#">Melbourne</a>           | <a href="#">Victoria</a>                                      | 3,995,537 | 4,077,036 |
| 3  | <a href="#">Brisbane</a>            | <a href="#">Queensland</a>                                    | 2,004,262 | 2,043,185 |
| 4  | <a href="#">Perth</a>               | <a href="#">Western Australia</a>                             | 1,658,992 | 1,696,065 |
| 5  | <a href="#">Adelaide</a>            | <a href="#">South Australia</a>                               | 1,187,466 | 1,203,186 |
| 6  | <a href="#">Gold Coast-Tweed</a>    | Queensland/New South Wales                                    | 577,977   | 591,473   |
| 7  | <a href="#">Newcastle</a>           | New South Wales   | 540,796   | 546,788   |
| 8  | <a href="#">Canberra-Queanbeyan</a> | <a href="#">Australian Capital Territory</a> /New South Wales | 403,118   | 410,419   |
| *  | <a href="#">Canberra</a>            | Australian Capital Territory <sup>[4]</sup>                   | 351,868   | 358,600   |
| 9  | <a href="#">Wollongong</a>          | New South Wales   | 288,984   | 292,190   |
| 10 | <a href="#">Sunshine Coast</a>      | Queensland  | 245,309   | 251,081   |
| 11 | Greater <a href="#">Hobart</a>      | <a href="#">Tasmania</a>                                      | 212,019   | 214,705   |
| 12 | <a href="#">Geelong</a>             | Victoria  | 175,803   | 178,650   |
| 13 | <a href="#">Townsville</a>          | Queensland  | 168,402   | 172,316   |
| 14 | <a href="#">Cairns</a>              | Queensland  | 147,118   | 150,920   |
| 15 | <a href="#">Toowoomba</a>           | Queensland  | 128,600   | 131,258   |
| 16 | <a href="#">Darwin</a>              | <a href="#">Northern Territory</a>                            | 124,760   | 127,532   |
| 17 | <a href="#">Launceston</a>          | Tasmania  | 105,445   | 106,153   |
| 18 | <a href="#">Albury-Wodonga</a>      | New South Wales/Victoria                                      | 104,609   | 106,052   |
| 19 | <a href="#">Ballarat</a>            | Victoria  | 94,088    | 96,097    |
| 20 | <a href="#">Bendigo</a>             | Victoria  | 89,995    | 91,713    |

The first eight on the list (covering about 15 million people) have dedicated paediatric endocrine units (except for #6, covered by Brisbane), and the smaller towns in the large states, especially WA, SA, NSW, QLD and Vic all have outreach services from the capitals.

I would guess that HK requirements would therefore be about 40% of our total requirements (of 35 EFT), based on your population and compressed geography. This would be about 14 EFT (about 50-70% full time)

Another way to look at it is to compare just to Melbourne or Sydney, with populations each just over half of Hong Kong. We have 8-12 effective full time positions in each city (in both cases about two thirds are full time and one third part-time). Remember that in both states we also do outreach, so we cover more than the populations of the cities, so add another 1 million to each city - say 5.5 million covered. If we consider 12 ideal for 5.5 million people, then for Hong Kong I would imagine about 16-18 EFT would be about right for Hong Kong.

Obviously this needs much more detailed analysis on the specific conditions, needs, research and admin and teaching time etc.

I hope this is helpful.

Regards

George

Professor George Werther

Director, Department of Endocrinology and Diabetes and Centre for Hormone Research,

Royal Children's Hospital and Murdoch Childrens Research Institute,

Flemington Rd.,

Parkville., Victoria 3052

Australia

Email: [george.werther@rch.org.au](mailto:george.werther@rch.org.au)

Tel +61 3 9345-5951

Fax + 61 3 9347-7763