

# Subspecialty Training Programme on Paediatric Endocrinology



September 2016

# Paediatric Endocrinology

- Paediatric Endocrinology has been practised in HK for more than 30 years.
- Besides endocrine problems and diabetes mellitus, a number of paediatric endocrinologists also take care of patients with inborn error of metabolism (IEM).

- A proposal on Paediatric Endocrinology and Metabolic Medicine has been submitted in March 2013.
- Meeting with committee for subspecialty boards of the HKCPaed in Oct 2015, IEM as a training module in the Subspecialty of Paediatric Endocrinology was suggested.

# Structure

- 3-year full time training programme.
- At least 30 months of clinical training.
- At least 24 months of core clinical training in Endocrinology.
- 6 months of highly recommended optional clinical training in IEM.

# Core-clinical training

- A minimum of 3 sessions of outpatient clinics per week including endocrinology, diabetes and metabolic medicine together with clinical meetings such as X-ray meetings, case discussions, journal club.
- Inpatient care, peri-operative management of pituitary, thyroid, adrenal and other endocrine diseases, acute management of metabolic decompensation, consultations, daily ward rounds and on emergency call duties.

- Preferrably 6 months of training in an overseas institution.
- Practical experience in an endocrine and metabolic laboratory *is highly desirable*.
- Some outpatient experience in an adult endocrine unit (e.g. a weekly clinic for 3- 6 months) is desirable.

- Research relevant to endocrinology may be accredited for a maximum of 3-6 months\*
- Qualification of a postgraduate diploma or degree may be accredited for a maximum of 6 months\*
- Encouraged to undertake endocrine-related educational activities during period of non-clinical training.

\*Subject to approval by the Subspecialty Board

# Syllabus

## 1. Endocrine disorders

- Disorders of growth and development
- Disorders of thyroid gland & thyroid metabolism
- Disorders of the adrenal gland
- Disorders of the pituitary and hypothalamus
- Disorders of sexual development
- Disorders of the reproductive system
- Disorders of bone and mineral metabolism
- Follow up of adverse endocrine effects of childhood malignancy



## 2. Diabetes and related disorders

- Type 1 diabetes mellitus
- Type 2 diabetes mellitus
- Other types of diabetes
- Obesity and metabolic syndrome
- Lipid disorders

### 3. Optional module on IEM (highly recommended)

- Disorders of aminoacid and peptide metabolism
- Disorders of organic acid metabolism
- Hyperammonaemia and UCD
- Disorders of carbohydrate metabolism
- Disorders of fatty acid oxidation
- Disorders of ketone body metabolism
- Lysosomal storage disease
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*Not expected to have in-depth knowledge of all IEM but should be aware of the pathophysiology, presentation, investigation, NBS and principles of treatment*

# Assessment and Exit Exam

- The logbook
- 2 presentations are required.
- Actively participate and provide evidence of participation in at least one audit project.
- 2 dissertations on scientific papers for assessment of which at least one is accepted for publication in an international or local journal upon completion of subspecialty training.
- Assessment: oral

# Requirements of Training Institution

- A training centre can be a single institution or a group of related establishments with each component considered as a unit.
- The Subspecialty Board will determine the duration of subspecialty training accredited to a unit which is dependent on the clinical activity load, case mix, allied health and other support and the number of accredited subspecialty trainers working in that unit.

- The centre must have easy access and close relationships with other relevant specialists.
- Supportive service provided by dietitians, diabetic nurse educators, podiatrists, social workers, psychologists and others.
- Provide in-service and continuing medical education / continuing professional development including audits.
- Evidence of ongoing clinical research.

- A trainer can supervise no more than two trainees either in the Subspecialty Training Programme or in the Higher Training Programme in Paediatrics at any one time.
- A subspecialty trainee should receive supervised training in at least two but not more than four accredited training centres.
- An individual trainee should be under the supervision of at least 2 accredited trainers.
- Accreditation of training centres will be undertaken every 5 years.

# Number of Training Centres: Benchmark with other countries

	Population (2011)	Training Centre	HK (7.2M in 2013)
England	53M	18	(2)-3
Australia	22M	8	(2)-3

Proposed 4-5

## A) Endocrinology:

Manpower requirement as benchmark with overseas

Country	Recommendation	FTE for HK
UK	1 for 500,000	15
Australia	55 for 24 million (2016)	16-17
USA	11 for 1 million of US population age < 18 years	19
<b>HK</b>	<b>Population 7.2 million (2013)</b> <b>1.7 million of population age &lt; 18 years</b>	<b>15-19</b>



# Manpower estimate in HK

- 21-23 fellows could be qualified as First Fellow
- 6 have retired or will retire in coming 3 years
- 8-11 trainees need to be trained in coming 10 years

# Proposed Service Model and Manpower Estimation

HKCH

## Service area/ Sub-specialty Name:

- **Paediatric Endocrinology and Metabolism**

## Membership:

- Dr Elaine KWAN, PYNPAE CON
- Dr Grace POON, AC(Paed), QMH
- Dr Pik To CHEUNG, HKU Sr. Lect(PAE)
- Dr Betty BUT, QEH CON(PAED)
- Dr Ming Kut Tay, TKOH
- Dr Kwok Leung NG, UCHC AC(P&AM)
- Dr C Y LEE, CMC/OLMH COS(PED&ADOL)
- Dr Yuen Yu LAM, KWH Deputy COS(PAD)
- Dr Eric KC YAU, PMH AC(Paed&AM)
- Dr Wai Chun WONG, AHNHP&AM Asso Cons(P&AM)
- Prof Gary Wing Kin WONG, PWHPAED Prof(PAED)
- Dr Joannie HUI, PWHPAED SMO(PAED)
- Dr L M WONG, TMH Asso Cons(PAED&AM)

## Deliberation Process:

<b>Prior discussion in Meetings</b>	<b>Date</b>	<b>Outcome</b>
• Clinical Work Group Representatives Meeting	1 Apr 2015	TBC
• Meeting of WG on Paed Service Model	23 June 2015	TBC
• Clinical Management Committee (CMC)	<i>Pending arrangement</i>	TBC
• Work Group on Manpower & Training	<i>Pending arrangement</i>	TBC
• Planning & Commissioning Committee (PCC)	<i>Pending arrangement</i>	TBC

## Existing service arrangement

- Endocrine services are currently provided to a variable extent in all HA hospitals within paediatrics departments. There is currently no established network for referral/management of tertiary and complex cases.
- There is no full-time practice in the subspecialty, majority of the staffs have to cover general paediatrics duties as well.
- A phased approach would be adopted for the provision of endocrine services in the Hong Kong Children Hospital (HKCH)
- To ensure the implementation of the “hub and spoke” service model and for optimal health service delivery, a dedicated endocrine team should be established as soon as possible.
- Those working in HKCH and regional hospitals should work as a team. Rotation between full-time endocrinologists at HKCH and part-time endocrinologists at regional hospitals is recommended.

## Existing caseload:



Microsoft Excel  
工作表

OPD	2011		2012		2013		2014	
	New	Attendance	New	Attendance	New	Attendance	New#	Attendance
PE	1313	18176	1319	18226	1301	17993	1510	18538
DM	62	1775	44	1775	34	1743	100	1789
IEM	53	529	61	624	90	764	98	872
Total	1428	20480	1424	20625	1425	20500	1708	21199

PE= Paed Endocrine. New= New to Paed Specialty. New# = New to the sub-specialized clinic

Case mix	Headcount 2013	Headcount 2014	Special procedure/treatment	Number 2013	Number 2014
Simple*	5368	6376	Endocrine Procedure	1943	2170
Secondary	2301	2732	GH treatment	229	252
Shared	2146	1431	GnRH treatment	85	96
HKCH	1872	2469			
DM	694	833			
Total	12381	13841			



Microsoft Excel  
工作表

\*Simple: to be cared by General Paediatricians mainly

## Proposed service arrangement upon HKCH service commencement

Hospital	Scope of Services
<b>HKCH (Initial phase)</b>	<p><b>1. Endocrine Service to support other subspecialties at HKCH in the initial phase</b></p> <ul style="list-style-type: none"><li>• Provide inpatient consultations and subsequent management and follow up in out-patient clinic for endocrine conditions in haematology &amp; oncology , nephrology, cardiology, PICU, NICU and surgical patients</li></ul>

## Proposed service arrangement upon HKCH service commencement

Hospital	Scope of Services
HKCH	<p><b>2. Diabetic and related Service</b></p> <ul style="list-style-type: none"><li>✓ Shared care model with regional hospitals</li></ul> <p><b>2.1 Patients with Type 1 Diabetes Mellitus</b></p> <ul style="list-style-type: none"><li>✓ Neonatal diabetes and other Monogenic diabetes (eg DIDMOAD)</li><li>✓ On insulin pump</li><li>✓ Co-existing autoimmune diseases (excluding well controlled thyroid diseases)</li><li>✓ And eating disorders with unstable DM control</li><li>✓ With diabetic complications (excluding intermittent microalbuminuria)</li><li>✓ Poorly controlled diabetes with<ul style="list-style-type: none"><li>- HbA1c &gt; 10% for over 1 year OR</li><li>- Recurrent DKA (&gt; 1 DKA/year in the past 2 years) OR</li><li>- Recurrent severe hypoglycemic episodes (&gt; 1 severe hypoglycemic episodes/year in the past 2 years)</li></ul></li><li>✓ Patient's or doctor's choice</li></ul>

## Proposed service arrangement upon HKCH service commencement

Hospital	Scope of Services
HKCH	<p><b>2.2 Patients with Type 2 Diabetes</b></p> <ul style="list-style-type: none"><li>✓ Presenting with HHS</li><li>✓ Presenting with DKA</li><li>✓ And other obesity related problems including hypertension, dyslipidaemia, OSAS, PCOS or fatty liver</li><li>✓ With diabetic complications</li><li>✓ Requiring long term insulin treatment</li><li>✓ Persistent HbA1c &gt; 9% for over 1 year</li><li>✓ Considering bariatric surgery</li><li>✓ Morbid obesity</li><li>✓ Patient's or doctor's choice</li></ul>



## Proposed service arrangement upon HKCH service commencement

Hospital	Scope of Services
HKCH	<p><b>2.3 Services provided by CH Team</b></p> <ul style="list-style-type: none"><li>✓ <b>DM education and dietetic services</b></li><li>✓ <b>Psychological and social support including Clinical Psychologist services, Patient and Parent Support Groups</b></li><li>✓ <b>Out-reach community services to schools (by educators)</b></li><li>✓ <b>24 hour DM hotline for patients and doctors</b></li><li>✓ <b>Need for Continuous Glucose Monitoring System (CGMS)</b></li><li>✓ <b>E platform and DM resource library for patients and professionals</b></li><li>✓ <b>DM complication screening program (which includes evaluation of DM control and DM education)</b></li><li>✓ <b>Transition care program</b></li></ul>

## Proposed service arrangement upon HKCH service commencement

Hospital	Scope of Services
<b>HKCH (Initial phase)</b>	<ul style="list-style-type: none"><li>✓ Professional training and research</li><li>✓ Development of common management protocols, shared care programs and guidelines</li><li>✓ Professional consultations</li><li>✓ +/- Outreach services (~once per month for DM educators and dietitians)</li></ul>

# Proposed service arrangement upon HKCH service commencement

Hospital	Scope of Services
HKCH	<p><i>Patient journey for newly diagnosed Type 1 patients presenting with DKA</i></p> <pre> graph TD     subgraph Path1 [Hospitals with PICU]         A[Hospitals with PICU] --&gt; B[Initial stabilization in PICU]         B -- Inform/Consult CH --&gt; C[To CH when stable]     end     subgraph Path2 [Hospitals without PICU]         D[Hospitals without PICU] --&gt; E[Initial stabilization in AED/General Ward]         E -- Inform/Consult CH --&gt; F[Urgent transfer to CH]     end     C --&gt; G[Initiate insulin regimen, DM Education, Introduction to community network]     F --&gt; G     G -- Discharge --&gt; H[Insulin titration and continued education through DM hotline in CH]     H --&gt; I[Discharge to Regional Team with Structured Discharge Program]     I --&gt; J[Refer back to CH for annual complication screening and whenever necessary]     </pre>

## Proposed service arrangement upon HKCH service commencement

Hospital	Scope of Services
<b>Regional hospitals</b> <b>(Initial phase)</b>	<ul style="list-style-type: none"><li>• Rare/complex endocrine diseases before transfer to HKCH in the ultimate model</li><li>• Shared care with HKCH</li><li>• Secondary and step-down care</li></ul>

## Ultimate Service Model- Hub and Spoke

Hospital	Scope of Services
<b>HKCH</b> <b>(ultimate)</b>	<ul style="list-style-type: none"><li>• Tertiary centre for management of rare/complex cases and cases requiring surgical intervention, molecular laboratory support or multidisciplinary management</li><li>• Shared care in which endocrine Team in CH will take up the major roles in<ol style="list-style-type: none"><li>1) diagnostic work-up of difficult cases,</li><li>2) formulation and initiation of treatment plan for disorders with rare, complicated or expensive treatment, and</li><li>3) provision of regular comprehensive review and complication screening</li></ol></li><li>• Training &amp; research centre</li></ul>
<b>Regional hospitals</b> <b>(ultimate)</b>	<ul style="list-style-type: none"><li>• Shared care service</li><li>• secondary and step-down care</li><li>• Training centres in accredited hospitals</li></ul>

## Hub and Spoke Service Model

## **Service areas requiring collaboration and planning with other sub/-specialties**

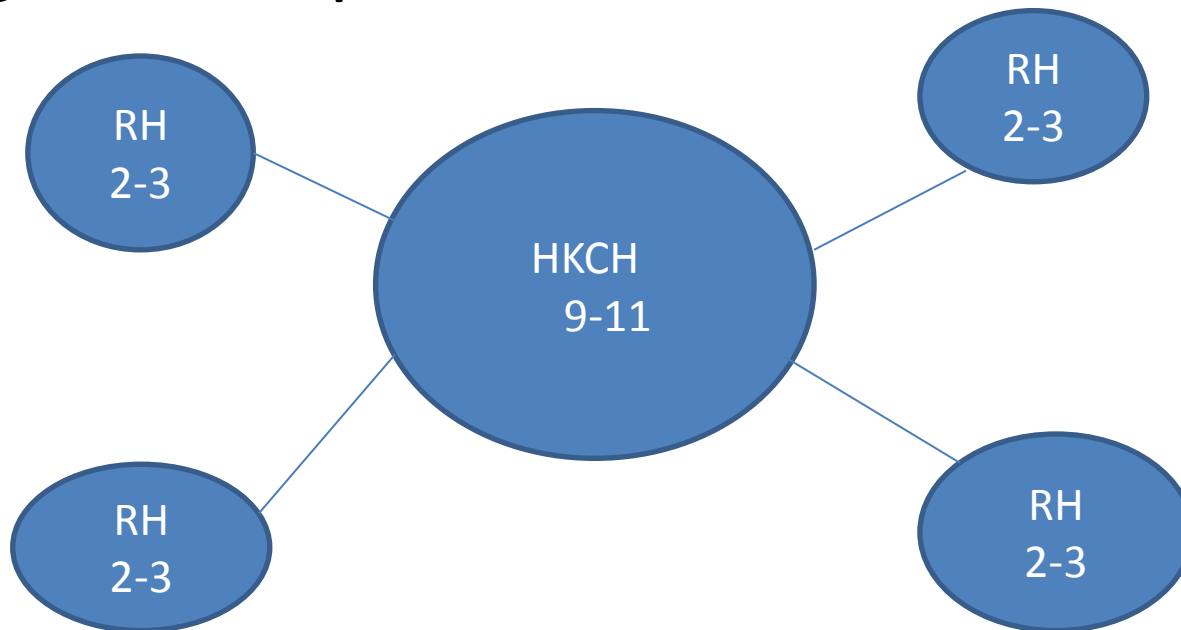
- Complex endocrine diseases often requires multi-disciplinary care including paediatricians, genetists, surgeons, dietitians, DM nurse educators, genetic counselors, clinical psychologists and physiotherapists
- Chemical Pathology and molecular laboratory: specialized diagnostic biochemical and molecular genetic tests
- Clinical Genetic Service/ Genetists: For diagnosis, family screening, counseling and prenatal diagnosis
- Surgery: complex endocrine diseases require surgery
- Dietitians
- Nurses including DM nurse educators and genetic counselors
- Physiotherapists

## **Anticipated additional workload**

- More referral from regional hospitals and private sectors for rare/complex endocrine diseases, working towards the ultimate service model
- Consultations including phone call from HKCH, regional hospitals and private sectors
- Workload from increasing prevalence in DM especially T2DM (16.6% over 4 years) and metabolic syndrome associated with obesity
- More workloads to fill up the service gaps such as medical advances in DM (insulin pump, CGMS) and Endocrine Genetics
- Provide professional training
- Research including registry
- Collaboration with patients support groups
- Transition care

# Hob and Spoke (ultimate service model)

- 9-11 FTE in HKCH
- 8-12= 2-3 (trainers) x 4 (training centres) in regional hospitals





## Manpower Planning for HKCH Commissioning

	Requirement for HKCH in <b>initial phase</b>	Requirement for HKCH in the <b>ultimate service model</b>
<b>CON</b>	<b>2</b>	<b>3-4</b>
<b>AC</b>	<b>2-3</b>	<b>6-7</b>
<b>RS/RT</b>	<b>*4 -6</b>	<b>*4 -6</b>
<b>TOTAL</b>	<b>8-11</b>	<b>13-17</b>

\* Residential call to be shared with General Paed and other subspecialties

8-12 Part-time Paediatric Endocrinologists in Regional Hospitals in the ultimate service model

\*\*Manpower based on UK model

Rotation between full-time endocrinologists at HKCH and part-time endocrinologists at regional hospitals is recommended.

## Training Plan for HKCH Commissioning

	2016/17	2017/18
<b>Training Areas</b>	<ul style="list-style-type: none"> <li>• Type 1 &amp; 2 diabetes, monogenic diabetes, obesity/metabolic syndrome and lipid disorders</li> <li>• Hypopituitarism</li> <li>• Endocrine late effects of childhood cancer survivors</li> </ul>	<ul style="list-style-type: none"> <li>• Calcium and bone health</li> <li>• Disorders of Sex Development and adrenal problems</li> <li>• Inborn errors of metabolism</li> </ul>
<b>No. &amp; Rank of Staff Trained/ to be Trained</b>	<ul style="list-style-type: none"> <li>• <b>2-4 Fellows</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>2 -4 Fellows</b></li> </ul>
<b>Proposed Overseas Training Institution(s)</b>	<ul style="list-style-type: none"> <li>• University of Colorado School of Medicine, Colorado USA or UK or North America or Australia (eg GOSH, BCCH, RCH Melbourne)</li> </ul>	<ul style="list-style-type: none"> <li>• UK, North America or Australia (eg GOSH, BCCH, RCH Melbourne)</li> </ul>
<b>Training Duration &amp; Mode</b>	<ul style="list-style-type: none"> <li>• 6 months -1 year</li> </ul>	<ul style="list-style-type: none"> <li>• 6 months - 1 year</li> </ul>

11-12 RS/RT indicate training need

Thank you

